drishti

Current Affairs
(CONSOLIDATION)

JULY 2023
(PART – II)

Contents

Polity and Governance

Highlights

- *India Shares INDIA STACK with Papua New Guinea*
- *Jan Vishwas (Amendment of Provisions) Bill, 2023*
- *PM-DevINE Scheme*
- *Welfare Schemes for the Minority Communities*
- *Cyber Crime*
- *Suspension of MPs from Parliament*
- *Fame India Phase-II*
- *Motions in Parliament*
- *Rajasthan Platform-Based Gig Workers (Registration and Welfare) Bill, 2023*
- *Transforming Cantonment Towns*
- *Review of Methodology of National Surveys*
- *Zero FIR*
- *Concerns Related to Scientific Publishing*
- *PM-KUSUM*
- *India Energy Security Scenarios 2047 V3.0*
- *Roadmap of Solar Energy for Universal Energy Access*
- *Intellectual Property Rights Policy Management Framework*
- *RS Chairman Nominates 4 Women MPs to the Panel of Vice-Chairperson*
- *NITI Aayog Unveils TCRM Matrix Framework*
- *Amended Rules Relating to Retirement Benefits of IAS, IPS, IFOS Pensioners*
- *Rajasthan Minimum Guaranteed Income Bill, 2023*
- *Overview of Indian Nursing Colleges*
- *Export Preparedness Index 2022*
- *World Youth Skills Day: Namda Art, AI for India 2.0*
- *Ensuring Child Welfare and Support: Mission Vatsalya Scheme*

India Shares INDIA STACK with Papua New Guinea

Why in News?

Recently, the **Ministry of Electronics and Information Technology (MeitY) of India** and the **Ministry of Information and Communication Technology (MICT) of Papua New Guinea** have taken a significant step towards digital transformation by signing a **Memorandum of Understanding (MoU) to share India Stack.**

➤ Earlier in June 2023, India had already signed MoUs with four countries namely **Armenia, Sierra Leone, Suriname, and Antigua & Barbuda** to share India Stack, showcasing the growing interest and acceptance of the initiative on a global scale.

What are the key highlights of the MoU between India and Papua New Guinea?

➤ The MoU facilitates the sharing of India Stack, to support identity, data, and payment services on a large scale.

➤ The MoU focuses on the **implementation of population-scale Digital Public Infrastructure** and **Transformational Platforms/projects** to improve **living standards and governance efficiency.**

➤ The collaboration seeks to **strengthen digital identity systems and digital payment mechanisms** for seamless transactions.

What is India Stack?

➤ India Stack is a **set of APIs (Application programming interface)** that allows governments, businesses, startups, and developers to utilize a unique **digital Infrastructure** to solve India's hard problems towards **presence-less, paperless, and cashless service delivery.**

➤ India Stack is a **government-led initiative** that focuses on building a **robust digital infrastructure** to enable various **digital services across different sectors.**

○ The components of this collection are owned and maintained by different agencies.

➤ INDIA STACK aims to streamline and enhance **identity verification, data exchange, and digital payment processes** to make them more accessible and efficient for citizens.

➤ It includes **digital public goods,** which are digital resources and tools made available to the public to support various digital services and initiatives.

➤ The key components of INDIA STACK include **Aadhaar (unique biometric-based identification system), Unified Payments Interface (UPI) for instant digital payments, and Digital Locker for secure storage of personal documents.**

Note:

➢ The vision of India Stack is **not limited to one country (India)**; it can be applied to any nation, be it a developed one or an emerging one.

Papua New Guinea:
➢ Papua New Guinea is an **island country** located in the **south-western Pacific.** It shares land borders with **Indonesia** and water border with **Australia, and the Solomon Islands.**
➢ It includes the **eastern half of New Guinea and many small offshore islands.**

➢ The capital is **Port Moresby,** Papua New Guinea is mainly **mountainous but has low-lying plains in southern New Guinea.**
➢ Papua New Guinea gained self-government in 1973 and full independence in 1975.

Jan Vishwas (Amendment of Provisions) Bill, 2023

Why in News?

Recently, the **Jan Vishwas (Amendment of Provisions) Bill, 2023** was passed in Lok Sabha during the monsoon session and aims at giving a boost to **Ease of Living and Ease of Doing Business.**

What is the Jan Vishwas (Amendment of Provisions) Bill, 2023?

➢ **About:**
○ The Bill proposes to **amend 183 provisions in 42 Central Acts administered by 19 Ministries/ Departments,** covering various domains such as environment, agriculture, media, industry, trade, information technology, copyright, motor vehicles, cinematography, food safety, etc.
○ The main objective of the Bill is to **decriminalize minor offences** that do not involve any harm to the **public interest or national security** and replace them with civil penalties or administrative actions.

➢ **Background:**
○ The Bill was introduced in **Lok Sabha on 22nd December 2022** and referred to the **Joint Committee of Parliament.**

➢ **Need:**
○ Rationalize criminal provisions to **reduce undue pressure on the justice system.**
○ Address **technical and procedural defaults** without imposing severe penalties.
○ Establish a balanced approach between the **severity of offence and prescribed punishment.**
○ Boost the **growth of businesses by eliminating barriers** and promoting a **conducive legal environment.**

➢ **Key Features of the Bill:**
○ The Bill seeks to remove **imprisonment clauses and/or fines in some provisions and convert them into penalties** in some others.

Note:

- The penalties will be determined by **adjudicating officers** appointed by the respective Ministries/Departments.
  ○ The Bill also introduces **compounding of offences in some provisions**, which means that the offenders can settle their cases by **paying a certain amount without going through a court trial.**
  ○ The Bill provides for a periodic **revision of fines and penalties every three years,** with an **increase of 10% of the minimum amount for various offences in the specified Acts.**
  ○ The Bill removes all offences and penalties under the **Indian Post Office Act, of 1898,** which is considered to be obsolete and **irrelevant in the present context.**

➢ **Benefits:**
  ○ By introducing administrative adjudication mechanisms, the **Bill reduces pressure on the justice system,** helps in reducing **case pendency,** and facilitates a more efficient and effective justice dispensation.
  ○ The Bill will foster **trust-based governance** by ensuring that citizens, businesses, and government departments **operate without fear of imprisonment for minor,** technical or procedural defaults.

➢ **Concerns:**
  ○ The Jan Vishwas Bill replaces imprisonment with fines or penalties, which is **not enough for decriminalization.**
  ○ Experts argue that the Bill represents a **'quasi-decriminalization',** and more efforts are needed to institutionalize true decriminalization.
  ○ Concerns were raised about the **appointment of adjudicating officers** under the Air (Prevention and Control of Pollution) Act and the Environment (Protection) Act, 1986, **questioning their technical competence for such legal proceedings.**

What are the Key Laws Covered in the Bill?

➢ **The Indian Forest Act, 1927.**
➢ **The Air (Prevention and Control of Pollution) Act, 1981.**
➢ **The Information Technology Act, 2000.**
➢ **The Environment (Protection) Act, 1986.**
➢ **The Copyright Act, 1957.**
➢ **The Patents Act, 1970.**
➢ **The Railways Act, 1989.**
➢ **The Food Safety and Standards Act, 2006.**

PM-DevINE Scheme

Why in News?

The **Union Ministry for the Ministry of Development of North Eastern Region** provided recent updates on the **Prime Minister's Development Initiative for North Eastern Region (PM-DevINE).**

What is PM-DevINE?

➢ **The Genesis of PM-DevINE:**
  ○ The PM-DevINE scheme as a Central Sector scheme, was introduced as a part of the **Union Budget 2022-23**.
  ○ The Cabinet granted approval for the PM-DevINE scheme on 12th October 2022. It **has been granted 100% Central funding**, ensuring that resources are directly allocated to the development initiatives.
  ○ It will be implemented by **Ministry of Development of North-East Region.**

➢ **Objectives of PM-DevINE:**
  ○ **Infrastructure Development**: In line with the spirit of **PM GatiShakti,** PM-DevINE aims to fund infrastructure projects in a cohesive manner, ensuring **seamless connectivity and accessibility across the NER.**
  ○ **Supporting Social Development Projects**: Recognizing the unique needs and challenges of the NER, the **scheme endeavors to support social development projects** that address critical issues and improve the overall quality of life for the region's inhabitants.
  ○ **Empowering Youth and Women:** PM-DevINE seeks to create **livelihood opportunities specifically targeting the youth and women of the NER**, enabling them to participate actively in the region's development and progress.

➢ **Budget Allocation:**
  ○ The scheme received an initial allocation of **Rs. 1500 crore in the Union Budget 2022-23.**
  ○ Over the 4-year period from 2022-23 to 2025-26, which aligns with the remaining years of the **15th Finance Commission period**, the scheme has an overall outlay of **Rs. 6,600 crore**.
  ○ A **state-wise, project-wise list of projects** approved during FY 2022-23 has been laid out, with each project tailored to **address the specific needs of the respective states.**

Note:

drishti

Welfare Schemes for the Minority Communities

Why in News?

Recently, the **Ministry of Minority Affairs**, shared significant achievements and insights about the various schemes and initiatives implemented by the **government for the welfare and upliftment of minority communities in India.**

What are the Various Schemes for the Welfare of Minority Communities in India?

➢ **Educational Empowerment Schemes:**
  ○ **Pre-Matric Scholarship Scheme:**
    ● It is a **centrally funded scholarship** scheme for students in all states, which is open every year.

● Aims to provide **financial assistance to students** from minority communities studying in **classes 1 to 10.**

● Helps in covering **educational expenses and encouraging minority students to pursue education.**

○ **Post-Matric Scholarship Scheme:**
  ● It is a **Centrally Sponsored Scheme** and **implemented through State Government and UT administration**.
  ● Provides **scholarships** to minority students studying in **classes 11 and 12 and pursuing undergraduate and postgraduate courses.**
  ● Supports students in pursuing higher education and enhancing their career prospects.

○ **National Means Cum-Merit Scholarship Scheme (NMMSS):**
  ● It is the **Centrally Sponsored Scheme (CSS)** which was launched in 2008.
  ● Focuses on providing financial assistance to **meritorious minority students** with limited financial resources.
  ● Encourages academic excellence and ensures equal opportunities for deserving students.

○ **Education Loan Scheme by National Minorities Development & Finance Corporation (NMDFC):**
  ● NMDFC offers an Education Loan Scheme to students belonging to **minority communities, including the Jain community.**
  ● Concessional credit is provided for pursuing **technical and professional courses with a maximum course duration of 5 years.**
  ● Educational loans of up to ₹**20.00 lakh are available for 5-year courses in India** and ₹**30.00 lakh for 5-year courses abroad.**

➢ **Employment and Economic Empowerment Schemes:**
  ○ **Pradhan Mantri Virasat Ka Samvardhan (PMVIKAS):**
    ● Aims to preserve and promote the **rich cultural heritage of minority communities.**
    ● Supports **traditional crafts, art forms, and cultural practices to empower artisans and craftsmen.**
  ○ **NMDFC Scheme:**
    ● Provides concessional **loans to minorities to support their economic ventures and entrepreneurship.**

Note:

- Enables economic self-reliance and promotes sustainable livelihoods.
- ➢ **Special Schemes:**
  - ❍ **Jiyo Parsi:**
    - A unique scheme aimed at reversing the population decline of the **Parsi community in India.**
    - Implements measures to encourage **Parsi families to have more children and sustain their community's cultural legacy.**
  - ❍ **Qaumi Waqf Board Taraqqiati Scheme (QWBTS) and Shahari Waqf Sampatti Vikas Yojana (SWSVY):**
    - Focuses on the development and utilization of **waqf properties** for the welfare of minority communities.
    - Enhances infrastructure and facilities in waqf properties to serve the community better.
- ➢ **Infrastructure Development Schemes:**
  - ❍ **Pradhan Mantri Jan Vikas Karyakram (PMJVK):**
    - Aims at creating better infrastructure in minority-concentrated areas.
    - Provides improved **amenities, healthcare facilities, education centers, and skill development opportunities.**

Minority Communities in India:
- ➢ **About:**
  - ❍ **Muslims, Sikhs, Christians, Buddhists, and Zoroastrians (Parsis)** have been notified as minority communities under the **National Commission for Minorities Act, 1992.**
    - In 2014, **Jains were also notified as a minority community.**
  - ❍ **As per the Census 2011, the percentage** of minorities in the country is about **19.3% of the total population of the country.**
    - The population of **Muslims are 14.2%; Christians 2.3%; Sikhs 1.7%, Buddhists 0.7%, Jain 0.4% and Parsis 0.006%.**
- ➢ **Constitutional Provisions:**
  - ❍ The term **"minority" is not defined in the Indian Constitution.** However, the Constitution recognizes only religious and linguistic minorities.
  - ❍ **Article 29:** It provides that any section of the citizens residing in any part of India having a distinct language, script or culture of its own, shall have the right to conserve the same.
  - ❍ **Article 30:** Under the article, all minorities shall have the right to establish and administer educational institutions of their choice.
  - ❍ **Article 350-B:** Originally, the Constitution of India did not make any provision with respect to the Special Officer for Linguistic Minorities. But, the Seventh Constitutional Amendment Act of 1956 inserted Article 350-B in the Constitution.
- ➢ **Parliamentary Provisions:**
  - ❍ **National Commission for Minorities Act, 1992:** It defines a minority as "a community notified as such by the Central government.'

Cyber Crime

Why in News?

The Indian government has taken significant steps to strengthen the mechanism for dealing with **Cybercrimes** in a comprehensive and coordinated manner.

What is Cyber Crime?

- ➢ **About:**
  - ❍ Cybercrime is defined as a crime where a **computer is the object of the crime or is used as a tool** to commit an offense.
    - Cybercrimes fall under State subjects as per the **Seventh Schedule of the Constitution** of India.
  - ❍ It involves illegal or unauthorized activities that **exploit technology to commit various forms of crimes.**
  - ❍ Cybercrime covers a wide range of offenses and can affect individuals, organizations, and even governments.
- ➢ **Types:**
  - ❍ **Distributed Denial-of-Service (DDoS) Attacks:** These are used to make an **online service unavailable** and take the network down by overwhelming the site with traffic from a variety of sources.
  - ❍ **Botnets:** Botnets are networks from **compromised computers** that are controlled **externally by remote hackers**. The remote hackers then send spam or attack other computers through these botnets.
  - ❍ **Identity Theft:** This cybercrime occurs when **a criminal gains access to a user's personal information** or confidential information and then tries to tarnish reputation or seek a ransom.

- **Cyberstalking:** This kind of cybercrime involves **online harassment where the user is subjected to a plethora of online messages** and emails. Typically, cyberstalks use social media, websites, and search engines to intimidate a user and instill fear.
- **Phishing:** It is a type of **social engineering attack o**ften used to steal user data, including login credentials and credit card numbers. It occurs when an **attacker, masquerading as a trusted entity**, dupes a victim into opening an email, instant message, or text message.

What are the Challenges Related to Cyber Security in India?

➢ **Profit-Friendly Infrastructure Mindset:**
- Post liberalisation, the Information Technology (IT), **electricity** and **telecom sector** have witnessed **large investments** by the private sector.
- Operators are not investing in protective infrastructure, r**ather they are focused on the profitable infrastructure only**, because they think i**nvestment on cyber-attack preparedness** may not generate good profits.
- All operators are focused on profits, and do not **want to invest in infrastructure that will not generate profits (i.e. protective infrastructure).**

➢ **Absence of Separate Procedural Code:**
- There is no separate procedural code for the **investigation of cyber** or computer-related offences.

➢ **Trans-National Nature of Cyber Attacks:**
- Most cybercrimes are **trans-national in nature.** The collection of evidence from foreign territories is not only a difficult but also a tardy process.

➢ **Expanding Digital Ecosystem:**
- In the last couple of years, India has traversed on the path of digitalizing its **various economic factors** and has carved a niche for itself successfully.
- The latest technologies like **5G and Internet of Things (IoT)** will increase the coverage of the internet-connected ecosystem.
- With the advent of digitalisation, paramount consumer and citizen data will be stored in digital format and transactions are **likely to be carried out online which makes India a breeding ground** for potential hackers and cyber-criminals.

➢ **Limited Expertise and Authority:**

- Offenses related to **crypto-currency** remain **under-reported** as the capacity to solve such crimes remains limited.
- Although most State cyber labs are capable of analysing hard disks and mobile phones, **they are yet to be recognized as 'Examiners of Electronic Evidence'** (by the central government). Until then, they cannot provide expert opinions on electronic data.

What Measures Can be Taken to Tackle Cyber Crimes in India?

➢ **Cybersecurity Awareness Campaign:**
- The governments at various levels need to conduct massive cybersecurity awareness campaigns, regarding **Cyber frauds,** use strong, unique passwords, **being careful using public wi-fi, etc.**

➢ **Cyber Insurance:**
- Develop cyber insurance policies that are **tailored to the specific needs of different businesses** and industries. Customized policies will help ensure that organizations have coverage for the **most relevant cyber risks they face.**
  - **Cyber insurance** provides financial coverage against losses resulting from cyber incidents and by **mitigating the financial impact** of these incidents, organizations can **recover more quickly and continue their operations.**

➢ **Data Protection Law:**
- Data is referred to as the new currency, thus is a requirement for **a stringent data protection regime** in India.
- In this context, the **European Union's General Data Protection Regulation** and India's Personal Data Protection Bill, 2019 are steps in the right direction.

➢ **Collaborative Trigger Mechanism:**
- For a country like India where the **citizenry is more vulnerable** to cybercrime, there is an urgent need for a collaborative trigger mechanism.
  - This mechanism would bind all parties and enable law enforcers to act quickly and safeguard citizens and businesses from a fast-growing menace.
  - In this context, the Indian **Cyber Crime Coordination Centre will assist in centralizing cybersecurity investigation**s, prioritize the development of response tools and bring together private companies to contain the menace.

What are the Government Initiatives to Cope with Cyber Crimes in India?
- ➢ **Indian Cyber Crime Coordination Centre (I4C):** This center coordinates efforts to tackle all types of cyber-crimes across the country.
- ➢ **National Cyber Forensic Laboratory:** It provides early-stage cyber forensic assistance to Investigating Officers of all State/UT Police through both online and offline modes.
- ➢ **CyTrain Portal:** A **Massive Open Online Courses (MOOC)** platform for capacity building of police officers, judicial officers, and prosecutors through online courses on critical aspects of cyber-crime investigation, forensics, and prosecution.
- ➢ **National Cyber Crime Reporting Portal:** A platform where the public can report incidents of cyber-crimes, with a special focus on **crimes against women and children.**
- ➢ **Citizen Financial Cyber Fraud Reporting and Management System:** It is a **system for immediate reporting of financial frauds** and assistance in lodging online cyber complaints through a toll-free helpline.
- ➢ **Cybercrime Prevention against Women and Children (CCPWC) Scheme:** Financial assistance provided to States/UTs for **developing capabilities of Law Enforcement Agencies** in investigating cyber-crimes.
- ➢ **Joint Cyber Coordination Teams:** Constituted to enhance coordination among Law Enforcement Agencies of States/UTs, particularly in areas with multi-jurisdictional issues related to cyber-crimes.
- ➢ **Central Assistance for Modernization of Police:** Providing financial support to States/UTs for acquiring **modern weaponry, advanced communication/forensic** equipment, and cyber policing equipment.

Suspension of MPs from Parliament

Why in News?

Recently, one of the MPs (Member of Parliament) of the **Rajya Sabha** has been suspended for "violating" the **directives of the chair.**

- ➢ The Rajya Sabha has been witnessing protests from the opposition over the Manipur Issue. They are demanding the Prime Minister's response to the matter, and as a result, one of the involved MPs was suspended.

What is the Process of Suspension of MPs?

- ➢ **General Principle:**
  - ○ The general principle is that it is the **role and duty of the Presiding Officer — Speaker of Lok Sabha** and **Chairman of Rajya Sabha** — to maintain **order so that the House can function smoothly.**
  - ○ To ensure that proceedings are conducted in the proper manner, **the Speaker/ Chairman is empowered** to force a member to withdraw from the House.
- ➢ **Rules of Procedure and Conduct:**

Lok Sabha	Rajya Sabha
Rule 373:	**Rule 255:**
➢ According to Rule Number 373 of the Rules of Procedure and Conduct of Business "The Speaker, if is of the opinion that the conduct of any Member is **grossly disorderly**, may direct such Member to **withdraw immediately from the House**, and any Member so ordered to withdraw shall do so **forthwith and shall remain absent** during the rest of the day's sitting.	➢ Like Speaker in Lok Sabha, the **Chairman of Rajya Sabha** is empowered under **Rule Number 255** to "direct any Member whose conduct is in his opinion grossly disorderly to withdraw immediately" from the House.
	➢ Unlike the Speaker of Lok Sabha, the Rajya Sabha **Chairman doesn't have the power to suspend** a member. Therefore, the House may by another motion, terminate the suspension.
	➢ The Chairman may **"name a member who disregards the authority** of the Chair or abuses the rules of the Council by persistently and wilfully obstructing" business.

Note:

drishti

➢ To deal with more obstinate or recalcitrant Members, the Speaker makes recourse to **Rules 374 and 374A**.	➢ In this type of situation, the House may adopt a motion suspending the Member from the service of the House for a period not exceeding the remainder of the session.
Rule 374: ➢ The Speaker may name a member if **deems it necessary**, who disregards the authority of the Chair or abuses the rules of the House by persistently and wilfully obstructing the business thereof. ➢ If a Member is so named by the Speaker, the **Speaker shall, on a motion being made forthwith** put the question that the Member (naming such Member) be suspended from the service of the House for a period not exceeding the remainder of the session.	**Rule 256:** ➢ It provides for **suspension** of members. ➢ The **Chairman can suspend a member from the service of the Council** for a period **not exceeding the remainder of the Session**.
Rule 374A: ➢ Rule 374A was incorporated in the **Rule Book in December 2001**. ➢ In case of gross violation or severe charges, on being named by the Speaker, the **member stands automatically suspended** from the service of the House for five consecutive sittings or the remainder of the session, whichever is less.	

➢ **Terms of Suspension:**
   ○ The maximum period of **suspension is for the remainder** of the session.
   ○ Suspended members **cannot enter the chamber or attend the meetings** of the committees.
   ○ He will not be **eligible to give notice for discussion** or submission.
   ○ He loses the right to get a reply to his questions.

What are Interventions by the Court?

➢ **Article 122** of the Constitution says parliamentary proceedings cannot be questioned before a court.
➢ Although courts have intervened in the procedural functioning of the legislature like,
➢ Maharashtra Legislative Assembly passed a resolution in its 2021 Monsoon Session **suspending 12 BJP MLAs** for a year.
   ○ The matter came before the Supreme Court, which held that the resolution was ineffective in law beyond the remainder of the Monsoon Session.

Fame India Phase-II

Why in News?

Recently, the **Ministry of State for Heavy Industries** highlighted the developments of **Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME India) Scheme Phase-II** in a written reply to the **Lok Sabha.**

➢ The FAME India Scheme, aimed at **promoting electric vehicles (EVs)** in the country, has taken significant strides to incentivize the adoption of EVs and expand the electric mobility infrastructure.

What is FAME India Phase-II?

➢ **Background:**
   ○ **FAME India** is a part of the **National Electric Mobility Mission Plan**. Main thrust of FAME is to encourage electric vehicles by providing subsidies.
   ○ **Two phases of the scheme:**
      ● **Phase I:** started in 2015 and was completed on 31st March 2019.

Note:

○ The scheme covers **Hybrid & Electric** technologies like **Mild Hybrid, Strong Hybrid, Plug in Hybrid & Battery Electric Vehicles**.

➢ **FAME India Phase-II:**

○ **Duration: Five years from April 1, 2019.**

- **Budgetary support:** Rs. 10,000 crores.
- **Target:** Encouraging the adoption of 7,090 eBuses, 5 lakh e-3 Wheelers, 55,000 e-4 Wheeler Passenger Cars, and 10 lakh e-2 Wheelers.
- **Focus:** Electrification of **public and shared transportation.**

➢ **Steps Taken to Promote Electric Vehicles:**

○ **Expanding EV Charging Network:**

- **Under Phase-I:** 520 charging stations/infrastructure sanctioned.
- **Phase-II:** Sanctioning of 2,877 Electric Vehicle Charging Stations in 68 cities across 25 States/UTs and 1,576 charging stations across 9 Expressways and 16 Highways.
- **Capital Subsidy for OMCs:** Rs. 800 crore sanctioned for the establishment of 7,432 electric vehicle public charging stations.

The details of Electric Vehicles (EVs) sold under FAME India Scheme Phase-II are as Under as on 21.07.2023				
S. No.	Wheeler Type	Registered & Revalidated Models	Registered OEMs	Total No. of Vehicle Sold under FAME-II as on 21.07.2023
1	2 Wheeler	45	25	7,40,722
2	3 Wheeler	96	28	83,420
3	4 Wheeler	34	3	8,982
Total		175	56	8,32,824

➢ **Government Incentives and Subsidies for Electric Vehicles:**

○ **FAME India Scheme Phase-II:**

- Upfront reduction in the **purchase price of EVs for buyers.**

○ **Production Linked Incentive (PLI) Scheme for Automotive Sector:**

- Budgetary outlay of Rs. 25,938 crores to support domestic manufacturing of vehicles, including electric vehicles.

○ **PLI Scheme for Advanced Chemistry Cell (ACC):**

- Budgetary outlay of Rs. 18,100 crore to establish a competitive **ACC battery manufacturing setup in the country.**

○ **Reduced GST and Exemptions:**

- **GST on EVs reduced from 12% to 5%.**
- GST on **chargers/charging stations for EVs reduced from 18% to 5%.**

○ **Exemptions and Waivers:**

- Battery-operated vehicles are exempt from **permit requirements** and **given green license plates.**
- Ministry of Road Transport and Highways (MoRTH) advised **states to waive road tax on EVs to reduce initial cost.**

○ **Awareness Initiatives Promoting E-Mobility:**

- Various initiatives to create awareness about EVs in colleges/universities and institutions across India.
- Collaboration with **International Centre for Automotive Technology (ICAT)** for EV awareness programs.

Motions in Parliament

Why in News?

Recently, a **Member of Parliament** moved **adjournment motion** in the **Lok Sabha** citing the need for urgent discussions on **ethnic violence in Manipur.**

➢ A motion is a formal proposal made by a member in a House of Parliament to initiate a **debate or a decision on a matter.**

What are the Different Types of Motions Used in Parliament?

➢ **Adjournment Motion:**

○ A motion for adjournment is moved to **discuss a definite matter of urgent public importance** and must be of immediate concern, with the **Speaker's consent**.

○ It needs the **support of 50 members to be admitted**. As it interrupts the normal business of the House, it is regarded as an extraordinary device.

Note:

- This motion is **available in the Lok Sabha but not in the Rajya Sabha.**
- It is important to note that the **passage of an adjournment motion does not require the government to resign,** but it is considered a **strong censure of the government.**

➤ **Closure Motion:**
- It is a motion moved by a member to **cut short the debate on a matter before the House.** If the motion is approved by the House, debate is stopped forthwith, and the matter is put to vote.

➤ **Motion with a Vote:**
- This type of motion is brought under **Rule 184 in the Lok Sabha**. It allows for a **debate with a vote on a specific question**, and the outcome of the vote determines Parliament's position on the issue.
- If such a motion is passed, **it obliges the government to follow Parliament's decision on the matter.**
- However, **motions with a vote are relatively rare** and are usually reserved for matters of significant national importance.

➤ **Short Duration Discussion:**
- Under **Rule 193 of the Lok Sabha rules** and Rule 176 of the Rajya Sabha rules, short duration discussions can take place.
- A short duration discussion **allows MPs to discuss a specific issue of public importance without voting on it.** The debate usually takes place for a **fixed duration, not exceeding two hours.**
- The purpose of such discussions is to bring attention to important issues and allow diverse perspectives to be heard without taking any formal decisions.

➤ **No-Confidence Motion:**
- This is a **motion moved in the Lok Sabha (and not in the Rajya Sabha)** to test the confidence of the government.
- The motion needs the support of 50 members to be admitted.
- If a **no-confidence motion** is passed, the government **must resign.**
- No-confidence motions are significant political events that **usually occur when there is a perception of the government losing majority support.**

➤ **Confidence Motion:**
- It is passed when the **governments formed with wafer-thin majority** have been called upon by the President to **prove their majority on the floor of the House**
- Passage indicates the government's continued mandate to govern.

➤ **Privilege Motion:**
- A member can initiate this motion when they **believe a minister has violated the privileges of the House or its members** by withholding crucial information about a case or providing inaccurate and manipulated facts.
- The primary aim of this motion is to **express disapproval and criticize the respective minister's actions.**

➤ **Motion of Thanks:**
- It is a parliamentary procedure to express gratitude for the **President's Address** at the commencement of Lok Sabha.
- At the end of the discussion, the motion is put to vote. This **motion must be passed** in the House. Otherwise**, it amounts to the defeat of the government.**

➤ **Cut Motion:**
- Proposed to **reduce the amount of a demand in the budget.**
- Their passage by the Lok Sabha amounts to the expressions of want of parliamentary confidence in the government and may lead to its resignation.

Rajasthan Platform-Based Gig Workers (Registration and Welfare) Bill, 2023

Why in News?

The Rajasthan Assembly recently passed a significant Bill aimed at extending **social security benefits to gig workers.**

➤ This bill aims to address the **lack of protection and benefits for gig workers,** who were **previously classified as "partners"** rather than **employees** in companies like Ola, Uber, Swiggy, Zomato, and Amazon.

➤ Earlier, the **Code on Social Security, 2020** mandated **social security funds for gig workers,** including life, disability, health benefits, and more.

Note:

What is the Rajasthan Platform-Based Gig Workers (Registration and Welfare) Bill, 2023?

➢ **About:**
○ The Rajasthan Platform-Based Gig Workers (Registration and Welfare) Bill acknowledges the **significant contributions of gig workers to the economy** and aims to provide them with essential protection and support.
○ The primary objective of this bill is to **extend social security and welfare benefits to gig workers operating in the state.**

➢ **Key Features:**
○ **Registration of Gig Workers:**
● The bill mandates the **registration of all gig workers with the state government** to bring them **under the ambit of labor regulations.**
● The state government will maintain a comprehensive database of all gig workers operating in Rajasthan.
● Each gig worker will be **assigned a unique ID**, which will facilitate **tracking their employment history and entitlements.**

○ **Access to Social Security Schemes:**
● Gig workers will be granted access to a range of social security schemes.
● These schemes may include **health insurance, accident coverage, and other welfare measures** to provide financial support during emergencies.

○ **Grievance Redressal Mechanism:**
● The bill ensures that gig workers have the **right to be heard and address any grievances they may have.**
● This provision seeks to protect the **rights of gig workers** and provide them with a **platform to resolve work-related issues.**

○ **Establishment of Platform-Based Gig Workers Welfare Board:**
● This board will be responsible for **overseeing the welfare and rights of gig workers in the state.**
● Welfare Board — comprising State officials, **five representatives** each from **gig workers and aggregators,** and **two others ("one from Civil Society and another who evince interest in any other field")**.
● At least one-third of the nominated members should be women.

● This representation aims to ensure that the **interests of both parties are considered** when making decisions related to welfare and regulation.

○ **Platform-Based Gig Workers Fund and Welfare Fee:**
● The bill introduces a **"Platform-Based Gig Workers Fund and Welfare Fee"** to finance the social security measures for gig workers.
● The fund will be utilized to **provide financial support and welfare benefits** to gig workers during challenging times.

○ **Fee Levied on Aggregators:**
● Aggregators will be required to **pay a fee for each transaction involving a platform-based gig worker.**
● The **specific percentage of the fee** will be determined by the state government to contribute to the welfare fund.

○ **Penalties for Non-Compliance:**
● The bill includes provisions for penalties in case of non-compliance by aggregators.
● Aggregators failing to pay the welfare fee on time will be charged an **interest rate of 12% per annum from the due date.**
● The state government can impose **fines of up to Rs 5 lakh for the first contravention and up to Rs 50 lakh for subsequent violations** of the Act by aggregators.

Who are Gig Workers?

➢ A 'gig worker' is currently defined as someone who **"earns from such activities outside of the traditional employer-employee relationship** and who **works on a contract"** for various platforms or aggregators, such as Swiggy, Zomato, Ola, Uber, Urban Company, etc.

➢ Gig workers are **different from regular employees**, as they have **flexible work hours and multiple sources of income.**
○ They are paid on the **basis of the tasks or services they complete**, rather than on a monthly or hourly basis.

➢ Gig workers provide various services, such as **food delivery, ride-hailing, home services, e-commerce, content creation, graphic design, web development, etc.**
○ They use their **own devices, vehicles, and tools to perform their work.**

Note:

d
drishti

➢ Gig workers are estimated to be **around 15 million in India,** according to a report by **Boston Consulting Group** and Michael & Susan Dell Foundation. They are expected **to grow to 90 million by 2028.**

➢ A Gig economy is a free market system in which temporary positions are common and organizations contract with independent workers for short-term engagements.

GIG WORKFORCE IN INDIA

NITI Aayog, in its report, India's Booming Gig and Platform Economy, said that gig workforce in India is expanding. As of 2019-20, here's what the following sectors employed:

(lakh)

Retail trade and sales	26.6
Transportation	13
Finance and insurance	6.3
Manufacturing	6.2
Education	1

NITI Aayog report stated:

- 31% are in low-skilled jobs
- 47% are in medium skilled jobs
- 22% are in high-skilled jobs

➢ **Code on Social Security, 2020:**

○ The Code on Social Security, 2020 aims to **amend and consolidate laws related to social security** to extend it to all employees and workers in organized or unorganized sectors.

○ 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.**

Transforming Cantonment Towns

Why in News?

The Ministry of Defense has decided to **demerge civil areas from Military Stations** and integrate them with municipalities in their respective states, aiming to move away from the **British-era concept of cantonment towns.**

➢ The decision, which affects many cantonment towns established during the pre-independence era, is set to reshape the **administrative landscape and promote better civil-military relations.**

How are Cantonment Administrations Controlled in India?

➢ **About Cantonment:**

○ Comprising both military and civilian population, **cantonments are different from military stations**, which are meant purely for the training and accommodation of the armed forces.

➢ **Background:**

○ Cantonment towns in India have their origins in the **colonial era when the British established military stations** to maintain control and secure their territorial interests.

○ These towns were exclusively **reserved for military personnel and were governed separately** from civilian areas.

○ Over time, the demarcation between **military and civilian spheres led to distinct communities**, with limited **interaction between them.**

➢ **Cantonments and their structure:**

○ Cantonments are classified into four categories — **class I to class IV** —depending on the size of the area and population.

Note:

- While a class I cantonment has eight elected civilians and eight **government/military members on the board,** a **class IV cantonment has two elected civilians** and two government/military members.
- This board is responsible for various aspects of the cantonment's administration.
  - The station commander of the cantonment is the **ex-officio president of the board, and an officer of the Defence Estates Organisation** is the chief executive and the member-secretary.
  - The board has equal representation of elected and nominated/ex-officio members to balance the official representation.

➢ **Administrative Control:**
- An inter-services organisation of the **Ministry of Defence** directly controls cantonment administration.
- In terms of **Entry 3 of Union List (Schedule VII)** of the Constitution of India, **Urban Self Governance of the Cantonments** and the Housing Accommodation therein is the **subject matter of the Union of India.**
- There are more than **60 Cantonments** in the country which have been notified under the **Cantonments Act, 1924** (succeeded by the Cantonments Act, 2006).

➢ **Administrative structure and regulation of the Urban Governance by the Municipalities:**
- **At the Central level:** The subject of 'urban local government' is dealt with by the following three ministries:
  - Ministry of Housing and Urban Affairs.
  - Ministry of Defence in the case of cantonment boards
  - Ministry of Home Affairs in the case of Union Territories.
- **At State Level:**
  - **Urban governance is part of the state list** under the Constitution. Thus, the administrative framework and regulation of **ULBs varies across states.**
  - The Constitution **(74th Amendment) Act, 1992** provided for the **establishment of Urban Local Bodies (ULBs)** (including municipal corporations) as institutions of local self-government.
  - It also empowered **state governments to devolve certain functions**, authority, and power to collect

revenue to these bodies, and made periodic elections for them compulsory.

- **Issues:**
  - Civilians living in cantonment areas have long **complained of issues regarding different restrictions and** said cantonment boards have **failed to resolve them.**
  - The civilian residents complain that cantonment boards have been **unable to come up with a solution to their daily difficulties** that come with living inside cantonments — such access to home loans, free movement within the premises, for example.

What is the Significance of Demerging of Cantonment Areas?

➢ **Strengthening Civil-Military Relations:** The demerger of military stations and civilian areas is likely to foster better understanding and cooperation between the armed forces and the civilian population. It can also enhance mutual trust and respect, leading to smoother interactions in times of peace and crisis.

➢ **Local Governance and Civic Amenities:** The integration of civilian areas into municipal governance can lead to **improved civic amenities and infrastructural development.** Residents may have a more significant say in local governance matters, resulting in better urban planning and public services.

➢ **Historical Heritage and Urban Planning**: Many cantonment towns have a rich historical heritage dating back to the colonial era. The decision may raise questions about preserving the historical significance of these regions while **facilitating modern urban planning.**

➢ **Legal and Administrative Challenges:** The transition from a cantonment town to a merged municipality may bring about various legal and administrative challenges. The government will need to address these issues to ensure a smooth and efficient transition.

What are the Concerns Raised from the Demerger?

➢ It is felt by the experts that if cantonments are abolished, it would **adversely impact training and administration of the Army** in these areas and would also be a security hazard.

Note:

Review of Methodology of National Surveys

Why in News?

Recently, the Government of India has appointed **Standing Committee on Statistics (SCoS)** under the **chairmanship of Pronab Sen**, former Chief Statistician of India to review the methodology of the **National Statistical Organisation (NSO).**

➢ The new committee comes at a time when **India's statistical system is under criticism**, especially from three members of the **Economic Advisory Council to the PM (EAC-PM).**

What is the Standing Committee on Statistics?

➢ **About:**

○ The government has renamed and expanded the scope of coverage of the Standing Committee on Economic Statistics (SCES) formed in **December 2019 as Standing Committee on Statistics (SCoS).**

● The earlier SCES had **28 members and was mandated to review the framework for economic indicators** pertaining to the industrial sector, the services sector and the labour force statistic including datasets such as the **Periodic Labour Force Survey, the Annual Survey of Industries,** Economic Census, etc.

○ The new **SCoS now will review all surveys.**

➢ **Members:**

○ The SCoS has 14 members, out of which **there are four non-official members**, nine official members and a member secretary.

○ The total number of members in the committee **can be 16** that it is extendable based on the requirement from time to time.

➢ **Functions:**

○ To review the extant framework and to address the issues raised from time to time on the **subject/ results/ methodology,** etc. related to all surveys as brought before the SCoS by Ministry of Statistics and Programme Implementation (MoSPI).

○ It will also advise on **survey methodology including sampling frame**, sampling design, survey instruments, etc. and to finalize tabulation plan of surveys; finalisation of survey results.

○ The committee's function is to **design all data collection and data production efforts**.

● It is to make sure that whatever data is collected in **MoSPI, meets the standards of good statistics**.

What is the Need for Review?

➢ **Outdated and Archaic Methodologies:**

○ Some experts have raised concerns over the outdated survey methodologies used in national surveys, such as the **National Sample Survey (NSS), National Family Health Survey (NFHS), and Periodic Labour Force Survey (PLFS)**, leading to systematic **underestimation of India's development**.

○ They argue that this archaic **methodology has failed to capture reality** in the recent past as the **"Indian economy has been incredibly dynamic in the last 30 years"**.

➢ **National Level Data is Crucial:**

○ National level data is a crucial resource for **research, policymaking, and development planning.** Thus, it is essential to examine the **claims and counter arguments** in light of existing evidence.

● For this purpose, the panel will be taking a closer look at NFHS data, which has been conducted by the Ministry of Health and Family Welfare for the last 30 years with the I**nternational Institute of Population Sciences (IIPS)** as the nodal agency.

➢ **Issue of Rural Bias:**

○ Critics argue that national surveys like NFHS exhibit a rural bias, **overestimating the rural population** due to heavy reliance on outdated Census data.

○ However, a closer analysis of five rounds of **NFHS data does not support this claim.** Instead, evidence suggests instances of rural population underestimation in NFHS-3, with overestimation occurring in NFHS-2 and NFHS-5.

○ NFHS-1 and NFHS-4 estimates closely align with World Bank estimates and Census projections, indicating random errors rather than systematic bias.

How Can Such Errors Be Minimized?

➢ Although there are **higher percentages of no-response** in urban areas compared to rural areas, this does not **indicate a systematic relation to rural or urban bias** in estimation.

➢ Instead, careful assignment of sample weights **can significantly correct errors and representation discrepancies.**

Note:

➢ For instance, considering the unweighted percentages of the urban sample in NFHS 1, 2, 3, 4, and 5, appropriate sample weight assignment **can address underrepresentation of both rural and urban populations.**

Zero FIR

Why in News?

In recent incidents of violence and crime in Manipur, the concept of **Zero First Information Report (FIR)** has come to the forefront.

What is Zero FIR?

➢ **About:**
  ○ Zero FIR is an **FIR** that **can be registered by any police station, irrespective of jurisdiction,** when it receives a complaint regarding a **cognisable offence.**
  ○ No regular FIR number is assigned at this stage.
  ○ After receiving the Zero FIR, the revenant police station registers **a fresh FIR and starts the investigation.**
  ○ It is meant to help victims of serious crimes**, especially women and children, to lodge a complaint quickly and conveniently**, without having to go from one police station to another.
  ○ It is also meant to **ensure that the evidence and witnesses are not lost or tampered** with **due to delays** in filing the complaint.
  ○ It is **transferred to the relevant police station** where the offence has taken place or where the investigation has to be conducted.

➢ **Legal Basis of a Zero FIR:**
  ○ Zero FIR was introduced after the recommendation of the **Justice Verma Committee,** which was set up after the **2012 Nirbhaya gangrape case.**
  ○ The provision of a Zero FIR is also supported by various judgments of the **Supreme Court and High Courts.**
    • For instance, in *Lalita Kumari vs Govt. of UP (2014),* the Supreme Court held that **registration of an FIR is mandatory when information discloses the commission of a cognizable offence.**
    • In *Satvinder Kaur vs State (1999),* the Delhi High Court held that a **woman has the right to lodge her complaint from any place other than where the incident occurred.**

What is First Information Report (FIR)?

➢ **About:**
  ○ Written document prepared by the police upon receiving information about a **cognizable offence.**
  ○ **First step towards the investigation process.**
  ○ Sets in motion the probe and further actions by the police.

➢ **Registration of FIR in Cognizable Offences:**
  ○ **Section 154(1), CrPC** allows police to register an FIR for cognizable offences.

➢ **Failure to Register an FIR:**
  ○ Section 166A inserted into IPC based on Justice JS Verma committee's recommendation.
  ○ Provides punishment for public servants failing to record information related to a cognizable offence.
  ○ Punishment includes imprisonment of up to two years and a fine.

Cognisable and Non-Cognisable Offences

➢ **Cognisable Offences:**
  ○ In cognisable offences, an officer can take cognizance of and **arrest a suspect without seeking a court's warrant** to do so, if she has **"reason to believe"** that the person has **committed the offence** and is satisfied that the arrest is necessary on certain enumerated bases.
  ○ Within **24 hours** of the arrest, the officer must have **detention ratified by a judicial magistrate.**
  ○ According to **177th Law Commission Report,** cognisable offences are those that **require an immediate arrest.**
  ○ Cognizable offences are generally **heinous or serious in nature** such as murder, rape, kidnapping, theft, dowry death etc.
  ○ The **FIR is registered only in cognizable crimes.**

➢ **Non-Cognisable Offences:**
  ○ In case of a non-cognizable offence, the police cannot arrest the accused **without a warrant** as well as cannot start an investigation **without the permission of the court.**
  ○ The crimes of forgery, cheating, defamation, public nuisance, etc., fall in the category of non-cognizable crimes.

Note:

drishti

Concerns Related to Scientific Publishing

Why in News?

The recently approved **National Research Foundation** is seen as a leading voice for accessible, equitable, and fiscally responsible **Scientific-Publishing.**

➢ Communicating research is an integral part of scientific endeavor. It advances scientific understanding and bridges science and society.

What is the Process of Scientific-Publishing?

➢ **Academic Publishing:**

  ○ Academic publishing starts with **scientists submitting their research** findings to journals.

  ○ These manuscripts undergo peer review, where **experts provide voluntary comments** to ensure rigorous and validated research.

  ○ After acceptance, the paper is published either online or in print, making the work **accessible to the wider community.**

➢ **Pay to Read Model:**

  ○ Traditional academic publishing **relies on a 'pay to read' model**, where libraries and institutes **pay fees to access published research.**

  ○ This system restricts access to scientific material, particularly in the **Global South**, where institutions may struggle to afford subscription fees.

➢ **Pay to Publish Model:**

  ○ An alternative approach is the **gold open-access model,** where authors pay an **Article Processing Charge (APC)** to make their **work freely available online.**

    ● While this promotes open access, it has raised concerns about **financial implications for researchers.**

What are the Issues Related to Scientific Publishing in India?

➢ **Profits from Public Money:**

  ○ Academic publishing is a lucrative industry, with a **worldwide revenue of USD 19 billion** and wide profit margins of up to 40%.

  ○ The issue lies in the fact that **these profits are derived from public funds** but directed towards a select few companies, whereas academic scientific research is intended to be a non-profit endeavour.

  ○ India's research funding has seen modest increases and stagnation, making the high APCs of G**old Open-Access (OA) journals** a challenge for scientists.

    ● Gold OA is a type of **open-access publishing model** that allows unrestricted and immediate access to scholarly articles online without any subscription or payment barriers.

➢ **Predatory Publishing:**

  ○ India faces challenges with **predatory publishing.** Predatory journals exploit the **"pay-to-publish" model** without providing adequate **peer review and editorial services,** resulting in low-quality publications that could undermine the credibility of Indian research.

➢ **Lack of Open Access:**

  ○ Access to scientific research **papers often remains restricted** due to **subscription-based models or** expensive paywalls.

    ● This **hampers the dissemination of knowledge** and collaboration among researchers.

➢ **Plagiarism and Ethics:**

  ○ Some researchers, due to various reasons, **resort to plagiarism** or other unethical practices, which can **degrade the quality** and reliability of Indian research publications.

➢ **Funding Constraints**:

  ○ Limited funding and resources for research and publishing **can lead to challenges in meeting publication cos**ts, including article processing charges for open-access journals.

➢ **Research Evaluation:**

  ○ There has been an overemphasis on journal impact factor as a measure of research quality, which may encourage researchers to publish in high-impact journals without considering the relevance or contribution of their work.

Is there any Workaround for the Cost?

➢ The government is exploring alternatives, such as **'One Nation, One Subscription,'** which provides access to scholarly publications at a fixed cost but may increase commercial publishers' monopoly.

Note:

➤ Another approach is to shift from **open access to open publishing**, establishing a freely accessible and high-quality online repository managed by professionals.

➤ This repository allows **continuous evaluation and engagement with reviews** from experts and the public, moving away from numerical metrics for academic research evaluation.

PM-KUSUM

Why in News?

The **Union Minister of New Renewable Energy** furnished the **current status of the Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM KUSUM)** scheme through a written response in Lok Sabha.

What is PM-KUSUM?

➤ **About**:
   ○ The PM-KUSUM is a flagship scheme initiated by the Indian government in 2019 with the primary objective of transforming the **agricultural sector by promoting the adoption of solar energy solutions**.
   ○ It operates on a demand-driven approach. Capacities are allocated based on the **demands received from various states and union territories (UTs).**
   ○ Through various components and financial support, PM-KUSUM envisions achieving a significant **solar power capacity addition of 30.8 GW by March 31, 2026.**

➤ **Objectives of PM-KUSUM:**
   ○ **De-dieselisation of the Farm Sector**: The scheme aims to reduce the **dependence on diesel for irrigation** by encouraging the use of **solar-powered pumps** and other renewable energy sources.
      ● It also seeks to increase farmers' income by **reducing irrigation costs through the use of solar pumps** and enabling them to sell surplus solar power to the grid.
   ○ **Water and Energy Security for Farmers**: By providing access to solar pumps and promoting **solar-based community irrigation projects**, the scheme aims to enhance water and energy security for farmers.
   ○ **Curbing Environmental Pollution:** Through the adoption of clean and renewable solar energy, the scheme aims to mitigate **environmental pollution caused by conventional energy sources.**

➤ **Components:**
   ○ **Component-A:** Setting up of 10,000 MW of **Decentralized Ground/Stilt Mounted Solar Power Plants** on barren/fallow/pasture/marshy/ cultivable land of farmers.
   ○ **Component-B:** Installation of 20 Lakh Stand-alone Solar Pumps in off-grid areas.
   ○ **Component-C:** Solarisation of 15 Lakh **Grid Connected Agriculture Pumps** through: Individual Pump Solarisation and Feeder Level Solarisation.

➤ **Recent Significant Developments:**
   ○ **Extension of Scheme Duration:** PM-KUSUM has been extended until **March 31, 2026,** to facilitate wider adoption of solar energy solutions among farmers.
   ○ **State-Level Tendering:** State level tendering is allowed for the procurement of standalone solar pumps, making the process more streamlined and efficient.
   ○ **Inclusion in AIF and PSL Guidelines:** The solarization of pumps under PM-KUSUM has been included in the **Agriculture Infrastructure Fund (AIF) and Priority Sector Lending (PSL) Guidelines** of the **Reserve Bank of India (RBI)**, making it more accessible for farmers to access finance.

Note:

➤ **Agriculture Infrastructure Fund (AIF):** The AIF is a financing facility launched on **July 8, 2020** for creation of **post-harvest management infrastructure** and community farm assets.
   ○ Under this scheme, **Rs 1 lakh crore is to be disbursed by financial year 2025-26** and the interest subvention and credit guarantee assistance will be given till the year **2032-33.**

➤ **Priority Sector Lending (PSL):** The RBI mandates banks to lend a certain portion of their funds to specified sectors, like agriculture, Micro, Small and Medium Enterprises (MSMEs), export credit, education, housing, social infrastructure, renewable energy among others.
   ○ All **scheduled commercial banks and foreign banks (with a sizable presence in India)** are mandated to set aside 40% of their **Adjusted Net Bank Credit (ANDC)** for lending to these sectors.

Note:

- ➢ **Major Challenges:**
  - ○ **Geographical Variability:** Different regions in India have **varying solar radiation levels,** which can impact the efficiency and performance of solar installations.
    - ● Also, the effectiveness of solar pumps is contingent on **sufficient sunlight**, which can be challenging during periods of **heavy cloud cover** or in **regions with prolonged monsoons**.
  - ○ **Land Availability and Aggregation:** The availability of suitable land for solar projects and the **aggregation of fragmented land parcels pose challenges** in setting up large-scale solar installations.
    - ● Land acquisition and aggregation can be time-consuming and may lead to delays in project execution.
  - ○ **Inadequate Grid Infrastructure:** In regions where the **grid infrastructure is weak or unreliable,** integrating solar power into the grid can be challenging.
    - ● This can limit the benefits of the scheme, **especially for farmers looking to sell surplus solar power back** to the grid.
  - ○ **Lack of Water Regulation**: With the adoption of **solar pumps,** there may be a **surge in irrigation demand** as farmers find it more accessible and cost-effective to pump water from underground sources.
    - ● The absence of proper water management practices could exacerbate **over-extraction through solar pumps and impact the long-term sustainability of ground water resources**.

India Energy Security Scenarios 2047 V3.0

Why in News?

NITI Aayog unveiled the latest version of the **India Energy Security Scenarios (IESS) 2047 V3.0**, an open-source tool designed to evaluate the integrated impact of **various green energy policies** of the Government of India.

- ➢ The **baseline for the tool has been set at 2020** and is continually calibrated up to 2022, ensuring the accuracy of its predictions.
- ➢ NITI Aayog also released the **India Climate Energy Dashboard (ICED) 3.0**.

Note:
- ➢ ICED is the **country's one-stop platform for near real-time data** on the energy sector, climate, and related economic datasets based on government published sources.

What are the Key Features and Functionality of IESS 2047 V3.0?

- ➢ **Comprehensive Scope**: This tool assesses the **demand and supply of energy in the country,** considering policies related to alternative energy resources like **Green Hydrogen Mission,** Renewable Purchase Obligations, **PM-KUSUM,** Offshore wind strategy, among others.
- ➢ **Environmental Impact Analysis:** By analyzing **emissions, cost, land, and water requirements up to 2047**, IESS 2047 aims to steer India towards a **sustainable and net-zero energy future**.
- ➢ **Open-Source and User-Friendly:** The tool is **open-source, easily downloadable, and user-friendly,** encouraging accessibility and engagement from researchers, think tanks, and the public.
  - ○ IESS 2047 allows users to generate personalized pathways, tailored to specific factors like **industry, services, agriculture, population, urbanization, and end-use energy demand.**
- ➢ **Reducing External Dependency:** By providing reliable estimates of the country's energy needs, IESS 2047 helps reduce India's reliance on external agencies.

- ➢ **India's Panchamrit Goal:**
  - ○ Reach 500 gigawatts (GW) of **non-fossil energy** capacity by 2030.
  - ○ Meet 50% of India's energy requirement from **renewable energy (RE)** sources by 2030.
  - ○ Reduce the carbon intensity of the economy by 45% below 2005 levels by 2030.
  - ○ Reduce total projected carbon emissions by 1 billion tonnes by 2030.
  - ○ Achieve the target of net-zero emissions by 2070.

What are the Initiatives Shaping India's Energy Transition?

- ➢ **Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME)**
- ➢ **Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA)**

Note:

➢ **Green Energy Corridor (GEC)**
➢ **National Solar Mission (NSM)**
➢ **National Biofuels Policy and SATAT**
➢ **Small Hydro Power (SHP)**
➢ **International Solar Alliance (ISA)**

Roadmap of Solar Energy for Universal Energy Access

Why in News?

Recently, the **Ministry of New and Renewable Energy (MNRE),** in partnership with the **International Solar Alliance**, unveiled the report on **'Roadmap of Solar Energy for Universal Energy Access'** developed under **India's G20 presidency in 2023** showcases how **solar energy can play a key role in achieving electricity access** and providing socio-economic benefits globally.

➢ The roadmap is unveiled during **the 4th G20 Energy Transition Working Group** held in Goa. It focuses on achieving **Universal Energy Access by 2030 and** highlighted the crucial role of **solar mini grids** in driving **sustainable energy solutions.**

What are the Key Highlights of the Report?

➢ The roadmap emphasizes solar energy as a **key solution to achieve Universal Energy Access by 2030.**

➢ It identifies around **59% (396 million people) of the unelectrified population best suited for electrification through solar-based mini-grids.**

➢ Approximately **30% of the unelectrified population (203 million people) can be electrified through grid extensions,** and the **remaining 11% of the unelectrified population (77 million people) through Decentralized Renewable Energy solutions.**

➢ A total investment of **around USD 192 billion is required to accomplish the electrification goals,** distributed among solar-based mini-grids, solar-based decentralized renewable energy solutions, and grid extensions.

➢ **Viability gap funding of around 50% (USD 48.5 billion) is needed** to support mini-grid deployment.

➢ The roadmap underscores the importance of addressing challenges related to **policies, regulations, and financial risks** for successful and sustainable scaling up of solar energy solutions.

➢ It highlights the need for **technical and financial expertise, skill development, and awareness creation** in energy access-deficit regions to drive electrification initiatives.

➢ The report advocates for **increased investments, ecosystem development, and optimal resource utilization** to accelerate universal energy access.

➢ Integration of solar **PV-based cooking solutions with electrification** initiatives is emphasized as a way to enhance energy access in remote and underdeveloped areas.

What is Solar Mini-grids?

➢ **About:**
  ○ Solar mini-grids are **small-scale electricity generation and distribution systems** that use **solar photovoltaic (PV) technology** to generate electricity and store it in batteries.
  ○ They are typically designed to provide electricity to **communities or areas that either need to be connected to the main power grid** or experience frequent power outages.

➢ **Importance:**
  ○ Around **9% of the global population still lacks access to electricity,** with Sub-Saharan Africa and rural areas being the most affected.
    ● Solar mini-grids can play a crucial role in addressing this challenge by providing reliable and affordable electricity to these communities.
  ○ Moreover, **over 1.9 billion people worldwide lack access to clean cooking**, and solar mini-grids can also power electric stoves or other cooking appliances, providing clean cooking solutions.

➢ **Benefits of Solar Mini-grids:**
  ○ **Reliability:** Solar energy, with the aid of energy storage systems, offers a reliable source of electricity that remains resilient even **during natural disasters or power outages.**
  ○ **Sustainability:** Solar energy is a clean and renewable energy source, which helps reduce greenhouse gas emissions and mitigate climate change.
  ○ **Scalability:** Solar mini-grids can be scaled up or down depending on the energy demand of the community, making them a flexible option for energy access.
  ○ **Solar Mini-grids Affordability:**

Note:

- Solar energy is a cost-effective alternative to diesel generators in remote regions or islands, where expensive fuel transportation can lead to electricity costs as high as **Rs. 36 per unit.**
  - Harnessing **solar power offers a sustainable and economically viable solution** to reduce electricity expenses in these areas.
- Deployment of decentralized solar is **supported through Feed-in Tariffs and tariff** restructuring for grid-connected capacity.
- Expected reduction in battery costs with large-scale procurement further boosts the development of solar mini-grids.

What are the Challenges in the Deployment of Solar Energy for Universal Energy Access?

- Lack of **enabling policies and regulations** that can support the deployment of solar energy for universal energy access.
- Challenges in equipment manufacturing, on-ground execution, and maintenance need to be addressed for sustained affordability.
- Accumulation of dust on solar panels reduces their output by up to 30 percent in a month, necessitating regular cleaning.
  - Current water-based cleaning methods use about 10 billion gallons annually, but waterless methods are labor-intensive and cause scratching.
- **High financial risks in underdeveloped regions** increase project costs for developers, widening the gap between consumer affordability and supplier viability.
- Need for **more technical and financial expertise** to implement and maintain solar mini-grids.

What is the International Solar Alliance (ISA)?
- **About:**
  - Co-founded by India and France during 2015 during the **UN Climate Change Conference**, the **ISA** is an action-oriented, member-driven, collaborative platform for increased deployment of **solar energy** technologies.
  - Its basic motive is to facilitate energy access, ensure energy security, and drive energy transition in its member countries.
  - ISA is the nodal agency for implementing **One Sun One World One Grid (OSOWOG)**, which seeks to transfer solar power generated in one region to feed the electricity demands of others.

- **Headquarters:**
  - The Headquarters is in India with its **Interim Secretariat** being set up in Gurugram.
- **Member Nations:**
  - A total of 109 countries have signed the ISA Framework Agreement and 90 have ratified it**.**
  - All member states of the **United Nations** are eligible to join the ISA.
- **Observer Status to International Solar Alliance:**
  - The **United Nations General Assembly (UNGA)** has granted Observer Status to the International Solar Alliance (ISA).
  - It will help provide for regular and well-defined cooperation between the Alliance and the United Nations that would benefit global energy growth and development.
- **SDG 7:**
  - Sustainable Development Goal 7 (SDG7) calls for "affordable, reliable, sustainable and modern energy for all" by 2030. It's three core targets are the foundation for our work: By 2030:

What are the Government Schemes to Enhance Solar Energy Production in India?

- **International Solar Alliance**
- **National Solar Mission**
- **Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM)**
- **One Sun, One World, One Grid (OSOWOG)**
- **Solar Park Scheme**
- **Rooftop Solar Scheme**

Intellectual Property Rights Policy Management Framework

Why in News?

Recently, the Ministry of Commerce and Industry, Government of India, has informed the Rajya Sabha about the **Intellectual Property Rights Policy Management (IPRPM)** Framework.

Note:

What is IPRPM Framework?

➢ **About:**
- The framework was launched in the form of **National IPR (Intellectual Property Rights) Policy 2016** encompassing all **IPRs into a single vision document** setting in place an institutional mechanism for implementation, monitoring and review of IP laws.

➢ **Types of IPR Covered under the Framework:**

Right Area	Legal provision	Subject	Term of Protection
Patent	Patent Act, 1970 & Patent Rules, 2003 amended in 2014, 2016, 2017, 2019, 2020 and 2021.	Must qualify requirements of being novel, Inventive and having industrial utility	20 years
Trademarks	Trademark Act 1999 & Trademark Rules 2017	**Protects brand nam**e, logo, design for a business or commercial enterprise	10 years; renewed for 10 years on payment of additional fees
Designs	Designs Act 2000 & Designs (Amendment) Rules 2021	**New or original designs** (ornamental / visual appearance discernible to the human eye) which can be replicated industrially	10 + 5 years
Copyrights	Copyrights Act 1957 & Copyrights Rules 2013 amended in 2021.	**Creative, artistic, literary,** Musical and audio-visual works	Authors -Lifetime+ 60 years; Producers – 60 years Performers – 50 years;
Geographical Indications	Geographical Indications Act 1999 & GI Rules 2002 amended in 2020.	Goods bearing **unique characteristics** due to geographical linkage - agricultural goods, natural goods, manufactured goods, handicrafts and foodstuff	10 years, Renewed for 10 years on payment of additional fees
Semiconductor Integrated Circuits Layout Design	Semiconductor Integrated Circuits Layout Design Act 2000 & Rules 2001	A layout of **transistors and other circuitry elements** including lead wires connecting such elements and expressed in any manner in semiconductor integrated circuits.	10 Years.
Trade Secret	Common Law approach covered through IPC, Contract Act, IP Act and Copyright	Confidential information having commercial value	Till the time confidentiality is safeguarded.
Plant Varieties	**Protection of Plant Varieties and Farmers Rights Act (PPVFRA), 2001**	Traditional varieties and landraces, all developed varieties (non-traditional and non-landrace) in trade/use for **older than 1 year and not older than 15 years or 18 years** (in case of trees and vines), and new plant varieties.	6-10 years.

Note:

- ➤ **Objective:**
  - ○ **IPR Awareness:** Outreach and promotion are important to create public awareness about the economic, social and cultural benefits of IPRs among all sections of society.
  - ○ **Generation of IPRs:** To stimulate the generation of IPRs.
  - ○ **Legal and Legislative Framework:** To have strong and effective IPR laws, which balance the interests of rights owners with larger public interest.
  - ○ **Administration and Management:** To modernize and strengthen service oriented IPR administration.
  - ○ **Commercialisation of IPRs:** Get value for IPRs through commercialisation.
  - ○ **Enforcement and Adjudication:** To strengthen the enforcement and adjudicatory mechanisms for combating IPR infringements.
  - ○ **Human Capital Development:** To strengthen and expand human resources, institutions and capacities for teaching, training, research and skill building in IPRs.
- ➤ **Initiatives under IPR Policy:**
  - ○ **National Intellectual Property Awareness Mission (NIPAM)**: It is a flagship program to impart IP awareness and basic training in educational institutes.
  - ○ **National Intellectual Property (IP) Awards:** These are conferred every year to recognize and r**eward the top achievers comprising individuals,** institutions, organizations and enterprises, for their IP creations and commercialization.
  - ○ **Scheme for Facilitating Start-Ups Intellectual Property Protection (SIPP):** It encourages **filling of Patent applications** by Startups.
  - ○ **Patent Facilitation Programme: It aims** to scout patentable inventions and provide full financial, technical a**nd legal support in filing and obtaining patents.**

What are Intellectual Property Rights?

- ➤ **About:**
  - ○ IPR are the rights given to **persons over the creation of their minds.** They usually give the creator an exclusive right over the **use of his/her creation for a certain period of time.**
  - ○ These rights are outlined in **Article 27 of the Universal Declaration of Human Rights,** which provides for the right to benefit from the protection of moral and material interests resulting from authorship of scientific, literary or artistic productions.
  - ○ The importance of intellectual property was first recognized in the **Paris Convention for the Protection of Industrial Property (1883)** and the Berne Convention for the **Protection of Literary and Artistic Works (1886).**
  - ○ Both treaties are administered by the **World Intellectual Property Organization (WIPO).**
- ➤ **Need for IPR:**
  - ○ **Encourages Innovation:**
    - ● The legal protection of **new creations encourages** the commitment of additional resources for further innovation.
  - ○ **Economic Growth:**
    - ● The promotion and protection of intellectual property **spurs economic growth,** creates new jobs and industries and enhances the quality and enjoyment of life.
  - ○ **Safeguard the Rights of Creators:**
    - ● IPR is required to **safeguard creators and other producers** of their intellectual commodity, goods and services by granting them certain time-limited rights to control the use made of the manufactured goods.
  - ○ **Ease of Doing Business:**
    - ● It promotes innovation and creativity and ensures ease of doing business.
  - ○ **Transfer of Technology:**
    - ● It facilitates the transfer of technology in the form of foreign direct investment, joint ventures and licensing.

What are the Issues Related to IPR Regime?

- ➤ **Patent-Friendliness Over Public Health:** The National IPR Policy recognizes the contribution of the Indian pharmaceutical sector in providing affordable medicines globally. However, I**ndia's patent establishment has prioritized patent-friendliness** over public health and national interest in the pharmaceutical sector.
- ➤ **Data Exclusivity:** Foreign investors and **Multi-National Corporations (MNCs)** allege that Indian law does not

Note:

protect against unfair commercial use of test data or other data submitted to the government during the application for market approval of pharmaceutical or agro-chemical products. For this, they demand a data exclusivity law.

➢ **Resulting in Anti-Competitive Market:** The Patents Act has **four stakeholders:** society, government, patentees, and their competitors, and interpreting and enforcing the act to only benefit patentees undermines the rights of other stakeholders and leads to anti-competitive market outcomes.

What are the Treaties and Conventions related to IPR?

➢ **Global:**
  ○ India is a member of the **WTO (World Trade Organization)** and committed to the **Agreement on TRIPS (Trade Related Aspects of Intellectual Property Rights) Agreement.**
  ○ India is also a member of **WIPO (World Intellectual Property Organisation)**, a body responsible for the promotion of the protection of intellectual property rights throughout the world.
  ○ India is also a member of the following important **WIPO-administered International Treaties** and Conventions relating to IPRs:
    ● Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure (adopted in 1977)
    ● Paris Convention for the Protection of Industrial Property (adopted in 1883).
    ● Convention Establishing the World Intellectual Property Organization (adopted in 1967).
    ● Berne Convention for the Protection of Literary and Artistic Works (Adopted in 1886).
    ● **Patent Cooperation Treaty** (Adopted in 1970).

➢ **National:**
  ○ **Indian Patent Act 1970:**
    ● This principal law for patenting system in India came into force in the year 1972. It replaced the Indian Patents and Designs Act 1911.
    ● The Act was amended by the **Patents (Amendment) Act, 2005**, wherein product patent was extended to all fields of technology including food, drugs, chemicals and microorganisms.

RS Chairman Nominates 4 Women MPs to the Panel of Vice-Chairperson

Why in News?

Rajya Sabha Chairman nominated **four women parliamentarians to the panel of vice-chairpersons,** giving women equal representation in the panel, for the first time in the history of the Rajya Sabha, even as the **women's reservation Bill**, that was first introduced in 1996, remains pending.

➢ **Smt. S. Phangnon Konyak** is the first ever woman from Nagaland to be elected as a member of the Rajya Sabha.

➢ In another notable development, the Rajya Sabha Chair has become fully digital.

What is Panel of Vice Chairperson of Rajya Sabha?

➢ **Article 118(1) of the Constitution** empowers each House of Parliament to make rules for regulating its Procedure and the Conduct of its business.

➢ Under this provision of the Constitution, **Rajya Sabha adopted rules for regulating its procedure and the conduct of its business in 1964**.

➢ Under the Rules of **Rajya Sabha, the Chairman nominates from amongst the members a panel of vice-chairpersons** holds office until a new panel of vice-chairpersons is nominated.

➢ Any one of them can preside over the House in the absence of the Chairman or the **Deputy Chairman.**

➢ He/she has the **same powers as the Chairman when so presiding.**

➢ When a member of the panel of vice-chairpersons is also not present, any other person as determined by the House acts as the Chairman.

➢ A member of the panel of vice-chairpersons cannot preside over the House **when the office of the Chairman or the Deputy Chairman is vacant.**

➢ During such time, the Chairman's duties are to be performed by such members of the House as the **President** may appoint for the purpose.

Note:

drishti

What is the Status of Women's Representation in Parliament?

➢ The number of women members in the **Lok Sabha** has shown a regular increasing trend in the recent times. The number of Women MP's in Lok Sabha has increased from **45 (8.3%) in 2004 (14th Lok Sabha) to 81 (14.9%) in 2019 (17th Lok Sabha).**
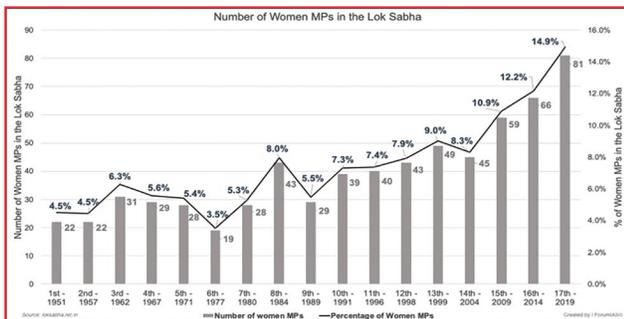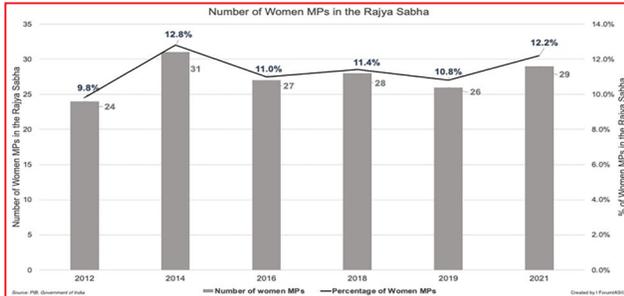
NITI Aayog Unveils TCRM Matrix Framework

Why in News?

NITI Aayog has introduced the Techno-Commercial Readiness and Market Maturity Matrix (TCRM Matrix) framework, an innovative assessment tool aimed at transforming technology evaluation, encouraging innovation, and nurturing entrepreneurship in India.

What is TCRM Matrix?

➢ **TCRM Matrix stands for Techno-Commercial Readiness and Market Maturity Matrix**.
   ○ It is an assessment tool designed to revolutionize technology evaluation, foster innovation, and fuel entrepreneurship in India.
➢ The framework presents an integrated assessment model that offers in-depth insights and actionable intelligence to stakeholders at every stage of the technology development cycle.

How will TCRM Matrix be Useful?

➢ TCRM framework provides a robust analysis of the joint readiness of a project.
   ○ The scale is intended to give a standard language for innovators, researchers, and investors to communicate about the readiness of a technology for commercialization or deployment.
➢ **The Technology Readiness Level (TRL)** was designed to give a **framework for assessing a technology's readiness** and communicate more effectively about the risks and opportunities associated with a given technology by **utilizing standard language to express the maturity of a technology**.
   ○ This framework was developed from the study of innovation from an economic perspective and looks at the increase in performance of a technology over time.
   ○ It finds that **from the point of introduction of the technology** by an innovator, the **improvement in performance of a technology** usually starts very slowly with early adopters.
➢ The **Commercialization Readiness Level (CRL)** will assess **various indicators which influence the commercial and market conditions** beyond the technology maturity.
   ○ It assess how a new technology could be commercially successful all the way through to commercial availability and wider acceptance within the target market.
   ○ This enables key barriers to be addressed to **support the commercialization of a technology.**
   ○ It is intended to **supplement the TRL scale by providing increased focus on a technology's preparedness for market launch** and commercial success through specific and clearly defined business indicators.
➢ **Market Readiness Level (MRL)** is a methodology used to **evaluate how close to the market the project outputs**.
   ○ It is used to **assess how ready your product or service is to take to market as a commercial offering for a group of customers**.
   ○ It relies on extrinsic indicators like the awareness of extrinsic market indicators.
   ○ It is intended to supplement the TRL and CRL by focusing on a technology's preparedness for the purpose of customer adoption and market success

Note:

What are the limitations of TCRM Matrix?

➤ Each of the TRL, CRL, and MRL systems, have certain limitations which are:

Technology Readiness Level (TRL)	Commercialization Readiness Level (CRL)	Market Readiness Level (MRL)
TRLs only take into account a technology's technical readiness, ignoring other elements like market demand, cost effectiveness, and regulatory compliance that are crucial for commercial success.	CRLs are concerned with commercialization readiness and may over look technical elements of a technology.	The MRL system may be subjective, and various stakeholders may perceive it differently, resulting in contradictions in ratings.
TRLs do not spec ify how to advance a technology from one level to the next, making it difficult to design and implement technological development and commercialization strategies.	External variables, such as changes in rules or market conditions, might have an impact on a techno logy's commercial readiness.	MRLs may fail to account for external factors that can influence technology adoption such as changes in customer tastes, competition, or technological improvements.

Why is TCRM Matrix Needed?

➤ According to the **Global Innovation Index 2022**, **India was ranked 40th** in the world in terms of R&D expenditure as a percentage of GDP.

➤ India's start-up ecosystem has grown rapidly, with over **50,000 start-ups** in the country. This is supported by a strong network of incubators and accelerators, which have helped to nurture and support these innovative companies.

➤ The **IT and software sector** contributed USD 191 billion to India's GDP in 2020, accounting for **7.7% of the country's total GDP.**

➤ The Indian **pharmaceutical industry is the world's third largest** by volume, with over 20,000 registered companies.

Amended Rules Relating to Retirement Benefits of IAS, IPS, IFOS Pensioners

Why in News?

The Central government has amended All India Services (Death-cum-Retirement Benefits) **Rules 1958** relating to retirement benefits of IAS, IPS (Indian Police Service) and IFos (Indian Forest Service) pensioners**.**

➤ The **Rules 1958 were amended by the Department of Personnel and Training (DoPT), to Rules 2023.**

➤ It mainly **focuses on retired intelligence or security related organizations**.

What are the Changes Made by the 2023 Rule?

➤ The central government empowers itself to act against IAS, IPS and IFos and withhold or **withdraw their pension even without a reference from the state government** if they are **found guilty of grave misconduct** or are convicted of a serious crime.

➤ The amended rules reiterate that the **decision of the Central Government on** withholding or withdrawing the pension **"shall be final"**.

  ○ Rules added '**grave misconduct'** includes communication or disclosure of any document or information mentioned in the **Official Secrets Act** and a '**serious crime**' includes any crime involving an offence under the Official Secrets Act.

  ● **Earlier rule 3(3) in the All-India Services (Death-cum-Retirement Benefits) Rules, 1958**, which stated that the Central government may withhold or **withdraw pension** or any part of it "**on a reference from the State Government** concerned.

➤ Members of intelligence or security-related organizations who have served in such capacities shall not write or publish any writings without obtaining prior clearance from the head of their respective organization.

Note:

What will be the Effect of Changed Rules?

➢ **The Centre may not have to wait for a reference from the state government** to act against a pensioner found guilty of grave misconduct or convicted of a serious crime by a Court.

○ If the state government concerned does not send such references in such cases, the **central government may initiate a process of action**.

➢ Expressing and writing in the media and writing books which disclose sensitive information by the officials of security and intelligence organisations will result in action against officials of security and intelligence organisations concerned.

➢ The proposed amendment would weaken the State's political control over the bureaucracy.

➢ It would hobble effective governance and create avoidable legal and administrative disputes. Because amended rules will provide unrestricted power to central govt to act against retired officers.

What is All India Services (Death-cum-Retirement Benefits) Rules, 1958?

➢ Section 3 of the All-India Services Act. 1951(61 of 1951) empowers the Central Government, after consultation with the Governments of the States concerned, to make such rules.

➢ They shall apply to all people who retired from the Service on or after the 29th of October 1951.

➢ They do not apply to those members of the Service who were promoted to the Service from the State Services or were appointed to the Service under the Indian Administrative Service (Extension to States) Scheme or the Indian Police Service

➢ Nothing contained in these rules shall apply to the people appointed to the service on or after the 1st day of January 2004.

Rajasthan Minimum Guaranteed Income Bill, 2023

Why in News?

The **Rajasthan Minimum Guaranteed Income Bill, 2023,** introduced by the Rajasthan government, aims to provide additional income support to people in the state. The Bill seeks to help citizens cope with **inflation and improve their financial stability**.

➢ The Bill has three broad categories: **right to minimum guaranteed income, right to guaranteed employment, and right to guaranteed social security pension.**

What is the Rajasthan Minimum Guaranteed Income Bill, 2023?

➢ **Key Components of the Bill:**

○ **Right to Minimum Guaranteed Income:**

● The Bill guarantees a minimum income for every **adult citizen for 125 days a year.**

● Each adult citizen will receive minimum income through the **Indira Gandhi Shahri Rozgar Guarantee Yojana** in urban areas and the **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)** in rural areas.

● The state will add **25 days of employment to MGNREGA's 100 days** for rural areas.

○ **Right to Guaranteed Employment:**

● The government will **pay minimum wages weekly or fortnightly** after the completion of work in urban and rural employment schemes.

● A designated **officer** will ensure job sites are within **five kilometers** of the registered job card address.

● If **employment is not provided within 15 days of application**, the applicant will receive a **weekly unemployment allowance** "and in any case not later than a fortnight."

○ **Right to Guaranteed Social Security Pension:**

● The Bill ensures that people falling under categories like **old age, specially abled, widows, and single women** receive a pension.

■ The pension will see an **annual increase of 15% in two installments, starting from the financial year 2024-2025.**

➢ **Distinguishing from Cash Transfer Schemes:**

○ The Rajasthan Minimum Guaranteed Income Bill is unique as it legally **guarantees both minimum income support and guaranteed employment and pensions**, setting it apart from **regular cash transfer** schemes. It reflects Mahatma Gandhi's vision of comprehensive welfare measures.

○ The Bill covers **all families in the state,** offering employment and pension support to various vulnerable groups. **Cash transfer schemes may have limited coverage.**

Note:

drishti

- The Bill includes **annual increment in pensions, ensuring they keep pace with inflation.** Cash transfer schemes may not have such provisions.
- The Bill takes a comprehensive approach towards social security, aiming to benefit vulnerable sections of society.

➢ **Criticism against the Bill:**
- While the Bill has received praise for its efforts to address economic disparities, some critics argue that the **additional expenditure of Rs 2,500 crore per year may strain the state's finances**.
- They express concerns about the **long-term sustainability of the scheme** and the potential burden it may place on taxpayers.

INDIA'S TRYST WITH INCOME SUPPORT

1938	**1964**	**2011-12**	**2016-17**	**2022**
A minimum income standard discussed	Plan to start such a programme was on the horizon	2 pilot projects conducted in 8 villages of Madhya Pradesh	Economic Survey suggests scheme for bottom 75% of population, while rolling back some subsidies	Sikkim Democratic Front plans to roll out UBI

UBI ACROSS THE WORLD

US | Alaska Permanent Fund distributes part of the state's oil revenues to all residents on per-capita basis

Stockton, California Secured funding from private non-profits to launch a small project with about 100 participants receiving $500 a month for about 18 months

Finland | Scheme started in 2017 to pay 2,000 jobless people assistance of €560 a month stopped last year

Kenya | Largest experiment underway with some villages receiving $0.50-1 a day

Brazil | Has run experiments

Canada | Ontario plans to test a basic income scheme

France | A senate committee has recommended an experiment

UK & Germany | Studies have been conducted

Scotland | Committed funds to conduct an experiment

Barcelona, British Columbia | Plans to start experiments

Switzerland | Plan to give everyone right to basic income defeated in 2016

Overview of Indian Nursing Colleges

Why in News?

Ministry of Health data reveals that 40% of districts in India lack any nursing colleges. Moreover, five States in the south have 42% of the country's nursing institutions, while three States in the west have 17%.

What are the New Findings?

➢ India currently has close to **35 lakh nurses**, but its nurse to population ratio is **only 2.06:1000 against a global benchmark of 3:1000.**

➢ There has been **a 36% growth in the number of institutions offering undergraduate nursing** education since 2014-15, resulting in a **40% growth in nursing seats**.
- But About **64% of the nursing workforce is currently trained in just eight States.**

➢ **42% of nursing institutions are concentrated** in five southern States namely, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and Telangana.
- **17% are in the western States** of Rajasthan, Gujarat, and Maharashtra.
- **Only 2% of nursing colleges are in the northeastern State**.

➢ The growth of nursing colleges also lags far behind the 81% growth rate of medical colleges, with the number of undergraduate and postgraduate medical seats surging at 110% and 114%, respectively, since 2014-15.

➢ **Global Statistics:**
- According to the **WHO, approximately 27 million men and women** make up the global nursing and midwifery workforce, accounting for nearly 50% of the global health workforce.
- There is a global shortage of health workers, in particular nurses and midwives, who represent more than 50% of the current shortage of health workers.
- The largest shortages of nurses and midwives are in Southeast Asia and Africa.

What is the Reason Behind the Shortage of Colleges?

➢ **Minimal health budget**: India's expenditure on the health sector has risen meagerly from 1.2% of the GDP in 2013-14 to 1.35% in 2017-18. The National Health Policy 2017 had aimed for this to be 2.5% of GDP.

➢ **Inadequate Infrastructure**: Massive shortages in the supply of services (human resources, hospitals and diagnostic centers in the private/public sector) which are made worse by grossly inequitable availability between and within States. For **example, even a well-placed State such as Tamil Nadu has an over 30%** shortage of medical and non-medical professionals in government facilities.

Note:

drishti

➤ **Workload and Staffing Issues**: Nurses in India often faced heavy workloads, long working hours, and staff shortages. This situation not only affected patient care but also resulted in burnout and job dissatisfaction among nurses.

➤ **Low Compensation and Job Insecurity**: Nurses were typically paid lower salaries compared to other healthcare professionals, despite the demanding nature of their work.

➤ **Gender Norms and Social Stigma**: Nursing has traditionally been seen as a female-dominated profession in India, which has perpetuated certain gender norms and social stigmas.

➤ **Rural-Urban Disparities**: The nursing infrastructure in rural areas lagged that of urban centers. Rural healthcare facilities often faced more challenges in attracting and retaining skilled nursing staff.

What should be done to Increase Nursing Colleges in India?

➤ **Investment in Healthcare**: The National Health Policy 2017 had aimed for this to be 2.5% of GDP.

➤ **Nursing Education and Training:** Enhance the quality of nursing education by updating the curriculum, adopting modern teaching methods, and providing adequate training facilities.

➤ **Scholarship Programs and Incentives**: Introduce scholarship programs and financial incentives for aspiring nurses to attract more individuals to the profession.

➤ **Public Awareness Campaigns:** Launch public awareness campaigns to promote the nursing profession and its significance in the healthcare system.

➤ **Recruitment and Retention:** Implement strategies to recruit and retain nursing professionals in the healthcare workforce. Offer competitive salaries, benefits, career growth opportunities, and a supportive work environment to encourage nurses to stay in the profession.

➤ **Telemedicine and Technology:** Embrace telemedicine and digital health solutions to improve healthcare access and delivery.

➤ **Collaboration with Nursing Organizations:** Foster collaboration between government bodies, healthcare institutions, and nursing organizations to develop and implement effective policies and initiatives for nursing infrastructure growth.

What are the Government's Efforts?

➤ **157 new nursing colleges will be established** in co-location with the existing 157 medical colleges established since 2014 as per Budget 2023-24.

➤ Centre directs States to correct regional disparity with a new scheme to open nursing colleges.

What are the Recent Government Initiatives Related to Healthcare?
➤ **National Health Mission**
➤ **Ayushman Bharat**
➤ **Pradhan Mantri Jan Arogya Yojana (AB-PMJAY)**
➤ **National Medical Commission**
➤ **PM National Dialysis Programme**
➤ **Janani Shishu Suraksha Karyakram (JSSK)**
➤ **Rashtriya Bal Swasthya Karyakram (RBSK**)

Export Preparedness Index 2022

Why in News?

Recently, **NITI Aayog** has released the 3rd edition of **Export Preparedness Index (EPI)** for States/UTs of India for the year 2022.

➤ The report discusses **India's export performance amid the prevailing global trade** context in FY22, followed by an overview of the country's sector-specific export performance.

What is the Export Preparedness Index?

➤ **About:**
   ○ EPI is a comprehensive tool which **measures the export preparedness of the States and UTs** in India.
   ○ Exports are **vital for simulating economic growth** and development in a country, which necessitates understanding the factors which influence export performance.
   ○ The index undertakes **a comprehensive analysis of States and UTs across export-related parameters** in order to identify their strengths and weaknesses.

➤ **Pillars:**
   ○ **Policy:** A comprehensive trade policy providing a strategic direction for exports and imports.

Note:

- ○ **Business Ecosystem:** An efficient business ecosystem helping states attract investments and create an enabling infrastructure for individuals to initiate start-ups.
- ○ **Export Ecosystem:** Assess the business environment, which is specific to exports.
- ○ **Export Performance:** This is the only output-based parameter and examines the reach of export footprints of States and UTs.
- ➢ **Sub Pillars:**
  - ○ The index also took into consideration **10 sub-pillars:** Export Promotion Policy; Institutional Framework; Business Environment; Infrastructure; Transport Connectivity; Export Infrastructure; Trade Support; R&D Infrastructure; Export Diversification; and Growth Orientation.
- ➢ **Features:** The EPI is a **data-driven effort to identify the core areas crucial for export promotion** at the sub-national level (states and union territories).
  - ○ It explores and highlights India's export potential by examining the different contributions made by each state and union territories.

What are the Key Highlights of the EPI 2022?

- ➢ **Performance of States:**
  - ○ **Top Performers:**
    - ● Tamil Nadu has topped in EPI 2022, followed by Maharashtra and Karnataka.
      - ■ Gujarat, which held the top position in **EPI 2021 (released in 2022) has been pushed to the fourth slot in EPI 2022.**
    - ● Tamil Nadu's performance in terms of export performance indicators, including the value of exports, export concentration, and global market footprint, **contributed to its top ranking.**
      - ■ It has been a consistent **leader in sectors such as automotive, leather, textiles**, and electronic goods.
  - ○ **Hilly/Himalayan States:**
    - ● Uttarakhand secured the **top position among hilly/Himalayan states in the EPI 2022**. It is followed by **Himachal Pradesh, Manipur, Tripura,** Sikkim, Nagaland, Meghalaya, Arunachal Pradesh, and Mizoram.
  - ○ **Landlocked Regions:**
    - ● Haryana topped the **chart among the landlocked regions**, indicating its preparedness for exports.

- ● It was followed by **Telangana, Uttar Pradesh, Punjab,** Madhya Pradesh, and Rajasthan.
- ○ **Union Territories/Small States:**
  - ● Among union territories and small states, Goa ranked first in the EPI 2022.
    - ■ Jammu and Kashmir, Delhi, Andaman and Nicobar Islands, and Ladakh secured the second, third, fourth, and fifth positions, respectively.
- ➢ **Global Economy:**
  - ○ Global trade in 2021 showed signs of recovery from the Covid-19. Factors like increased demand for goods, fiscal policies, vaccine distribution, and easing of restrictions contributed to a **27% increase in merchandise trade** and a 16% increase in **services trade** compared to the previous year.
  - ○ The Russo-Ukrainian war in February 2022 slowed down the recovery, impacting **sectors like grain, oil, and natural gas.**
  - ○ Trade in goods saw significant growth, and services trade recovered to pre-pandemic levels by Q4 2021.
- ➢ **India's Export Trends:**
  - ○ Despite global slowdown, India's **exports in 2021-22 crossed an unprecedented USD 675 Billion**, with trade in goods accounting for **USD 420 billion.**
  - ○ The value of merchandise exports crossed USD 400 billion in FY2022, an ambitious goal set by the government, reaching up to **USD 422 billion by March 2022.**
    - ● The cause of this performance was manifold. Globally, the increase in prices of commodities and rise in demand from developed countries helped increase India's merchandise exports.

What are the Key Learnings of the Exports Preparedness Index (EPI)?

- ➢ **Coastal states have fared the best** across all indicators with **six out of the top states** in the index coming from the coastal region of the country.
  - ○ States like Tamil Nadu, Maharashtra, Karnataka, and Gujarat (all of them performing the best in at least one pillar).
- ➢ In terms of strengths, the policy ecosystem is **a positive story with multiple states adopting the necessary policy measures** to drive exports in their states.

Note:

○ At the district-level, 73 % of districts in the country have an export action plan and over 99 % are covered **under the 'One District One Product' scheme.**

➤ States have lagged in terms of transport connectivity. The absence of air connectivity hampers the **movement of goods across regions**, especially in states which are landlocked or geographically disadvantaged.

➤ The lower performance of the country in terms of **Research and Development (R&D) indicates the lack of attention given** to the role of innovation in exports.

➤ The state government has to both continue and extend its support to the **industries** which are struggling.
  ○ 26 states in the country have registered a **decrease in the gross value addition** of their manufacturing sector.
  ○ 10 states have registered **a decrease in the inflow of Foreign Direct Investment (FDI)**.

➤ The lack of capacity-building workshops for exporters hampers their ability to penetrate the global markets as 25 of 36 states have organized less than 10 workshops across a year.
  ○ For the effectiveness of existing government schemes to support states, timely approval of projects is a must.

What are the Recommendations of the EPI?

➤ **Adoption of Good Practices:** States should be encouraged to adopt good practices from their peers if they suit their needs. Learning from successful states can help lagging states improve their export performance.

➤ **Investment in Research and Development (R&D):** States should invest in R&D to drive product innovation, market-specific product creation, improvement in product quality, cost reduction, and efficiency improvement.
  ○ Establishing **dedicated research institutes with regular funding can help s**tates improve their exports.

➤ **Leveraging Geographical Indication (GI) Products:** States should **capitalize on their unique GI products** to establish a presence in the global market. Promoting and improving the manufacturing and quality of GI products can boost exports.
  ○ **For example**, Kancheepuram Silk products can only be exported by Tamil Nadu and have no competition across the country.

➤ **Diversification of Export Markets:** Identifying and promoting high-growth sectors, such as information technology, pharmaceuticals, automotive, textiles, and renewable energy, can enhance India's export potential.

World Youth Skills Day: Namda Art, AI for India 2.0

Why in News?

Recently, on the occasion of **World Youth Skills Day (15th July),** the **Skill India project** achieved a remarkable feat by successfully reviving the dying **Namda Art of Jammu and Kashmir,** by flagging off the first batch of Namda Art products for export to the **UK.**

➤ On the same occasion, the **Union Minister of Education and Skill Development and Entrepreneurship**, launched **AI for India 2.0.**

What is World Youth Skills Day?

➤ **About:**
  ○ Every year, the **15th of July** is observed as World Youth Skills Day.
  ○ The day highlights the critical role of **skills development in preparing young people for the labor market** and fostering their active participation in society.
  ○ Celebrates the strategic importance of equipping young people with skills for **employment, decent work, and entrepreneurship.**

➤ **Background:**
  ○ Designated by the **United Nations General Assembly in 2014.**

➤ **World Youth Skills Day 2023 Theme:**
  ○ **Skilling Teachers, Trainers, and Youth for a Transformative Future.**

What is Namda Art?

➤ **Origin and Introduction:**
  ○ Namda Art began in the **16th century when Mughal Emperor Akbar** desired protective coverings for his horses.
  ○ It was introduced to Kashmir by **Sufi saint Shah-e-Hamdan.**

➤ **Creation and Materials:**
  ○ Namda is a type of traditional **Kashmiri felted carpet** made using **sheep wool**.

Note:

○ The wool is compressed and matted together; a process known as felting, giving it a distinct texture.

➢ **Manufacturing Process:**

○ Namda carpets are typically created by layering multiple wool layers on top of each other.

○ Each layer is sprinkled with water and pressed using a tool called a **'pinjra' (woven willow wicker).**

○ The layers are compressed to create a solid and durable carpet.

➢ **Decline and Revival:**

○ Due to **low availability of raw material, lack of skilled manpower** and marketing techniques, the export of this **craft has declined almost 100% between 1998 and 2008.**

● Hence, the Skill India project under the **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)** has designed a short-term training curriculum to preserve this endangered craft.

○ The training provided under this initiative has empowered local artisans and helped preserve this traditional craft for future generations.

○ Kashmir has also been seeking **GI registration** for various products, including **Kashmir Namda and Gabba (two types of Valley-specific woollen rugs)** (besides Wagguv (mat made of reed and paddy straw), Shikara and Kashmir Willow bat).

Craft	State
Aranmula Kannadi	Kerala
Bengal Patacnftra	west Bengal
Bastar Dhokra	Chhatusgarh
Brass Broidered Coconut Shell Craft	Kerala
chamba Rumai	Himachal Pradesh
Chanderi Fabric	Madhya Pradesh
Chhau Masks of Charida	West Bengal
Dokra	West Bengal
Kanchepuram Slik	Tamil Nadu
Kashmir Pashmina	Jammu and Kashmir
Kullu Shawl	Himachal Pradesh
Lucknow Chikan Craft	Uttar Pradesh
Madhubani Painting	Bihar
Madhurkathi	West Bengal
Mysore Silk	Karnataka

Pochampally Ikat	Telangana
Rajasthani Kathputlis	Rajasthan
Salem Fabric	tamil Nadu
Solapur Chaddar	Maharasthra
Terracotta of Panchmura	West Bengal
Thanjavur Painting	Tamil Nadu
Wooden Masks of Kushmandi	West Bengal

What is Pradhan Mantri Kaushal Vikas Yojana?

➢ **About:**

○ It is a flagship scheme under the **Skill India Mission** launched in 2015.

○ It aims to train over **40 crore people in India by 2022,** providing vocational training and certification for better livelihoods and societal respect.

➢ **PMKVY 1.0:**

○ **Launch:** Introduced on July 15, 2015, on World Youth Skills Day.

○ **Objective:** Encouraging skill development by offering free **short-term training and monetary rewards for skill certification.**

➢ **PMKVY 2.0 (2016-20):**

○ **Coverage:** Scaled up **for greater alignment with missions** like **Make in India**, **Digital India**, **Swachh Bharat**, etc.

○ **Funding and Targets: NSDC: State Governments = 75:25.**

○ **Outcome:** Over 1.2 Crore youth trained/oriented **under PMKVY 1.0 and 2.0.**

➢ **PMKVY 3.0 (2020-22):**

○ **Coverage:** Launched in 717 districts across 28 States and 8 UTs.

○ **Implementation:** Decentralized structure with increased involvement and support from **States/UTs and Districts.**

○ **Features:**

● Focus on new-age and **Industry 4.0 job** roles

● Emphasis on **vocational education** and **early skill development**

● **Bottom-up approach** to identify **local job opportunities**

○ **PMKVY 4.0 (2023-26):**

● **Coverage:**

Note:

- Latest phase of the scheme announced in **Union Budget 2023-24**.
- It will **emphasize On-job training, industry partnership, and alignment of courses with the needs of the industry.**
  ○ **Implementation:**
    - To be implemented by NSDC, will involve state govts, industry associations, and other stakeholders.
    - To be monitored by an empowered committee under the Minister of State for Skill Development and Entrepreneurship.
  ○ **Features:**
    - Offers skill training and certification in various fields ranging from **AI, blockchain, mobile repairing, vehicle maintenance, and management, etc.**
    - Align the training course of **National Skills Qualification Framework (NSQF).**
    - Provide soft skills, entrepreneurship, financial and digital literacy training to the candidates.
- ➢ **Other Initiatives for Skill Development:**
  ○ **SANKALP.**
  ○ **STRIVE Project.**
  ○ **TEJAS Initiative for Skilling**
  ○ **Mandatory CSR Expenditure in Skilling:** Since the implementation of **mandatory CSR spending under the Companies Act, of 2013**, corporations in India have invested over Rs. 100,000 crores in diverse social projects.

What is AI for India 2.0?

- ➢ **About:**
  ○ AI for India 2.0 is a free online training program focused on **Artificial Intelligence.**. The program is a continuation of AI for India 1.0, which was launched on February 24, 2021. AI for India 1.0 was a one-day online event that provided a complimentary course on Python programming language, a widely used language in AI development.
  ○ It is a Joint Collaboration between **Skill India and GUVI, an IIT Madras incubated startup.**
  ○ Completion of the program results in recognition and certification of acquired AI skills.

- ➢ **Aim:**
  ○ Aims to **future-proof India's youth by offering AI skill training.**
  ○ Equipping **Indian youth with frontier AI skills.**
  ○ Enhancing employability and fostering skill development.
- ➢ **Accreditation:**
  ○ Accredited by **NCVET (National Council for Vocational Education and Training)** and IIT Madras.
- ➢ **Salient Features:**
  ○ **Accessibility:**
    - Envisions easy accessibility of AI learning across the nation.
    - Empowering youth with cutting-edge technologies.
  ○ **Language Inclusivity:**
    - Focuses on providing AI skill training in Indian languages.
    - Addresses the language barrier in technology education.
  ○ **Technological Advancements:**
    - Contributes to India's position as a **technology-savvy country.**
    - Expanding training in **cutting-edge technologies.**

Ensuring Child Welfare and Support: Mission Vatsalya Scheme

Why in News?

Mission Vatsalya, launched by the **Ministry of Women and Child Developmen**t, ensures children's safety and security in India.

- ➢ **Child Welfare and Protection Committee (CW&PC) at village level will identify the children** who are eligible for support likely to be in difficult circumstances, orphans, street children etc. These children **will be facilitated under the sponsorship component of Mission Vatsalya Scheme.**
- ➢ Sponsorship facilities will be provided based on the recommendation of the **Child Welfare Committee (CWC)** and approval from the Sponsorship and **Foster Care Approval Committee (SFCAC).**

Note:

What is Mission Vatsalya?

➢ **Historical Perspective:**

○ **Pre-2009:** Ministry of Women and Child Development implemented three schemes:

● Juvenile justice program for children in need of care and protection and children in conflict with the law.

● Integrated program for street children.

● Scheme for assistance to children's homes.

○ **2010:** These schemes merged into the Integrated Child Protection Scheme.

○ **2017:** Renamed as the **Child Protection Services Scheme.**

○ **2021-22:** Reintroduced as **Mission Vatsalya.**

➢ **About:**

○ Umbrella scheme for child protection services in India.

○ Aims to secure a healthy and happy childhood for every child in the country.

○ Components of Mission Vatsalya include:

● Improving the **functioning of statutory bodies.**

● Strengthening service delivery structures.

● Upscaling **institutional care and services.**

● Encouraging **non-institutional community-based care.**

● Providing **emergency outreach services.**

● **Training and capacity building.**

➢ **Objectives:**

○ Ensure opportunities for **children to reach their full potential** and flourish in all aspects.

○ Foster a **sensitive, supportive, and synchronized ecosystem for child development.**

○ Assist states and union territories in implementing the **Juvenile Justice Act, of 2015.**

○ Achieve the **Sustainable Development Goals (SDGs).**

➢ **Modes of Non-Institutional Care for Children:**

○ **Sponsorship:**

● **Government Aided Sponsorship:** Financial assistance provided through government funds.

● **Private Aided Sponsorship**: Financial assistance provided through private sources or individuals.

○ **Foster Care:**

● The responsibility of **caring and rehabilitating the child** is undertaken by an unrelated family.

● **Financial support is provided to the foster parents** for nurturing the child.

○ **Adoption:**

● Finding suitable families for children who are **legally free for adoption.**

● The **Central Adoption Resource Authority (CARA)** facilitates the adoption process.

○ **Aftercare:**

● Financial support is provided to children **leaving a Child Care Institution upon turning 18 years old.**

● This support helps them **reintegrate into society and become self-dependent.**

● Assistance may be extended from the **age of 18 years up to 21 years, with the possibility of extension up to 23 years.**

Note: Every district will **have a SFCAC to implement and monitor the Sponsorship and Foster Care programme** as provided under the Mission.

What are Child Welfare Committees?

➢ Child Welfare Committees (CWCs) are constituted by **state governments** for each **district or group of districts to protect and care for children in need.**

➢ Each CWC consists of a **Chairperson and four members**, including at **least one woman and one expert on matters concerning children.**

➢ The **Juvenile Justice (Care and Protection of Children) Act, 2015,** mandates the establishment of at least one CWC in every district.

➢ CWCs perform functions and roles as defined in the Juvenile Justice Act/Rules, subject to amendments.

➢ CWC functions as a Bench of Magistrates and has the authority to dispose of cases related to th**e care, protection, treatment, development, and rehabilitation of children.**

➢ Mission Vatsalya provides infrastructure and financial support to states/UTs for setting up and ensuring the effective functioning of CWCs.

■■■

Note:

Economic Scenario

Highlights

- Corporate Debt Market Development Fund
- White Label ATMs
- Full-Reserve Banking V/s Fractional-Reserve Banking
- Ethanol
- Credit Guarantee Scheme for Livestock Sector

- International Symposium on Sustainable Livestock Transformation
- Tomatoes Price Volatility
- India's Export Outlook
- Bhoomi Samman 2023
- UPU to Assess UPI for Cross-Border Remittances

Corporate Debt Market Development Fund

Why in News?

Recently, the government of India has approved the **Guarantee Scheme for Corporate Debt (GSCD)** to provide a guarantee cover for the debt raised by the **Corporate Debt Market Development Fund (CDMDF)** that aims to **stabilize the corporate bond market** during times of stress.

➢ The **Securities and Exchange Board of India (SEBI)** has issued guidelines for the operation and management of the scheme and the fund.

What is the Guarantee Scheme for Corporate Debt (GSCD)?

➢ The GSCD provides a complete guarantee cover for debt raised by the CDMDF.

➢ The primary objective of GSCD is to **enhance investor confidence and provide stability** to the corporate debt market.

➢ GSCD is managed by the **Guarantee Fund for Corporate Debt (GFCD).**

  ○ The GFCD is a trust fund formed by the **Department of Economic Affairs (DEA)** and managed by the **National Credit Guarantee Trustee Company Ltd,** which is a **wholly owned company** of the **Department of Financial Services** under the Ministry of Finance.

➢ The scheme is designed to support the purchase of **investment-grade corporate debt securities** by CDMDF during market dislocation.

  ○ Investment-grade corporate debt securities are **bonds or notes issued by companies that have a low risk of default** and a good credit rating.

➢ The guaranteed cover provided by GSCD ensures that investors are protected from **potential risks associated with investment-grade corporate debt securities.**

➢ CDMDF's ability to purchase securities with a guarantee under GSCD enhances secondary market liquidity and supports the overall stability of the corporate debt market.

What is Corporate Debt Market Development Fund (CDMDF)?

➢ The CDMDF is an **alternative investment fund** established to address the needs of the corporate debt market in India and it will be launched as a **close-ended scheme.**

➢ CDMDF serves as a **backstop facility for investment-grade corporate debt securities,** providing stability and enhancing investor confidence in the market.

➢ CDMDF provides a backstop facility of **Rs 33,000 crore** has been established for Mutual Funds. The **government will contribute Rs 30,000 crore**, and the **Asset Management Companies will provide the remaining Rs 3,000 crore.**

➢ CDMDF aims to enhance secondary market liquidity by creating a permanent institutional framework that can be **activated during periods of market stress.**

➢ The fund acts as a **safety net for investors during times of market dislocation,** providing support and stability to the corporate debt market.

Note:

What are the SEBI Guidelines for CDMDF?

➤ **Investment:**

○ During normal market conditions, CDMDF focuses on dealing in **low duration government securities (G-sec), treasury bills,** and guaranteed corporate bond repo with a **maturity not exceeding seven days.**

○ When the market experiences dislocation, CDMDF steps in to purchase **investment-grade corporate debt securities,** providing a safety net for investors.

● Corporate debt securities sold by mutual fund schemes to CDMDF during market dislocation will be **treated as trade executed on the Request for Quote (RFQ) platform.**

➤ **Eligible Securities:**

○ CDMDF is authorized to purchase only listed corporate debt securities with a **residual maturity of up to five years.**

○ **Exclusion Criteria:**

● The fund refrains from **acquiring unlisted, below-investment-grade, or defaulted debt securities.**

● Securities that present a material possibility of default or adverse credit news or views are also excluded.

➤ **Fair Pricing Mechanism:**

○ CDMDF buys securities at a **fair price,** factoring in liquidity risk, interest rate risk, and credit risk to **ensure transparency and market stability.**

● Buying or trading is done at a fair price and not at distress price.

○ The selling of securities is done at breakeven or for profit as the market stabilizes, aiming to reduce borrowing as soon as possible.

➤ **Subscription and Contribution:**

○ Units of CDMDF are subscribed by **Asset Management Companies (AMCs) of mutual funds** and specified debt-oriented mutual fund schemes.

○ AMCs of specified debt-oriented mutual fund schemes make a **one-time contribution equivalent to two basis points (bps)** of their assets under management (AUM) to support the functioning of CDMDF.

➤ **Tenure:**

○ CDMDF will be launched as a **closed-ended scheme with an initial tenure of 15 years.**

○ The possibility of extension lies at the discretion of the **Department of Economic Affairs (DEA) in consultation with SEBI.**

White Label ATMs

Why in News?

The **Reserve Bank of India (RBI)** has taken significant steps to **promote ATM penetration,** especially in **Tier III to VI centres,** by permitting **non-bank companies to set up, own and operate White Label ATMs (WLAs).**

➤ These WLAs provide various banking services to customers based on cards issued by banks, and the RBI has implemented measures to improve their viability and functioning.

➤ As of now, four authorised non-bank entities are operating White Label ATMs in the country.

What are White Label ATMs (WLAs)?

➤ **About:**

○ ATMs **set up, owned and operated by non-banks** are called WLAs.

○ Non-bank ATM operators are authorised under the **Payment & Settlement Systems Act, 2007** by the RBI.

○ **They provide banking services to customers using debit/credit/prepaid cards issued by banks.**

○ Besides dispensing cash, WLAs offer services like **account information, cash deposit, bill payment, mini statements, PIN change, and cheque book requests.**

➤ **Steps to Enhance WLA Presence and Viability:**

○ **Cash Sourcing Flexibility:**

● WLAs are allowed to **source cash from retail outlets** to address cash sourcing constraints.

■ Following the demonetization (Rs 500 & Rs 1000 Bank Notes), as WLAs are having difficulties in sourcing cash from their sponsor bank(s).

○ WLA operators can buy **wholesale cash** directly from the Reserve Bank and currency chests.

○ They can also source cash from any scheduled bank, including **Cooperative Banks and Regional Rural Banks.**

○ **Expanded Services and Partnerships:**

Note:

- WLAs are permitted to **offer bill payment and interoperable cash deposit services.**
- They can display **advertisements for non-financial products/services,** enhancing revenue streams.
- Banks can issue co-branded ATM cards in partnership with authorized WLA operators.
- This allows WLAs to facilitate 'on-us' transactions, increasing their attractiveness to customers.

○ **On-Tap Authorization:**
- RBI introduced on-tap authorization for WLAs to encourage more **non-bank players to enter the ATM industry.**
- This streamlined approval process simplifies WLA establishment and fosters greater competition.

○ **Driving ATM Penetration:**
- The focus is on expanding ATM penetration in Tier III to VI centres to **improve banking accessibility in underserved areas.**
- WLAs play a crucial role in achieving this objective, offering convenient banking services to a broader customer base.

○ **Facilitating Consumer Complaints and Protection:**
- The **Consumer Education and Protection Department** of RBI addresses complaints against WLAs.
  - From April 2022 to June 2023, 98 complaints were received and handled by the **Consumer Education and Protection Cells (CEPCs) of RBI.**
- RBI has undertaken various steps to promote education and financial literacy, with one of the initiatives being the **National Strategy for Financial Education (NSFE) 2020-2025.**

What are the Different types of ATMs?

Type of ATM	Description
➢ **Brown Label ATM**	➢ ATMs where the **hardware and the lease of the machine are owned by a service provider,** but the **cash management and connectivity** to banking networks are provided **by a sponsor bank.** ➢ They have the **branding of the bank.**
➢ **Orange Label ATM**	➢ ATMs provided for **share transactions.** ➢ They are mainly used by **investors and traders** for buying and selling stocks and securities.
➢ **Yellow Label ATM**	➢ ATMs are set up for the purpose of **e-commerce.** ➢ They are mainly used by **online shoppers** and merchants for making payments and purchases.
➢ **Pink Label ATM**	➢ ATMs monitored by guards who ensure that only **women access** these ATMs. They are set up to provide safety and convenience to women customers.
➢ **Green Label ATM**	➢ ATMs are provided for **agricultural transactions.** ➢ They are mainly used by farmers and rural customers for various banking needs.

Full-Reserve Banking V/s Fractional-Reserve Banking

Why in News?

Economists are engaged in a debate regarding **Full-Reserve Banking (100% reserve banking) versus Fractional-Reserve Banking.**

➢ While both systems have their **proponents and critics,** understanding the key differences between them is crucial in assessing their potential impact on **economic growth** and **financial stability.**

What is Full-Reserve Banking V/s Fractional-Reserve Banking?

➢ **Full-Reserve Banking: Safeguarding Deposits**
  ○ Under full-reserve banking, **banks are strictly prohibited from lending out demand deposits** received from customers reducing the risk of bank runs.
  ○ Instead, they must always hold 100% of these deposits in their vaults, acting merely as custodians.
  ○ Banks serve as **safekeepers of depositors' money,** charging fees for this service.

- Banks can only lend money received as **time deposits.**

➢ **Fractional-Reserve Banking: Expanding Credit and Risk**

○ Fractional-reserve banking system, currently in practice, **allows banks to lend more money than the cash they hold** in their vaults.

- This system relies **heavily on electronic money for lending.**

○ **Bank runs** are a potential risk if many depositors simultaneously demand cash.

- However, central banks can provide emergency cash to avert immediate crises.

➢ **Differing Perspectives:**

○ Supporters of fractional-reserve banking argue that it **spurs investment and economic growth** by freeing the economy from relying solely on real savings from depositors.

- On the other hand, advocates of full-reserve banking argue that it **prevents crises inherent in the fractional-reserve system** and leads to **a more stable economy.**

What is the Difference Between Demand Deposits and Time Deposits?

➢ **Demand Deposits:**

○ Demand deposits refer to funds held in a bank account that can be **withdrawn at any time** without any notice or penalty.

- These are also known as **"current accounts."**

○ It **provides high liquidity** and flexibility for everyday transactions and payments.

- Since customers can withdraw funds on demand, **banks typically pay little to no interest on these accounts.**

➢ **Time Deposits:**

○ Time deposits are funds held in a bank account for a **fixed period,** commonly known as a **"term" or "tenure."**

- The account holder agrees not to withdraw the funds until the term expires.

○ In return for locking in their money, **the bank rewards the account holder with a higher interest rate** compared to demand deposits

○ However, withdrawing the funds before the **maturity date typically incurs a penalty.**

What is Bank Run?

➢ **About**:

○ A bank run refers to a situation **where a large number of depositors simultaneously withdraw their funds from a bank,** often due to concerns about the bank's solvency or stability.

➢ **Impact**:

○ **Liquidity Crisis**: A sudden and massive withdrawal of funds can lead to a **liquidity crisis for the bank.**

- The bank may not have enough cash reserves to meet all the withdrawal requests, which can further fuel panic among depositors.

○ **Contagion Effect**: A bank run on one bank can **create a ripple effect,** spreading fear and panic to other banks in the system.

○ This contagion effect can lead to a **broader financial crisis** if it isn't contained promptly.

○ **Loss of Confidence:** A bank run can **erode public confidence in the entire banking system**, leading to a loss of trust in financial institutions.

- This can result in a long-term decrease in deposits, making it harder **for banks to lend and support economic growth.**

○ It can also lead to **increased informalisation of economy.**

Note:

In India, the **Deposit Insurance and Credit Guarantee Corporation (DICGC)** provides deposit insurance for bank deposits up to a **certain limit (currently ₹5 lakh per depositor per bank)**. However, in the event of a bank failure, depositors with funds exceeding this limit may face losses.

Ethanol

Why in News?

Recently, the Indian Prime Minister announced at the **G20 Energy Ministers'** meeting that India has rolled out **20% ethanol-blended petrol in 2023** and aims to cover the entire **country by 2025.**

➢ India's ethanol production has **diversified from cane molasses to various feedstocks** like rice, maize, and other grains.

➢ This move is part of India's commitment to reducing dependence on **fossil fuels** and promoting **sustainable energy solutions.**

Note:

What is Ethanol?

➢ **About:**
- Ethanol, also known as **ethyl alcohol**, is a **biofuel** produced from various sources such as **sugarcane**, corn, rice, wheat, and biomass.
- The production process involves the **fermentation of sugars by yeasts** or via **petrochemical processes such as ethylene hydration.**
- **Ethanol is 99.9% pure alcohol** that can be **blended with petrol** to create a cleaner fuel alternative.
- Apart from being a fuel additive, ethanol production yields valuable byproducts like **Distillers' Dried Grain with Solubles, and Potash from Incineration Boiler Ash** that find applications across various industries.

➢ **Byproducts of Ethanol Production:**
- **Distillers' Dried Grain with Solubles (DDGS):**
  - DDGS is a byproduct of **grain-based ethanol production.**
  - It is the residue left after the **starch in grains is fermented and ethanol is extracted.**
  - DDGS is a valuable **animal feed with high protein content** and is used to supplement livestock diets.
- **Potash from Incineration Boiler Ash:**
  - The ash remaining after Ethanol Production in the boiler contains up to **28% potash.**
  - This ash is a rich source of potash and **can be utilized as a fertilizer.**

➢ **Applications of Ethanol as Fuel:**
- Ethanol is used as a renewable and sustainable biofuel alternative to gasoline in the transportation sector.
- It can be blended with petrol in various proportions, such as **E10 (10% ethanol, 90% petrol) and E20 (20% ethanol, 80% petrol).**
- The Indian government has implemented the **Ethanol Blending Programme** to promote the use of ethanol as a renewable fuel.
  - The program aims to **blend ethanol with petrol to reduce the country's dependence on imported crude oil**, cut carbon emissions, and boost farmers' incomes.
- Ethanol blends help reduce **greenhouse gas emissions** and air pollutants, contributing to cleaner air and mitigating **climate change**.

How has India Diversified its Feedstocks?

➢ **Feedstock Diversification:**
- Ethanol production in India was mainly **based on 'C-heavy' molasses,** with a **sugar content of 40-45%, yielding 220–225 liters of ethanol per tonne**.
- India explored **direct sugarcane juice for ethanol production**, increasing yield and efficiency.
- The country diversified its feedstocks by **including rice, damaged grains, maize, jowar, bajra, and millets.**
- Ethanol yields from **grains are higher compared to molasses,** with rice producing **450-480 liters and other grains 380-460 liters per tonne.**
- Sugar mills diversified to use rice, damaged grains, maize, and millet as feedstocks.
- Leading sugar companies **installed distilleries that can operate on multiple feedstocks throughout the year.**
- The government's **differential pricing policy** played a crucial role in **incentivizing the use of alternative feedstocks.** By fixing higher prices for ethanol produced from certain feedstocks, mills were **compensated for reduced sugar production.**
- From 2018-19, the Indian government **began fixing higher prices for ethanol produced from B-heavy molasses and whole sugarcane juice/syrup.**

ETHANOL SUPPLIED TO OIL MARKETING COMPANIES (CRORE LITRES)

Supply Year **	C-Heavy Molasses	B-Heavy Molasses	Sugarcane Juice	Surplus Rice	Damaged Grains	TOTAL
2013-14	38.00	0	0	0	0	38.00
2014-15	67.41	0	0	0	0	67.41
2015-16	111.40	0	0	0	0	111.40
2016-17	66.51	0	0	0	0	66.51
2017-18	150.50	0	0	0	0	150.50
2018-19	145.84	32.53	0.68	0	9.50	188.55
2019-20	74.12	68.14	14.83	0	15.96	173.05
2020-21	38.96	182.71	39.17	1.90	39.26	302.00
2021-22	10.84	264.93	85.42	48.56	23.85	433.60
2022-23*	6.49	241.47	143.78	143.43	23.80	559.08@
2022-23**	3.85	158.46	122.59	57.95	8.31	351.16

Note: *Finalised quantity; **Supplied/lifted quantity till July 9, 2023; @Includes 0.11 crore litres from maize; **Dec-Nov.

AVERAGE ETHANOL BLENDING WITH PETROL (%)

2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23*
1.60	2.33	3.51	2.07	4.22	4.92	5.00	8.10	10.02	11.75

*Achieved till July 9, 2023

Note:

drishti

➢ **Challenges:**
  ○ Grains yield **more ethanol but require longer processing**. The starch in the grain has to **first be converted into sucrose and simpler sugars** (glucose and fructose), before their fermentation into ethanol by using yeast **(saccharomyces cerevisiae)**. Molasses already contain sucrose, glucose, and fructose.
  ○ Quality variability of feedstocks affecting production.
  ○ Environmental concerns related to non-traditional feedstocks.

➢ **Benefits:**
  ○ Diversification of feedstocks will **minimize supply fluctuations and price volatility on account of any one crop.**
  ○ The incorporation of new feedstocks for ethanol production can create **new demand for grains.**

Types of Molasses:
➢ **A Molasses (First Molasses):** An intermediate **by-product from initial sugar crystal** extraction, **containing 80-85% dry matter (DM)**. Should be inverted to prevent crystallization if stored.
➢ **B Molasses (Second Molasses):** Similar DM content as A molasses but with **less sugar and no spontaneous crystallization.**
➢ **C Molasses (Final Molasses, Blackstrap Molasses, Treacle):** The end by-product of sugar processing, containing **significant amounts of sucrose (about 32 to 42%).** It does not crystallize and is used as a commercial feed ingredient in liquid or dried form.

What are the Government Initiatives to Promote Ethanol Blending in India?

➢ **National Policy on Biofuels 2018**
➢ **E100 Pilot project**
➢ **Pradhan Mantri JI-VAN Yojana 2019**
➢ **Repurpose Used Cooking Oil (RUCO)**

Credit Guarantee Scheme for Livestock Sector

Why in News?

The Ministry of Fisheries, Animal Husbandry and Dairying has launched **the first ever "Credit Guarantee Scheme"** under Animal Husbandry Infrastructure Development Fund (AHIDF) to facilitate collateral-free credit for MSMEs in the **livestock sector.**

What are the Key Features of the Credit Guarantee Scheme?

➢ **Objective:**
  ○ **Strengthen credit delivery system** and facilitate smooth flow of credit to **Micro, Small & Medium Enterprises (MSMEs)** engaged in the Livestock sector.
  ○ **Increase access to finance** for un-served and under-served livestock sector, with a focus on first-generation entrepreneurs and underprivileged sections of society.

➢ **Credit Guarantee Fund Trust:**
  ○ **A Credit Guarantee Fund Trust** of Rs. 750.00 crores have been established to provide credit guarantee coverage up to 25% of the credit facilities extended to eligible MSMEs by lending institutions.

➢ **Interest Subvention:**
  ○ The scheme offers an **interest subvention of 3%** on loans obtained from Scheduled Banks or **National Cooperative Development Corporation (NCDC).**
  ○ Borrowers can avail up to 90% of the total project cost as a loan.

What is Animal Husbandry Infrastructure Development Fund?

➢ The AHIDF has been set up **as MSMEs and Private companies also need to be promoted and incentivized** for their involvement in processing and value addition infrastructure.
➢ The AHIDF is **a Central Sector Scheme** under the **Prime Minister's Atma Nirbhar Bharat Abhiyan stimulus package** of Rs.15000 crores for incentivizing investments in:
  ○ Dairy processing and value addition infrastructure.
  ○ Meat processing and value addition infrastructure.
  ○ Animal Feed Plant.
  ○ Breed Improvement technology and Breed Multiplication Farm.
  ○ Animal Waste to Wealth Management (Agri Waste Management).
  ○ Setting up of Veterinary Vaccine and Drugs Manufacturing facilities.

➢ Individual entrepreneurs, private companies, MSMEs, **Farmers Producers Organizations (FPOs)**, and Section 8 companies are encouraged to invest in the Livestock sector through this fund.

International Symposium on Sustainable Livestock Transformation

Why in News?

Under the **Agriculture Working Group (AWG)** of **G20**, the **International Symposium on Sustainable Livestock Transformation** was inaugurated at **National Dairy Development Board**, Anand.

What is the Status of Livestock Sector in India?

➢ **About:**
  ○ **Livestock** provides livelihood to **two-third of rural community**. Also, the sector contributes to around **4**% of country's GDP.
  ○ **Dairy** is the **single-largest agri commodity** in India. India is ranked 1st in milk production contributing 23% of global milk production.
  ○ There are about **303.76 million bovines** (cattle, buffalo, mithun and yak), 74.26 million sheep, 148.88 million goats, 9.06 million pigs and about **851.81 million poultry** as per **20th Livestock Census** in the country.
  ○ According to Food and Agriculture Organization Corporate Statistical Database (FAOSTAT) production data (2020), **India ranks 3rd in Egg Production and 8th in meat production in the world.**

➢ **Related Constitutional Provisions:**
  ○ **Directive Principle of State Policy:**
    ● **Article 48:** The State shall work towards organizing **agriculture and animal husbandry** on modern and scientific lines.
    ● It shall take steps to **preserve and improve the breeds of cows,** calves, and other milch and draught cattle and **prohibit their slaughter.**
  ○ **Fundamental Duty:**
    ● **Article 51A(g)**: It is the duty of every citizen to protect and improve the natural environment, including forests, lakes, rivers, and wildlife, and to **show compassion for all living creatures.**

➢ **Challenges Related to Livestock Sector in India:**
  ○ **Resource Scarcity and Feed Shortages:** The demand for **animal feed,** including **grains and fodder,** surpasses supply, resulting in higher costs for farmers and compromised animal nutrition.
    ● This scarcity affects **livestock health, productivity, and overall welfare,** necessitating innovative solutions for sustainable feed production and distribution.
    ● According to the **Indian Grassland and Fodder Research Institute (IGFRI),** India faces a **green fodder shortage of 63.5%**, and the shortage of dry fodder is 23.5%.
  ○ **Inadequate Healthcare Infrastructure:** Limited access to veterinary services and vaccines poses a threat to disease control, leading to frequent outbreaks that impact livestock productivity and quality of produce e.g., **lumpy skin disease.**
  ○ **Climate Change and Environmental Pressures: Erratic weather patterns,** water scarcity, and rising temperatures impact both feed and water availability, making **livestock vulnerable to heat stress** and related diseases.
    ● A study by the **National Dairy Research Institute (NDRI)** found that heat stress reduced milk yield by **0.45 kg per cow per day** during summer months in India.
  ○ **Quality Breeding and Genetic Improvement:** Livestock breeding in India often faces limitations in terms of **access to quality breeding stock and genetic improvement programs.**
    ● According to the **Department of Animal Husbandry & Dairying (DAHD),** only **30% of the breedable female bovines are covered under artificial insemination** services in India.
  ○ **Animal Welfare and Ethical Concerns:** Ethical issues related to livestock farming, such as **animal cruelty and inhumane practices,** have gained increasing attention in recent years.

➢ **Government Initiatives Related to Livestock Sector:**
  ○ **National Animal Disease Control Program (NADCP)**
  ○ Animal Husbandry Infrastructure Development Fund (AHIDF)
  ○ **National Livestock Mission**
  ○ **Prevention of Cruelty to Animals Act, 1960**
    ● **Animal Welfare Board of India (AWBI)** was established in 1962 under Section 4 of the Act.

Note:

Tomatoes Price Volatility

Why in News?

    Tomatoes, a staple vegetable in Indian households, have become a cause for concern due to their **soaring prices.**

➢ The sudden increase in tomato prices **from ₹20 to ₹40 per kg in June 2022, reaching ₹100 per kg in July 2023**, has raised questions about the reasons behind this price volatility.

➢ Despite the soaring prices, the **inflation rate for tomatoes is surprisingly negative,** creating a puzzling economic phenomenon known as **#Tomato-nomics.**

Why are Tomato Prices High?

➢ **Tomatoes Production in India:**
- ❍ Tomato production is regionally concentrated in states like **Andhra Pradesh, Madhya Pradesh, Karnataka, Odisha, and Gujarat,** collectively accounting for **approximately 50% of total production.**
- ❍ India witnesses two main tomato crops annually **- kharif and rabi.**
  - The **Kharif crop is available from September,** while the **rabi crop hits the market between March and August.**
- ❍ **July-August is a lean production period for tomatoes** as they fall between yields.
- ❍ Despite being one of the most cultivated vegetables, tomato production has been **declining since its peak in 2019-20 at 21.187 million tonnes (MT).**

➢ **Reasons Behind the High Tomato Prices:**
- ❍ **Extreme Weather:**
  - **Heatwaves** and **delayed monsoons** in April and May led to pest attacks on tomato crops, affecting their quality and commercial realization.
    - As a result, farmers received low prices for their produce in the months leading up to June.
- ❍ **CMV and ToMV Virus:**
  - The recent decline in tomato crops and the surge in tomato prices in Maharashtra, Karnataka, and other South Indian states can be attributed to the infestation of two plant viruses: the **Tomato Mosaic Virus (ToMV) and the Cucumber Mosaic Virus (CMV).**

- These viruses have caused **partial to complete crop losses** in **tomato plantations over the last three years.**
- As both viruses have a broad host range and can lead to **nearly 100% crop loss if not treated in time,** they have significantly impacted tomato yields, resulting in a rise in tomato prices.

- ❍ **Low Commercial Realization:**
  - Farmers faced the challenge of **low commercial realization for their tomato crops** in the months leading up to the price surge.
  - Between December 2022 and April 2023, many farmers received prices as low as **₹6 to ₹11 per kg for their produce**.
  - This led to a situation where farmers had to sell their crops at **unprofitable rates or even abandon their produce**, resulting in a shortage of supply.

- ❍ **Farmer Shifting from Tomato Production:**
  - The low prices received by farmers in the previous year led to a significant **impact on cultivation patterns**.
  - Many farmers **who** contribute substantially to tomato supplies **shifted their focus to cultivating other crops fetched higher prices** in the market, motivating farmers to opt for alternative crops.
  - This shift in cultivation **resulted in reduced tomato production**, further aggravating the supply crunch and contributing to the surge in prices.

- ❍ **Supply Crunch:**
  - Inferior-quality tomatoes forced many farmers to **sell at low prices or abandon their crops,** resulting in a crunch in tomato supply.
  - Incessant rains further impacted the new crops and transportation to non-growing regions.

- ❍ **Regional Drop in Production:**
  - **Tamil Nadu, Gujarat, and Chhattisgarh** witnessed a **20% drop** in tomato production, exacerbating the shortage.

- ❍ **Impacts of High Tomato Prices:**
  - **Inflationary Pressures:** The volatility of tomato prices has historically contributed to overall inflation levels in the country, affecting consumers' purchasing power.

Note:

- **CPI Impact:** Tomato's price fluctuations have significant implications for the **Consumer Price Index (CPI),** making it a challenge for policymakers to control inflation.
- **Economic Distress:** The high prices put a strain on households' budgets, especially for **low-income families** heavily reliant on tomatoes as a dietary staple.

➢ **Possible Solutions for Reducing Tomato Prices:**
  ○ **Improve Value and Supply Chains:** Enhance value and supply chains to address perishability and transportation issues.
  ○ **Increase Processing Capacity:** Convert tomatoes into paste and puree during peak seasons to ensure adequate supply during lean periods.
  ○ **Encourage Direct Sales:** Promote direct sales by Farmer Producers Organizations to provide farmers with a larger share of consumer prices.
  ○ **Promote Cultivation in Poly Houses and Greenhouses:** Encourage cultivation in controlled environments to control pest attacks and increase yields.

Why is the Inflation Rate for Tomatoes Negative?

➢ **High Base Effect:**
  ○ The negative inflation rate is a result of a **high base effect**. The index value for **tomatoes in June 2022 was significantly higher due to soaring prices at that time.**
  ○ In June 2023, despite a spike in prices, the **index value was much lower compared to the previous year**, leading to **negative inflation.**
➢ **Calculation Method:**
  ○ In India, the inflation rate is **calculated on a year-on-year basis**, comparing the index value for a specific month to the same month in the previous year.
  ○ The **index value for June 2023 (191)** is significantly lower than the **index value for June 2022 (293),** showing a **35% decrease**.
    - The decline in index value from June 2022 to June 2023 led to negative inflation, despite a recent increase in tomato prices.
➢ **Temporary Price Surge:**
  ○ Tomato prices experienced a rapid increase within a short period, reaching Rs 100 per kg in June 2023.

○ However, this **surge was not sustained, and prices began to decline afterward,** contributing to the negative inflation rate.

Tomato prices and inflation, 2018-2023
CHART 1: YEAR-ON-YEAR INFLATION RATE IN TOMATO PRICES
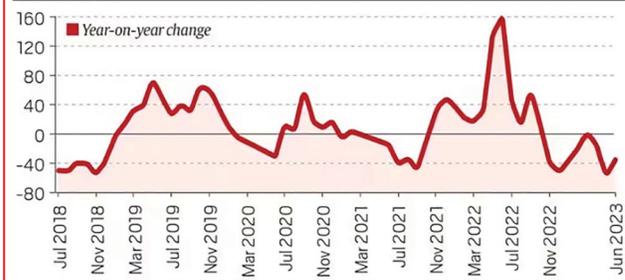
India's Export Outlook

Why in News?

The Ministry of Commerce and Industry, Government of India has decided to adopt a **Target Range Approach** in announcing **Export Goals for FY 2023-24** instead of a single number due to ongoing global uncertainties.

➢ Despite achieving a record USD 450 billion in merchandise exports during 2022-23, India's outbound shipments have faced significant challenges in the first quarter of 2023-2024.

What is the Target Range Approach Adopted by the Government?

➢ **Targets Based on Four Key Parametres:**
  ○ **Overall Target of USD 2 Trillion by 2030:**
    - As per India's new **Foreign Trade Policy (FTP) 2023,** it aims to achieve a total export of **USD 2 trillion with services and goods exports** accounting for **a trillion dollars each by 2030.**
    - This long-term objective will be considered **while setting the current year's targets.**
  ○ **Import to GDP Ratio of Importing Countries:**
    - The targets will take into account the import to **GDP (Gross Domestic Product)** ratio of the countries that are **major importers of Indian goods.**
    - This ratio will provide **insights into the potential demand for Indian products** in various international markets.

Note:

○ **Export to GDP Ratio of India:**
  ● The export to GDP ratio of India itself **will be assessed to gauge the country's export potential** and capacity.

○ **Trend Growth of Past Years:**
  ● The past growth trends in exports will be analyzed to understand the **trajectory of India's trade performance** and consider it in setting achievable targets.

➢ **Target Range:**
○ In FY 202-23, exports amounted to **USD 450 billion.** Based on this figure and assuming a **conservative growth rate of 10%**, trade experts suggest the following potential target range:
  ● **Lower End of Range:** USD 451 billion (Slightly above the previous year's exports)
  ● **Upper End of Range:** USD 495 billion (Assuming a 10% growth rate).

➢ **Monitoring Mechanism:**
○ The Department of Commerce will use a fixed number to track export performance every month, which could be a **mid-value or an average.**
○ This monitoring mechanism will provide timely insights into progress and help make necessary adjustments if required.

What is the Current Scenario of Indian Export?

➢ **Export Performance:**
○ Goods exports have experienced a **series of deceleration in recent month**s, with a 22% drop in June 2023, marking the **steepest fall in 37 months.**
  ● The USD 32.7 billion export tally for June 2023 was the lowest since **October 2022.**

Declining exports

Exports in India shrank by 22.03% in June 2023 compared with the year-ago period. A look at the year-on-year % change in total exports (in $)
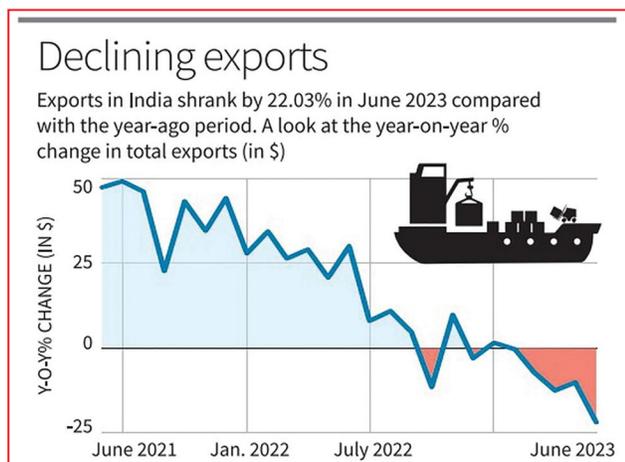
○ Exported services have also witnessed a slowdown, with **forex earnings from intangible exports growing by only 5.2% to USD 80 billion** in the first quarter of 2023-24, compared to about 28% growth in the previous year 2022-23, where earnings reached USD 325 billion.

➢ **Factors Influencing Exports:**
○ **Global Oil Prices:**
  ● Petroleum exports saw **a sharp plunge of 33.2% in the first quarter**, primarily driven by reduced global oil prices.
  ● Additionally, price cap sanctions on **Russian oil shipments have also contributed to a moderation in demand.**

○ **External Factors:**
  ● The **World Trade Organisation's (WTO)** forecast of slower global trade growth in 2023 is influencing India's export outlook, prompting the need for a more cautious approach.

○ **Government's Broader Target:**
  ● India's broader target for exports, as per the new **Foreign Trade Policy**, is to achieve USD 2 trillion by 2030, with services and goods exports each accounting for a trillion dollars.

What is the Status of the Export Sector in India?

➢ **Status of Trade:**
○ The merchandise trade deficit, which is the gap between exports and imports, **increased by over 39% in 2022-23** to record USD 266.78 billion, as compared to USD 191 billion in 2021-22.
○ Merchandise imports increased by **16.51% in 2022-23**, while merchandise exports rose by 6.03%.
  ● Overall trade deficit, however, stood at USD 122 billion in 2022-23, as compared to USD 83.53 billion in the 2022, gaining support from trade surplus in services.

EXPORT DATA

■ FY 2021-22
■ FY 2022-23 ■ Growth (%)

Figures in $ bn

	Merchandise	Services*
FY 2021-22	422.00	254.53
FY 2022-23	447.46	322.72
Growth	6.03%	26.79%

*Data for services sector released by RBI is for Feb 2023. Data for March 2023 is estimation. Sour
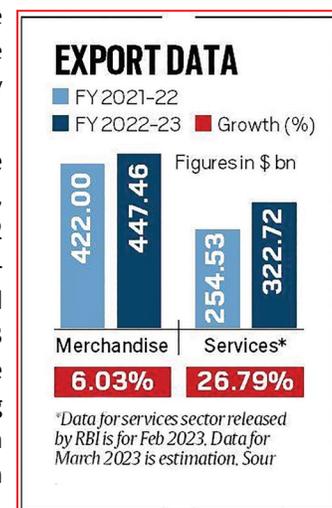
Note:

- ➤ **India's Major Export Arenas:**
  - ○ **Engineering Goods:** They registered a 50% growth in exports, at USD 101 bn in FY22.
  - ○ **Agriculture Products:** Agricultural exports were buoyed by the government's push to meet global demand for food amid the pandemic. **India exports rice w**orth USD 9.65 bn, the highest among agricultural commodities.
  - ○ **Textile and Apparels:** India's **textile and apparel exports (**including handicrafts) stood at USD 44.4 billion in FY22, a 41% increase on a YoY basis.
    - Government's scheme like **Mega Integrated Textile Region and Apparel (MITRA) Park** are giving a strong boost to this sector.
  - ○ **Pharmaceuticals and Drugs:** India is the **third-largest producer of medicines** by volume and the biggest supplier of generic drugs.
    - India supplies over 50% of Africa's requirement for generics, around 40% of generic demand in the US and 25% of all medicine in the UK.

What are the Challenges Related to the Export Sector in India?

- ➤ **Challenges in Access to Finance:**
  - ○ Access to affordable and timely finance is crucial for exporters.
  - ○ However, many Indian exporters **face challenges in obtaining finance due to high interest rates**, collateral requirements, and lack of credit availability from financial institutions, particularly for **small and medium-sized enterprises (SMEs).**
- ➤ **Limited Diversification:**
  - ○ India's export basket is **concentrated in a few sectors,** such as engineering goods, textiles and pharmaceuticals, which makes it vulnerable to global demand fluctuations and market risks.
  - ○ Limited diversification of exports pose**s a challenge to India's export sector** as it can limit its resilience to changing global trade dynamics.
- ➤ **Rising Protectionism and Deglobalisation:**
  - ○ Countries around the globe are moving towards protectionist trade policies due to disrupted global political order **(Russia-Ukraine War) and weaponization of supply chain**, that is in way shrinking India's export capacities.

What are the Major Government Initiatives to Promote Export Growth?
- ➤ **Trade Infrastructure for Export Scheme (TIES)**
- ➤ **PM Gati Shakti National Master Plan (NMP)**
- ➤ **Duty Drawback Scheme**
- ➤ **Remission of Duties or Taxes on Export Product (RoDTEP)**
- ➤ **Rebate of State and Central Taxes and Levies**

Bhoomi Samman 2023

Why in News?

Recently, the **President of India** presented the **"Bhoomi Samman" 2023** at a function organised by the **Union Ministry of Rural Development**.

What is "Bhoomi Samman"?

- ➤ The **"Bhoomi Samman"** is a prestigious award scheme launched by the **Union Ministry of Rural Development** to recognize and incentivize the achievements of states and districts in the implementation of the **Digital India Land Records Modernization Programme (DILRMP).**
- ➤ The award is presented by the President of India **to the state secretaries and district collectors** along with their teams who have excelled i**n achieving saturation of the core components of DILRMP**, such as:
  - ○ Computerization of land records
  - ○ Digitization of cadastral maps
  - ○ Integration of textual and spatial data
  - ○ Survey/re-survey using modern technology
  - ○ Computerization of registration
  - ○ Interoperability between registration and land records

Note: **Digital India Land Records Modernization Programme** (erstwhile National Land Record Modernization Programme) under the Ministry of Rural Development was revamped and converted as a **Central Sector Scheme with effect from 1st April, 2016** with 100% funding by the Centre.

What are the Advantages of Digitalisation of Land Records?

- ➤ **Transparency and Accountability:** Digitization increases transparency in land transactions, **reducing the scope for unethical and illegal activities** related to land.

Note:

drishti

➢ **Disaster Management**: Digital records are more resilient to natural calamities like floods and fires, safeguarding **essential land-related documents from loss.**

➢ **Land Parcel Identification Number:** Similar to **Aadhaar Card, the Unique Land Parcel Identification Number** provided under the Digital India Land Information Management System allows efficient land utilization and enables the **formulation and implementation of new welfare schemes.**

➢ **Resolution of Land Disputes**: Access to land-related information in a free and convenient manner aids in **resolving ownership and land-use disputes,** reducing the burden on the administration and judiciary.

What are the Challenges Associated with Digitisation of Land Records?

➢ **Fragmented Land Records**: India's land records are maintained by multiple authorities at different levels - village, district, and state.

○ The **lack of uniformity and integration between these records** can create difficulties when attempting to centralize and digitize them.

➢ **Technological Infrastructure and Connectivity:** Digitization requires adequate technological infrastructure, including **hardware, software, and internet connectivity.**

○ In rural areas, where **most land is located,** the availability of such infrastructure can be limited, hindering the digitization process.

➢ **Data Security and Privacy**: Land records contain sensitive personal and property-related information.

○ Ensuring the **security and privacy** of this data during digitization and beyond is crucial to prevent unauthorized access and misuse.

Way Forward

➢ **Blockchain-based Land Records**: Implement a **blockchain-based system** to store and manage land records.

○ **Blockchain's decentralized and immutable nature** ensures transparency, reduces the possibility of fraud, and fosters trust in land transactions.

➢ **Drone Surveys and GIS Mapping:** Use drones equipped with high-resolution cameras and Lidar technology to conduct accurate surveys of land parcels.

○ Integrate the **data with Geographic Information System (GIS) mapping** to create a dynamic and real-time representation of land records.

➢ **Standardization and Interoperability:** Establish **uniform data standards and formats to ensure compatibility** and seamless integration of land records across different departments and systems.

○ This will enable efficient data sharing and retrieval.

UPU to Assess UPI for Cross-Border Remittances

Why in News?

The **Universal Postal Union (UPU)** has announced plans to **evaluate the integration of the Unified Payment Interface (UPI)** with **cross-border remittances** using the global postal network.

➢ This evaluation aims to explore the potential of UPI in facilitating secure and efficient international money transfers.

What are the Benefits of Integrating UPI with UPU?

➢ UPI offers a **secure, convenient, and real-time payment experience**, making it a promising platform for **cross-border remittances.**

➢ Leveraging the global postal network, which has **extensive reach and infrastructure,** can further **expand the reach of UPI-enabled remittances.**

➢ The integration of **UPI with postal channels can provide a reliable and accessible remittance** solution for individuals, particularly in **remote areas where traditional banking services may be limited.**

➢ This initiative aligns with **UPU's goal of promoting efficient and inclusive postal services globally.**

What is Universal Postal Union (UPU)?

➢ **About:**

○ The UPU is a **United Nations** specialized agency and the **postal sector's primary forum for international cooperation.**

○ **UPU is the second oldest international organization.**

➢ **Establishment and Structure:**

○ The **UPU was established in 1874 through the Treaty of Bern.**

○ UPU's headquarters are **located in Bern, Switzerland.**

○ The organization consists of four bodies: **Congress, the Council of Administration (CA), the Postal**

Operations Council (POC), and the International Bureau (IB).

○ It also oversees the **Telematics and Express Mail Service (EMS) cooperatives.**

➢ **Membership:**

○ Any member country of the **United Nations can become a member of the UPU.**

○ Non-member countries of the United Nations **can join the UPU if approved by at least two-thirds of the member countries.**

○ The UPU has now **192 member countries.**

● India joined the **UPU in 1876.**

➢ **Role and Functions:**

○ UPU coordinates **postal policies among member nations** and the global postal system.

○ The union sets rules for international mail exchanges and makes recommendations to stimulate **growth in mail, parcel, and financial services volumes.**

○ It aims to improve the quality of service for customers and promote efficiency in international postal operations.

What is UPI?

➢ UPI is India's **mobile-based fast payment system**, which facilitates customers to make round-the-clock payments instantly, using a **Virtual Payment Address (VPA)** created by the customer.

○ VPA is a **unique identifier assigned to an individual** to facilitate the transfer of funds through a **digital payments system.**

➢ It is a **user-created identifier** that can be used instead of providing **sensitive bank account details** while making payments.

➢ It eliminates the **risk of sharing bank account details by the remitter.** UPI supports both **Person-to-Person (P2P) and Person-to-Merchant (P2M)** payments, and it also enables a user to send or receive money.

Note:

International Relations

Highlights

- *India and Vietnam Relations*
- *8th India-Australia Defence Policy Talks*
- *Prospects for a Joint G-20 Communiqué*
- *India-UK Free Trade Agreement Negotiations*
- *East Asia Summit*

- *India-Sri Lanka Relations*
- *India-US Strategic Clean Energy Partnership*
- *25th Anniversary of the India France Strategic Partnership*
- *BIMSTEC*
- *India-UAE Local Currency Settlement System*

India and Vietnam Relations

Why in News?

India gifted the **indigenously built in-service missile corvette INS Kirpan to Vietnam**. It reflects India's commitment to deepening defense cooperation and cementing its role as **Vietnam's 'Preferred Security Partner'** in the **Indian Ocean Region.**

What is INS Kirpan?

➢ INS Kirpan is a **Khukri class missile corvette,** commissioned into the Indian Navy on **January 12, 1991.**
   ○ The Khukri class corvettes are equipped with **Diesel Engines** assembled in India, under license by Kirloskar Group. Around **65% of the ship contains indigenous parts.**

➢ It boasts a speed more than 25 knots and is equipped with various armaments, making it highly versatile in performing multiple roles, including **coastal and** offshore patrol, surface warfare, coastal security, anti-piracy, and **Humanitarian Assistance and Disaster Relief (HADR)** operations.

What are the Areas of Cooperation Between India and Vietnam?

➢ **About**:
   ○ India had established the **Consul General's office in Hanoi as early as 1956**.
      ● Vietnam established its diplomatic mission in 1972.
   ○ India had stood by **Vietnam in opposing US intervention in that country** at the cost of embittering Indo-US relations.
      ● India was the **Chairman of the International Commission for Supervision and Control (ICSC)**, which was formed pursuant to the **Geneva Accord of 1954** to facilitate the peace process in Vietnam.
   ○ In 1992, **India and Vietnam established extensive economic ties,** including oil exploration, agriculture and manufacturing.
   ○ In July 2007, relations between the two countries were elevated to the level of **'Strategic Partnership'.**
   ○ In 2016, bilateral relations were further elevated to a **"Comprehensive Strategic Partnership"**

➢ **Economic Cooperation:**
   ○ **Mekong-Ganga Cooperation (MGC):** As members of MGC, India and Vietnam have been working to enhance ties between **India and Southeast Asian nations** and promote development cooperation.

Note:

○ **Trade and Investment**: In financial year 2021-22, bilateral trade between India and Vietnam posted a growth of 27% and reached **USD 14.14 billion.**

  ● India one of the **top 8th trading partners of Vietnam**. While vietnam is the **15th largest trading partner of India** and the fourth in Southeast Asia.

○ **Capacity Building**: India provides training programs and scholarships under the **Indian Technical and Economic Cooperation (ITEC)** to Vietnam, contributing to Vietnam's socio-economic development.

➢ **Political Backing:** India and Vietnam have supported each other in various international forums and organizations, demonstrating their commitment to global cooperation.

○ Vietnam has backed **India's bid to become a permanent member** of the United Nations Security Council (UNSC) **and join the** Asia-Pacific Economic Cooperation (APEC).

➢ **Multilateral Cooperation:**

○ India and Vietnam closely cooperate in various regional forums such as **ASEAN, East Asia Summit, Asia Europe Meeting (ASEM)** besides **UN and WTO.**

➢ **Defense Cooperation:**

○ **High-Speed Patrol Boats**: In September 2014, India extended a **Line of Credit (LoC) of USD 100 million** to procure 12 high-speed patrol boats for the Vietnamese border guard force.

  ● In 2016, an additional USD 500 million defense LoC was extended to Vietnam.

  ● Also, Joint Vision Statement on **India-Vietnam defense partnership towards 2030** was signed in June 2022.

○ Vietnam-India Bilateral Army Exercise: **Ex VINBAX**

➢ **Maritime Security and Cooperation:**

○ **Freedom of Navigation:** Both countries firmly support freedom of navigation and overflight, as well as **lawful commerce in national waters**, in accordance with international laws, particularly UNCLOS**.**

○ **South China Sea Code of Conduct:** India and Vietnam emphasize that the **Code of Conduct on the** South China Sea should be consistent with relevant UN conventions and respect the legitimate rights and interests of nations not participating in the discussions.

8th India-Australia Defence Policy Talks

Why in News?

The 8th **India-Australia Defence Policy Talks (DPT)** was held at **Canberra, Australia**.

What are the Key Highlights of the Talks?

➢ Both India and Australia reviewed the **bilateral defence cooperation** and explored **new initiatives** to further strengthen bilateral defence engagements.

➢ Both sides reaffirmed their commitment to fully implement the **Comprehensive Strategic Partnership** based on mutual trust and understanding, common interests and shared values.

Note:

➤ India highlighted the **potential of the Indian defence industry** with capacity and capability to cooperate with **Australian Armed forces** in its shipbuilding and maintenance plans.

➤ Both sides agreed for early finalization of **hydrography agreement**.

How have been the India- Australia Relations so far?

➤ **Historical Perspective:**

○ Australia and India for the first time established diplomatic relations in the **pre-Independence period,** when the Consulate General of India was first opened as a Trade Office in Sydney in 1941.

○ In 2014, Australia signed a Uranium supply deal with India, the first of its kind with a country that is a **non-signatory to the Nuclear Non-Proliferation Treaty,** in recognition of India's "impeccable" non-proliferation record.

➤ **Strategic Ties:**

○ In 2020, Prime ministers of both the countries elevated bilateral relationship from Strategic Partnership to **Comprehensive strategic Partnership** during **India-Australia Leaders' Virtual Summit.**

○ In 2022, there were a series of high-level **engagements and exchange of ministerial visits in 2022 and in 2023** including India-Australia virtual summit and Foreign Ministers meet. Several key announcements were made during 2nd India-Australia Virtual Summit including:

- A Letter of Intent on Migration and Mobility Partnership Arrangement to foster the exchange of skills.

➤ **Defence Cooperation:**

○ The First India-Australia **2+2 Ministerial Dialogue** took place in September 2021 in New Delhi.

○ The **Mutual Logistics Support Agreement (MLSA)** was signed during the Virtual Summit in June 2020 to enhance defence cooperation.

➤ **Joint military exercises:**

○ **Bilateral:**

- **Naval Exercise Kakadu**
- **Ausindex** (Navy)
- **Ex AUSTRA HIND (Army)**

○ **Multilateral Exercise:**

- **Malabar:** Australia will host the "Malabar" exercises in August 2023, with participation from India, Japan, and the US.
- **Exercise Pitch Black 22**.

➤ **China Factor:**

○ Australia-China ties became strained due to several reasons including Australia banning **Huawei from the 5G network**, call for enquiry into the origins of Covid-19 and Slamming **china's human rights violations in Xinjiang** and Hongkong.

○ China responded by imposing trade barriers on Australian exports, and by cutting off all ministerial contact.

○ India is facing Chinese aggression along the border which has been highlighted by incidents such as the Galwan **valley clash.**

○ Both Australia and India support a **rules-based international order** and they are seeking to forge regional institutions in the Indo-Pacific which are inclusive, promote further economic integration.

○ The countries' participation in **Quad (India, Australia, US, Japan)** is an example of their convergence of interests, based on shared concerns.

➤ **Multilateral Cooperation:**

○ Both are members of the **Quad,** Commonwealth, **Indian Ocean Rim Association (IORA), ASEAN Regional Forum,** Asia Pacific Partnership on Climate and Clean Development, **Indo-Pacific Economic Forum (IPEF)** and have participated in the **East Asia Summits.**

○ Both countries have also been cooperating as members of the Five Interested Parties (FIP) in the **World Trade Organization** context.

○ Australia is an important player in **Asia Pacific Economic Cooperation (APEC)** and supports India's membership of the organisation.

➤ **Economic Cooperation:**

○ **Economic Cooperation Trade Agreement (ECTA):**

- It is the first free trade agreement signed by India with a developed country in a decade which entered into force in December 2022.

○ **Supply Chain Resilience Initiative (SCRI):**

- India and Australia are partners in the trilateral arrangement along with Japan which seeks to enhance the resilience of **supply chains in the Indo-Pacific Region.**

Note:

- **Bilateral trade:**
  - Australia is currently India's 17th largest trading partner, and I**ndia is Australia's 9th** largest trading partner.
  - The bilateral trade between India and Australia (April – November 2022) stood at USD 18,903 million.
  - Australia occupies the 29th position in FDI equity inflows into India with a cumulative FDI amount of USD 1,060.27 million from April 2000 – September 2022.

- **Cooperation in Education Sector:**
  - The Mechanism for **Mutual Recognition of Educational Qualifications (MREQ)** was signed in March 2023. This will facilitate mobility of students between India and Australia.
  - Deakin University and University of Wollongong are planning to open campuses in India.
  - More than 1 lakh Indian students are pursuing higher education degrees in Australian universities, making Indian students the second largest cohort of foreign students in Australia.

- **Cooperation on Clean Energy:**
  - In 2022, both countries signed a **Letter of Intent on New and Renewable Energy** for cooperation to reduce the cost of renewable energy technologies, including ultra low-cost solar and clean hydrogen.
  - India announced Australian Dollars (AUD) 10 million for Pacific Island Countries under the **International Solar Alliance (ISA).**
  - Both the countries committed to USD 5.8 million to the three-year **India-Australia Critical Minerals Investment Partnership.**

Prospects for a Joint G-20 Communiqué

Why in News?

The upcoming **G-20 Summit** in New Delhi in September 2023 is facing obstacles in issuing a **Joint Communiqué** due to opposing stances from **Russia and China** concerning paragraphs related to the **War in Ukraine.**

- As the summit approaches, the Indian negotiators are striving hard to find **common ground** and ensure a **resolution to the logjam**.

What Is the Significance of a Joint Communiqué?

➢ The G-20 grouping, comprising the world's major economies, has traditionally managed to reach a consensus **and issue a joint declaration at the end of each summit.**

➢ A failure to do so in India being the Chair would be **unprecedented and may raise questions** about the sustainability of the **G-20 in its current form.**

➢ Previous summits, such as **Brisbane in 2014 and Indonesia in 2022**, faced challenges but eventually **succeeded in producing a document.**

➢ Despite challenges, the Sherpa track is set to begin draft negotiations for the "Delhi Declaration" from August 2023.
  - The Sherpas will attempt to address areas of differences, including U.S.-China tensions over **debt sustainability and privacy issues** over digital public infrastructure.
  - Regarding the Ukraine issue, officials may leave a **"placeholder" reference to "geopolitical issues"** until a more acceptable language is agreed upon.

What are the Various Perspectives on G-20 Documents?

➢ **India's Stance:**
  - **Maintains Bali Paragraphs:**
    - Until now, India has continued to include the **"Bali Paragraphs" (G 20 Leaders Declaration in Bali 2022 Summit)** in its documents, citing the hard work **invested in their formulation.**
    - These paragraphs consist of references to **UN resolutions "deploring" Russia's war in Ukraine**, and statements that "**most members" strongly condemn the conflict.**
    - The use of Indian Prime Minister's phrase, **"This era is not of war,"** is also deemed universal and **unrelated to any specific country or conflict.**
  - **For Economic Issues Not Security Issues:**
    - T**he G-20 is not a forum for security issues,** but for economic issues arising from security concerns, like the impact of the Ukraine war on fuel, food and fertilizer prices, **is unimpeachable.**
  - **Developing Countries not Responsible for Ukraine Conflict:**

Note:

- India maintains that the Ukraine conflict is not its **priority at the G-20 and that developing countries should not be held responsible** for the issue.
- Instead, India wishes to focus on priorities like the **induction of the African Union into the G-20**, Digital Public Infrastructure, gender-led empowerment, and reform of multilateral development banks.
➢ **Russia and China's Opposition:**
  ○ Russia and China oppose the language on Ukraine, with Russia arguing that the Bali statements no **longer reflect the current situation** as it does not include increased U.S. and European military support to Ukraine, **or the increased sanctions against Russia that followed** and omit relevant developments.
  ○ China contends that the **G-20 should not discuss "geopolitical issues"** as it has focused primarily on **economic matters** in the past two decades.

What is G20?
➢ The Group of Twenty (G20) was founded in 1999 **after the Asian financial crisis as a forum for the Finance Ministers and Central Bank Governors** to discuss global economic and financial issues.
➢ The G20 was upgraded to the level of Heads of State/Government in the wake of the global economic and financial crisis of 2007, and, in 2009, was designated **the "premier forum for international economic cooperation".**
➢ The G20 comprises 19 countries (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Türkiye, United Kingdom and United States) and the **European Union.**
➢ The G20 members represent about **two-thirds of the world's population, 85% of global gross domestic product,** 80% of global investment and over 75% of global trade.

India-UK Free Trade Agreement Negotiations

Why in the News?

India and the UK are currently engaged in negotiations **to resolve contentious issues** in the ongoing talks for the **India-UK Free Trade Agreement (FTA).**

➢ This comprehensive trade deal holds significant importance for India as it will serve as a template for upcoming trade pacts, including those with the **EU (European Union) and the European Free Trade Association (EFTA) countries** (viz., Iceland, Liechtenstein, Norway and Switzerland)**.**

What are the Contentious Issues under the Negotiations?

➢ **Intellectual Property Rights:** In **Intellectual Property Rights (IPR)**, India does not want to compromise on the production of life-saving generics.
➢ **Global Value Chains (GVC):** Discussions are underway to address the **complexities associated with global value chains** and ensure favorable outcomes for India.
➢ **Digital Trade:** In the area of digital trade and data protection, India is yet to firm up **its own domestic laws** and hence doesn't want to take on commitments.
➢ **Rules of Origin (ROO):** ROO, which determines the **national source of a product**, has been a contentious issue in the FTA talks.
  ○ These are important in trade negotiations since countries **levy duties or impose restrictions on products based on the source of imports.**
  ○ India **wants to have strict rules of origin** in place to ensure that third countries do not take unfair advantage of the FTA.
➢ **Labour and Environment:** Labour and environmental commitments are being taken for **the first time** and they have to be done in a manner which is not unfavorable to India.

❍ India has unilaterally made tremendous progress and does not **want additional conditions.**

❍ The UK, on the other hand, **wants more stringent IPRs, free cross-border data flow and rules against data localisation, liberal ROOs** and commitments in the areas of labour and environment,

What is the Background of India-UK Free Trade Agreement?

➤ In 2022, India and the UK had launched the formal **Free Trade Agreement (FTA) negotiation**s. Until then, both countries are contemplating an interim free trade area, which will result in reducing tariffs on most of the items.

➤ Both countries agreed to an **early harvest scheme or a limited trade agreement** to lower tariffs on a small set of goods apart from easing rules for select services.

➤ Further, they agreed to avoid **"sensitive issues"** and focus on areas where there is more complementarity.

➤ The agriculture and dairy sectors are considered sensitive sectors for India in trade talks.

➤ Also, a target of doubling the trade between India and the **United Kingdom (UK) by 2030 was also set.**

What is a Free Trade Agreement?

➤ It is a pact between **two or more nations to reduce barriers to imports** and exports among them.

➤ Under a free trade policy, **goods and services can be bought and sold** across international borders with little or no government tariffs, quotas, subsidies, or prohibitions to inhibit their exchange.

➤ The concept of free trade is the **opposite of trade protectionism or economic isolationism.**

➤ FTAs can be categorized as Preferential Trade Agreement, **Comprehensive Economic Cooperation Agreement, Comprehensive Economic Partnership Agreement (CEPA).**

How has Been India-UK Trade Relations?

➤ The trade between India and the UK had "more than doubled" between 2007 and 2019.

➤ By the end of 2022, India was the **UK's twelfth largest trading partner.** This accounted for 2.0% of the UK's total trade.

➤ **For goods**, India was the **UK's thirteenth largest trading partne**r and for services it was the **tenth largest.**

➤ In 2022-23, India-UK bilateral trade had increased 16% to USD 20.36 billion

What can be the Significance of FTA between India & the UK?

➤ **Increasing Exports of Goods:** Trade deals with the UK can boost **exports for large job-creating sectors such as textiles**, leather goods, and footwear.

❍ India is also expected to register a quantum jump in the export of Marine Products through the recognition of 56 marine units of India.

➤ **Clarity on Services Trade:** The FTA is expected to **provide certainty, predictability and transparency** and will create a more liberal, facilitative and competitive services regime.

❍ There is also great potential for increasing exports in service sectors like IT/ITES, Nursing, education, healthcare, i**ncluding AYUSH** and audio-visual services.

➤ **Exit from RCEP:** India opted out of the **Regional Comprehensive Economic Partnership deal** in November 2019.

❍ Therefore, there is a renewed **focus on trade deals with the US, the European Union and the UK,** which are key markets for Indian exporters and are keen to diversify their sourcing.

➤ **Strategic Advantage:** The UK is a permanent member of the UN Security Council, and one of the s**trategic partners of India.**

❍ Strengthening bonds with the trade would seek UKs support at global issues like **standoff with China** in the Ladakh sector of the **Line of Actual Control (LAC) and claim for permanent seat at UNSC.**

East Asia Summit

Why in News?

Recently, India's External Affairs Minister attended the **13th East Asia Summit** Foreign Ministers' Meeting and utilized the opportunity to engage in discussions with China's top diplomat, on the sidelines of the event.

➤ They discussed outstanding issues along the **Line of Actual Control (LAC),** emphasizing the **importance of peace and the disengagement of troops.**

Note:

What is the East Asia Summit?

➢ **About:**

○ The EAS was established in **2005 as an Association of Southeast Asian Nations (ASEAN)-led initiative.**

○ The EAS is the **only leader-led forum in the Indo-Pacific** that brings together all key partners to discuss political, security and economic issues of strategic importance.

○ The EAS operates on the principles of **openness, inclusiveness, respect for international law,** ASEAN centrality, and ASEAN's role as the driving force.

○ The idea of an East Asia Grouping was first proposed by then **Malaysian Prime Minister Mahathir Mohamad in 1991.**

● The first summit was held in **Kuala Lumpur, Malaysia on 14 December 2005.**

➢ **Members:**

○ The EAS comprises **18 members**: the **10 ASEAN countries** (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam) and **eight dialogue partners** (Australia, China, India, Japan, New Zealand, Republic of Korea, Russia and the United States).

➢ **EAS Meetings and Processes:**

○ The EAS is usually held alongside **ASEAN Leaders' meetings in the fourth quarter of every year.**

○ The EAS Leaders' Summit is supported by **various ministerial and senior officials' meetings,** such as the **Foreign Ministers' Meeting, the Economic Ministers' Meeting, the Defence Ministers' Meeting, and the Education Ministers' Meeting.**

○ The EAS has **six priority' areas of cooperation:** environment and energy; education; finance; global health issues and **pandemic diseases**; natural disaster management; and ASEAN connectivity.

○ The EAS also covers other topics of common interest and concern, such as trade and investment, regional architecture, maritime security, non-proliferation, counterterrorism, and **cyber security**.

➢ **India and East Asia Summit:**

○ **India has been a founding member of the EAS since 2005** and has actively participated in all its meetings and activities.

○ India views the EAS as a key platform for enhancing its **Act East Policy** and strengthening its strategic partnership with ASEAN and other regional countries.

○ At the **East Asia Summit** in Bangkok **in November 2019**, India had unveiled India's **Indo-Pacific Oceans Initiative (IPOI)**, which is aimed at forging partnerships to create a secure and stable maritime domain.

○ India has contributed to the EAS cooperation in various fields, such as disaster management, renewable energy, education, health, connectivity, maritime security and counterterrorism.

India-Sri Lanka Relations

Why in News?

Recently, the **Tamil National Alliance (TNA),** the largest parliamentary grouping of Tamil parties in Sri Lanka has rejected the Sri Lankan President's offer to implement the **13th Amendment of the Sri Lankan Constitution without police powers.**

➢ This rejection by the TNA assumes significance before the President's scheduled visit to India, as India has consistently emphasized the **"full implementation" of this legislation,** which is vital for addressing the **historic demand of Sri Lankan Tamils** for self-determination.

What is the Background?

➢ **About:**

○ The **13th Amendment** was enacted after the **Indo-Lanka Accord of 1987**, and it remains the **only legislative guarantee** of power devolution to the provinces.

● Indo-Lanka Accord 1987 was signed by the **then Prime Minister Rajiv Gandhi and President J.R. Jayawardene**, to resolve Sri Lanka's ethnic conflict that had aggravated into **a full-fledged civil war, between the armed forces and the**

Liberation Tigers of Tamil Eelam, which led the struggle for Tamils' self-determination and sought a separate state.

○ The 13th Amendment, which led to the creation of **Provincial Councils, assured a power sharing arrangement** to enable all nine provinces in the country, including Sinhala majority areas, to self-govern.

○ Subjects such as **education, health, agriculture, housing, land and police** are devolved to the provincial administrations, but because of restrictions on financial powers and overriding powers given to the President, the provincial administrations have not made much headway.

○ However, successive governments in **Sri Lanka have refused to grant land** and police powers to the provinces, leading to **unresolved issues since the civil war ended 14 years ago.**

➢ **President's Proposal and TNA's Response:**

○ The Sri Lankan President presented a **comprehensive dossier to Tamil political parties**, outlining plans for truth-seeking, reconciliation, accountability, development, and power devolution.

● The proposal included implementing **the 13th Amendment, except for police powers,** and empowering provincial councils through various Bills.

○ However, the TNA rejected the proposal, calling it a **"hollow promise," citing a lack of political will** to genuinely devolve power, as provincial councils have been defuncting for five years without elections.

○ The Tamil National People's Front and civil society leaders expressed **concerns to the Indian Prime Minister**, urging a federal solution due to limitations of the 13th Amendment under a unitary constitution.

How are India's Relations with Sri Lanka?

➢ **About:**

○ India and Sri Lanka are two South Asian nations situated in the **Indian Ocean** region. Geographically, Sri Lanka is located just off the southern coast of India, separated by the **Palk Strait.**

○ This proximity has **played a significant role in shaping the relationship** between the two countries.

○ The Indian Ocean is a **strategically important waterway** for trade and military operations, and Sri Lanka's location at the crossroads of major shipping lanes makes it a critical point of control for India.

➢ **Relations:**

○ **Historical Ties:** India and Sri Lanka have a long history of cultural, religious, and trade ties dating back to ancient times.

● There are strong cultural ties between the two countries, with many Sri Lankans tracing their heritage to India. **Buddhism,** which originated in India, is also an important religion in Sri Lanka.

○ **Economic ties:** India is **Sri Lanka's third largest export destination,** after the US and UK. More than 60% of Sri Lanka's exports enjoy the benefits of the **India-Sri Lanka Free Trade Agreement.** India is also a major investor in Sri Lanka.

● Foreign Direct Investment (FDI) from India amounted to around USD 1.7 billion over the years from 2005 to 2019.

○ **Defence:** India and Sri Lanka conduct **joint Military (Mitra Shakti)** and **Naval exercise (SLINEX).**

○ **Participation in Groupings:** Sri Lanka is also a member of groupings like **BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation)** and **SAARC** in which India plays a leading role.

➢ **Issues in India-Sri Lanka Relations:**

○ **Killing of Fishermen:** Killing of Indian fishermen by the Sri Lankan Navy is a lingering issue between these two nations.

● In 2019 and 2020, a total of 284 Indian fishermen were arrested and a total of 53 Indian boats were confiscated by the Sri Lankan authorities.

○ **Influence of China: China's rapidly growing economic footprint** (and political clout as a corollary) in Sri Lanka is straining India-Sri Lanka relations.

● China is already the largest investor in Sri Lanka, accounting for 23.6% of the total **Foreign Direct Investment (FDI)** during 2010-2019 as against 10.4% from India.

India-US Strategic Clean Energy Partnership

Why in the News?

The Ministerial meeting of the US-India **Strategic Clean Energy Partnership (SCEP)** was held between Indian Minister of Petroleum and Natural Gas and US Energy Secretary in New Delhi.

Note:

➢ Both sides noted the critical importance of bilateral clean energy engagement and the achievements of the SCEP in **strengthening energy security, creating opportunities for clean energy innovation,** addressing climate change and creating employment generation opportunities.

What are the Key Highlights of the Meeting?

➢ **Review of the Ambitious and Dynamic SCEP Mandate:**
   ○ Collaboration across a wide breadth of clean energy work streams, including clean and renewable energy, energy efficiency
   ○ Emerging technologies like battery storage and swapping technologies, gas hydrates, **advanced biofuels, and hydrogen and electrolyzed production**.

➢ **Commitments:**
   ○ Agreed to work toward development of **Net zero village in India** to support the clean energy transition.
   ○ Establishment of the **public-private Energy Storage Task Force** to support the clean energy transition;
   ○ Deployment of **hydrogen technologies** through the public-private Hydrogen Task Force.
   ○ Launch of the U.S.-India New and Emerging **Renewable Energy Technologies Action Platform (RETAP)** to accelerate development of key technologies to advance common ambitious clean energy goals.

➢ **Affirmed Global Biofuels Alliance:**
   ○ This Alliance will be aimed at facilitating cooperation and intensifying the use of sustainable biofuels, including in the transportation sector.
      ● **Brazil, India and US** as leading biofuel producers and consumers, with other interested countries.
   ○ The Alliance shall work in collaboration with the Clean Energy Ministerial Biofuture Platform, the Mission Innovation Bioenergy initiatives, and **the Global Bioenergy Partnership (GBEP).**

➢ **South Asia Group for Energy (SAGE):**
   ○ Both sides launched the SAGE to deepen the engagement between Indian agencies and US national laboratories **to support research, analysis and capacity building activities** such as building modelling capacity in Life Cycle Assessment of low carbon technologies and analytics on energy consumption in building sector.

➢ **Other Concerns:**
   ○ The addition of Carbon Capture, Utilization and Storage as a work stream under the **Emerging Fuels and Technology Pillar.**
   ○ The collaboration of US Agency for International Development **(USAID) with various Indian agencies** including Indian Railways, NTPC Green National Skills Development Corporation, Skills Council for Green Jobs, and the Forum of Regulators.

What is Strategic Clean Energy Partnership?

➢ The SCEP was launched **in accordance with the US - India Climate and Clean Energy Agenda 2030 Partnership** announced by both countries at the Leaders' Summit on Climate held in 2021.

➢ The SCEP advances energy security and innovation with greater emphasis **on electrification and decarbonization of processes and end uses;** scaling up emerging clean energy technologies; finding solutions for hard-to-decarbonize sectors; and deploying technical solutions.

➢ The SCEP was earlier established **as the Strategic Energy Partnership in 2018** and **had replaced the U.S.-India Energy Dialogue,** the previous intergovernmental engagement for energy cooperation.

STRATEGIC CLEAN ENERGY PARTNERSHIP PILLARS

Renewable Energy Pillar	Sustainable Growth Pillar	Power and Energy Efficiency Pillar	Responsible Oil and Gas Pillar	Emerging Fuels Pillar

---

Note:

THE JOURNEY SO FAR

2005
Initiated the U.S.-India Energy Dialogue

June 2017
U.S. and India agreed to elevate the bilateral energy cooperation

January 2019
Four Technical Pillars established under SEP

April 2021
Clean Energy Agenda 2030 Partnership launched

April 2022
SCEP Pillar Co-chair meetings

2005 — 2009 — 2017 — 2018 — 2019 — 2020 — 2021 — 2022

November 2009
Launched Partnership to Advance Clean Energy (PACE)

April 2018
U.S.-India Strategic Energy Partnership (SEP) launched

February 2020
President Trump and Prime Minister Modi recognized SEP in their joint statement

September 2021
- SCEP officially launched
- SCEP ministerial meeting held

October 2022
SCEP Ministerial meeting planned

25th Anniversary of the India France Strategic Partnership

Why in News?

The **Indian Prime Minister** joined **French President** as the **Guest of Honour** at the **Bastille Day Parade,** where an **Indian tri-services** marching contingent participated. **Rafale jets** from the Indian Air Force were also part of the flypast.

➢ Also, joint statement titled "**25th Anniversary of the Strategic Partnership between France and India: towards a Century of Indo-French Relations**" sets the course for bilateral relations until 2047, marking significant milestones for both nations.

➢ The roadmap for the relationship is built upon three pillars: **partnership for security and sovereignty, partnership for the planet, and partnership for the people.**

What are the Major Highlights of the Visit?

➢ **Pillar 1: Partnership for Security and Sovereignty:**
  ○ **Defence**: Continuation of cooperation on fighter jets and submarines, following the timely delivery of the **36 Rafale jets** for the IAF and the success of the **P75 program** (six Scorpene submarines).
  ○ **Space:** Enhancement of scientific and commercial partnership through agreements between **France's CNES and India's ISRO.**

  ● This includes the **joint Earth observation satellite TRISHNA,** maritime surveillance satellites in the Indian Ocean, and the protection of Indo-French satellites in orbit.
○ **Civil Nuclear Energy**: Progress on the **6- European Pressurized Reactors power plant project in Jaitapur, Maharashtra** and the launch of a cooperation program on **small modular reactors and advanced modular reactors.**
○ **Indo-Pacific:** Adoption of a roadmap for joint actions in the **Indo-Pacific,** covering all aspects of the comprehensive strategy for the region.
  ● Discussion on finalizing an Indo-French development fund for third countries, enabling **joint financing of sustainable development projects in the Indo-Pacific region.**
○ **Counter-Terrorism**: Strengthening cooperation between **France's GIGN and India's National Security Guard.**
○ **Critical Technology:** Strengthening cooperation on cutting-edge digital technology, including **supercomputing**, **cloud computing**, **artificial intelligence**, and **quantum computing**.
  ● Announcement of an agreement between **Atos and the Ministry of Earth Sciences of India** for the supply of **supercomputers**.
○ **Civil Aviation:** Signing of technical and safety agreements in the field of **civil aviation** to support the expansion of routes between France and India and the growth of the Indian civil aviation market.

Note:

- ➢ **Pillar 2: Partnership for the Planet and Global Issues:**
  - ○ **Plastic Pollution**: Commitment by France and India to adopt an international treaty to put an **end to plastic pollution throughout the entire life cycle of plastic products.**
  - ○ **Health**: Signing of a Letter of Intent on health and medicine to structure cooperation in **hospitals, medical research, digital technology, biotechnology,** public health, and combating micro-bacterial resistance.
  - ○ **Blue Economy:** Launch of a partnership between **France's IFREMER and India's National Institute of Ocean Technology (NIOT)** on ocean research under the **Blue Economy** and Ocean Governance roadmap.
  - ○ **Financing the Energy Transition:** Announcement of financing from the **French Development Agency** for India's sustainable cities program **"CITIIS 2.0"** and financing from **Proparco for the South Asia Growth Fund (SAGF III).**
  - ○ **Decarbonized Hydrogen:** Manufacturing electrolyzers in India, in line with the Indo-French roadmap for **decarbonized hydrogen.**
- ➢ **Pillar 3: Partnership for People:**
  - ○ **Student Mobility:** Target of welcoming **30,000 Indian students in France by 2030.**
    - Issuance of **5-year short-stay Schengen visas for Indian students** with a Master's degree from a French university.
  - ○ **Diplomatic and Consular Network:** Opening of a **Consulate General of India in Marseille, France** and **a Bureau de France in Hyderabad, India.**
  - ○ **Culture:** France's selection as India's partner for establishing a major new **National Museum in New Delhi.**
    - Agreement between **France Médias Monde and Prasar Bharati** for the exchange of audio-visual content and co-production of programs.
  - ○ **Research:** Increase in funding for th**e Indo-French Centre for the Promotion of Advanced Research** to support new projects.
- ➢ **Other Highlights:**
  - ○ France gifted India a **framed facsimile of a 1916 photograph** depicting a **Parisian presenting flowers to a Sikh officer.**
  - ○ France also presented a replica of the **Charlemagne chessmen** and a series of novels by **Marcel Proust.**
  - ○ Indian Prime Minister was honored with the **Grand Cross of the Legion of Honour**, France's highest civilian and military honor, during his visit.

- ○ Also, the final joint statement, did not have any reference to the pact on buying three **Scorpene submarines and joint development of a combat aircraft engine.**

What are the Major Areas of Cooperation between India and France?

- ➢ **Background:**
  - ○ France was one of the first countries with which India signed a "**strategic partnership**" after the end of the Cold War, in January 1998.
  - ○ France was also one of the very few countries to **support India's decision to test nuclear weapons in 1998.**
- ➢ **Defence Cooperation**: France has emerged as a **key defence partner for India, becoming the second largest defence supplier in 2017- 2021.**
  - ○ **Joint Exercises: Exercise Shakti (Army), Exercise Varuna (Navy), Exercise Garuda (Air Force)**
- ➢ **Economic Cooperation:** Bilateral trade between two countries reached a new peak at **USD 13.4 billion in 2022-23,** with exports from India crossing **USD 7 billion.**
  - ○ France is the **11th largest foreign investor in India,** with a cumulative investment of USD 10.49 billion from **April 2000 to December 2022.**
- ➢ **Cooperation at International Forum**: France supports **India's bid for permanent membership of the United Nations Security Council** as well as its entry into the **Nuclear Suppliers Group.**
- ➢ **Climate Cooperation:** Both countries are concerned about climate change, where **India has supported France in the Paris Agreement** expressing its strong commitment to mitigating the effects of climate change.
  - ○ Both countries, as part of their joint efforts on climate change, **launched the International Solar Alliance in 2015.**

Note:

BIMSTEC

Why in News?

Recently, the first-ever Foreign Ministers' meeting of the **Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)** began in Bangkok, Thailand.

➢ Areas of coordination challenges were discussed, including food, health and energy security.

BIMSTEC

Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation

Members: 7
Significance: Hosts 22% of the world population, accounts for 3.8 trillion of GDP

Formation: 6th June 1997 (Bangkok Declaration)
Secretariat: Dhaka, Bangladesh

BHUTAN
- India is Bhutan's largest trade partner
- **Mutually Beneficial Hydropower Cooperation:** Mangdechhu, Kholongchhu, Chukha hydropower Projects
- India's grant assistance to **Gyalsung Project**
- Integration of **Bhutan's DrukRen** with India's National Knowledge Network

NEPAL
- Shares border with 5 Indian states (Uttarakhand, Uttar Pradesh, West Bengal, Sikkim and Bihar)
- **Bharat Gaurav Tourist Train** connecting India's Ayodhya and Nepal's Janakpur
- **Major Issues:** Territorial Disputes (Kalapani, Limpiyadhura and Lipulekh)
- **Military Exercise:** Surya Kiran (Army)

MYANMAR
- Only Southeast Asian country that **shares a land border with north-eastern India**
- The **2021 coup** returned Myanmar to military rule
- **India's Development Assistance:** India-Myanmar-Thailand Trilateral Highway, Kaladan Multi-Modal Transit Transport (KMMTT), Sittwe port
- **Major Issue:** Rohingya Crisis

SRI LANKA
- India is Sri Lanka's third largest export destination
- India is the first country to **officially back Sri Lanka's debt restructuring programme at IMF**
- **Major Issue:** Fishermen crossing maritime boundary
- **Important Exercises:** Mitra Shakti (Army), SLINEX (Naval)

BANGLADESH
- Shares the **longest border of over 4,096 km with India**
- **Largest trading partner** in South Asia
- **Water Sharing Agreements:** Kushiyara river (2022), Ganga Water Treaty (1996)
- **Major Issues:** Teesta River Water Dispute
- **Military Exercises:** SAMPRITI-X (Military Training), Bongosagar (Naval)

THAILAND
- Thai language is written in **script derived from Southern Indian Pallava alphabet**
- **Hinduism, Buddhism** – both religions of Indian origin being popular in Thailand
- Convergence of **India's 'Act East' policy with Thailand's 'Act West' policy**
- **Military Exercises:** MAITREE (Army), SIAM BHARAT (Air Force), Indo-Thai CORPAT (Naval)

*New Delhi *Kathmandu *Thimphu *Dhaka INDIA *Naypyidaw *Bangkok *Colombo

Note:

What is BIMSTEC?

➤ **About:**
- The BIMSTEC is a r**egional organisation comprising seven Member States:** five deriving from South Asia, including Bangladesh, Bhutan, India, Nepal, Sri Lanka and two from Southeast Asia, including Myanmar and Thailand.
- This sub-regional organisation came into being on **6th June 1997** through the **Bangkok Declaration.**
- The BIMSTEC Secretariat is in Dhaka, Bangladesh.

➤ **Institutional Mechanisms:**
- BIMSTEC Summit
- **Ministerial Meeting**
- Senior Officials' Meeting
- BIMSTEC Working Group
- Business Forum & Economic Forum

➤ **Cooperation:**
- Cooperation within the BIMSTEC had initially focused on six sectors in 1997 (trade, technology, energy, transport, tourism, and fisheries) and expanded in **2008 to other areas.**
- In 2021, a reorganization led to each of the Member States leading certain sectors.
- India focuses on **security, along with counterterrorism and transnational crime**, disaster management and energy.

What is the Significance of BIMSTEC?

➤ **Significant Global Weightage:**
- Around 22% of the world's population live in the seven countries around the Bay of Bengal, with a combined GDP close to USD 2.7 trillion.
- All seven countries have **sustained average annual rates of growth between 3.4% and 7.5%** from 2012 to 2016.
- A fourth of the world's traded goods across the bay every year.

➤ **Regional Strategic Incentives:**
- The BIMSTEC countries have **strategic incentives in the growth** of BIMSTEC.
- For instance, Bangladesh sees BIMSTEC as a platform to **elevate its status beyond being a small state** on the Bay of Bengal.
- Sri Lanka views it as an **opportunity to connect with Southeast Asia** and become a hub for the wider **Indo-Pacific Region.**

- Nepal and Bhutan aim to connect with the Bay of Bengal region to overcome their **landlocked geographic positions.**
- Myanmar and Thailand s**ee deeper connections with India and BIMSTEC as a means to access India's rising consume**r market, balance China's influence in the region, and develop alternatives to China's inroads into Southeast Asia.
- It allows for economic integration, regional security cooperation, and leveraging s**hared values and histories for peace** and development.

➤ **Importance for India:**
- BIMSTEC not only connects **South and Southeast Asia** but also encompasses the ecologies of the **Great Himalayas** and the Bay of Bengal.
- India sees BIMSTEC as a **natural platform to prioritize its foreign policy objectives** of **"Neighborhood First" and "Act East."**
  - The significance of BIMSTEC was highlighted when some of its member countries supported **India's call for a boycott of the South Asian Association for Regional Cooperation (SAARC)** summit in Islamabad, leading to its postponement.
  - India claimed victory in isolating **Pakistan through this move.**

➤ **Crucial Against Assertive China:**
- The Bay of Bengal is crucial for an **increasingly assertive China** in maintaining its access route to the **Indian Ocean.**
  - As China has undertaken a massive drive to finance and build infrastructure in South and Southeast Asia through the **Belt and Road Initiative (BRI)** in almost all BIMSTEC countries, except Bhutan and India, BIMSTEC is a **new battleground in the India-China battle for dominance.**
- BIMSTEC can allow **India to push a constructive agenda to counter Chinese investments**, and instead follow best practices for connectivity projects based on recognised international norms.
- The Chinese projects are widely seen as violating these norms.

➤ **Preserve Peace and Freedom of Navigation:**
- The Bay of Bengal can be showcased as open and peaceful, contrasting it with **China's behavior in the South China Sea.**

Note:

○ It can develop codes of conduct that **preserve freedom of navigation** and apply existing law of the seas regionally.

○ Moreover, BIMSTEC can stem the **region's creeping militarisation by instituting**, for instance, a Bay of Bengal Zone of Peace that seeks to limit any **bellicose behavior of extraregional power.**

How BIMSTEC is Different from SAARC?

SAARC	BIMSTEC
1. A regional organisation looking into South Asia	1. Interregional organisation connecting South Asia and South East Asia.
2. Established in 1985 during the cold war era.	2. Established in 1997 in the post-Cold War.
3. Member countries suffer for mistrust and suspicion.	3. Members maintain reasonably friendly relations.
4. Suffers from regional politics.	4. Core objective is the improvement of economic cooperation among countries.
5. Asymmetric power balance.	5. Balancing of power with the presence of Thailand and India on the bloc.
6. Intra-regional trade only 5 percent.	6. Intra-regional trade has increased around 6 precent in a decade.

India-UAE Local Currency Settlement System

Why in News?

India and the **United Arab Emirates (UAE)** have signed a pact to establish **Local Currency Settlement System (LCSS)** to promote the use of the **Indian rupee (INR)** and **UAE Dirham (AED)** for cross-border transactions.

➤ The deal was signed during the Prime Minister's recent visit to Abu Dhabi, UAE.

> **Note:** The **RBI (Reserve Bank of India)** in 2022 announced a framework for settling **Global Trade in Rupees**, primarily **targeting trade with Russia.** But this is **yet to take off in a substantive manner.**

What are the Key Agreements?

➤ **LCSS:**

○ It covers all current account transactions and permitted capital account transactions.

○ The LCSS will enable **exporters and importers to pay in their respective domestic currencies** and enable the development of an INR-AED forex market.

○ It will **reduce transaction costs and settlement time**, including for remittances by Indians in the UAE.

○ India could use this mechanism to **pay for imports of oil and other commodities** from the UAE, its 4ᵗʰ largest energy supplier (in FY 22-23).

➤ **UPI-IPP:**

○ The central banks of both countries have signed to cooperate on linking India's Unified Payments Interface (UPI) with the UAE's Instant Payment Platform (IPP) and RuPay switch and UAESWITCH.

● The UPI-IPP link will enable users in both countries to **make fast, safe and cost-effective cross-border transfers.**

○ The linking of card switches will facilitate the **mutual acceptance of domestic cards** and the processing of card transactions.

● The MoUs were signed by the **respective Governors of the RBI** and the Central Bank of UAE.

○ They will also explore the linking of India's **Structured Financial Messaging System (SFMS)** with the payments messaging system of the UAE.

➤ **IIT Delhi campus to be set up in Abu Dhabi:**

○ An MoU was signed for establishment of IIT Delhi campus in Abu Dhabi.

● The new MoU is an addition in the '**IITs go Global' campaign.**

● This will be the second international IIT campus after IIT Madras Zanzibar, Tanzania.

○ The degrees will be offered **starting 2024** with courses covering several **areas such as Energy and Sustainability**, AI, Computer Science and Engineering, Healthcare, Mathematics and Computing and other disciplines of engineering, sciences and humanities.

What is the Significance of Rupee Based Cross Border Transaction?

➤ India is looking to work out **a way to mitigate exchange rate risks** in the rupee-based trade to limit **losses for Indian exporters.**

Note:

❍ The rupee-based transaction is part of a concerted policy effort by India to **Internationalize the Rupee** to bring down the dollar demand.

➢ Apart from Russia, countries in Africa, the Gulf region, Sri Lanka and Bangladesh had also **expressed interest in trading in rupee terms.**

➢ The RBI's plan to settle **international trade in the local currency will let importers make payments in the rupee,** which will be credited to the special account of the correspondent bank of the partner country, while exporters will be paid from the balances in the designated special account.

How has been India- UAE Bilateral Relations?

➢ **Diplomatic Ties:**
   ❍ India and the UAE established **diplomatic relations in 1972.**
   ❍ The greater push has been achieved in bilateral relations when the visit of India's **Prime Minister to the UAE in August 2015** marked the beginning of a new strategic partnership between the two countries.

❍ Further, during the visit of the Crown Prince of Abu Dhabi to India in January 2017 as the chief **guest at India's Republic Day celebrations,** it was agreed that bilateral relations were to be upgraded to a comprehensive strategic partnership.

❍ This gave momentum to launching negotiations for an **India-UAE comprehensive economic partnership agreement.**

➢ **Bilateral Trade:**
   ❍ Bilateral trade between India and the UAE was worth ~USD 85 billion in 2022-23 making the UAE India's 3rd-largest trading partner for 2022-23 and India's 2nd-largest export destination.
   ❍ India is the 3rd largest oil importer in the world and the UAE was its 4th biggest supplier of crude in 2022.
   ❍ In 2022, India **became the first country with which the UAE signed a Comprehensive Economic Partnership Agreement**.
   ❍ The UAE, which imports most of **its food requirements, has pledged USD 2 billion** to develop a series of food parks in India.
   ❍ Many Indian companies have set up manufacturing units either as joint ventures or in **Special Economic Zones** for cement, building materials, textiles, engineering products, consumer electronics, etc. in the UAE.
      ● Many Indian companies have also invested in the tourism, hospitality, catering, health, retail, and education sectors.

➢ **Defense Exercises:**
   ❍ **Bilateral:**
      ● In-UAE BILAT (bilateral naval exercise)
      ● Desert Eagle-II (bilateral air force exercise).
      ● **Exercise Desert Flag-VI: UAE**
   ❍ **Multilateral:**
      ● **Pitch Black:** Biennial, multilateral air combat training exercise of Australia.
      ● **Red Flag**: Multilateral air exercise of the USA.

▪▪▪

Note:

Social Issues

Highlights

- Global Multidimensional Porverty Index (MPI) 2023
- Children and Domestic Labour
- World Hepatitis Day
- Empowering India's Senior Citizens
- Global Education Monitoring Report 2023: UNESCO
- Quick-Fix Water Management
- World Fragile X Day

- World Drowning Prevention Day
- Global Efforts Towards Immunization
- Empowering the Tribal Society
- Gender Parity and Women's Empowerment Gap
- UNAIDS Report: Progress & Challenges in HIV/AIDS Fight
- National Multidimensional Poverty Index
- Diabetes Mellitus and Tuberculosis

Global Multidimensional Porverty Index (MPI) 2023

GLOBAL MULTIDIMENSIONAL POVERTY INDEX (MPI) 2023

BASIC DETAILS

- ⊚ **Launched**
  - ⊞ 2010
- ⊚ **Function**
  - ⊞ Reflects multiple deprivations that poor people face (in education, health, and living standards)
- ⊚ **Score**
  - ⊞ MPI ranges from 0 to 1 (higher value = higher poverty)

- ⊚ **Released by**
  - ⊞ UNDP and Oxford Poverty and Human Development Initiative (OPHI)
- ⊚ **Multidimensional Poor**
  - ⊞ Person who is deprived in >1/3rd (>33%) of the 10 indicators
- ⊚ **Extreme Multidimensional Poverty**
  - ⊞ Where person is deprived in >50% of the indicators

DIMENSIONS   **INDICATORS**   **POVERTY MEASURES**

Health
- ⊚ Nutrition
- ⊚ Child mortality

Educatiion
- ⊚ Years in schooling
- ⊚ School attendance
- ⊚ Intensity of Poverty
- ⊚ Headcount ratio

Standard of living
- ⊚ Cooking fuel
- ⊚ Sanitation
- ⊚ Drinking water
- ⊚ Electricity
- ⊚ Housing
- ⊚ Assets

MPI
Multidimensional Poverty Index
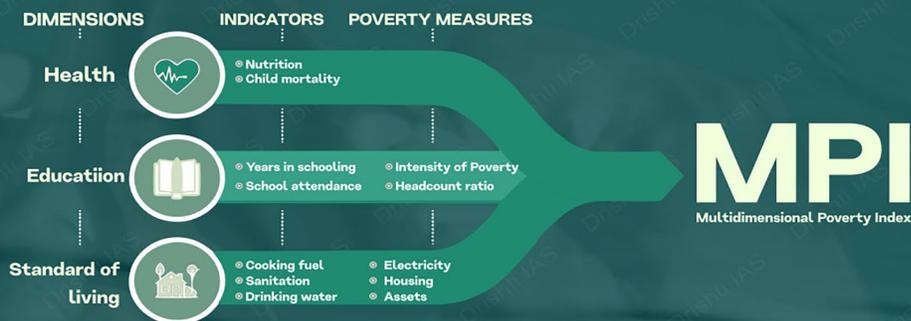
MPI 2023

- ⊚ **Global Scenario**
  - ⊞ 1.1 bn (out of 6.1 bn living in 110 countries) are acutely multidimensionally poor
  - ⊞ 5 out every 6 people poor in Sub-Saharan Africa and S. Asia
  - ⊞ Half of the MPI-poor people are **children <18 years** (556 mn)
- ⊚ **Indian Scenario**
  - ⊞ Incidence of poverty ↓ from 55.1% in 2005-06 to 16.4% in 2019-21
  - ⊞ Progressed significantly in all three dimensions
  - ⊞ Still >230 mn people poor and 18.7% of the population vulnerable

  Vulnerable - People who aren't poor but have deprivations in 20-33.3% of all weighted indicators

- ⊚ NITI Aayog also released India's National MPI (2nd edition) 2023
- ⊚ It is prepared based on the latest NFHS-5 (2019-21)
- ⊚ As per it:
  - ⊞ Uttar Pradesh - Largest decline in number of poor individuals
  - ⊞ Bihar - Fastest reduction in MPI value in absolute terms

Drishti IAS

Note:

drishti

Children and Domestic Labour

Why in News?

Recently, an incident came into light where a couple was accused of hiring a 10-year-old girl as a **stay-at-home help to care for their 4-year-old son and was** subjected to physical and mental abuse on several occasions.

➢ This incident highlights the issue of **Child Labour** in **Domestic Work.**

What is Child Labor?

➢ **Child Domestic Labour:**
  ○ Child domestic work is a **general reference to children's work in the domestic work** sector in the home of a third party or employer.
  ○ Child labor in domestic work refers to **situations where domestic work is performed by children below the relevant minimum** age (for light work, full-time non-hazardous work), in hazardous conditions or in a slavery-like situation.

➢ **Hazards of Child Domestic Work:**
  ○ The **ILO (International Labour Organization)** has identified a number of hazards to which **domestic workers are particularly vulnerable** some of the most common risks children face in domestic **service include,**
    ● **Long and tiring working days**; use of toxic chemicals; carrying heavy loads; handling dangerous items such as knives and hot pans; insufficient or inadequate food and accommodation etc.
  ○ The **risks are compounded** when a child lives in the household where he or she works as a domestic worker.

➢ **Status of Child Labor in India:**
  ○ As per the **National Crime Records Bureau Report 2022**, in 2021, around 982 cases were registered under the **Child Labour (Prohibition and Regulation) Act, 1986**, with the **highest number of cases registered in Telangana**, followed by **Assam.**
  ○ According to a study by **Campaign Against Child Labour (CACL)**, there has been a significant increase in the proportion of working **children from 28.2% to 79.6% out of the 818 children** who were surveyed, mainly because of the **Covid-19** pandemic and closure of schools.

  ○ The states in India having highest child labour employers are – **Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh, and Maharashtra.**

Why is Child Labor in Domestic Work Prevalence in India?

➢ **Social and Economic Conditions of Families:**
  ○ The prevalence of child labor in domestic work in India are the social and economic conditions of families, lack of effective policies ensuring sufficient wages to adult workers, and the burden **falling on children of impoverished households to supplement family** income.
  ○ This situation often leads to **kids being paid even less and forced to work beyond their physical** and mental capacity, resulting in a **systematic trap of slavery** in 24x7 house help employment.

➢ **Marginalized Communities are Easy Targets:**
  ○ Some communities and families have a **tradition of making their children work** in certain occupations, such as agriculture, carpet weaving, or domestic service. Some also believe that **education is not important** or suitable for girls.
  ○ Tribals and Dalits who migrate to big cities from the poorer regions of India such as West Bengal, Bihar, Uttar Pradesh, and Jharkhand are the easiest targets.

➢ **Poor School Infrastructure:**
  ○ Many schools in **India lack adequate facilities, teachers**, and quality education. Some schools also charge fees or other expenses that are unaffordable for poor families.
  ○ These factors **discourage parents from sending** their children to school and make them drop out.

➢ **Unprecedented Disruption/Losses:**
  ○ Natural disasters, conflicts, and **pandemics can disrupt the normal functioning** of society and increase the **vulnerability of children.**
  ○ Some children may lose their parents, homes, or access to basic services. They may be forced to work for survival or be exploited by traffickers and other perpetrators.

What is the Socio-Economic Impact of Child Labour?

➢ **Reduced Human Capital Accumulation:**
  ○ Child labor diminishes **children's ability to accumulate skills** and knowledge, affecting their future productivity and income.

➢ **Perpetuation of Poverty and Child Labour:**
  ○ Child labor lowers **wages for unskilled work**, contributing to the cycle of poverty and continued child labor.

➢ **Impaired Technological Progress and Economic Growth:**
  ○ Child labor hampers **technological advancements** and innovation, slowing down long-term economic growth and development.

➢ **Deprivation of Rights and Opportunities:**
  ○ Child labor **deprives children of their rights to education,** health, protection, and participation, limiting their future opportunities and social mobility.

➢ **Undermined Social Development and Cohesion:**
  ○ Child labor weakens social development and cohesion within a country, impacting stability and democracy.

➢ **Negative Health Impacts:**
  ○ Child labor exposes children to hazards, **physical injuries**, diseases, abuse, and exploitation, adversely affecting their physical and mental well-being, mortality rates, and life expectancy.

What are the Government Initiatives to Curb Child Labour in India?

➢ **Right to Education Act (2009)**

➢ **Article 24:**
  ○ Forbids employment of children under 14 years of age in dangerous jobs like factories and mines. However, it didn't prohibit their employment in any harmless or innocent work.

➢ **Child Labour (Prohibition and Regulation) Act (1986):**
  ○ Amended in 2016 as **Child & Adolescent Labour (Prohibition and Regulation) Act, 1986, completely prohibited employment of children** below 14 years of age in all occupations and processes.

➢ **The Factories Act (1948)**

➢ **National Policy on Child Labour (1987)**

➢ **Pencil Portal**

➢ **Ratifying Conventions of the International Labour Organization:**

➢ **The Minimum Age Convention (1973) - No. 138**

➢ **The Worst Forms of Child Labour Convention (1999) - No. 182**

World Hepatitis Day

Why in News?

World Hepatitis Day (WHD) takes place every year on **28th July** bringing the world together under a single theme to raise awareness of the global burden of viral hepatitis and to influence real change.
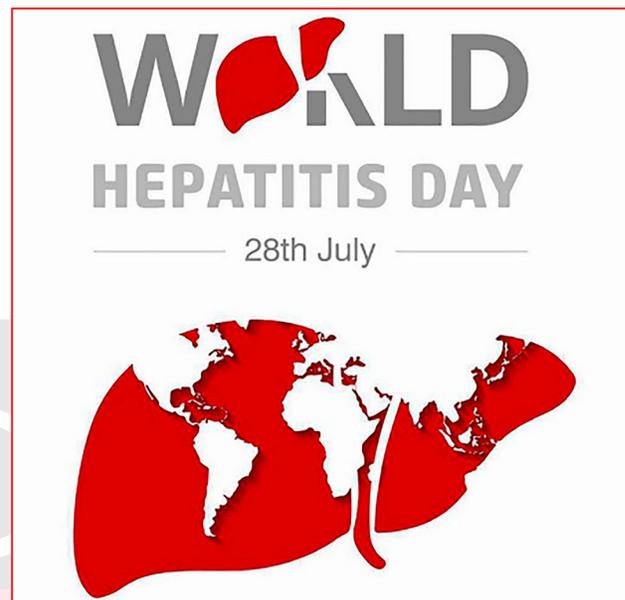
What are the Key Points Related to WHD?

➢ **Theme 2023:** One life, one liver.

➢ **Significance:**
  ○ On this day, communities, people, and politicians may **learn about the many varieties of hepatitis,** as well as about preventative strategies, testing, and treatment choices.
  ○ It promotes globa**l advocacy and cooperation in the figh**t against the rising number of hepatitis-related diseases and fatalities.

What is Hepatitis?

➢ **About:**
  ○ The word hepatitis refers to any **inflammation of the liver** — the irritation or **swelling of the liver cells** from any cause.
  ○ It can be acute (inflammation of the liver that presents with sickness — jaundice, fever, vomiting) or chronic (inflammation of the liver that lasts **more than six months, but essentially showing no symptoms).**

Note:

➢ **Causes:**
- ❍ Usually caused by a group of viruses known as the **"hepatotropic" (liver directed)** viruses, including A, B, C, D and E.
- ❍ Other viruses may also cause it, such as the varicella virus that causes chicken pox.
- ❍ **SARS-CoV-2,** the virus causing Covid-19 may injure the liver too.
- ❍ Other causes include **drugs and alcohol abuse,** fat buildup in the liver (fatty liver hepatitis) or an **autoimmune process in which a person's body makes antibodies** that attack the liver (autoimmune hepatitis).

➢ **Types of Hepatitis:**
- ❍ **Hepatitis A virus (HAV):** It is an inflammation of the liver that can cause mild to severe illness.
  - ● It is transmitted through ingestion of contaminated food and water or through direct contact with an infectious person (sex practices).
  - ● **Almost everyone recovers fully from hepatitis A with a lifelong immunity (**few people with HAV could die from fulminant hepatitis).
  - ● A safe and effective vaccine is available to prevent hepatitis A.
- ❍ **Hepatitis B virus (HBV):** It is a viral infection that attacks the liver and can cause both acute and chronic disease.
  - ● It is most commonly transmitted from mother to child during birth, in early childhood, during sex with an infected partner, unsafe injections.
  - ● **Hepatitis B can be prevented by vaccines.**
- ❍ **Hepatitis C virus (HCV):** The virus can cause both acute and chronic hepatitis, ranging in severity from a mild illness to a serious, lifelong illness including liver cirrhosis and cancer.
  - ● It is a bloodborne virus and most infection occurs through exposure to unsafe health care, blood transfusions, injection drug use and sexual practices.
  - ● Direct-acting antiviral medicines (DAAs) can cure more than 95% of persons with hepatitis C infection, but access to diagnosis and treatment is low.
  - ● **There is currently no effective vaccine against hepatitis C.**

- ❍ **Hepatitis D virus (HDV):** It is a virus that requires hepatitis B virus (HBV) for its replication. It affects globally nearly 5% of people who have a chronic infection with HBV.
  - ● Hepatitis B and D can infect people together (co-infection) or one after the other (super-infection). This is more common in native people, dialysis patients and drug users. Having both viruses is very bad for the liver and can cause cancer or death.
  - ● **Hepatitis D infection can be prevented by hepatitis B immunization, but treatment success rates are low.**
- ❍ **Hepatitis E virus (HEV**): It is an inflammation of the liver caused by infection with the HEV. It is found worldwide, but most common in East and South Asia.
  - ● The virus is transmitted via the fecal-oral route, principally via contaminated water.
  - ● **A vaccine to prevent hepatitis E virus infection has been developed and is licensed in China but is not yet available elsewhere.**

What are the Government Initiatives to Tackle Hepatitis?

➢ **National Viral Hepatitis Control Program:**
- ❍ The Program aims to end viral hepatitis as a **public health threat by 2030 i**n the country.

➢ **India's Universal Immunization Programme (UIP):**
- ❍ Hepatitis B is included under India's UIP which provides **free of cost vaccination against eleven** vaccine-preventable diseases i.e., Tuberculosis, Diphtheria, Pertussis, Tetanus, Polio, Pneumonia and Meningitis due to Haemophilus Influenzae type b (Hib), Measles, Rubella, Japanese Encephalitis (JE) and Rotavirus diarrhoea.

Empowering India's Senior Citizens

Why in News?

Recently, the **Minister of State for the Ministry of Social Justice and Empowerment** provided valuable insights into the accomplishments of the **Seniorcare Ageing Growth Engine(SAGE) Portal** and **Senior Able Citizens for Re-Employment in Dignity (SACRED) Portal** the significant contributions made under the **Atal Vayo Abhyuday Yojana (AVYAY).**

Note:

➤ These initiatives have been **instrumental in addressing the needs and concerns of India's senior citizens,** fostering innovation, providing employment opportunities, and ensuring the overall well-being of the elderly population.

What is SAGE Portal?

➤ The SAGE Portal serves as a catalyst to **attract entrepreneurs and start-ups** to invest in the **"silver economy"** segment, fostering innovation in elderly care solutions.

➤ SAGE provides convenient **"one-stop access"** for stakeholders, including **senior citizens and their families**, to discover and access a wide range of products and services catering to their needs.

➤ The government plays a crucial role as a facilitator, enabling the elderly to access the products and services offered by identified start-ups through the SAGE Portal.

  ○ Selected start-ups or start-up ideas **receive equity support of up to Rs. 1 crore per project** through the **Industrial Finance Corporation of India (IFCI).**

  ○ The government ensures that the **total government equity in the start-up does not exceed 49%.**

Silver Economy

➤ The silver economy is the system of **production,** distribution and consumption **of goods and services aimed at using the purchasing potential of older and ageing people** and satisfying their consumption, living and health needs.

➤ The silver economy is **analyzed in the field of social gerontology** (study of aging) **not as an existing economic system but as an instrument of ageing policy** and the political idea of forming a potential, needs-oriented economic system for an aging population.

➤ Its **main element is gerontechnology** (Technology pertaining to aged people) as a new scientific, research and implementation paradigm.

What is SACRED Portal?

➤ SACRED Portal **empower senior citizens and provide them with opportunities for re-employment**.

➤ This portal specifically targets citizens aged **60 years and above, focusing on the needs and requirements of this age group.**

➤ The portal provides opportunities for senior citizens to **find suitable jobs and work options that match their preferences and skills.**

➤ The SACRED Portal employs a **virtual matching system** that aligns the **preferences of senior citizens with private enterprises** seeking experienced individuals.

➤ Through job opportunities, the SACRED Portal helps senior citizens attain **financial security and reduces their dependence on external support.**

What is Atal Vayo Abhyuday Yojana (AVYAY)?

➤ **About:**
  ○ The AVYAY aims to provide **holistic support for senior citizens.**

➤ **Components:**
  ○ **Integrated Programme for Senior Citizens (IPSrC):**
    ● This component grants aid to implementing agencies to run and maintain **Senior Citizens Homes, offering shelter, food, medical care, and entertainment opportunities for indigent senior citizens.**
  ○ **State Action Plan for Senior Citizens (SAPSrC):**
    ● States and Union Territories receive grant-in-aid to create a pool of trained geriatric caregivers, conduct special cataract drives, and implement other state-specific welfare activities for indigent senior citizens.
  ○ **Rashtriya Vayoshri Yojana (RVY):**
    ● This component provides eligible senior citizens suffering from age-related disabilities with **assisted living devices, enhancing their bodily functions and overcoming their disabilities.**
  ○ **Elderline - National Helpline for Senior Citizens (NHSC):**
    ● The **Elderline** offers a toll-free helpline (14567) to provide free information, guidance, emotional support, and field intervention in cases of abuse, ensuring an improved quality of life for senior citizens.
  ○ **Senior-care Ageing Growth Engine (SAGE)**: This component aims to encourage youth to think about the problems of the elderly and come up with innovative ideas for elderly care and **promote them into start-ups by providing equity support.**

➤ **Outcomes:**
  ○ Nearly **1.5 lakh beneficiaries** are staying in the Senior Citizen homes.

Note:

○ During the last 3 financial years a total of Rs. 288.08 crore grants in aid released and **number of beneficiaries is 3,63,570.**

○ Improved **quality of life and social integration for indigent elderly individuals.**

○ Promotion of an inclusive society that values and respects senior citizens.

○ Economic growth through the development of the "silver economy" and employment generation.

What are the Other Initiatives Related to Elderly in India?

➢ **National Policy on Older Persons (NPOP)**

➢ **National Social Assistance Programme**

➢ **Pradhan Mantri Vaya Vandana Yojana (PMVVY)**

➢ **SAMPANN Project**

Global Education Monitoring Report 2023: UNESCO

Why in News?

Recently, the **UNESCO (United Nations Educational, Scientific and Cultural Organization)** has released the **Global Education Monitoring Report 2023**, titled **'Technology in Education: A Tool on Whose Terms'** endorsed ban on smartphones in schools **where technology integration does not improve learning.**

What are the Key Highlights of the Report?

➢ **Rationale for Restricting Smartphone Usage:**

○ The report highlighted that "**mere proximity to a mobile device was found to distract students** and to have a negative impact on learning in 14 countries, yet less than one in four have banned smartphone use in schools.

○ It cited a study of young people between the age 2 and 17 years which showed that higher screen time was associated with **poorer well-being; less curiosity, self-control and emotional stability;** higher anxiety; and depression diagnoses.

➢ **Inequity in Access:**

○ During the **Covid-19 Pandemic**, the rapid shift to online learning left out at least half a billion students worldwide, **disproportionately affecting the poores**t and those in rural areas.

➢ **Limited Adaptation of Digital Technology:**

○ The fast pace of technological change puts strain on education systems to adapt.

○ **Digital literacy and critical thinking skills** are crucial, especially with the growth of generative AI.

○ However, adaptation efforts **are still in progress, with only a limited number of countries having defined skills** and curricula for AI.

➢ **Data Privacy:**

○ Children's data are being exposed, yet only **16% of countries explicitly guarantee data privacy** in education by law.

● One analysis found that 89% of 163 education technology products recommended during the pandemic could survey children.

● Further, 39 of 42 governments providing online education during the pandemic fostered uses that risked or infringed on children's rights.

➢ **Consideration of Costs:**

○ Many countries ignore the **long-term financial implications** of technology purchases, and the **EdTech market** continues to expand while **basic education needs remain unmet.**

○ Technology is often brought to plug a gap, with no **view to the long-term costs for national budgets.**

● The cost of moving to basic digital learning in low-income countries and connecting all schools to the internet in lower-middle-income countries would add **50% to their current financing gap** for achieving national **SDG (Sustainable Development Goals) 4** targets.

What are the Recommendations?

➢ There is a need for **rigorous and impartial evidence** of technology's effectiveness in learning. Policymakers need to have r**eliable evidence to make informed decisions** about technology integration in education.

➢ Technology should enhance **learning experiences and support the well-being** of students and teachers rather than replace in-person, teacher-led instruction.

➢ The right to education is increasingly tied to meaningful connectivity, and it calls for setting benchmarks to connect all schools to the internet by 2030, with a focus on reaching marginalized communities.

➢ While technology offers potential benefits in education, it is essential to consider the long-term costs.

Note:

What is UNESCO?

➤ UNESCO is a specialized agency of the **United Nations (UN).** It seeks to build peace **through international cooperation** in Education, the Sciences and Culture.

➤ It is also a member of the **United Nations Sustainable Development Group (UNSDG)**, a coalition of UN agencies and organizations aimed at fulfilling the SDGs.

➤ UNESCO's **Headquarters are located in Paris** and the Organization has more than 50 field offices around the world.

➤ It has **194 Members and 12 Associate Members** and is governed by the General Conference and the Executive Board.
   ○ Three UNESCO member states are not UN members: Cook Islands, Niue, and Palestine.
   ○ While two UN member states (Israel, Liechtenstein) are not UNESCO members.

Quick-Fix Water Management

Why in News?

Recently, India's increasing **water stress** has been met with a growing inclination towards **quick-fix solutions by non-profits and civil society organizations.**

➤ However, these quick fixes **may not be sustainable in the long run**. It's essential to examine these quick fixes carefully and ensure we adopt strategies that can last for the future.

What are Quick-fix Water Solutions?

➤ **About:**
   ○ Quick-fix water solutions refer to **immediate and often temporary measures** implemented to **address water-related issues,** particularly in **regions facing water scarcity or challenges in water management.**

➤ **Various Interventions:**
   ○ **River Widening, Deepening, and Straightening:** Modifying natural watercourses to increase **water-carrying capacity.**
   ○ **Water Harvesting Competitions:** Encouraging communities to **harvest rainwater** and adopt water-saving practices.
     ● Limited impact without comprehensive water management strategies.

○ **Tree Planting Along Riverbanks:** Stabilizes **soil and prevents erosion**.
   ● May not fully address larger water management issues.
○ **Quick Infrastructure Development:** Rapid construction of water facilities like **sewage treatment plants and water grids.**
○ **Artificial Recharge of Aquifers:** Injecting **water into underground aquifers to replenish groundwater levels.**
   ● Requires sustainable management to combat depletion.
○ **Desalination Plants:** Converting **seawater into freshwater to meet coastal water needs.**
   ● Energy-intensive and expensive, making it less viable in some areas.

➤ **Quick-fix Water Solutions Initiatives:**
○ **Jalyukt Shivar Abhiyan:**
   ● Maharashtra government initiative (2014) aimed to make the state **drought-free by 2019** through river widening, deepening, and straightening, check dams, and desilting.
   ● Experts criticize it for being **unscientific, ecologically damaging, leading to erosion, biodiversity loss, and increased flood risk.**
○ **Water Cups:**
   ● A competition initiated by a non-profit organization in 2016 incentivized Maharashtra villages to harvest water for **drought-proofing**.
   ● Critics question the validity and sustainability, as it overlooked water quality, groundwater impact, social equity, and maintenance mechanisms.

What are the Challenges in Quick-Fix Solutions in Water Management?

➤ **Environmental Impacts:**
   ○ Rapid interventions like river widening and deepening can lead to **ecological damage.**
   ○ Erosion, sedimentation, and loss of biodiversity can result from hasty projects.

➤ **Limited Community Engagement:**
   ○ Quick-fix approaches may lack adequate participation and consultation with stakeholders.
   ○ Neglecting the social dimension can lead to resistance and conflicts.

➢ **Funding Dependency:**
- ○ Relying on **corporate social responsibility (CSR)** funding can limit decision-making freedom.
- ○ Prioritization of projects influenced by donor interests rather than community needs.

➢ **Neglecting Groundwater Management:**
- ○ Focus on surface water solutions may overlook the critical role of groundwater.
- ○ **Groundwater recharge and management** are crucial for sustainable water supply.

➢ **Conflicting Programs:**
- ○ Some state projects may not align with community and environmental interests.
- ○ Examples: riverfront development, centralized sewage treatment, massive water grids.

➢ **Shift from Critical Engagement:**
- ○ A shift in mindset from **in-depth analysis and understanding** to a **"techno-managerial approach."**
- ○ This means placing too much emphasis on technical knowledge and problem-solving, which can lead to overlooking important **socio-economic and ecological aspects related to water management.**

What are the Government Initiatives Tackle India's Water Crisis?

➢ **Amrit Sarovar Mission:**
- ○ **Amrit Sarovar Mission** launched on April 24, 2022, the mission aims to develop and **rejuvenate 75 water bodies** in each district as part of the **Azadi ka Amrit Mahotsav celebration.**
- ○ The mission seeks to improve **water storage and quality in local water bodies**, contributing to better water availability and ecosystem health.

➢ **Atal Bhujal Yojana:**
- ○ This scheme targets certain **water-stressed areas in Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, and Uttar Pradesh.**
- ○ The primary objective of **Atal Bhujal Yojana** is to manage demand for groundwater through scientific means, involving **local communities for sustainable groundwater management.**

➢ **Central Ground Water Authority (CGWA):**
- ○ CGWA **regulates and controls groundwater usage** by industries, mining projects, and infrastructure projects across the country.

- ○ CGWA and States issue **No Objection Certificates (NOCs)** for groundwater extraction in line with guidelines, ensuring responsible water usage.

➢ **National Aquifer Mapping Program (NAQUIM):**
- ○ **Central Ground Water Board** is implementing **NAQUIM** to map **aquifers in the country, covering an area of 25.15 lakh sq km.**
- ○ The study reports and management plans are shared with States/UTs to facilitate informed interventions.

➢ **Master Plan for Artificial Recharge to Groundwater-2020:**
- ○ Prepared in collaboration with States/UTs, the Master Plan outlines the construction of about **1.42 crore Rain Water Harvesting and artificial recharge structures.**
- ○ The plan targets harnessing **185 billion Cubic Meters (BCM) of water,** promoting water conservation and recharge.

World Fragile X Day

Why in News?

The World Fragile X Awareness Day is marked on 22nd July every year, started in 2021 to raise awareness about the rare genetic illness, **Fragile X or Martin-Bell syndrome.**

What is Fragile X or Martin-Bell Syndrome?

➢ **About:**
- ○ Fragile X syndrome (FXS) is an **inherited genetic disease passed down from parents to children** that causes intellectual and developmental disabilities.
- ○ FXS is the most common **hereditary cause of mental disability** in boys. It affects 1 in 4,000 boys.
  - It's less common in girls, affecting about 1 in every 8,000. Boys usually have more severe symptoms than girls.
- ○ People with FXS usually experience a range of developmental and learning problems.
- ○ The disease is a **chronic or lifelong condition**. Only some people with FXS are able to **live independently.**

➢ **Causes:**
- ○ FXS is caused by a defect in the FMR1 gene located on the **X chromosome.**
- ○ The FMR1 (Fragile X Mental Retardation 1 gene) gene is located on the X chromosome in humans. It

Note:

drishti

is responsible for **producing a protein called FMRP (Fragile X Mental Retardation Protein),** which plays a crucial role in normal brain development and function.

➤ **Risks:**

○ Women who are carriers are at an increased risk for premature menopause, or menopause that starts before the age of 40.

○ Men who are carriers are at increased risk for a condition known as **Fragile X Tremor Ataxia Syndrome (FXTAS).**

● The disorder results in **progressive cerebellar ataxia**, action tremor, Parkinsonism and cognitive decline.

○ It also can lead to **difficulty with balance and walking.** Male carriers may also be at an **increased risk for Dementia.**

➤ **Linked with Inheritance:**

○ Women who carry **Fragile X have a 50% chance** of passing the mutated gene to **each of her children.** If she passes the affected gene, her children **will either be carriers, or they will have Fragile X syndrome.**

adapted from US National Library of Medicine
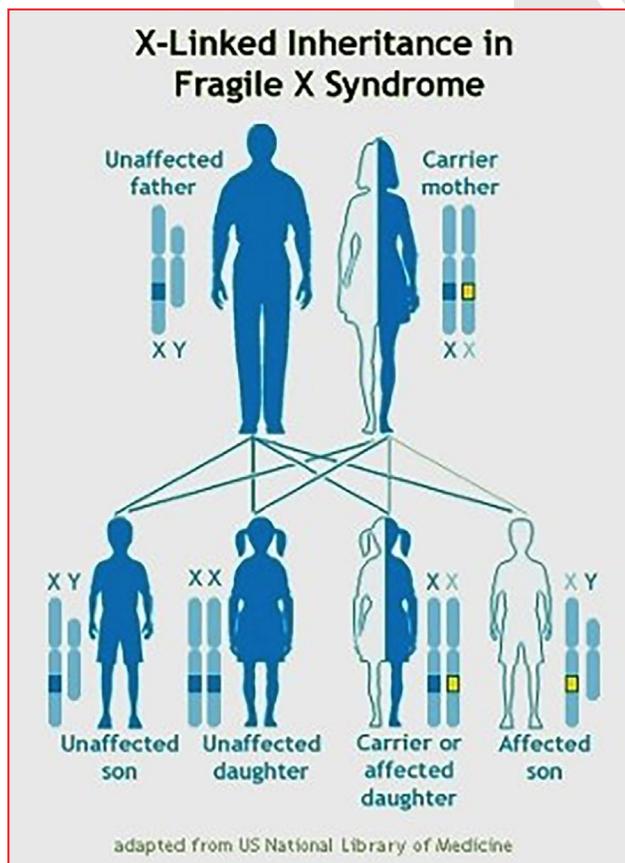
○ Men who carry Fragile X will pass the **premutation to all their daughters** but none of their sons. These daughters are **carriers, but they do not have Fragile X syndrome.**

World Drowning Prevention Day

Why in News?

Recently, the **alarming number of drowning incidents in India,** with a significant proportion **involving children,** has brought attention to the urgent need for preventive measures.

➤ As World Drowning Prevention Day, is approaching it **is essential to address this preventable cause of death and raise awareness** about safety measures that can help curb these tragedies.

What is World Drowning Prevention Day?

➤ World Drowning Prevention Day is a global event that is held **annually on 25 July** to remember **lives lost due to drowning** and to **increase knowledge on safety in and around water.**

➤ World Drowning Prevention Day was **declared in April 2021** by the **United Nations** General Assembly **resolution**, which invited the **World Health Organization (WHO)** to coordinate actions within the **UN system on drowning prevention.**

➤ This day is important because drowning is a major public health problem that **has caused over 2.5 million deaths in the last decade,** mostly in **low- and middle-income countries.**

➤ The human, social and economic toll of drowning is intolerably high and entirely preventable.

○ The implementation of evidence-based, low-cost drowning prevention interventions can drastically reduce the risk of drowning.

What are the Statistics of Incidents associated with Drowning?

➤ The latest **WHO Global Health Estimates** indicate that **almost 236 000 people lost their lives to drowning in 2019**.

○ Just over **50% of these deaths occur among those aged under 30 years,** and drowning is the **sixth**

Note:

leading cause of death worldwide for children aged **5-14** years.

○ Highest drowning rates occur **among children aged 1–4 years,** followed by children **aged 5–9 years globally.**

➢ Drowning is the **3rd leading cause of unintentional injury death worldwide**, accounting for **7% of all injury-related deaths.**

➢ **Boys are at higher risk of drowning than girls**.

➢ **Rural areas have higher drowning rates** than urban areas.

➢ Limited access to **safe water increases vulnerability to drowning.**

➢ **According to the** National Crime Records Bureau, **there were 36,362 drowning deaths reported in 2021 in India,** with children being particularly vulnerable.

What are the Causes and Risk Factors of Drowning?

➢ Drowning is defined as the process of **experiencing respiratory impairment from submersion or immersion in liquid.**

➢ Drowning can result from various causes, **such as** floods, **storms, boat accidents, lack of supervision, unsafe water sources, or recreational activities.**

➢ The main risk factors for drowning include **age, gender, location, access to water, swimming ability, alcohol use, and lack of awareness.**

➢ **Lack of swimming skills and water safety knowledge** contributes to drowning risk.

➢ Alcohol use impairs judgment and **increases the likelihood of drowning.**

➢ Lack of awareness about drowning prevention measures reduces protective actions.

What are Some of the Effective Interventions to Prevent Drowning?

➢ Install **barriers around water bodies (pools, wells, ponds)** to control access.

➢ Provide **safe areas away from water for children and adults.**

➢ **Teach swimming and water safety skills,** especially those **who live near water or engage in water-related activities.**

➢ Training bystanders in safe rescue and resuscitation techniques, such as **Cardiopulmonary resuscitation (CPR) or mouth-to-mouth breathing.**

➢ Enforce **safe boating and shipping regulations**, including wearing life jackets and proper maintenance.

➢ Improve **flood risk management with flood-resistant infrastructure** and early warning systems.

What Are Government Initiatives to Tackle Drowning Deaths?

➢ **India:**

○ The Indian government **established an expert committee to draft the Drowning Prevention Framework of India.**

○ The **Ministry of Health and Family Welfare** introduced a **'National Emergency Life Support'** provider course manual, covering drowning prevention in February 2022.

➢ **Global:**

○ **Global Alliance for Drowning Prevention** was established during the **76th World Health Assembly meeting.**

● Aims to **address global public health concerns related to drowning** by 2029.

● World Health Organization to coordinate **action and prepare a global status report on drowning.**

Global Efforts Towards Immunization

Why in News?

In a joint press release, the **World Health Organization (WHO) and United Nations Children's Fund (UNICEF)** announced that significant progress had been made in global immunization efforts during 2022.

➢ Over **4 million more children** were vaccinated in 2022 compared to the year before, reflecting the collective efforts of countries and international organizations to combat vaccine-preventable diseases.

What is the Major Progress in Global Immunization Efforts?

➢ **Positive Trends in Immunization Coverage:**

○ **DTP3 Vaccine Usage as a Global Marker:**

● The **DTP3 vaccine**, protecting against **diphtheria, tetanus, and pertussis (whooping cough)**, serves as the standard indicator for immunization coverage worldwide.

- In WHO South-East Asia Region, the **number of zero-dose children** (those that have not received even the first dose of DPT vaccine) **halved to 2.3 million in 2022 from 4.6 million in 2021.**
- The coverage rate for DPT3 in India rose to an **all-time of 93%** in 2022, surpassing the previous pre-pandemic best of **91%** recorded in 2019.
  - ○ **Recovery from Pandemic-related Disruptions:**
    - Of the **73** countries that experienced significant declines in immunization coverage during the pandemic, **15** have recovered to pre-pandemic levels and 24 are on the road to recovery.
  - ○ **HPV Vaccination Rates:**
    - **Human papillomavirus (HPV) vaccination** rates have returned to pre-pandemic levels, but they remain below the **90% target.**
- ➤ **Lingering Disparities and Ongoing Challenges:**
  - ○ **Uneven Recovery and System Strengthening:**
    - While certain countries achieved remarkable recoveries, many smaller and poorer nations still face challenges in restoring immunization services.
    - **34 countries are stagnating or experiencing further declines in vaccination rates**, underscoring the need for ongoing catch-up and system strengthening efforts.
  - ○ **Measles Vaccination: A Cause for Concern:**
    - **Measles** (viral disease that typically affects children) vaccination rates have not rebounded as effectively as other vaccines.
    - This has increased the risk of measles infections for an additional **35.2 million children globally.**
    - First dose measles vaccination coverage improved to **83% in 2022**, but it remains lower than the 86% achieved in 2019.

What are the Major Global Initiatives Related to Immunization?

- ➤ **Immunization Agenda 2030 (IA2030):** It sets an ambitious, overarching global vision and strategy for vaccines and immunization for the decade 2021–2030.
  - ○ **By the end of the decade, IA2030 aims to:**
    - Reduce by 50% the number of children receiving zero vaccine doses
    - Achieve 500 introductions of new or under-utilized vaccines in low- and middle-income countries

- Achieve 90% coverage for essential childhood vaccines
- ➤ **World Immunization Week:** It is celebrated every year in the last week of April.
  - ○ **Theme 2023 - 'The Big Catch-up'**

What is the Status of Immunization in India?

- ➤ **About:**
  - ○ Annually, India vaccinates more than 30 million pregnant women and 27 million children through its **Universal immunization programme.**
  - ○ A child is considered fully immunized if they receive all the required vaccines as per the **national immunization schedule within their first year of life.**
    - However, according to **UNICEF,** only **65% of children in India** receive full immunization during the first year of their life.
- ➤ **Major Immunization Programmes in India:**
  - ○ **Universal Immunization Programme (UIP):**
    - The program provides **free immunization against 12 vaccine-preventable diseases.**
    - **Nationally Against 9 Diseases:** Diphtheria, Pertussis, Tetanus, Polio, Measles, Rubella, severe form of Childhood Tuberculosis, Hepatitis B and Meningitis & Pneumonia caused by Hemophilus Influenza type B
    - **Sub-nationally Against 3 Diseases:** Rotavirus diarrhea, Pneumococcal Pneumonia and Japanese Encephalitis
    - Two major milestones of the UIP have been the **eradication of polio in 2014** and the **elimination of maternal and neonatal tetanus in 2015**.
  - ○ **Mission Indradhanush:**
    - **Mission Indradhanush (MI)** was launched by the **Ministry of Health and Family Welfare (MOHFW) in 2014** with the aim to vaccinate all unvaccinated and partially vaccinated children under UIP.
      - It is being implemented in several phases.
  - ○ **Other Supporting Measures:**
    - Electronic Vaccine Intelligence Network (eVIN) rollout.
    - National Cold Chain Management Information System (NCCMIS).

Note:

Empowering the Tribal Society

Why in News?

Recently, the Minister of Culture, Tourism and Development of North-Eastern Region in Rajya Sabha has **pointed out various schemes and programmes that are introduced by** the government with an aim of **protecting, preserving, and promoting the country's tribal cultural heritage.**

What are the Recent Steps Taken for Empowerment of Tribes in India?

➤ **Zonal Cultural Centres (ZCCs):** The Government of India **has established seven ZCCs which** are **responsible for organising a wide range of cultural activities and programs across the nation on a regular basis,** which will help in conserving tribal languages and culture across the country as well.

○ The **councils are set up with headquarters at** Patiala, Nagpur, Udaipur, Prayagraj, Kolkata, Dimapur and Thanjavur.

➤ **Regional Festivals:** Under the Ministry of Culture, **several Rashtriya Sanskriti Mahotsavas and a minimum of 42 regional festivals** are organised through the ZCCs every year.

○ To support these activities, the Government pr**ovides Grant-in-aid to all ZCCs.**

➤ **Promotion of Tribal Languages:** The government **also provides grants to State Tribal Research Institutes for the promotion of** tribal languages, the development of bilingual primers for the preservation of tribal languages and the promotion of **tribal literature.**

➤ **Tribal Research Information, Education, Communication and Events (TRU-ECE) Scheme:** Under this, financial assistance is provided to reputed Institutions for **TRU-ECE scheme** with the aim to promote tribal culture, artifacts, customs and traditions of tribal communities.

➤ **Eklavya Model & Museums:** Under the **Azadi ka Amrit Mahotsav,** the Ministry of Tribal Affairs has resolved to establish nearly **750 Eklavya Model Residential Schools to support the education of tribal students.**

○ The government has also sanctioned **ten tribal freedom fighter museums in order to acknowledge the heroic and patriotic deeds** of tribal people.

➤ **Adivasi Grants Management System (ADIGRAMS):** It monitors the physical and financial progress of the grants given by the Ministry to States a**nd can track the actual utilisation of funds.**

➤ **Janjatiya Gaurav Divas:** In 2021, it was decided to celebrate 15th November of every year as **Janjatiya Gaurav Divas** to mark the **birth anniversary of tribal freedom fighter Birsa Munda.**

What are Other Related Government Initiatives?
➤ **TRIFED**
➤ **Digital Transformation of Tribal Schools**
➤ **Development of Particularly Vulnerable Tribal Groups**
➤ **Pradhan Mantri Van Dhan Yojana**
➤ **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)**

What are the Constitutional Provisions Related to Scheduled Tribes?

➤ The **Constitution of India does not endeavor to define the term 'tribe',** however, the term **Scheduled Tribe'** was **inserted in the Constitution through Article 342 (i).**

○ It lays down that 'the **President may, by public notification, specify the tribes or tribal communities** or parts of or groups within the tribes or tribal communities or parts which shall, for the purposes of this Constitution, be deemed to be Scheduled Tribes.

○ The **Fifth Schedule** of the Constitution provides **for the setting up a Tribes' Advisory Council** in each of the States having Scheduled Areas.

➤ **Educational & Cultural Safeguards:**

○ **Article 15(4):** Special provisions for the advancement of other backward classes (it includes STs).

○ **Article 29:** Protection of the Interests of Minorities (it includes STs).

○ **Article 46:** The State shall **promote, with special care, the educational and economic interests of the weaker sections of the people,** and in particular, of the Scheduled Castes, and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation.

○ **Article 350:** Right to conserve a distinct Language, Script or Culture.

Note:

➢ **Political Safeguards:**
  ○ **Article 330:** Reservation of seats for STs in the **Lok Sabha**,
  ○ **Article 332:** Reservation of seats for STs in **State Legislatures**.
  ○ **Article 243:** Reservation of seats in **Panchayats**.
  ○ **Administrative Safeguard:**
  ○ **Article 275:** It provides for the grant of **special funds by the Union Government to the State Government for promoting the welfare** of Scheduled Tribes and providing them with a better administration.

What Issues Are Faced by the Tribes in India?

➢ **Land Rights:** One of the most significant issues faced by tribal communities is the lack of secure **land rights**. Many tribes live in forest areas or remote regions where their **traditional rights to land and resources are often not recognized, leading to displacement** and land alienation.

➢ **Socio-economic Marginalisation:** Tribal populations often experience socio-economic marginalisation, including poverty, l**ack of access to quality education, healthcare, and basic amenities like clean water and sanitation facilities**.

➢ **Education Gap:** Education levels among tribal populations are generally lower than the national average. **Lack of access to quality education, cultural barriers, and language differences** can hinder the educational development of tribal children.

➢ **Exploitation and Bonded Labor:** Some tribal communities are vulnerable to exploitation, **bonded labor**, and **human trafficking**, **especially in remote regions where law enforcement is weak**.

➢ **Cultural Erosion:** Rapid urbanisation and modernisation can **lead to the erosion of tribal cultures, languages, and traditional practice**s. The younger generation may face challenges preserving their cultural identity.

➢ **Lack of Representation:** Despite protective measure**s, tribal communities often face inadequate political representation and lack a strong voice in decision-making** processes that concern their welfare and rights.

Gender Parity and Women's Empowerment Gap

Why in News?

A recent report by the **United Nations** sheds light on the **status of women's empowerment and gender parity** around the world.

➢ The comprehensive analysis, **jointly created by UN Women and UN Development Programme,** evaluated 114 countries based on the **Women's Empowerment Index (WEI)** and the **Global Gender Parity Index (GGPI).**

➢ The findings emphasize the urgent need for comprehensive policy action to address the existing gaps and propel progress toward a more equitable and inclusive world.

What are the Key Findings of the Report?

➢ **Only 1% of women globally live in** countries with **high women's empowerment and gender parity.**

➢ Leadership roles and decision-making remain predominantly **male-dominated, restricting opportunities for women.**

➢ On average, **women achieve only 60% of their full potential**, according to the WEI.

➢ **Women lag behind men by 28%** across key dimensions of human development, as measured by the GGPI.

➢ **None of the 114 countries** analyzed achieved **complete women's empowerment or gender parity.**

➢ Over **90% of women worldwide reside** in countries with **low or middle women's empowerment** and **low or middle performance in achieving gender parity.**

➢ **Gender equality challenges persist even in highly developed countries.** Among the 114 countries analyzed, over 85, including **more than half in the high or very high human development categories,** show low or moderate women's empowerment and gender parity. Economic progress alone does not ensure gender equality.

  ○ **India has low women's empowerment and gender parity despite moderate human development,** highlighting the need for concerted efforts to bridge the gender gap and uplift women's status.

➢ Gender equality alone **does not guarantee women's empowerment**. The report shows that **no country with a gender gap has achieved high women's empowerment.**

Note:

○ Additionally, about **8% of women live in countries with low empowerment but high gender parity.**

> **UN Women:**
> ➢ UN Women was **established in 2010 by the UN General Assembly** to accelerate progress on meeting the needs and rights of women and girls worldwide.
> ➢ **UN Women supports UN Member States** as they set global standards for achieving **gender equality and works with governments and civil society** to design and implement laws, policies, programs and services that **benefit women and girls.**
> ➢ UN Women focuses on four strategic priorities: **women's leadership and political participation, women's economic empowerment, ending violence against women, and peace, security and humanitarian action.**

What are the Recommendations for Comprehensive Policy Action?

➢ **Health Policies:** Governments should **support and promote universal access to sexual and reproductive health**, aiming for long and healthy lives for all.

➢ **Equality in Education:** Addressing **gaps in skills and the quality of education, particularly in fields like STEM**, will empower women and girls in the digital age.

➢ **Work-life Balance and Support for Families:** Policies and services addressing work-life balance, including affordable quality childcare, parental leave schemes, and flexible working arrangements, should be invested in.

➢ **Women's Equal Participation:** Targets and action plans should be established to achieve **gender parity in all spheres of public life,** while discriminatory laws and regulations holding women back must be eliminated.

➢ **Violence Against Women:** Implementing comprehensive measures focused on **prevention, changing social norms, and eliminating discriminatory laws and policies is crucial.**

What is the Women's Empowerment Index (WEI)?

➢ The WEI is a composite index developed by **UN Women and UNDP.**

➢ It measures women's empowerment across **five dimensions**: life and good health, education, **skill-building and knowledge,** labor and financial inclusion, participation in decision-making, and **freedom from violence.**

➢ The WEI captures **women's power and freedom to make choices and seize life opportunities.**

➢ The development of the WEI marks a significant milestone in evidence-based policymaking and serves as a baseline for monitoring the government's progress towards **Sustainable Development Goal 5 (SDG5)** on **gender equality and empowerment of women and girls.**
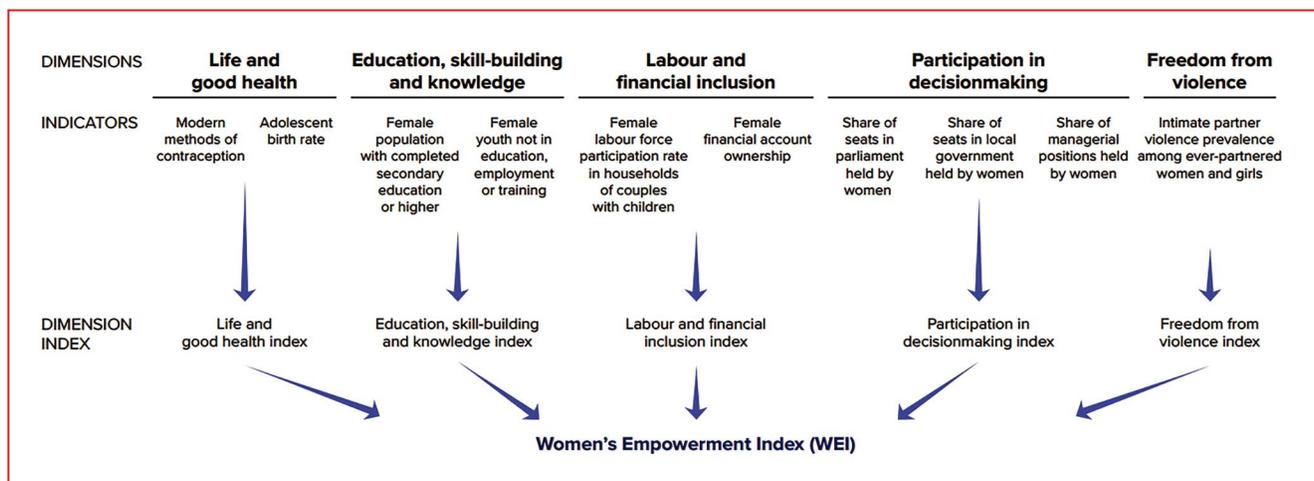
What is the Global Gender Parity Index (GGPI)?

➢ The GGPI is a composite index that assesses gender disparities in key dimensions of **human development, including health, education, inclusion, and decision-making.**

➢ The GGPI is developed by UN Women and UNDP as part of a new global report titled **'The Path to Equality: Women's Empowerment and Gender Parity in Human Development',** which was launched in July 2023.

Note:

➤ The GGPI aims to capture the **status of women relative to men across different contexts and dimensions**. It also reflects the multidimensional and interrelated nature of gender equality.

DIMENSIONS	Life and good health	Education, skill-building and knowledge		Labour and financial inclusion		Participation in decisionmaking		
INDICATORS	Fraction of life expectancy at birth spent in good health, female/male	Population with completed secondary education or higher, female/male	Youth not in education, employment or training, female/male	Labour force participation rate in households of couples with children, female/male	Financial account ownership, female/male	Share of seats held in parliament, female/male	Share of seats held in local government, female/male	Share of managerial positions held, female/male
DIMENSION INDEX	Life and good health index	Education, skill-building and knowledge index		Labour and financial inclusion index		Participation in decisionmaking index		

Global Gender Parity Index (GGPI)

What are the Indian Initiatives to reduce Gender Gap in Social, Economic and Political Life?

➤ **Economic Participation and Health and Survival:**
  ○ **Beti Bachao Beti Padhao:** It ensures the protection, survival and education of the girl child.
  ○ **Mahila Shakti Kendra:** Aims to empower rural women with opportunities for skill development and employment.
  ○ **Rashtriya Mahila Kosh:** It is an apex micro-finance organization that provides micro-credit at concessional terms to poor women for various livelihood and income generating activities.
  ○ **Sukanya Samriddhi Yojna:** Under this scheme girls have been economically empowered by opening their bank accounts.
  ○ **Female Entrepreneurship:** To promote female entrepreneurship, the Government has initiated Programmes like Stand-Up India and Mahila e-Haat (online marketing platform to support women entrepreneurs/ SHGs/NGOs), Entrepreneurship and Skill Development Programme (ESSDP).
  ○ **Kasturba Gandhi Balika Vidyalaya:** They have been opened in Educationally Backward Blocks (EBBs).
➤ **Political Reservation:** Government has reserved **33% of the seats in Panchayati Raj Institutions for women.**
  ○ **Capacity Building of Elected Women Representatives:** It is conducted with a view to empowering women to participate effectively in the governance processes.

UNAIDS Report: Progress & Challenges in HIV/AIDS Fight

Why in News?

A recent report titled *"The Path That Ends AIDS"* by the **Joint United Nations Programme on HIV/AIDS (UNAIDS)** sheds light on the progress made in combating reveals the ongoing challenges and progress in the global fight against **Acquired Immunodeficiency Syndrome (AIDS)** and **human immunodeficiency virus (HIV).**

➤ The report emphasizes the need for continued efforts to ensure access to treatment, address inequalities, combat stigma and discrimination, and secure adequate funding.

What are the Key Highlights of the UNAIDS Report?

➤ **AIDS-Related Deaths and Access to Treatment:**
  ○ AIDS **claimed a life every minute in 2022.**
  ○ Approximately **9.2 million people living with HIV worldwide lacked access to treatment in 2022.**
  ○ Out of the **2.1 million people receiving treatment, many were not virally suppressed.**
➤ **Treatment Progress and Global Targets:**
  ○ **29.8 million out of 39 million people** living with HIV globally are receiving life-saving treatment.
  ○ Between **2020 and 2022, 1.6 million additional people received HIV treatment** each year.

Note:

drishti

- ❍ The **global target of 35 million people receiving HIV treatment by 2025** is within reach if the progress is sustained.
- ➤ **Slow Treatment Progress in Certain Regions:**
  - ❍ **Eastern Europe, Central Asia, the Middle East, and North Africa** exhibited slower treatment progress.
  - ❍ Only around half of the over two million people living with HIV in these regions received **antiretroviral therapy in 2022.**
- ➤ **Gender Discrimination and Treatment Rates:**
  - ❍ **Men living with HIV** in sub-Saharan Africa, the Caribbean, Eastern Europe, and Central Asia **are less likely to receive treatment compared to women.**
  - ❍ Gender discrimination needs to be addressed to ensure equal access to treatment.
- ➤ **Impact on Children:**
  - ❍ AIDS-related deaths among **children reduced by 64% from 2010 to 2022.**
    - However, approximately **84,000 children lost their lives to HIV in 2022.**
  - ❍ Around **43% of the 1.5 million children living with HIV did not receive treatment in 2022.**
- ➤ **Challenges in HIV Prevention:**
  - ❍ **Women and girls accounted for 63%** of all new HIV infections in sub-Saharan Africa.
  - ❍ Only about 42% of districts with high HIV incidence in the region have dedicated prevention programs.
  - ❍ Enhanced prevention efforts are needed to address this gap.
- ➤ **Funding Gaps:**
  - ❍ HIV incidence has declined in regions with **increased prevention funding.**
  - ❍ Eastern Europe, Central Asia, the Middle East, and North Africa face challenges in their HIV epidemics due to a lack of funding.
  - ❍ In **2022, only USD 20.8 billion was available for HIV programs in low- and middle-income countries,** falling short of the USD **29.3 billion required by 2025.**
  - ❍ **Fluctuating Funding Levels:**
    - In the early 2010s, funding substantially increased, but it has since fallen back to 2013 levels.
    - In 2022, there was a 2.6% drop in funding compared to the previous year, with only USD 20.8 billion available for HIV programs in low- and middle-income countries.

- The funding gap remains significant, as the required amount by 2025 is USD 29.3 billion.

> **Joint United Nations Programme on HIV/AIDS:**
> - ➤ It is leading the global effort to **end AIDS** as a public health threat **by 2030** as part of the **Sustainable Development Goals.** It was started in **1996.**
> - ➤ UNAIDS has a **vision** of zero new **HIV infections, zero discrimination** and **zero AIDS-related deaths,** and **a principle of leaving no one behind.**
> - ➤ The UN Political declaration on ending AIDS was adopted in 2016 which seeks to end AIDS as a public health threat by 2030.

What is AIDS Disease?

- ➤ **About:**
  - ❍ **AIDS** is a chronic, potentially life-threatening health condition caused by **HIV** that interferes with the body's ability to fight infections.
  - ❍ HIV attacks **CD4, a type of White Blood Cell (T cells)** in the body's immune system.
    - T cells are those cells that **move around the body detecting anomalies and infections** in cells.
  - ❍ After entering the body, HIV multiplies itself and destroys CD4 cells, thus severely damaging the human immune system. Once this virus enters the body, it can never be removed.
  - ❍ The CD4 count of a person infected with HIV reduces significantly. In a healthy body, CD4 count is between 500- 1600, but in an infected body, it can go as low as 200.
- ➤ **Transmission:**
  - ❍ HIV spreads through **contact with certain body fluids (blood, semen, etc.) from an infected person.**
  - ❍ Transmission routes include **unprotected sex, sharing contaminated needles, and mother-to-child during childbirth or breastfeeding.**
- ➤ **Symptoms:**
  - ❍ Initial symptoms include **fatigue, fever, and sores.**
  - ❍ Progression to **AIDS may lead to severe symptoms like pneumonia and certain cancers.**
- ➤ **Prevention:**
  - ❍ Precautions can be taken to prevent mother-to-child transmission.
  - ❍ Early diagnosis and treatment should be sought.
  - ❍ Pre-marital testing can be considered, including an HIV test, for overall safety.

Note:

○ Protective techniques should be used to ensure safety from Sexually Transmitted Diseases.

What are India's Initiatives to Curb AIDS Disease?

➢ **HIV and AIDS (Prevention and Control) Act, 2017:**
   ○ According to this act, the central and state governments shall take measures to prevent the spread of HIV or AIDS.

➢ **Access to ART:**
   ○ India has made **Antiretroviral Therapy (ART)** affordable and accessible to over 90 per cent of people living with HIV in the world.

➢ **Memorandum of Understanding (MoU):**
   ○ The **Ministry of Health and Family Welfare** signed a MoU with the **Ministry of Social Justice and Empowerment** in 2019 for enhanced HIV/AIDS outreach and to reduce the incidence of social stigma and discrimination against victims of drug abuse and Children and People Living with HIV/AIDS.

➢ **Project Sunrise** :
   ○ Launched by the **Ministry of Health and Family Welfare in 2016**, to tackle the rising **HIV prevalence in north-eastern states in India**, especially among people injecting drugs.

National Multidimensional Poverty Index

Why in News?

Recently, **NITI Aayog** has released the Report **"National Multidimensional Poverty Index: A Progress Review 2023",** claiming that a significant number of people have come **out of multidimensional poverty in India.**

What is the National Multidimensional Poverty Index?

➢ The report has been prepared based on the latest **National Family Health Survey-5 (2019-21)** and is the **2nd edition of the National Multidimensional Poverty Index (MPI).**
   ○ The **first edition of MPI** was released in 2021.

➢ The MPI seeks to measure **Poverty across its multiple dimensions** and in effect complements existing poverty statistics based on per capita consumption expenditure.

➢ It has **three equally weighted dimensions** – Health, Education, and Standard of living.
   ○ These three dimensions are **represented by 12 indicators** such as nutrition, child and adolescent mortality, **maternal health, years of schooling**, school attendance, cooking fuel, sanitation, drinking water, electricity, housing, assets, and bank accounts.

What are the Key Highlights of the Report?

➢ **Reduction in Multidimensional Poverty:**
   ○ Between 2015-16 and 2019-21, India witnessed a significant decline in the **number of multidimensionally poor individuals.**
   ○ Around 13.5 crore people moved out of **multidimensional poverty during this period.**

➢ **Decline in Poverty Percentage:**
   ○ India's population living in multidimensional poverty decreased from **24.85% in 2015-16 to 14.96% in 2019-21**, reflecting a decline of 9.89 % points.

➢ **Rural-Urban Divide:**
   ○ The rural areas of India experienced the **fastest decline in poverty,** with the poverty rate dropping from **32.59% to 19.28% between 2015-16 and 2019-21.**
   ○ In urban areas, the poverty rate reduced from **8.65% to 5.27%** during the same period.

➢ **State-Level Progress:**
   ○ In terms of number of MPI poor, Uttar Pradesh saw the **largest decline in the number of poor individuals,** with 3.43 crore (34.3 million) people **escaping multidimensional poverty.**
   ○ The states of **Bihar, Madhya Pradesh, Odisha, and Rajasthan** also witnessed significant progress in reducing multidimensional poverty.

Poverty score

The chart shows the top-five States with the highest share of population with multidimensional poverty, according to the latest NITI Aayog report

■ NFHS-5 (2019-21)   ■ NFHS-4 (2015-16)

State	NFHS-5 (2019-21)	NFHS-4 (2015-16)
Bihar	33.76%	51.89%
Jharkhand	28.81%	42.10%
Meghalaya	27.79%	32.54%
Uttar Pradesh	22.93%	37.68%
Madhya Pradesh	20.63%	36.57%
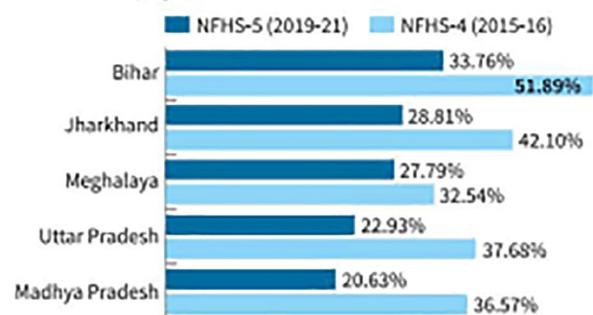
Note:

○ Bihar saw the **fastest reduction in MPI value in absolute terms** with the proportion of multidimensional poor reducing from **51.89% to 33.76% in 2019-21 followed by Madhya Pradesh and Uttar Pradesh.**

➢ **SDG Target:**

○ The MPI value for India has **nearly halved from 0.117 to 0.066** between 2015-16 and 2019-21.

○ The intensity of poverty has reduced from **47% to 44%,** indicating that India is on track to achieve **SDG (Sustainable Development Goals) Target 1.2 (reducing multidimensional poverty by at least half)** ahead of the stipulated timeline of 2030.

➢ **Improvement in Indicators:**

○ All 12 indicators used to measure multidimensional **poverty showed marked improvements**.

○ The impact of **Swachh Bharat Mission (SBM)** and **Jal Jeevan Mission (JJM)** is evident in the swift 21.8% points improvement in sanitation deprivations.

○ The **Poshan Abhiyan** and **Anaemia Mukt Bharat** have contributed to reduced deprivations in health.

○ **The provision of subsidized cooking fuel through the Pradhan Mantri Ujjwala Yojana (PMUY)** has positively transformed lives, with a 14.6% improvement in cooking fuel deprivations.
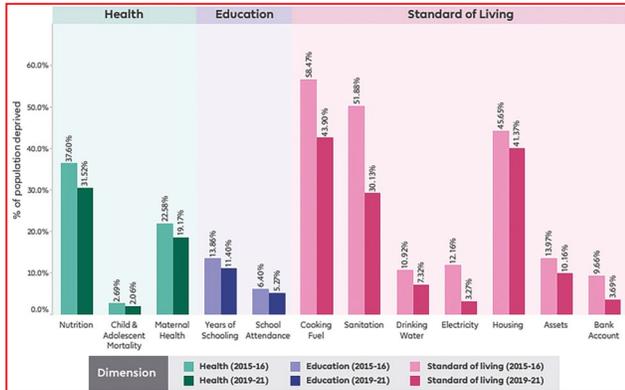
What are the Government Initiatives for Reducing deprivations and Improving the Well-Being of Citizens?

➢ **National Rural Livelihood Mission (NRLM)**

➢ **The Mahatma Gandhi National Rural Employment Guarantee Act 2005 (MNREGA)**

➢ **Pradhan Mantri Awaas Yojana-Gramin (PMAY-G)**

➢ **Public Distribution System (PDS)**

➢ **Pradhan Mantri Awas Yojana (PMAY)**

➢ **Pradhan Mantri Sahaj Bijli Har Ghar Yojana (Saubhagya)**

➢ **Pradhan Mantri Ujjwala Yojana (PMUY)**

Diabetes Mellitus and Tuberculosis

Why in News?

For a very long time, India has been experiencing the burden of two severe **Epidemics**, **Diabetes** Mellitus (DM) and **Tuberculosis (TB)**, however few know how deeply these **diseases are interlinked.**

➢ Currently, India has around 7**4.2 million people living with diabetes** while **TB affects 2.6 million Indians every year.**

How Are DM and TB Interlinked?

➢ **Risk of Developing Respiratory Infections:**

○ The DM increases the **risk of developing respiratory infections**. DM is a major risk factor that increases the incidence and severity of TB.

○ A**mong people with TB, the prevalence of DM was found to be 25.3%** while 24.5% were pre-diabetic, in a 2012 study in tuberculosis units in Chennai.

➢ **DM Hampers the Recovery of TB:**

○ DM not only increases the risk of TB but also hampers the recovery process and **prolongs the time for TB bacteria to be eliminated** from the body.

○ The impaired cell-mediated immunity in **DM affects the body's ability to fight infections, i**ncluding TB.

➢ **Alters the Defense Mechanism:**

○ Uncontrolled DM alters the **defense mechanisms in the lungs,** making individuals more susceptible to TB infection.

○ Additionally, the altered functions of small blood vessels in the lungs and poor nutritional status, common in DM, create an environment that facilitates the **invasion and establishment of TB bacteria**.

➢ **Likelihood of Unfavorable TB Treatment Outcomes:**

○ DM increases the likelihood of unfavorable TB treatment outcomes, such as treatment **failure, relapse/reinfection, and even death**.

Note:

○ The coexistence of TB and DM in patients may also **modify TB symptoms, radiological findings, treatment, final outcomes,** and prognosis.

○ The dual burden of DM and TB not only impacts the health and survival of individuals but also **places a significant burden on the healthcare system**, families, and communities.

What can be done to Tackle Both DM and TB?

➢ Provide **individualized care for TB and DM patients**, integrating treatments and addressing comorbidities.

➢ Improve patient education, support, and nutrition **to enhance TB treatment outcomes.**

➢ Strengthen healthcare programs for TB and DM, **build resilient and integrated health systems,** and use research to inform evidence-based decision-making.

What is Diabetes Mellitus (DM)?

➢ **About:**

○ DM is a disorder in which the **body does not produce enough or respond normally to insulin**, causing blood sugar (glucose) levels to be abnormally high.

○ The name Diabetes Mellitus is often used rather than diabetes alone, to distinguish this disorder from **Diabetes Insipidus.**

● Diabetes insipidus is a relatively rare disorder that does not affect blood glucose levels but, just like diabetes mellitus**, causes increased urination.**

○ While **70–110 mg/dL fasting blood glucose is considered normal,** blood glucose levels between **100 and 125 mg/dL is considered prediabetes**, and **126 mg/dL or higher is defined as diabetes.**

➢ **Types:**

○ **Type 1 Diabetes:**

● The body's immune system **attacks the insulin-producing cells** of the pancreas, and more than 90% of them are **permanently destroyed.**

● The pancreas, therefore, produces little or no insulin.

● Only about 5 to 10% of all people with diabetes have type 1 disease. Most people who have type 1 diabetes develop the **disease before age 30,** although it can develop later in life.

○ **Type 2 Diabetes:**

● The pancreas often continues to produce insulin, sometimes even at higher-than-normal levels, especially early in the disease.

● However, the body develops **resistance to the effects of insulin**, so there is not enough insulin **to meet the body's needs.** As type 2 diabetes progresses, the i**nsulin-producing ability of the pancreas decreases.**

  ■ Type 2 diabetes was once rare in children and adolescents but has become more common. However, it usually begins in people older than 30 and becomes progressively more common with age.

  ■ About 26% of people older than 65 have type 2 diabetes.

What is Tuberculosis (TB)?

➢ Tuberculosis is an infectious disease that can **cause infection in your lungs or other tissues.**

➢ It commonly affects lungs, but it can also affect other organs like your **spine, brain or kidneys.**

➢ TB is caused by a **bacterium called *Mycobacterium tuberculosis.*** The bacteria usually attack the lungs, but TB bacteria can attack any part of the body such as the kidney, spine, and brain.

➢ The **three stages of TB are:**

○ Primary infection.

○ Latent TB infection.

○ Active TB disease.

■■■

Note:

Science & Technology

Highlights

- STARFIRE Algorithm
- Ocular Burns in Children
- Objects in Space
- Standard Model of Particle Physics and Electric Dipole Moment
- Black Holes and Quantum Mechanics
- Fast Radio Bursts
- Steel Slag Road Technology
- Link Between Bacterial Infection and Endometriosis

- Crimean-Congo Haemorrhagic Fever
- New Diarrhoea Causing Parasite: Entamoeba moshkovskii
- Advancements in Smart Windows
- Treatment for Duchenne Muscular Dystrophy
- Organic Matter on Mars
- Bird Flu Outbreaks in Mammals
- Chandrayaan-3

STARFIRE Algorithm

Why in News?

Recently, Scientists at **Raman Research Institute (RRI),** an autonomous institute of the **Department of Science and Technology** have developed an algorithm names **STARFIRE** to tackle unwanted **Radio Frequency Interference (RFI)** in space, enriching data obtained from space-based astronomy missions.

What is STARFIRE?

➢ **About:**
   ○ **Simulation of TerrestriAl Radio Frequency Interference in oRbits around Earth (STARFIRE)** is an advanced algorithm developed to **estimate and map unwanted RFI signals in space.**
      - The STARFIRE algorithm can estimate and identify the RFI emitted by various sources, **including FM radio stations, Wi-Fi networks, mobile towers, radar, satellites, and communication devices.**
   ○ This innovative algorithm has the potential to revolutionize space-based Astronomy missions and enrich the data obtained from such missions in the future.
   ○ To develop this algorithm, scientists utilized data on FM transmitter stations from six countries, including **Canada, the USA, Japan, Australia, Germany, and South Africa.**
➢ **Applications:**
   ○ **Enhancing Radio Astronomy:**

- STARFIRE helps astronomers study the early Universe by estimating and mapping unwanted RFI signals in space.
- It enables the tuning of radio antennas within the **40 to 200 Mega Hertz (MHz) range to detect the 21-cm hydrogen line,** revealing secrets about the cosmos.

○ **Optimal Instrument Design:**
   - The algorithm assists in **designing instruments for space-based Astronomy missions** that can operate optimally even in the presence of RFI.
   - This leads to improved data collection and analysis for future missions.

○ **Supporting PRATUSH Mission:**
   - STARFIRE is utilized in missions like **Probing ReionizATion of the Universe using Signal from Hydrogen (PRATUSH)**, aimed at studying the **birth of stars and galaxies in the Universe** using the 21-cm hydrogen line from the far side of the moon.
   - The algorithm plays a key role in **fine-tuning antennas** and instrument components for successful data gathering.

○ **Orbit Selection:**
   - The algorithm's capability extends to aiding **orbit selection for future space missions**.
   - It identifies **low RFI orbits, particularly in the ~100 MHz frequency range, making them suitable for various scientific experiments.**

○ **Flexibility and Versatility:**

- STARFIRE offers flexibility to **adjust the properties of transmitting and receiving antennas.**
  - This enables including astrophysical radio signals from our own galaxy and the cosmos, leading to more meaningful experimental results.
- **Potential for Wide Range of Applications:**
  - The generic mathematical formulation of the STARFIRE code makes it adaptable for various applications, benefiting missions with low RFI orbits.

Radio Frequency Interference (RFI):
- RFI is a type of **electromagnetic interference (EMI)** that affects **devices or circuits that operate with radio frequencies.**
- RFI in space can affect the **quality and reliability of satellite communications, navigation, and remote sensing systems.**
- RFI can also interfere with the scientific observations and measurements of space-based instruments, such as radio telescopes and radars.

Ocular Burns in Children

Why in News?

A new study sheds light on the **major role played by "chuna" or slaked lime in causing ocular burns among children** in the Indian subcontinent.

- Most individuals with **acute ocular burns were male**, constituting over **80% among adults and over 60% among children.**

What is Slaked Lime?

- **About:**
  - **Slaked lime (Ca (OH)$_2$)**, is obtained by **mixing quicklime (calcium oxide)** with **water,** resulting in a chemical reaction that **produces calcium hydroxide.**
  - The process of slaking quicklime with water is **highly exothermic,** generating a significant amount of heat.
    - It has a **high pH value**, making it highly alkaline and caustic.

Note:
- **Alkali is the Base that dissolved in water.** Base refers to a type of chemical substance that has a high pH value, typically above 7 on the pH scale.
  - **Alkalis are also known as bases** and are characterized by their ability to neutralize acids, producing salts and water in the process.
  - Common examples of alkalis include **sodium hydroxide (NaOH) and potassium hydroxide (KOH).**
- **Acid** is a type of chemical substance that has a **low pH value, usually below 7 on the pH scale**. Acids are characterized by their ability to **release hydrogen ions (H+) in a solution**. They can react with metals, carbonates, and bases to form salts and water.
  - Common examples of acids include **hydrochloric acid (HCl) and sulfuric acid (H2SO4).**

- **Application:**
  - Slaked lime has been used for various applications throughout history, including in **construction and agriculture.**
  - It is **traditionally used as a chuna (a binding agent)** in the preparation of paan, a popular **traditional chewable mixture in South and Southeast Asia.**
- **Issue**:
  - Loose and poorly sealed packets of chuna are posing a risk of **ocular burns.** An exploding packet of chuna can cause alkali to **encounter a person's eyes, resulting in chemical burns to the ocular surface** and potentially causing severe damage.
  - Chemical burns to the **corneal limbus,** the specialized stem cell-rich area of the **cornea**, can impair its ability to repair itself, **leading to long-term vision issues.**
- **Children At Risk:**
  - **Alkalis accounted for 38% of all ocular burns**, with chuna being the most common alkali agent, responsible for **32% of all alkali burns** among children due to their close contact with chuna in households and in fireworks.

Note: Ocular burns refer to injuries caused by **exposure of the eye to harmful chemicals, intense heat, or radiation,** resulting in damage to the eye's surface or internal structures.

Ocular burns can be caused by various substances, such as acids, alkalis, solvents, or even exposure to high-energy sources like welding arcs or lasers.

Note:

drishti

Objects in Space

OBJECTS IN SPACE

QUASAR

◉ Short for "quasi-stellar radio source"

◉ Extremely bright objects powered by supermassive black holes releasing enormous energy

◉ Believably, the most distant objects yet detected in Universe

SUPERNOVA

◉ Extremely powerful explosion; happens when a star at least 5x the mass of Sun dies

◉ The massive star collapses when it runs out of fuel and its pressure drops and the gravity exerted is more

◉ Can be so bright they outshine their entire galaxies for a few days or months

What holds a star together?

Gravity

Heat

Core

Pressure
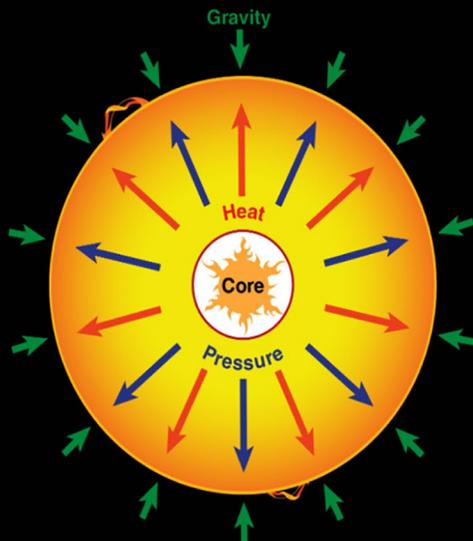
Supernova of a star 10x the Sun's size creates a stellar-mass black hole as its core

NEBULA

◉ A giant cloud of dust and gas (mostly hydrogen, helium) in space

◉ Forms when a star dies (supernova) or when new stars are forming

◉ Closest known nebula to Earth - Helix Nebula (remnant of a dying star ~700 LYs away from Earth)

NEUTRON STAR

◉ Formed when the core of a star collapses, crushing together every proton and electron into a neutron

  ● If the star is not massive enough to produce a black hole, the neutrons stop the collapse, and a neutron star is formed

◉ Can be found scattered throughout the galaxy

A "kilonova" is a powerful event that happens when two neutron stars merge

Life Cycle of a Star

Average Star → Red Giant → Planetary Nebula → White Dwarf

Stellar Nebula

Massive Star → Red Supergiant → Supernova → Neutron Star / Black Hole
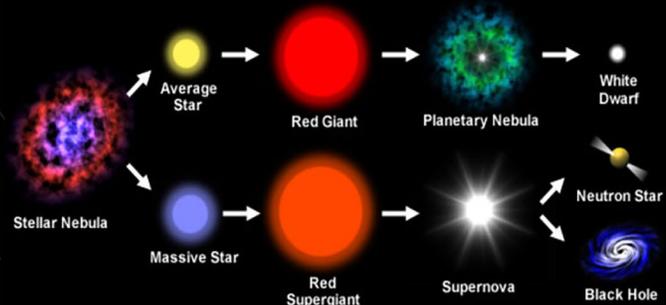
PULSAR

◉ A rotating neutron star having pulses of radiation at very regular intervals

◉ Most neutron stars are pulsars

◉ Produces strong magnetic fields and strong beams of light

MAGNETAR

◉ Another type of neutron star

◉ Magnetic field of a neutron star - 10^{12} times that of Earth's

  ● Magnetic field of a Magnetar - 1000x that of neutron star's

दृष्टि The Vision | d

Drishti IAS

Note:

Standard Model of Particle Physics and Electric Dipole Moment

Why in News?

Some physicists are doing experiments to find flaws in a theory called the **Standard Model of particle physics** with taking electron dipole moment into consideration.

What is the Standard Model of Particle Physics?

➢ **About:**
- ○ The Standard Model of particle physics is a **theoretical framework that describes the fundamental particles** and their interactions.
- ○ It incorporates **three of the four fundamental forces** of nature: **electromagnetism, the weak nuclear force, and the strong nuclear force**, while **gravity is not included in this model.**

➢ **Components:**
- ○ **Elementary Particles:** The model classifies particles into two main categories: fermions and bosons.
- ○ **Fermions:** These are particles that make up matter. They are further divided into two groups:
  - ● **Quarks:** The building blocks of protons and neutrons, among other particles.
  - ● **Leptons:** Include particles like **electrons**.
- ○ **Bosons:** These particles are responsible for mediating the fundamental forces between fermions. It includes **Photons, W and Z bosons**, **Gluons, Higgs boson.**

➢ **Limitations**:
- ○ It **does not account for dark matter and dark energy,** which are significant components of the universe.
  - ● It doesn't know why the Higgs boson is so heavy or why gravity is so much weaker than the other fundamental forces.
- ○ It also does not provide a **quantum theory of gravity**, which is needed to understand phenomena such as **black holes** and the **Big Bang.**

How does the Electron Play an Important Role in Testing the Standard Model?

➢ The electron is one of the **simplest and most precisely measured particles in nature.** It has a negative electric charge, a spin (a form of intrinsic angular momentum) and a mass, **but no other known properties.**
- ○ According to the **Standard Model, the electron should have a spherical shape,** meaning that its positive and negative charges are distributed evenly around its center.
- ○ This implies that it has **no electric dipole moment (EDM),** which is a **measure of how its charges are separated along its spin axis.**
- ○ Therefore, **measuring the EDM of the electron is a sensitive way to test the validity of the Standard Model** and to probe for new physics beyond it.

What is Electric Dipole Moment?

➢ An EDM is a concept in physics that **describes the separation of positive and negative charges within an object, creating a dipole**. It is a vector quantity that measures the strength and direction of this charge separation.
- ○ The **strength of the dipole depends on how big the charges are** and how far apart they are from each other.

➢ Electric dipoles are relevant in **understanding the behavior of molecules, atoms, and even tiny particles** that make up matter.

➢ Scientists study electric dipole moments to explore important questions, like **why there is more matter than antimatter in the universe,** and to search for new physics beyond our current understanding.

Black Holes and Quantum Mechanics

Why in News?

Recently, research conducted by a team of scientists from **S.N. Bose National Centre for Basic Sciences,** an **autonomous institute of the Department of Science and Technology,** has delved into the intriguing **realm of black holes** and **their interaction with quantum mechanics**.

➢ This exploration holds the potential to provide valuable insights into the unification of two significant scientific theories: **quantum mechanics and the general theory of relativity, propounded by Einstein**.

➢ The study focuses on **atoms freely falling into a black hole** and the novel quantum effects on the radiation emitted in this process

Note:

drishti

BLACK HOLES

ABOUT

- A place in space with extremely high gravity pull; even light can't escape (hence, invisible)
- The strong gravity is due to matter being squeezed into a tiny space

> The term 'black hole' was coined in the mid-1960s by American physicist John Archibald Wheeler

DETECTION

- By seeing how stars very close to black holes act differently than other stars
- In April 2019, scientists at the Event Horizon Telescope Project released the first-ever image of a Black Hole (shadow, more precisely)

Albert Einstein and Black Hole

- First predicted their existences in Theory of General Relativity
- It showed that when a massive star dies, it leaves behind a small, dense remnant core

> India's first dedicated satellite, AstroSat observed for the very first-time rapid variability of high energy X-ray emission from a black hole system

TYPES

- **Miniature (Hypothetical):**
  - The smallest; size of just 1 atom
  - Mass: varies from 1/100th of a milligram to the mass of a large mountain
  - Believed to be formed when universe began
- **Stellar:**
  - Mass: 20x the mass of sun
  - Believed to be formed due to Supernovae explosion

> Supernova is an exploding star that has reached the end of its life

- **Supermassive**
  - The largest
  - Mass: >1 million suns together
  - Every large galaxy has a supermassive black hole at its centre
  - Believed to be made at the same time as their home galaxy

> Sagittarius A is the supermassive black hole at the centre of Milky Way (mass: ~about 4 mn suns)

> The Sun will never turn into a black hole as it is not big enough to make a black hole

Singularity
At the very centre of a black hole, matter has collapsed into a region of infinite density called a singularity. All the matter and energy that fall into the black hole ends up here. The prediction of infinite density by general relativity is thought to indicate the breakdown of the theory where quantum effects become important.

Event horizon
This is the radius around a singularity where matter and energy cannot escape the black hole's gravity: the point of no return. This is the "black" part of the black hole.

Photon sphere
Although the black hole itself is dark, photons are emitted from nearby hot plasma in jets or an accretion disc (see below). In the absence of gravity, these photons would travel in straight lines, but just outside the event horizon of a black hole, gravity is strong enough to bend their paths so that we see a bright ring surrounding a roughly circular dark "shadow".

Relativistic jets
When a black hole feeds on stars, gas or dust, the meal produces jets of particles and radiation blasting out from the black hole's poles at near light speed. They can extend for thousands of light-years into space.

Innermost stable orbit
The inner edge of an accretion disc is the last place that material can orbit safely without the risk of falling past the point of no return.

Accretion disc
A disc of superheated gas and dust whirls around a black hole at immense speeds, producing electromagnetic radiation (X-rays, optical, infrared and radio) that reveal the black hole's location. Some of this material is doomed to cross the event horizon, while other parts may be forced out to create jets.

Labels: Accretion disc · Relativistic Jet · Event horizon · Singularity · Photon sphere · Innermost stable orbit

Drishti IAS

Note:

- **General Theory of Relativity:** Albert Einstein's theory explains how objects move around massive ones. A fundamental consequence of the general theory of relativity is the existence of a black hole.
- **Quantum Theory:** The study of tiny particles' behavior, like atoms, at the smallest level.
- **Einstein's Principle of Equivalence:** The idea that nature's laws are the same in a small region with gravity as without it.
- **Hawking Radiation:** It is a theoretical concept proposed by Stephen Hawking, which suggests that **black holes can emit radiation due to quantum effects** near the event horizon known as Hawking radiation.

Note:

drishti

What are the Key Highlights of Study?

➤ Radiation from atoms falling into **black holes exhibits similarities to Hawking radiation.**

➤ The investigation reveals that the **radiation is generated from two-level atoms, unlike the radiation emitted by black holes** as predicted by Hawking.

➤ The study introduces the **concept of "horizon brightened acceleration radiation entropy" (HBAR entropy)** to quantify the **amount of disorder in the emitted radiation.**

  ○ The HBAR entropy follows the area law with logarithmic leading order area corrections and inverse order of area subleading corrections.

➤ The findings **uphold Einstein's Principle of Equivalence in a general setting,** providing valuable insights into the **interplay of quantum mechanics and general relativity** in **black hole scenarios.**

➤ The study adds to our understanding of the mysterious world of quantum effects in black holes.

Steel Slag Road Technology

Why in News?

The innovative **Steel Slag Road technology** developed by the **Central Road Research Institute (CRRI), New Delhi** in collaboration with the **Ministry of Steel** and major steel manufacturing companies is making significant strides towards the **'Waste to Wealth' mission.**

➤ This technology is revolutionizing road construction and addressing the environmental challenges of steel slag waste.

What is Steel Slag Road Technology?

➤ **About:**

  ○ Steel slag road technology is a novel method of using steel slag, the **waste generated during steel production,** to build **more robust and more durable roads.**

  ○ The technology involves **processing the steel slag to remove impurities and metal content** and then using it as an **aggregate for road base or sub-base layers.**

  ○ The processed steel slag has **high strength, hardness, abrasion resistance, skid resistance, and drainage capacity**, making it suitable for road construction.

○ It facilitates the **large-scale utilization of waste steel slag** generated by steel plants, effectively managing the approximately **19 million tonnes of steel slag produced in India.**

➤ **Advantages:**

○ **Eco-friendly Waste Utilization:**

  ● By using waste steel slag in road construction, the technology offers an **eco-friendly approach to managing industrial waste.**

    ■ This reduces the burden on **landfills** and **minimizes the environmental impact** associated with steel slag disposal.

○ **Cost-effective and Durable:**

  ● Steel slag roads have proven to be **cost-effective,** as they are approximately **30% cheaper to construct compared to conventional paving methods**.

    ■ Furthermore, these roads exhibit **exceptional durability and resist weather changes** resulting in significantly reduced maintenance costs.

○ **Reduced Reliance on Natural Resources:**

  ● Traditional road construction heavily relies on **natural ballast and aggregates,** depleting precious natural resources.

  ● The Steel Slag Road technology eliminates the need for natural materials, helping **conserve valuable resources and preserve natural ecosystems.**

○ **Addressing the Steel Slag Waste Challenge:**

  ● **India is the world's second-largest steel-producing country,** generating around **19 million tonnes of steel slag as solid waste.** This figure is projected to increase to a **staggering 60 million tonnes by 2030,** with each tonne of steel production **resulting in about 200 kg** of steel slag waste.

  ● The lack of efficient disposal methods has led to the accumulation of huge slag piles around steel plants, contributing to water, air, and land pollution.

➤ **Successful Implementations:**

○ **Surat's Technological Marvel:**

Note:

- The first road constructed using the Steel Slag Road technology in Surat, Gujarat, has garnered recognition for its technological excellence.
  - ❍ **Border Roads Organization's Contribution:**
    - The technology's success extended to the **India-China border**, where the **Border Roads Organization,** along with CRRI and Tata Steel, constructed a **steel slag road in Arunachal Pradesh.**
    - This project demonstrated the technology's **suitability for challenging terrains and critical national infrastructure.**
- ➢ **Promoting Nationwide Adoption:**
  - ❍ The success of the Steel Slag Road technology has attracted the attention of various government agencies and ministries.
    - In collaboration with the **Ministry of Science and Technology and the Ministry of Road Transport and Highways,** the Ministry of Steel is actively working to promote the widespread usage of this technology across the country.
    - By fostering collaborative efforts, India aims to lead the way in sustainable road infrastructure development and achieve its **'Waste to Wealth' mission.**

Waste to Wealth Mission

➢ This mission will identify, develop, and deploy technologies to treat waste to generate energy, recycle materials, and extract worth.

➢ The Waste to Wealth Mission is **one of the nine national missions** of the **Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC).**

➢ The mission will **assist and augment the Swachh Bharat and Smart Cities projects** to **create circular economic models** that are financially viable for waste management to streamline waste handling in the country.

Fast Radio Bursts

Why in News?

Recently, an international team of astronomers studied repeating **Fast Radio Bursts (FRB)**, **FRB 20190520B,** using the **Green Bank Telescope in the U.S.** and **the Parkes Observatory in Australia**. The report was published in the *journal Science.*

What are Fast Radio Bursts?

➢ They are **mysterious emissions of radio light (or Radio Waves) that come from the far reaches of the universe.**

➢ FRBs reach Earth from **faraway galaxies,** emitting as much energy in a **millisecond as the sun does over weeks.**

➢ They are the **brightest radio bursts found in nature.**

➢ Astrophysicists have **only been able to 'see' FRBs momentarily using large radio telescopes,** but their precise origins and causes are unknown.

➢ Some **FRBs are 'one-off' phenomena,** while **others are repeaters,** flashing earth intermittently.

What are the Key Highlights of the Study?

➢ **Highly Variable Faraday Rotation Measure:**
  - ❍ The astronomers discovered that the **Faraday rotation** measure of the repeating **FRB 20190520B** was highly **variable and reversed direction twice**.
    - This measure is an indicator of the **FRB's magnetic field strength.**

➢ **Binary Star System:**
  - ❍ The variation in the FRB's magnetic field strength and the direction of the reversal led the researchers to conclude that the **FRB source is likely orbiting a binary star system**, where the companion star is possibly a **massive star or a black hole.**
    - This led to the raising of the possibility that "all repeating FRBs could be in binaries." However, further monitoring and research are required to confirm this hypothesis.

➢ **Turbulent Magnetized Plasma Environment:**
  - ❍ The observed changes in the **magnetic field and electron density around the FRB** source suggest the presence of a **turbulent magnetized plasma environment.**
    - This environment likely **influences the behavior of the FRB signals**.

➢ **Importance of Radio Telescopes:**
  - ❍ The study underscores the significance of **advanced radio telescopes** in studying FRBs and other **intergalactic phenomena.**
  - ❍ These telescopes, such as the Very Large Array and the Deep Synoptic Array-110, enable **precise localization of FRBs and provide valuable data** for understanding their sources and characteristics.

➢ **Unraveling Cosmic Mysteries:**
  - ❍ The study emphasizes the **role of radio astronomy in unraveling cosmic mysteries** and deepening our understanding of the universe.

Note:

Visible spectrum

ChemistryViews.org

← Frequency, f (Hz)

| 10^{24} | 10^{22} | 10^{20} | 10^{18} | 10^{16} | 10^{14} | 10^{12} | 10^{10} | 10^8 | 10^6 | 10^4 | 10^2 | 10^0 |

| γ rays | | X rays | UV | | IR | micro-waves | | FM | AM | Long radio waves |
| | | | | | | | | Radio waves | | |

10^{-16} 10^{-14} 10^{-12} 10^{-10} 10^{-8} 10^{-6} 10^{-4} 10^{-2} 10^0 10^2 10^4 10^6 10^8

Wavelength, λ (m) →

Interaction with matter

electron-positron pair   ionization   electron level changes   molecular vibrations   molecular rotation   nuclear and electron resonance

$\vec{B}$ $\vec{B}$

Ionizing radiation   **Non-ionizing radiation**

Wavelength equivalent to:

atom   water molecule   bacterium   needle point   bee   person   Football field

10^{-16} 10^{-14} 10^{-12} 10^{-10} 10^{-8} 10^{-6} 10^{-4} 10^{-2} 10^0 10^2 10^4 10^6 10^8

Wavelength, λ (m) →

Note:

drishti

Link Between Bacterial Infection and Endometriosis

Why in News?

Despite the prevalence of **Endometriosis,** the **underlying causes and mechanisms of endometriosis remain unclear.** However, a recent study has shed light on a potential link between a **specific bacteria and the development and aggravation of endometriosis.**
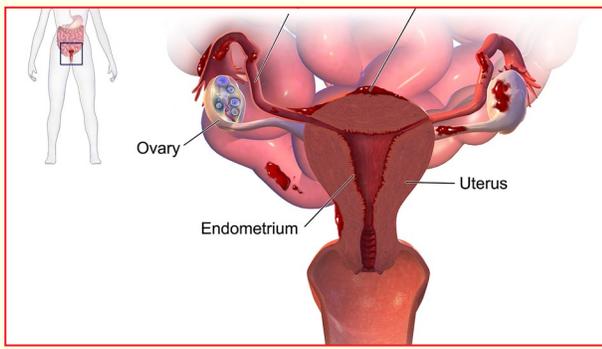
What is Endometriosis?

➢ **About**:
  ❍ It is a chronic condition that affects that affects approximately **one in 10 women worldwide.** It occurs when the **tissue that normally lines the uterus (endometrium) grows outside of it**, forming lesions on the ovaries, fallopian tubes, bladder, bowel or other pelvic organs.
  ❍ The exact cause of endometriosis is still unknown.

➢ **Impacts**:
  ❍ Women with endometriosis often experience **infertility, chronic pain during periods, pelvic pain, bloating, nausea, fatigue,** and may also be at a higher risk of depression and anxiety.

➢ **Current Available Treatments:**
  ❍ **Hormonal Therapy:** Certain hormone-based treatments, like birth control pills or hormone-containing intrauterine devices, can help control the growth of endometrial tissue.
  ❍ **Surgery: Laparoscopic surgery** can be performed to remove or destroy the endometrial tissue growths.
  ❍ **Fertility Treatment:** For women facing fertility issues, assisted reproductive technologies like in **vitro fertilization (IVF) can be considered.**

What is the Bacterial Infection Linked to Endometriosis?

➢ The bacterial infection linked to endometriosis is caused by a species of bacteria called **Fusobacterium**.
  ❍ Fusobacterium is **normally found in the mouth and the gut,** where it can cause dental plaque, gum disease, appendicitis and inflammatory bowel disease.
  ❍ However, it can also spread to other parts of the body through the **bloodstream or sexual contact,** causing infections in the lungs, brain, liver or reproductive organs.

➢ The link between **Fusobacterium and endometriosis** was discovered by a team of **researchers from Japan,** who conducted a study involving 155 women, 79 of whom had endometriosis and 76 of whom did not.
  ❍ The researchers analyzed the DNA of the bacteria present in the blood, saliva and vaginal fluid of the women, and found that **Fusobacterium was detected in 64% of the women with endometriosis**, compared to **only 7% of the women without endometriosis.**

➢ This finding could help expand the range of treatment options for endometriosis. For example, **antibiotics or probiotics could be used to target Fusobacterium or restore a healthy balance of bacteria** in the body.
  ❍ However, more research is needed to confirm the causal relationship between Fusobacterium and endometriosis, and to understand how it affects different women with different symptoms and severity of the condition.

Crimean-Congo Haemorrhagic Fever

Why in News?

As Europe experiences **heatwaves** and **wildfires**, concerns are mounting about the spread of viruses typically associated with warmer climates. Alert has been sounded about the **Crimean-Congo Haemorrhagic fever (CCHF)** an infection **spread by ticks.**

What is CCHF?

➢ **About:**
  ❍ CCHF is a viral haemorrhagic fever **transmitted by ticks and contact with viremic animal tissues.**

Note:

○ It poses a threat to public health due to its potential for **epidemics, high case fatality ratio (10-40%),** according to the **World Health Organization (WHO).** and difficulty in prevention and treatment.

➢ **CCHF Symptoms and Cure:**

○ Symptoms include **fever, muscle ache, dizziness, headache, abdominal pain, and mood swings.**

○ There is **no vaccine available**, and treatment primarily focuses on symptom management.

○ The antiviral **drug ribavirin has shown potential benefits** in treating CCHF infections.

➢ **Transmission:**

○ CCHF virus is primarily transmitted through tick bites or **contact with infected animal blood or tissues during and after slaughter.**

○ **Human-to-human transmission** can occur through **close contact with infected individuals or improper sterilization** of medical equipment.

➢ **Prevention and Control of CCHF:**

○ Controlling CCHF in animals and ticks is difficult due to unnoticed **tick-animal-tick cycle and widespread tick vectors.**

○ Measures can be taken to ensure that **animals remain tick-free for 14 days in a quarantine station before slaughter.**

○ There are no vaccines available for use in animals.

○ The only way to reduce infection in people is by **raising awareness of the risk factors and educating people** about the measures they can take to reduce exposure to the virus.

○ Wear protective clothing (long sleeves, long trousers) and light-colored clothing to allow easy detection of ticks on clothes.

○ Avoid close physical contact with CCHF-infected people.

○ Wear gloves and protective equipment when taking care of ill people.

➢ **Spread of CCHF:**

○ Initially **endemic to Africa, the Balkan countries, the Middle East, and parts of Asia,** CCHF has been spreading northward and westward in Europe.

○ Reported cases have emerged in Spain, Russia, Turkey, and the UK.

➢ **Climate Change and Disease Spread:**

○ Climate change plays a role in the expansion of pathogens into new territories.

○ Warmer temperatures and altered habitats allow ticks and other insects to thrive in previously unsuitable regions.

○ Changes in water habitats and animal migration patterns contribute to disease spread.

New Diarrhoea Causing Parasite: Entamoeba moshkovskii

Why in News?

The recent three-year surveillance study by **the National Institute of Cholera and Enteric Diseases (ICMR-NICED)** reveals the emergence of **Entamoeba moshkovskii (E. Moshkovskii)** as a leading pathogen causing **diarrhoea** outbreaks in the Kolkata region.

➢ The previously non-pathogenic amoeba, **Entamoeba moshkovskii**, has now become the primary cause of amoebic infections, **surpassing the once dominant pathogen, E. histolytica.**

What are the Key Findings of the Study?

➢ **Prevalence of Entamoeba moshkovskii:**

○ The study found that **over 3% of patients with diarrhoea were infected with E. moshkovskii,** making it the leading cause of amoebic infections in humans in Kolkata.

➢ **The decline of E. histolytica:**

○ Infections caused by **E. histolytica, the previous predominant amoeba pathogen, were decreasing,** while E. moshkovskii was taking its place.

➢ **Unique Seasonal Pattern:**

○ Unlike **E. histolytica, which usually peaked during the wet season** and decreased during the dry season, **E. moshkovskii infections** in Kolkata exhibited two distinct infection **peaks coinciding with the summer and post-fall seasons.**

➢ **Age Predominance:**

○ E. moshkovskii infections were most **prevalent in children aged 5-12 years.**

➢ **Pathogenic Potential:**

○ The study indicated that E. moshkovskii may act as a **"potential" pathogen,** causing **diarrhoea and gastrointestinal disorders,** rather than solely being a commensal of the human gut.

Note:

➢ **Molecular Identification:**
  ○ Due to the morphological similarities between E. histolytica and E. moshkovskii, **PCR-based molecular identification** was used to differentiate between the two.
    ● E. moshkovskii was identified in **over 50% of diarrhoea cases caused by amoebic parasites.**

What is Entamoeba moshkovskii?
➢ **About:**
  ○ It belongs to the same genus as E. histolytica but has distinct genetic and biochemical traits.
  ○ Originally isolated from sewage in Moscow in 1941.
  ○ Found in soil, water, and animals.
➢ **Symptoms:**
  ○ Causes problems like diarrhea, tummy pain, fever, and dehydration.
  ○ It can damage the intestines, leading to ulcers, bleeding, or even serious issues like infections in the liver.
➢ **Transmission:**
  ○ People can get infected by eating contaminated food or drinking contaminated water.
  ○ Direct contact with poop can also spread the infection.
➢ **Diagnosis Challenges:**
  ○ Looks like Entamoeba histolytica under a microscope, so it's hard to tell them apart.
  ○ Special tests like PCR or DNA sequencing are needed for accurate identification.
➢ **Treatment:**
  ○ Treating infections caused by Entamoeba moshkovskii can be tricky.
  ○ The usual drugs used for amoebic infections may not work well.
  ○ More research is needed to find the best treatment options.

Advancements in Smart Windows

Why in News?

Researchers at the **Centre for Nano and Soft Matter Science in Bengaluru** have introduced a new dimension to smart window technology by combining **hierarchical double network polymers with liquid crystals.**

What is a Hierarchical Double Network of Polymers?

➢ **Hierarchical** Double Networks of Polymers are a type of **interpenetrating polymer networks (IPNs).**
  ○ IPNs are **soft matter systems** that combine different polymer networks to optimize various properties.
  ○ IPNs have potential applications in fields like smart windows, and sensors.
➢ Hierarchical Double Networks combine **rigid and soft networks** to achieve desired **thermal, electrical, and optical properties.**
➢ They can be tailored to specific requirements, such as **mechanical, optical, and electrical properties.**
➢ **Polymer:**
  ○ Polymers are **large molecules composed of smaller molecules called monomers**, which are linked together in a **chain-like structure.**
  ○ Examples of polymers include common materials like **plastic and rubber.**

What are the Advancements in Smart Windows?

➢ **Enhanced Control with Double Networks:**
  ○ These double networks **combine different materials and allow for precise manipulation of their properties.**
  ○ Integration of multiple functionalities into a single window system.
➢ **Combining Light and Temperature:**
  ○ The research team has utilized both light and temperature control to create double networks. Light is used to form a self-assembled polymer network, while temperature triggers the formation of a second network that traps the first one. This unique combination of stimuli provides advanced control over the window's properties.
➢ **Trapping Liquid Crystals:**
  ○ The double network structure effectively traps liquid crystals, which are responsible for regulating light transmission. This enables the smart windows to **switch between transparency and opacity, providing privacy and energy-saving features.**

Note:

➢ **Benefits:**
  ○ **Energy Efficiency:** They consume very little energy, making them environmentally friendly and cost-effective.
  ○ **Privacy Control:** The windows can change from transparent to opaque, giving users control over their privacy.
  ○ Smart windows capable of switching between high and low haze states.
➢ **High Resolution:** The use of modern techniques allows for precise control over the level of opacity, providing excellent resolution.

Treatment for Duchenne Muscular Dystrophy

Why in News?

A collaborative effort between **doctors from Tamil Nadu, India, and scientists from Japan** has resulted in the development of a **disease-modifying treatment for Duchenne Muscular Dystrophy (DMD).**

What is the Disease Modifying Treatment for DMD and Major Findings?

➢ This treatment utilizes a **food additive** called **beta-glucan,** derived from the N-163 strain of the **yeast** *Aureobasidium pullulans*.
➢ The **six-month-long clinical study involved 27 children with DMD,** of which 18 were in the treatment group and 9 in the control group.
  ○ In addition to regular treatment, all participants (age >3) received the beta-glucan as a food supplement.
➢ The study yielded the following notable findings:
  ○ **Reduction in Muscle Weakness and Damage:** Evidence indicated a **reduction in muscle weakness and damage** among the treatment group.
    ● It also led to improved **Muscle Strength.**
  ○ **Safety and Lack of Adverse Reactions:** No adverse reactions were observed in the participants, and the treatment showed no side effects on the liver and kidneys.

> **Note:** Beta-glucan is a polysaccharide (a complex sugar) that has **anti-inflammatory, immunomodulatory** and **antioxidant properties.**

What is Duchenne Muscular Dystrophy?

➢ **About:**
  ○ **Duchenne Muscular Dystrophy (DMD**) is a **rare genetic disease** characterized by the **inability of muscles to produce dystrophin**, an enzyme that aids in muscle wear and tear as well as its regeneration.
    ● It affects only male children.
  ○ The absence of dystrophin leads to **muscle damage, resulting in muscle weakness** and ultimately wheelchair-bound conditions in early teens and consequent premature deaths.
➢ **Common Symptoms:**
  ○ Progressive muscle weakness and **atrophy (loss of muscle bulk)** that begins in the legs and pelvis and later affects the arms, neck and other areas of the body.
  ○ Difficulty **walking, running, jumping, climbing stairs** and getting up from a lying or sitting position.
  ○ Frequent falls, **waddling gait** (abnormal walking pattern) and toe walking.
➢ **Prevalence:**
  ○ According to a 2020 study on the global epidemiology of DMD, the pooled global DMD prevalence was **7.1 cases per 100,000 males** and **2.8 cases per 100,000 in the general population.**
  ○ Also, it has approximately **5,000 patients in Japan and 80,000 in India.**
➢ **Current Treatments:**
  ○ Currently, there is **no known cure for DMD.** Treatment aims to control symptoms to improve quality of life.
  ○ Available treatments for DMD include **gene therapy, exon-skipping, and disease-modifying agents** such as **anti-inflammatory medications** and steroids.

Organic Matter on Mars

Why in News?

The **United States National Aeronautics and Space Administration's (NASA) Perseverance rover** has **uncovered evidence of organic compounds in a Martian crater.**

➢ The rover's landing site in **Jezero Crater** shows a high possibility for past habitability. The presence of various minerals, including **carbonates, clays, and sulphates,** indicates its history as an **ancient lake basin.**

What are Organic Compounds?

➢ **Organic compounds** are molecules that primarily contain **carbon and hydrogen,** and often other elements such as **oxygen, nitrogen, phosphorus and sulfur.**

    ○ They are the key **building blocks of life on Earth**, as they form the basis of **proteins, nucleic acids, carbohydrates, lipids and other biomolecules**.

    ○ They can also be **produced by non-biological processes**, such as **volcanic activity, meteorite impacts, lightning strikes and cosmic radiation**.

What are the Major Findings Related to Presence of Organic Matter in Mars?

➢ Earlier missions had already identified organic chemicals with Martian origin in **meteorites and the Gale Crater.**

    ○ Only the **Mars Phoenix lander and the Curiosity rover** had **previously detected organic carbon on Mars** using advanced techniques such as evolved gas analysis and **gas chromatography-mass spectrometry.**

➢ The latest research through Perseverance Rover introduces a novel instrument, the **Scanning Habitable Environments with Raman and Luminescence for Organics and Chemicals (SHERLOC) instrument,** which helps locate basic chemical compounds on Mars.

    ○ It reveals that **Mars possesses a more intricate organic geochemical cycle.**

       • Multiple reservoirs of potential organic molecules are suggested to exist on the planet, expanding the possibilities for habitability.

       • The study also found molecules associated with aqueous processes, indicating that water may have played a significant role in **Mars's range of organic matter.**

➢ The extended presence of key building blocks necessary for life implies that **Mars may have been habitable for longer periods** than previously assumed.

Note:

➢ SHERLOC is the first instrument on Mars that can **perform fine-scale mapping and analysis of organic molecules**.

➢ It uses a **laser to illuminate the surface of rocks and soils,** and **measures the fluorescence** or glow emitted by organic compounds when exposed to ultraviolet light.

➢ SHERLOC can also **identify the minerals associated with organic compounds**, which can provide clues about their origin and preservation.

What is the Perseverance Rover?

➢ **About**

    ○ Perseverance is a **car-sized Mars rover** designed to explore the **Jezero crater on Mars** as part of **NASA's Mars 2020 mission**.

    ○ It was manufactured by the **Jet Propulsion Laboratory** and launched on July 30, 2020.

    ○ It landed on **Mars on February 18, 2021**, after a seven-month journey.

➢ **Power Source**: A **Multi-Mission Radioisotope Thermoelectric Generator (MMRTG)** which converts heat from the natural **radioactive decay** of plutonium (Plutonium Dioxide) into electricity.

➢ **Major Objectives:**

    ○ Seek signs of ancient life and collect samples of rock and soil for possible return to Earth.

    ○ Study the geology and climate of Mars and how they have changed over time.

    ○ Demonstrate technologies that could enable **future human exploration of Mars,** such as **producing oxygen from the Martian atmosphere** and testing a miniature helicopter.

What are the Various Mars Missions?

➢ **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)**

Bird Flu Outbreaks in Mammals

Why in News?

The recent surge in bird flu outbreaks among mammals has alarmed international agencies, including the **Food and Agriculture Organization (FAO), the World Health Organization (WHO), and the World Organisation for Animal Health**(WOAH, founded as OIE).

Note:

➢ The agencies express concern that as **mammals are biologically closer to humans than birds,** the virus could potentially **adapt to infect humans more easily.**

What is Bird Flu?

➢ **About:**
  ○ **Bird flu** or Avian influenza refers to the disease caused by **infection with avian influenza Type A viruses.**
  ○ Infrequently, the **virus can infect mammals from birds**, a phenomenon called **spillover**, and rarely can spread between mammals.

➢ **Outbreak in Wild Birds and Poultry:**
  ○ The most common type of bird flu virus is **H5N1**, which belongs to the **goose/Guangdong-lineage of H5N1 avian influenza viruses** that first emerged in 1996/1997.
  ○ Since 2020, this virus has caused an unprecedented number of deaths in wild birds and poultry in many countries in **Africa, Asia, Europe and the Americas.**
  ○ In 2022, WOAH reported H5N1 high pathogenicity avian influenza outbreaks in poultry and wild birds in **67 countries across five continents**.
    ● These outbreaks resulted in the loss of over 131 million domestic poultry due to death or culling in affected farms and villages.
  ○ An additional **14 countries** have reported outbreaks in **2023.**

➢ **Outbreaks in Mammals and Potential Hazard for Humans:**
  ○ Since 2022, approximately **10 countries have reported cases of avian flu outbreaks** in both land and sea mammals.
    ● Examples include **farmed mink in Spain, seals in the United States, and sea lions in Peru and Chile.**
    ● These outbreaks have been documented in 26 species, with the **recent detection of H5N1 in cats in Poland.**
  ○ There is a concern that infected mammals may serve as mixing vessels for influenza virus**s, potentially leading to the emergence of new, more harmful viruses that could affect both animals and humans.**
    ● However, the WHO has only received reports of a few mild cases in people who had close contact with infected birds.

➢ **Status in India:**
  ○ With effect from **September 3, 2019**, the **World Organization for Animal Health** declared the India free from the Avian Influenza (H5N1).
  ○ However, in **December 2020 and early 2021**, outbreaks of avian influenza H5N1 and **H5N8** were reported in poultry in **15 states in India.**

➢ **Urgent Measures to Curb the Spread:** To mitigate the risks associated with bird flu outbreaks, the international agencies **including FAO, WHO, WOAH** recommended the following measures:
  ○ They urged countries to share **genetic data of viruses** from humans and animals in **publicly accessible databases.**
  ○ Enhancing **biosecurity** measures and applying good hygiene practices in farms and poultry value chains.
  ○ Ensuring **rapid detection, reporting, and response** to animal outbreaks.
  ○ Strengthening **influenza surveillance** in both animals and humans.
  ○ Conducting thorough **epidemiological and virological investigations** around animal outbreaks and human infections.
  ○ Promoting collaboration between **animal and human health sectors.**

Types of Influenza Virus

Types	A Subtypes	HPAI vs LPAI
Influenza A (Infects a wide range of animals including birds)	Avian (Can infect humans) H5N1 H7N3 H7N7 H7N9 H9N2 H10N8	HPAI H5N1 LPAI H5N1 HPAI H5N8 LPAI H5N8
Influenza B (Mainly infects humans)	Swine (Can infect humans) H1N1 H1N2 H3N2	Subtypes can be classified as high path or low path based on the ability of the specific virus strain to kill chickens in the lab setting.
Influenza C (Infects humans and pigs but more rare than types A and B)		
Influenza D (Infects cattle)	Most common human H1N1 H3N2	

Chandrayaan-3

Why in News?

With the launch of **Chandrayaan-3**, the **Indian Space Research Organisation (ISRO)** is embarking to achieve a successful soft landing on the moon.

- India aims to become the fourth country in the world to achieve this feat, joining the ranks of the **United States, Russia, and China.**

What is Chandrayaan-3 Mission?

- **About**:
  - 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**.
  - It consists of an **indigenous Lander module (LM), Propulsion module (PM) and a Rover** with an objective of developing and demonstrating new technologies required for Inter planetary missions.

- **Mission Objectives of Chandrayaan-3:**
  - To demonstrate Safe and Soft Landing on Lunar Surface
  - To demonstrate Rover roving on the moon and
  - To conduct in-situ scientific experiments.

- **Features**:
  - The **lander (Vikram) and rover payloads(Pragyan) of Chandrayaan-3 remain the same as the Chandrayaan-2 mission.**
  - The scientific payloads on the lander aim to study various aspects of the lunar environment. These payloads include studying **lunar quakes, thermal properties of the lunar surface, changes in plasma near the surface,** and **accurately measuring the distance between Earth and the moon.**

Lander Payloads

RAMBHA-LP
Langmuir Probe
To measure the near surface plasma (ions and electrons) density and its changes with time.

ChaSTE
Chandra's Surface Thermo-physical Experiment
To carry out the measurements of thermal properties of lunar surface near polar region.

ILSA
Instrument for Lunar Seismic Activity
To measure seismicity around the landing site and delineating the structure of the lunar crust and mantle.

Rover Payloads

APXS
Alpha Particle X-Ray Spectrometer
To derive the chemical composition and infer mineralogical composition to further enhance our understanding of lunar surface.

LIBS
Laser Induced Breakdown Spectroscope
To determine the elemental composition (Mg, Al, Si, K, Ca,Ti, Fe) of lunar soil and rocks around the lunar landing site.

Propulsion Module Payload

SHAPE
Spectro-polarimetry of HAbitable Planet Earth
An experimental payload to study the spectro-polarimetric signatures of the habitable planet Earth in the near-infrared (NIR) wavelength range (1-1.7 μm).

Note:

CHANDRAYAAN-3 MOON MISSION

Chandrayaan-3, the succeeding mission to Chandrayaan-2, is set to launch on Friday, July 14, 2023 at 2.35 pm

100 km
Circular Lunar Orbit

Lunar Orbit Insertion

EBNs

Integrated Module Phase

Lunar Transfer Trajectory

Take of from Sriharikota

Mission life
1 Lunar day
(14 Earth days)

Mass
1,749.86 kg
including Rover

LVM3-M4 Vehicle

Height
43.5 m

Lift-off Mass
642 t

Lander Module & Rover

Propulsion module

Note:

drishti

○ The propulsion module of Chandrayaan-3 features a new experiment called **Spectro-polarimetry of Habitable Planet Earth (SHAPE).**

- SHAPE aims to **search for smaller planets** with potential habitability by analyzing reflected light.

➢ **Changes and Improvements in Chandrayaan-3:**

○ The landing area has been expanded, providing flexibility to land safely within a larger designated area.

○ The **lander has been equipped with more fuel to enable longer-distance travel** to the landing site or alternate locations.

○ The Chandrayaan-3 Lander has **solar panels on four sides**, instead of **only two in Chandrayaan-2.**

○ High-resolution images from the Chandrayaan-2 orbiter are used to determine the **landing location, and physical modifications** have been made to enhance stability and sturdiness.

○ Additional navigational and guidance instruments are on board Chandrayaan-3 to continuously monitor the Lander's speed and make the necessary corrections.

- This includes an instrument called **Laser Doppler Velocimeter,** which will fire laser beams to the lunar surface to calculate the Lander's speed.

➢ **Launch and Timeline:**

○ The **LVM3 M4 launcher** has been successfully utilized to launch Chandrayaan-3

- Around 16 minutes after the LVM-3 lifted off, the spacecraft separated from the rocket. **It entered into an elliptic parking orbit (EPO).**

○ Chandrayaan-3's journey is estimated to take approximately **42 days**, with a landing scheduled for **August 23, 2023 at the lunar dawn.**

○ The lander and the rover will have a **mission life of one lunar day (about 14 Earth days)** as they **work on solar energy.**

- The **landing site for Chandrayaan-3 is near the lunar south pole**.

What is the Importance of Landing Near the Lunar South Pole?

➢ Historically, spacecraft missions to the Moon have primarily **targeted the equatorial region due to its favorable terrain and operating conditions.**

○ However, the lunar south pole presents a vastly different and more challenging terrain compared to the equatorial region.

➢ **Sunlight is scarce in certain polar regions**, resulting in perpetually dark areas where temperatures can reach to **-230 degrees Celsius.**

○ This lack of sunlight and extreme cold pose difficulties for instrument operation and sustainability.

➢ The lunar south pole offers **extreme and contrasting conditions that pose challenges for humans** but it make them potential repositories of valuable information about the **early Solar System.**

○ It is crucial to explore this region which could impact future **deep space exploration.**

What is India's Other Chandrayaan Missions?

➢ **Chandrayaan-1:**

○ India's lunar exploration missions began with **Chandrayaan-1 in 2008**, which aimed to create a **three-dimensional atlas of the moon** and conduct mineralogical mapping.

- Launch Vehicle: **PSLV – C11**.

○ Chandrayaan-1 made significant discoveries, including the **detection of water and hydroxyl on the lunar surface**.

➢ **Chandrayaan-2: Partial Success and Discoveries:**

○ Chandrayaan-2 consisted of an **Orbiter, Lander, and Rover**, with the goal of exploring the lunar south pole.

- Launch Vehicle: **GSLV MkIII-M1**

○ Although the **lander and rover crashed on the moon's surface**, the **Orbiter successfully collected data** and found signatures of water at all latitudes.

Types of Moon Missions:

➢ **Flybys**: These missions involve **spacecraft passing near the moon without entering its orbit**, allowing for observations from a distance.

➢ Examples include **Pioneer 3 and 4 by the United States** and **Luna 3 by the USSR.**

Note:

- **Orbiters**: These spacecraft enter lunar orbit to conduct prolonged studies of the moon's surface and atmosphere.
  - ○ **Chandrayaan-1 and 46 other missions** have utilized orbiters.
  - ○ **Impact Missions:** Extensions of orbiter missions, impact missions involve **instruments making an uncontrolled landing on the lunar surface**, providing valuable data before being destroyed.
  - ○ **Chandrayaan-1's Moon Impact Probe (MIP)** followed this approach.
- **Landers**: These missions aim for a soft landing on the moon's surface, allowing for **close-quarter observations**.
- **Luna 9 by the USSR** was the first successful landing on the moon in 1966.
- **Rovers**: Rovers are specialized payloads that **detach from landers and move independently on the lunar surface.**
- They gather valuable data and overcome the limitations of stationary landers. **Chandrayaan-2's rover was called Pragyan(** same name is retained for Chandrayaan-3 as well).
- **Human Missions**: These missions involve the landing of astronauts on the moon's surface.
- Only NASA has achieved this feat, with s**ix successful landings between 1969 and 1972**.
- **NASA's Artemis III, planned for 2025,** will mark humanity's return to the moon.

■■■

Note:

Environment & Ecology

Highlights

- Graded Response Action Plan
- Seagrass Meadows
- Sulfur Dioxide Emission Norms
- Biological Diversity (Amendment) Bill, 2021
- Forest Conservation Amendment Bill 2023
- Mhadei Wildlife Sanctuary
- The 1.5°C Warming Target and Climate Projections
- Ludwigia peruviana Threatens Elephant Habitats in Tamil Nadu

- Saltpan Workers of Little Rann of Kutch
- Desiccation- Tolerant Plant Species
- Project Cheetah and Radio Collar Infections
- India's Only Ape Species: The Hoolock Gibbon
- South Indian Cicada Species Gets a New Identity
- Climate Change Alters Ocean Colour
- Promoting Coal Gasification in India
- Climate Shifts in Kaas Plateau

Graded Response Action Plan

Why in News?

Recently, the **Commission for Air Quality Management in NCR & Adjoining Areas (CAQM)** has announced a revision **in the existing Graded Response Action Plan (GRAP)** to combat air pollution in the region.

➢ The revised GRAP contains **targeted actions that need to be taken** by the agencies responsible/ implementing agencies when **AQI (Air Quality Index)** of Delhi **goes beyond a certain threshold.**

➢ Earlier, research was published in the journal Nature titled- **"Machine learning-based country-level annual air pollutants exploration using Sentinel-5P and Google Earth Engine"**, showing that, **during 2018-2021**, India witnessed the maximum levels of human-induced **Air Pollution.**

What is a Graded Response Action Plan (GRAP)?

➢ **About:**

○ GRAP is a **set of emergency measures** that kick in to prevent further deterioration of air quality once **it reaches a certain threshold** in the Delhi-NCR region.

○ It was approved by the Supreme Court in 2016 after the Supreme Court's order in the matter of **M. C. Mehta vs. Union of India (2016)** and notified in 2017.

➢ **Implementation:**

○ From 2021 onwards, the GRAP is being implemented by the **CAQM.**

  ● Till 2020, the Supreme Court-appointed **Environment Pollution (Prevention & Control) Authority (EPCA)** used to order States to implement GRAP measures.

○ The EPCA was dissolved and replaced by the **Commission for Air Quality Management (CAQM)** in 2020.

○ CAQM relies on air quality and **meteorological forecasts** by the **Indian Institute of Tropical Meteorology (IITM**) and the **India Meteorological Department (IMD).**

➢ **Revision:**

○ **Stage I (Poor Air Quality - AQI 201-300):** Enforce NGT / Hon'ble SC's order on over aged diesel / petrol vehicles.

○ **Stage II (Very Poor- AQI 301-400):** Targeted actions to **combat air pollution at identified hotspots** in the region. Regulated operations of DG (Diesel Generators) have been set across all sectors in the NCR.

○ **Stage III ('Severe'- AQI 401-450):** Impose strict restrictions on **BS III petrol** and **BS IV diesel four-wheelers** in certain areas and may suspend physical classes in schools for primary grade children up to Class 5.

○ **Stage IV (Severe Plus- AQI greater than 450):** When the AQI exceeds 450, four-wheelers registered

outside Delhi, except for electric vehicles, CNG vehicles, and BS-VI diesel vehicles and vehicle carrying essential commodity, **will not be allowed to enter the city.**

Note: An **AQI** is a number used by **government agencies** to measure the **air pollution levels and communicate** it to the population. As the AQI increases, it means that a **large percentage of the population will experience severe adverse** health effects.

What are the Government Initiatives to Combat Air Pollution?

➢ **Graded Response Action Plan (Delhi)**
➢ **Polluter Pay principle**
➢ **Smog Tower**
➢ **Tallest Air Purifier**
➢ **National Clean Air Programme (NCAP)**
➢ **BS-VI vehicles**
➢ **New Commission for Air Quality Management**
➢ **Turbo Happy Seeder (THS)**
➢ **Air Quality and Weather Forecasting and Research (SAFAR)**
➢ **Dashboard for Monitoring Air Quality**
➢ **National Air Quality Index (AQI)**
➢ **Air (Prevention and Control of Pollution) Act, 1981**
➢ **Pradhan Mantri Ujjwala Yojana (PMUY)**

Seagrass Meadows

Why in News?

Scuba divers in Northern Germany are **extracting seagrass shoots to replant in barren areas,** aiming to **combat climate change** and **revive** these **ocean carbon sinks**.

What are Seagrass Meadows?

➢ **About:**
  ○ Seagrass meadows are composed of **flowering plants that grow in shallow coastal waters**, forming dense underwater carpets that can cover large areas.
  ○ They thrive in areas where sunlight can penetrate the water, allowing them to undergo **photosynthesis for growth.**

● Also, they typically grow in **sandy or muddy substrates**, where their roots can take hold and stabilize the plant.

➢ **Significance:**
  ○ **Carbon Sequestration:** Though they cover **only 0.1% of the ocean floor**, these meadows are highly efficient carbon sinks, storing up to **18% of the world's oceanic carbon.**
    ● This helps **reduce greenhouse gas emissions** and **slow down global warming.**
  ○ **Water Quality Improvement:** They also **filter pollutants from the water**, trap sediments and prevent erosion, thereby improving **water clarity and quality.**
    ● This benefits both marine life and human activities such as **fishing, tourism and recreation.**
  ○ **Habitat and Biodiversity:** They are among the most productive and diverse ecosystems on Earth, providing habitats and food for many marine animals, including **fish, turtles, dugongs, crabs and seahorses.**
  ○ **Coastal Protection:** Seagrass beds act as natural barriers, protecting coastlines from erosion caused by **waves and tidal currents.**

➢ **Concern:**
  ○ According to **"Out of the Blue: The Value of Seagrasses to the Environment and to People"** report of **United Nations Environment Programme (UNEP)**, an estimated **7% of seagrass habitat is being lost worldwide each year.**
    ● Since the late 19th century, **almost 30% of seagrass area across the globe has been lost.**
  ○ The main causes of seagrass loss are:
    ● **Coastal Development:** Construction of **ports and marinas** can destroy seagrass habitats or reduce their light availability.

- **Pollution: Runoff of nutrients, chemicals and sediments** from agriculture, industry and urban areas can cause eutrophication, algal blooms and turbidity, which can smother or shade out seagrass plants.
- **Climate Change: Rising sea temperatures, sea level rise, ocean acidification** and extreme weather events can stress or damage seagrass plants and alter their distribution and growth.

➢ **Seagrasses in India:**
  ○ In India, the major seagrass beds exist along the **coastline of Gulf of Mannar and Palk Bay regions on the east coast, Gulf of Kachchh region on the west coast**, the **lagoons of islands in Lakshadweep** in the Arabian Sea and **Andaman and Nicobar Islands** in the Bay of Bengal.

➢ **Restoration Efforts:**
  ○ Seagrass restoration has been attempted in various regions, such as the **Baltic Sea in Germany, Chesapeake Bay in the USA** and the **Gulf of Mannar in India.**

Sulfur Dioxide Emission Norms

Why in News?

Recently, the Ministry of Power has informed Lok Sabha that, for compliance with Sulphur dioxide (SO_2) emission norms, Thermal Power Plants are installing **Flue Gas Desulphurisation (FGD)** equipment.

➢ The Ministry in September 2022 had extended the deadline for **Coal-Fired power plants** to install FGD to cut **sulphur emissions by two years.**

What is the Categorisation of Power Plants for Installing FGD?

Category	Location/Area	Timelines for compliance
Category A	Within 10 km radius of National Capital Region (NCR) or cities having million plus population (as per **2011 census of India**)	Upto 31st December 2024
Category B	Within 10 km radius of Critically Polluted Areas or Non-attainment cities (as defined by **CPCB**)	Upto 31st December 2025
Category C	Other than those included in category A and B	Upto 31st December 2026

What is Flue Gas Desulfurization (FGD)?

➢ **About:**
  ○ FGD is the process of removing **sulfur compounds from the exhaust emissions of fossil-fueled** power stations.
  ○ This is done through the **addition of absorbents,** which can remove up to 95% of the sulphur dioxide from the flue gas.
  ○ Flue gas is the **material emitted when fossil fuels** such as coal, oil, natural **gas, or wood are burned** for heat or power.

➢ **Need for FGD in India:**
  ○ Indian cities have **some of the world's most polluted air.** India currently emits almost **twice the amount of SO_2** than the next highest country, Russia.
  ○ Thermal utilities, which produce **75% of the country's power**, account for some 80% of industrial emissions of **sulphur and nitrous oxides**, which cause **Lung Diseases**, acid rain and smog.
  ○ Every single day **delay in implementation of prescribed norms** and not installing the FGD system is causing huge health and economic damage to our society.
    - The high **levels of damaging SO_2 pollution in India are avoidable much sooner** as FGD systems have proved successful in reducing emission levels in China, which was responsible for the **highest level of SO2 Pollution** in 2005.

What is Sulfur Dioxide Pollution?

➢ **Source:**
  ○ The largest source of **SO_2 in the atmosphere is the burning of fossil fuels** by power plants and other industrial facilities.
  ○ Smaller sources of SO_2 emissions **include** industrial processes such as **extracting metal from ore,** natural sources such as **volcanoes**, and **locomotives**, ships and other vehicles.

➢ **Impact:**
- ○ Short-term exposures to SO_2 can harm the **human respiratory system** and make breathing difficult. People with asthma, particularly children, are sensitive to these effects of SO_2.
- ○ The WHO has estimated that it causes **4.2 million deaths globally per year.**
- ○ SO_2 emissions that **lead to high concentrations of** SO_2 in the air generally also lead to the formation of other sulfur oxides (SOx).
- ○ SOx can react with other compounds in the atmosphere to form small particles. These particles contribute to **Particulate Matter (PM) pollution**.

Biological Diversity (Amendment) Bill, 2021

Why in News?

Recently, the **Biological Diversity (Amendment) Bill, 2021** has been passed in the Lok Sabha.

What are the Key Provisions of the Biological Diversity (Amendment) Bill, 2021?

What is the Background?

➢ The Biological Diversity Act, 2002 was enacted in response to **India's commitments under the Convention on Biological Diversity (CBD)** of 1992.
- ○ The CBD recognizes that countries **have the right to control their biological resources** and sets the stage for **regulating access to these resource**s based on national legislation.

➢ To effectively manage biological resources and associated traditional knowledge, the Act establishes a **three-tier structure:**
- ○ the **National Biodiversity Authority (NBA)** at the national level
- ○ State Biodiversity Boards (SBBs) at the state level
- ○ Biodiversity Management Committees (BMCs) at the local level.

➢ **In December 2021**, the Biological Diversity (Amendment) Bill, 2021 was introduced in Lok Sabha **to amend the 2002 Ac**t.
- ○ The amendments are designed to **align the Act with current needs and developments,** while supporting sustainable biodiversity conservation and utilization in India.

Provisions	The Biological Diversity Act, 2002	Amendments to the 2002 Act
Access to Biological Resources	The Act requires **anyone seeking to access biological resources or associated knowledge in India** to obtain prior approval or inform the regulatory authority about their intent.	The Bill modifies the classification of entities and activities that require intimation, while also introducing exemptions to certain cases.
Intellectual Property Rights	Concerning **Intellectual Property Rights (IPR)**, the Act currently demands NBA approval before applying for IPR related to biological resources from India.	The Bill suggests that approval will be required before the actual grant of the IPR, not during the application process.
Exempting AYUSH Practitioners		It seeks to exempt registered **AYUSH** medical practitioners and people accessing codified traditional knowledge, among others, from giving prior intimation to State biodiversity boards for accessing biological resources for certain purposes.

Note:

Benefit Sharing	The Act mandates b**enefit sharing, which involves sharing both monetary and non-monetary** benefits with those who conserve biodiversity or hold traditional knowledge associated with it. NBA determines **the terms of benefit sharing** when granting approvals for various activities.	The Bill **removes the applicability of benefit sharing** requirements from research, bio-survey, and bio-utilisation.
Criminal Penalties	The Act imposes **criminal penalties**, including imprisonment, for offenses such as not obtaining approval or intimation for specific activities.	The Bill, on the other hand, **decriminalizes these offenses** and introduces fines ranging from one lakh to fifty lakh rupees instead.

What are the Concerns Related to the Biological Diversity (Amendment) Bill, 2021?

➤ **Favoring Industry over Conservation:**
  ○ Critics argue that the amendments seem to prioritize industry interests rather than **focusing on biodiversity conservation**, which goes against the spirit of the CBD.
  ○ The CBD emphasizes sharing benefits **from biodiversity use with the communities** that have conserved it for generations.
  ○ The amendments may **weaken the framework for benefit-sharing** and community involvement.

➤ **Decriminalization of Violations:**
  ○ The Bill proposes to decriminalize violations, removing the **power of the NBA** to file FIRs against parties that do not comply with regulations.
  ○ This may weaken the **enforcement of biodiversity protection** laws and hinder efforts to deter illegal activities.

➤ **Exemption for Domestic Companies:**
  ○ Only "foreign-controlled companies" would need to **seek permission for using biodiversity resources.** This could potentially **create loopholes for domestic companies** with foreign shareholding to bypass the approval process, raising concerns about unchecked exploitation of biodiversity.

➤ **Limited Benefit Sharing:**
  ○ The inclusion of "codified traditional knowledge" exempts certain users, including practitioners of Indian systems of medicine, from the **need to share benefits**.
  ○ This may lead to **profiteering domestic companies** avoiding their responsibility to share profits with the communities holding traditional knowledge.

➤ **Ignoring Conservation Issues:**
  ○ Critics argue that the amendments do not **adequately address the challenges faced by biodiversity conservation** in India.
  ○ The Bill appears to focus more on **reducing regulations and facilitating business** interests, raising concerns about the potential negative impact on biodiversity and traditional knowledge holders.

Forest Conservation Amendment Bill 2023

Why in News?

Recently, the **Forest (Conservation) Amendment Bill 2023** has been passed by the Lok Sabha, and it aims to bring significant changes to **the Forest (Conservation) Act, 1980**, which is **a crucial central statute** for the conservation of forests in India.

What is the Background?

➤ After Independence, vast areas of forest land **were designated as reserved and protected forests**.
  ○ However, many forested **areas were left out,** and areas without any standing forests were included in 'forest' lands.

➤ In *Godavarman case*, 1996, the **Supreme Court suspended the felling of trees** across the country, and ruled that the FC Act would apply to **all land parcels** that were either recorded as 'forest' or resembled the dictionary meaning of forest.

➤ In **June 2022,** the government amended the **Forest Conservation Rules** to propose a mechanism to allow

Note:

developers to raise plantations "over land on which the (FC) Act is not applicable" and to swap such plots against subsequent requirements of compensatory afforestation.

What are the Key Provisions of the Forest (Conservation) Amendment Bill 2023?

➤ **Scope of the Act:**
  ○ The Bill broadens the scope of the Act by **inserting a Preamble.**
  ○ The Act's name was changed to **Van (Sanrakshan Evam Samvardhan)** Adhiniyam, 1980 to reflect the potential of its provisions.

➤ **Applicability on Various Lands:**
  ○ The Act, which was initially **applied to notified forest land,** was later extended to revenue forest land and lands recorded as forest in government records.
  ○ The amendments seek to **streamline the application of the Act to recorded forest lands,** private forest lands, plantations, etc.

➤ **Exemptions:**
  ○ The Bill proposes certain **exemptions to encourage afforestation** and plantation outside forests.
  ○ 0.10 ha of forest land has been proposed to provide connectivity for habitation and establishments located on the side of roads and railways, up to 10 ha of land proposed for security related infrastructure and up to 5 ha of forest land in Left Wing Extremism Affected Districts for public utility projects.
  ○ These exemptions include **strategic projects** related to national security within 100 km of the International Borders, **Line of Actual Control (LAC), Line of Control (LoC)** etc.

➤ **Provisions for Development:**
  ○ The Bill extends existing provisions of the **Principal Act** relating to assignment of forest land, on lease to private entities, to Government companies as well.
  ○ This will facilitate development projects and ensure uniformity in the implementation of the Act.

➤ **New Forestry Activities:**
  ○ The amendments add new activities such as infrastructure for frontline forest staff, ecotourism, zoo, and safari into the array of forestry activities for the conservation of forests. **Surveys and investigations in forest areas will not be considered non-forestry activities.**

➤ **Climate Change Mitigation and Conservation:**
  ○ It aims to ensure that such areas **contribute to India's efforts in combating climate change** by being recognized as part of its forest conservation efforts and contribute to India's international commitments like **Net Zero Emission by 2070**

➤ **Empowering Local Communities:**
  ○ The Bill encourages activities like **establishment of zoos, safaris, and ecotourism,** which will be owned by the government and set up in approved plans outside Protected Areas.
  ○ These activities not only raise awareness about forest conservation and wildlife protection but also **create livelihood opportunities for local communities**, integrating them with overall development.

What are the Concerns Related to the Bill?

➤ **Objection on Hindi Name:**
  ○ There were objections to the **Act's new name (which is now in hindi)** on the grounds that it was **"non-inclusive"** and left out many among the "(non-Hindi speaking) population both in South India and also in the North-East.

➤ **Impact on Ecologically Sensitive Areas:**
  ○ The proposed exemptions in the Bill, particularly those related to strategic projects near international borders, have raised concerns about the **potential clearance of forests in ecologically sensitive areas,** such as the Himalayan, trans-Himalayan, and northeastern regions.
    • Bill, 2023 (FCA) will **erase the rights of indigenous communities** living on India's borders.
  ○ Without appropriate "assessment and mitigation plans," such clearances could threaten biodiversity and trigger extreme weather events.

➤ **Limited Applicability:**
  ○ The Bill restricts the legislation's ambit only to areas recorded as forests on or after October 1980. This exclusion may result in **leaving out significant sections** of forest land and biodiversity hot spots **from the Act's purview,** allowing them to be potentially sold, diverted, cleared, and exploited for non-forestry purposes.

➤ **Concurrent List and Center-State Balance:**
  ○ Some State governments have **argued that forest conservation falls** under the Concurrent List, which means **both the Center and States have** a role in the matter.

Note:

○ They believe that the **proposed amendments could tilt the balance towards the Center** and may impact the rights and authority of the State governments in forest conservation matters.

Mhadei Wildlife Sanctuary

Why in News?

Recently, in a significant development for tiger conservation efforts, the **Goa bench of the Bombay High Court** has issued a **directive to the Goa government** to notify the **Mhadei Wildlife Sanctuary and its surrounding areas as a tiger reserve** under the **Wildlife Protection Act, 1972 within three months** from 24th July 2023.

➢ The decision comes **after a prolonged legal battle and demands from environmentalists and conservationists,** and it carries implications for wildlife protection and forest dwellers in the region.

> **Note:**
> ➢ Tiger Reserves are notified by **State Governments** as per provisions of **Section 38V** of the **Wildlife (Protection) Act, 1972** on advice of the **National Tiger Conservation Authority.**

What are the Key Facts about Mhadei Wildlife Sanctuary?

➢ **Location and Landscape:**
  ○ Located in the **Northern part of Goa,** Sanguem taluka, near **Valpoi town.**
  ○ Encompasses picturesque waterfalls, including **Vazra Sakla Falls and Virdi Falls.**
  ○ Known for its nesting grounds of **critically endangered Long-billed vultures** near Vazra Falls.
  ○ Diverse landscape with thick **moist deciduous forests** and some **evergreen species.**
  ○ Notable for **sacred groves protecting rare and indigenous trees.**
➢ **Flora and Fauna**
  ○ Rich biodiversity with **Indian gaur, Tigers, Barking deer, Sambar deer, Wild boar, Indian hare, and more.**
  ○ Attracts **herpetologists** due to the presence of various snakes, including **the 'big four' venomous snakes** which are **Indian krait, Russell's viper, Saw-scaled viper and Spectacled cobra.**

○ Designated an **International Bird Area** for hosting several bird species like **Malabar parakeet and Rufous babbler.**
○ Represents a crucial habitat for **tiger conservation in Goa.**

➢ **Unique Geographical Features:**
  ○ Home to the **three highest peaks in Goa: Sonsogod (1027 mts), Talavche Sada (812 mts), and Vageri (725 mts).**
  ○ **Mhadei River,** a lifeline of Goa, originates in Karnataka, passes through the sanctuary, and meets the Arabian Sea at Panaji.
    ● The sanctuary acts as a catchment area for the Mhadei River.

The 1.5°C Warming Target and Climate Projections

Why in News?

The **1.5 degrees Celsius warming target,** along with this year's **El Nino,** has garnered attention. Reports suggest the planet may cross this **temperature threshold due to the rising climate phenomenon.**

What is the Background of 1.5 Degrees Celsius Warming Target?

➢ **Paris Agreement** aims to **limit the temperature increase to 2 degrees Celsius** by the end of this century. This target is considered significant, but there are a couple of important things to remember.

Note:

○ Even though countries have been talking about this issue for over 20 years, the **amount of carbon emissions released into the atmosphere has not decreased** as much as needed.

○ The **2 degrees Celsius target was not determined based on strict scientific evidence**. Instead, it was initially proposed by an economist named **William Nordhaus in the 1970s**.

○ Later on, some politicians and climate scientists adopted this target.

➤ The **Alliance of Small Island States** pushed for the target to be lowered to **1.5 degrees Celsius**, leading to further retrofitting of future scenarios to **meet this goal.**

○ **According to the Intergovernmental Panel on Climate Change (IPCC),** the leading scientific body on climate change, if current trends continue, the **world is likely to reach 1.5°C of warming by 2030-2052.**

○ Also, IPCC Special Report on the difference in impacts between 1.5°C versus 2°C warming suggests that **tropical countries such as India** are projected to experience the largest impacts on economic growth because of climate change.

How will Climate Change-induced Warming Impact India?

➤ **About**:

○ According to a recent study by the **Indian Institute of Tropical Meteorology (IITM)**, India's average temperature has increased by **about 0.7°C during 1901-2018**, with more rapid warming in recent decades.

➤ **Impacts:**

○ **Agriculture:** India's agriculture is heavily dependent on monsoon rains, and **any alterations in rainfall patterns due to warming** can significantly affect crop yields.

● It would lead to **erratic monsoons, increased frequency of droughts,** and extreme weather events like heatwaves that will reduce agricultural productivity, posing a threat to food security and livelihoods of millions of farmers.

○ **Public Health**: Warmer temperatures may lead to the spread of diseases like **malaria, dengue, and other vector-borne illnesses** as the range of disease-carrying organisms expands.

● Heatwaves can increase heat-related illnesses and mortality rates, especially among vulnerable populations, putting pressure on the healthcare system.

○ **Ecosystems and Biodiversity:** Warming can disrupt ecosystems and trigger **shifts in vegetation patterns**, altering habitats for various plant and animal species.

● **Many endemic species in India may face extinction** or be forced to migrate to more suitable areas, leading to disruptions in the ecological balance and biodiversity loss.

○ **Coastal Vulnerability**: India has an extensive coastline, and rising sea levels due to warming can **result in coastal erosion, inundation of low-lying areas**, and increased frequency of extreme weather events like cyclones.

● This poses a threat to coastal communities, infrastructure, and economic activities.

○ **Migration and Social Disruptions:** As climate-induced challenges intensify, there could be a rise in **climate-induced migration**, with people moving from severely impacted regions to more habitable areas.

● This could lead to **social tensions, resource competition, and strain on urban centers**, leading to challenges for policymakers.

➤ **Government Initaitives:**

○ **National Action Plan on Climate Change (NAPCC)**

● There are 8 national missions forming the core of the NAPCC including **National Solar Mission, National Mission on Sustainable Habitat etc.**

○ **National Adaptation Fund on Climate Change (NAFCC)**

○ **India Cooling Action Plan**

○ **LiFE Initiative**

Ludwigia peruviana Threatens Elephant Habitats in Tamil Nadu

Why in News?

An Invasive weed called *Ludwigia peruviana* is posing a significant threat to **elephant habitats** and foraging areas in Valparai, Tamil Nadu.

Note:

What is Ludwigia peruviana?

➤ **About:**
  ○ *Ludwigia Peruviana*, also known as **primrose willow**, is originally native to **Central and South America.**

  ○ It is an aquatic plant that was likely introduced as an **ornamental species** due to its **attractive pale yellowish flowers.**
  ○ However, its introduction to new regions has resulted in it becoming an invasive weed, causing **ecological disruptions in various swampy areas worldwide.**

➤ **Characteristics:**
  ○ Ludwigia Peruviana grows **relatively tall, reaching a height of about 12 feet.**
  ○ As an aquatic plant, it thrives in **wetlands and water bodies.**
  ○ It grows faster than many other harmful weeds, and the pre-monsoon temperature and monsoon rains contribute to its rapid growth and spread.

➤ **Impact on Elephants and Wildlife and Biodiversity:**
  ○ The invasion of Ludwigia Peruviana poses a significant threat to elephant habitats, **disrupting the growth of essential food sources for elephants** and other plant-eating animals.
  ○ The spread of this invasive weed also impacts the overall biodiversity of invaded areas, leading to the loss of native plant species and potentially **forcing wildlife to move to other areas, resulting in negative interactions with humans.**

➤ **Challenges in Prevention:**
  ○ Ludwigia Peruviana is listed as one of the **22 priority invasive plants in Tamil Nadu**, emphasizing the urgency of containment and control measures.
  ○ The elimination of Ludwigia presents a unique challenge compared to other invasive plants because it **grows in swamps, limiting the use of machinery** to tackle the problem **without damaging the ecosystem further.**
  ○ Manual removal is tricky because the **plant breaks easily** and **new growth can emerge from root or broken stems.**
  ○ **Hand-pulling and digging roots** can be effective.

Saltpan Workers of Little Rann of Kutch

Why In News?

On July 18, 2023, **saltpan workers (commonly known as agariyas)** presented a representation to Gujarat Chief Minister and urged the state to intervene in response to instructions from forest department that restricted their entry into the Little Rann of Kutch.

What is the Order of the Forest Department?

➤ **Little Rann of Kutch declared a wild ass sanctuary in 1972.**
  ○ Settlement survey conducted in 1997, permitting salt cultivation and leasing land to saltpan workers. Traditional agariyas were excluded from the benefits of the settlement survey.

➤ **Legal Implications:**
  ○ Ongoing scrutiny of the 1997 settlement survey is being done by Gujarat High Court and National Green Tribunal involved in the resolution of land-poaching activities.

What are the Arguments Raised by Agariyas in Their Defence?

➤ **Wild Ass Population Growth vs. Man-Animal Conflict:** Census data shows a significant rise in the wild ass population in the area from 700 in 1973 to 6,082 in 2019.
  ○ Census data ruled out the possibility of man-animal conflict in the Wild Ass Sancutry due to work of Saltpan workers.

➤ **Saltpan Workers' Land Use:** Saltpan workers use only 6% of the total land area for salt cultivation in Little Rann of Kutch, which is negligible in both quantity and space.

➤ **Concerns against improper Survey:** In meetings held at 16 out of 100-125 villages, forest department officials removed the names of 95% of the 8000 families of agariyas (saltpan workers).
 ○ Most of the agariyas listed in the settlement survey report are not alive.

Who are the Saltpan Workers?

➤ **Koli, Sandhi, and Miyana communities** residing in 100-125 villages around the Little Rann of Kutch in North

Gujarat, Kutch, and Saurashtra regions are dependent on salt cultivation in the area **called Saltpan workers.**

○ They are engaged in the profession for 600-700 years, dating back to the British rule.
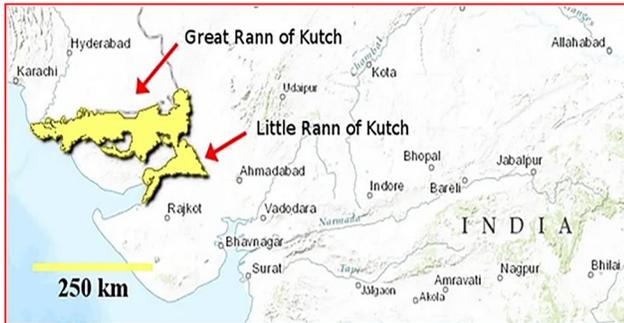
➢ **About Wild Ass Sanctuary:**
  ○ **Location**: It is in the **Little Rann of Kutch** of the **Gujarat** State in India.
  ○ It is the **only place where the Indian wild ass,** locally called Khacchar, **is found**.
  ○ The sanctuary is home to a sizeable population of **Rabari and Bhar wad tribes.**
➢ **Key Facts about Indian Wild Ass:**
  ○ It is a **sub-species of Asian Wild Ass**, i.e., Equus hemionus.

  ○ It is characterized by **distinctive white markings** on the anterior part of the rump and on the posterior part of the shoulder and a **stripe down the back that is bordered by white**.
  ○ **Distribution**: **World's last population** of Indian Wild Ass is restricted to **Rann of Kachchh**, Gujarat.
  ○ **Habitat**: **Desert and grassland ecosystems**.
  ○ **Conservation Status:**
    • **IUCN: Near threatened**.
    • **CITES: Appendix II**
    • **Wildlife Protection Act (1972): Schedule-I**

Desiccation-Tolerant Plant Species

Why in News?

New study discovers 62 desiccation-tolerant vascular plant species in India's Western Ghats, with potential applications in agriculture & conservation. These species of plants can withstand harsh environments.

➢ A recent study by scientists from **Agharkar Research Institute (ARI)** Pune, an autonomous institute of the **Department of Science and Technology (DST),** has identified **62 DT species** in the **Western Ghats**, many more than the earlier known nine species.

What is DT Plant?

➢ Desiccation-tolerant vascular (DT) plants are able to tolerate the desiccation of their vegetative tissues. DT plants are the most common residents of tropical rock outcrops.
➢ DT plants can survive high dehydration, losing up to 95% of their water content.
  ○ Dehydration in plants occurs when the plant loses more water than it takes in.

Desiccation-tolerant plant
Corallodiscus lanuginosus

➢ **Population:**
  ○ As per the study, the global population of these species' ranges between 300 and 1,500.
    • Out of the 62 species found, 16 are native to India and 12 are restricted to Western Ghats outcrops.
➢ **Habitation:**
  ○ DT plants can be found in both tropical and temperate regions.
  ○ They can quickly regenerate when water supplies are restored and are frequently found on rocky outcrops in the tropics.

Note:

o It is crucial for the world's warming that some species can thrive at higher temperatures.

o Hydration and desiccation resistance are two widely studied mechanisms for plants in harsh environments.

● Hydration is a situation in which plant tissues can withstand more than 30% water content.

o Indian desiccation tolerant plants are primarily found in forest rock outcrops and partially shaded tree trunks. Ferricretes (a hard, erosion-resistant layer of sedimentary rock) and basaltic plateaus (plateaus produced by volcanic activity) seemed to be the preferred habitats.

o **Glyphochloa goaensis**, **Glyphochloa ratnagirica** and **Glyphochloa santapaui** were found only on ferricretes (a hard, erosion-resistant layer of sedimentary rock), while the rest of the species were found in both ferricretes and basaltic (plateaus produced by volcanic activity) plateaus.

o The dominant genus was **Glyphochloa**, with mostly annual species occurring on plateaus.

➢ **Characteristic:**

o The DT species showed colour variations and morphological characteristics.

● **Tripogon species** changed colours from greyish in dry conditions to green in hydrated situations.

● In **Oropetium thomaeum**, the leaf cloud transformed from green to dark purple or orange in the hydrated phase and ranged from brownish to ash in the desiccation phase.

● Ferns (fronds) displayed a variety of characteristics, including curling inwards towards the costa, exposing spores at the start of the dry season and during brief dry spells.

o This, however, was not true for all species. In the case of **C lanuginosus**, the leaves folded and shriveled inward to shield the **chlorophyllous portion**, avoiding direct sunlight exposure during the desiccation phase.

➢ **Significance:**

o Desiccation-resistant vascular plant genes can be used to develop a high temperature tolerant crop variety to boost climate resilience.

● The discovery of the desiccation-tolerant (DT) vascular plants has **agricultural uses**, particularly in locations where water is scarce.

o These plants' genes could be exploited to develop a high-temperature tolerant crop variety to boost climate resilience and ensure mass food security.

Project Cheetah and Radio Collar Infections

Why in News?

Recently, the use of **radio collars** in the **cheetah reintroduction project** in **Kuno Wildlife Sanctuary,** Madhya Pradesh, India, has resulted in unexpected setbacks, with cheetahs experiencing neck wounds and septicaemia, an infection of the blood by bacteria.

➢ This situation has raised concerns among experts familiar with collaring practices in India and Africa.

What are Radio Collars?

➢ **About:**

o Radio collars are used to **track and monitor animals in the wild.**

o They consist of a **collar with a small radio transmitter.**

o Collars provide **data on animal behavior, migration, and population dynamics.**

● They can be combined with GPS or accelerometers for additional information.

o Collars are designed to be **lightweight and comfortable for animals.**

o Potential risks and challenges, such as injuries or infections, must be managed.

➢ **Challenges Associated with Radio Collars:**

o **Festering Neck Wounds and Septicaemia:**

● **Two cheetahs in Kuno died due to suspected septicaemia** caused by festering neck wounds from radio collars.

■ Additional cheetahs, including Oban, Elton, and Freddie, have exhibited similar injuries.

● These setbacks have raised concerns about the use of radio collars in the cheetah reintroduction project.

➢ **Problems with Long-term Collar Usage:**

o Carrying something on the body for an extended period can have downsides, as seen in studies on watch wearers and pet dogs.

Note:

- **Staphylococcus aureus bacteria** presence was higher on watch wearers' wrists, which can lead to sepsis or death.
- Dogs wearing collars can develop **acute moist dermatitis or hot spots, aggravated by ticks or fleas.**
- Tight-fitting collars can cause **pressure necrosis and rapid hair loss around the neck**, similar to bedsores.

➢ **Weight Considerations:**
- Globally, the general guideline is to keep **radio collar weight below 3% of the animal's body weight.**
- Modern collars for wild cats typically weigh **around 400g,** which is suitable for cheetahs weighing between 20 kg and 60 kg.
  - However, fitting collars on cheetahs can be challenging due to their **small necks, especially for younger animals.**

➢ **Vulnerability to Collar-Induced Injuries:**
- Cheetahs' winter coat, **which is thicker and furrier than that of tigers or leopards,** can retain more water and take longer to dry.
- In a 2020 study, the collar weight rule was criticized for not considering **animal athleticism,** revealing that **collar forces can surpass the collar's weight during movement**.
  - For instance, the forces exerted by collars were found to be generally **equivalent to up to five times the collar's weight for a lion and a staggering 18 times for a cheetah.**
- African Cheetahs may be **more susceptible to local pathogens compared to Indian tigers and leopards**, potentially due to differences in immunity and environmental conditions.

➢ **Lack of Adaptation to Monsoon Conditions:**
- Secondary bacterial infections under collars are not commonly reported in **African conditions due to drier skin between rain spells.**
- In historical times, **cheetahs in India did not wear collars during the monsoon and may have adapted differently to the local climate.**

➢ **Implications for the Reintroduction Project:**
- Tracking, immobilizing, and assessing cheetahs for neck injuries poses challenges and potential delays.
- The absence of a clear roadmap for the next monsoon raises questions about re-collaring cheetahs and their well-being.

What is Cheetah Reintroduction Project in India?

➢ **About:**
- The Cheetah Reintroduction Project in India formally commenced on **September 17, 2022,** with the objective of restoring the **population of cheetahs,** which were declared **extinct in the country in 1952.**
- The project involves the translocation of cheetahs from South Africa and Namibia to Kuno National Park in Madhya Pradesh.

➢ **Reintroduction Process:**
- **20 radio-collared cheetahs** were translocated from **South Africa (12 cheetahs) and Namibia (8 cheetahs) to Kuno National Park.**
  - In March 2023, India announced the **birth of 4 cubs** to one of the eight cheetahs that were relocated from Namibia.
- The cheetahs underwent a **quarantine period** and were then shifted to larger acclimatization enclosures.
- Currently, there are **11 cheetahs in free-ranging condition** and **5 animals, including a cub**, in quarantine enclosures.
- Dedicated monitoring teams ensure round-the-clock monitoring of the free-ranging cheetahs.

➢ **Mortalities:**
- 8 cheetahs have died in Kuno National Park due to natural causes.
- Preliminary analysis by the **National Tiger Conservation Authority (NTCA)** indicates that the **deaths were natural and not related to other factors like radio collars.**

➢ **Project Implementation and Challenges:**
- The project is implemented by the NTCA in collaboration with the **Madhya Pradesh Forest Department, Wildlife Institute of India (WII),** and cheetah experts from Namibia and South Africa.
- Challenges in the project include monitoring, protection, and management of the reintroduced cheetah population.

➢ **Conservation Efforts and Measures:**
- Consultation with international cheetah experts and veterinary doctors from South Africa and Namibia is ongoing to investigate the cause of cheetah deaths.

Note:

drishti

○ Independent national experts are reviewing monitoring protocols, protection status, managerial inputs, veterinary facilities, training, and capacity building.

○ Efforts are underway to establish a **Cheetah Research Center,** expand forest areas under **Kuno National Park's administrative control**, provide additional frontline staff, establish a Cheetah Protection Force, and create a second home for cheetahs in **Gandhi Sagar Wildlife Sanctuary.**

○ The government is committed to conserving the reintroduced cheetah population and ensuring its long-term success.

Cheetah

Common Name – Cheetah

Scientific Name – *Acinonyx jubatus*
- *Acinonyx jubatus jubatus* (African Cheetah)
- *Acinonyx jubatus venaticus* (Asiatic Cheetah)

Reintroduction of Cheetah to India:

- The "Action Plan for Introduction of Cheetah in India" was released by MoEF&CC at the 19th meeting of the National Tiger Conservation Authority (NTCA) (January 2022).
  - Such a plan was first proposed in 2009.
- In September 2022, eight cheetahs landed in India from Namibia.
  - The 8 cheetahs have been relocated to the Kuno-Palpur National Park, Madhya Pradesh.
  - The relocation of cheetahs to India from Namibia is the world's first inter- continental large wild carnivore translocation project.

Slightly brownish and golden skin; thicker than the Asiatic Cheetahs

More prominent spots and lines on the face

Found all over the African continent

IUCN Red List Status - Vulnerable

African Cheetah

Slightly smaller than the African ones.

Pale yellowish fawn coloured skin – more fur under body, belly specifically.

Found only in Iran; the country claims there are only 12 of them left. Year 1952 – Asiatic Cheetah officially declared extinct from India.

IUCN Red List Status – Critically Endangered

Asiatic Cheetah

Drishti IAS

India's Only Ape Species: The Hoolock Gibbon

Why in News?

The conservation status of India's sole ape species, the **hoolock gibbon**, has become a **pressing global concern**.

➢ The **Global Gibbon Network (GGN)** recently convened its inaugural meeting in **Haikou, China's Hainan province,** shedding light on the critical situation faced by these primates.

> **Note: Global Gibbon Network** was initiated at the **International Gibbon Day 2020** event, representatives from 20 gibbon conservation organizations came together for the first time to discuss gibbon conservation.

What are the Key Facts about Hoolock Gibbon?

About:

○ Gibbons, known as the **smallest and fastest of all apes**, inhabit tropical and subtropical forests in Southeast Asia.

- They have **high intelligence, distinct personalities,** and strong family bonds similar to other apes.

○ They represent **one of the 20 gibbon species found worldwide.**

➢ **Population and Habitat:**

○ The current population of hoolock gibbons is estimated to be around **12,000** individuals.

○ They are found in forested areas of **Northeast India, Bangladesh, Myanmar and Southern China.**

➢ **Gibbon Species in India**:

○ **Two distinct hoolock gibbon species** are found in India's northeastern region: the **eastern hoolock gibbon** (*Hoolock leuconedys*) and the **western hoolock gibbon** (*Hoolock hoolock*).

○ A recent study by the **Centre for Cellular and Molecular Biology (CCMB)** in Hyderabad analyzed the genetics of these gibbons.

- The study revealed that there is actually **only one species of gibbon in India**, debunking the previous belief of separate eastern and western species based on coat color.

Note:

drishti

- The genetic analysis showed that the populations previously thought to be **eastern and western hoolock gibbons diverged approximately 1.48 million years ago.**
- The study also estimated that **gibbons diverged from a common ancestor around 8.38 million years ago.**

➢ **Threats:**

○ All 20 gibbon species, including hoolock gibbons, are at a **high risk of extinction** due to conservation challenges.

○ Gibbon populations and their habitats have significantly declined over the past century, **leaving small populations restricted to tropical rainforests.**

○ In India, the primary threat to hoolock gibbons is the **loss of their natural habitat** caused by deforestation for infrastructure projects.

➢ **Conservation Status:**

○ **International Union for Conservation of Nature's Red List:**

- Western Hoolock Gibbon: **Endangered**
- Eastern Hoolock Gibbon: **Vulnerable**.

○ Also, both the species are listed on **Schedule 1 of the Indian (Wildlife) Protection Act 1972.**

South Indian Cicada Species Gets a New Identity

Why in News?

Recent taxonomic research has unveiled a significant discovery regarding a **cicada** species commonly found in South India.

➢ Previously mistaken for the **Malaysian species _Purana tigrina_,** this cicada has now been identified as a distinct species named **_Purana cheeveeda_**.

➢ The study also highlights the **potential implications of the cicada's distribution for ecological assessments.**

What are the Major Findings of the Research?

➢ P. cheeveeda's distribution extends across **tropical evergreen forests** from **Goa to Kanyakumari in South India.**

➢ This discovery supports a high degree of endemism among cicadas.

➢ The **declining presence of cicadas in homesteads** may indicate the **deterioration of soil quality and vegetation.**

What are Cicadas?

➢ **About:**

○ Cicadas are insects that belong to the order **Hemiptera** and the superfamily **Cicadoidea**.

○ Hemipteran insects, also called **true bugs,** have mouthparts used for piercing and sucking and have two pairs of wings.

○ They have **large eyes, transparent wings and loud calls** that are produced by special organs called **tymbals**.

➢ **Dietary Pattern and Life Cycle:**

○ Cicadas are mostly **herbivorous and feed on plant sap** using their piercing and sucking mouthparts.

○ They have complex life cycles that involve **long periods of underground development** and short periods of adult emergence.

➢ **Habitat:**

○ Most cicadas are **canopy dwellers** and are found in **natural forests with large trees;** found in every continent except **Antarctica.**

○ The **generic diversity of cicadas in India and Bangladesh ranks the highest** in the world, followed by **China**.

➢ **Significance:**

○ Cicadas are important for biodiversity because they **provide food for many predators**, **pollinate flowers, aerate the soil,** recycle nutrients and indicate environmental health.

➢ **Major Threat:**

○ **Human development activities** reduce the number of trees that cicadas depend on for feeding and reproduction.

○ Climate change may **disrupt the timing and synchronization of cicada emergence**.

○ **Pesticides, herbicides and fungicides** contaminate the soil and water and affect the health and survival of cicadas and their host plants.

Note:

Climate Change Alters Ocean Colour

Why in News?

Recently, a new study reveals that **56% of the world's oceans** have experienced a **change in colour due to climate change.**

➢ Tropical waters, particularly the **southern Indian Ocean,** have **turned green,** indicating an **increase in phytoplankton** and marine life.

What are the Key Highlights of the Study?

➢ **Long-Term Trends and Data Analysis:**
  ○ **Aqua Satellite Data:**
    ● Researchers analyzed data from the **Moderate Resolution Imaging Spectroradiometer (MODIS)** on the **Aqua satellite (NASA's Earth Science satellite mission)**, monitoring ocean colour for two decades (2002-2022).
    ● MODIS takes measurements in seven **visible wavelengths (Light of different wavelengths produces different perceptions of colour).**
  ○ **Subtle Colour Changes:**
    ● Human eyes cannot detect subtle colour changes in the oceans, which may contain a **mix of wavelengths ranging from blue to green and even red.**
  ○ **Green Waters and Phytoplankton:**
    ● The study finds that **green-coloured water indicates the presence of phytoplankton,** essential microscopic plant-like organisms.
    ● Phytoplankton serve as the **base of the marine food web,** similar to plants on land, and play a crucial role in supporting marine life.
      ■ The colour of the ocean affects the amount of carbon dioxide absorbed by the oceans, with current estimates indicating that **oceans absorb 25% of global CO_2 emissions.**
  ○ **Role of Climate Change:**
    ● By comparing annual variations in ocean colour over the two decades, the study identified climate change as the primary factor behind the observed changes.

● Using a model, researchers simulated two scenarios—**one considering greenhouse gas emissions** and the other without them.

● The scenario accounting for greenhouse gas emissions predicted that **colour changes could occur** in approximately **50% of the world's surface oceans,** aligning with satellite observations indicating **a 56% shift to green or blue waters.**

○ **Implications for Marine Life and Conservation:**
  ● **Impact on Organisms:**
    ■ The green **hue comes from chlorophyll**, a pigment that helps phytoplankton make food. A change in colour due to an increase or decline in the population will **impact organisms that feed on plankton.**

○ **Carbon Sequestration:**
  ● Different types of plankton have varying abilities to absorb carbon, potentially influencing the ocean's capacity for carbon uptake.

○ **Regional Variability and the Need for Further Study:**
  ● The **southern Indian Ocean exhibits significant changes in colour,** while waters near India do not follow the same trend, potentially due to natural variability.

➢ **Recommendations:**
○ Researchers emphasize the need for individuals and policymakers to recognize the significance of these changes and take appropriate action to protect **marine ecosystems.**

○ Ongoing monitoring and further research are crucial to understanding regional variations and the full extent of climate change's impact on ocean colour.

What are India's Climate Change Mitigation Initiatives?
➢ **National Action Plan on Climate Change (NAPCC):**
  ○ Launched in 2008 to **address climate change challenges** in India.
  ○ Aims to **achieve low-carbon and climate-resilient development for India.**
  ○ There are **8 national missions** forming the core of the NAPCC which represent multi-pronged, long term and integrated strategies for achieving key goals in climate change. These are-
    ● **National Solar Mission**
    ● **National Mission for Enhanced Energy Efficiency**
    ● **National Mission on Sustainable Habitat**

Note:

- National Water Mission
- National Mission for Sustaining the Himalayan Ecosystem
- National Mission for A Green India
- National Mission for Sustainable Agriculture
- National
- Mission on Strategic Knowledge for Climate Change.
- Nationally Determined Contributions (NDC)
- National Adaptation Fund on Climate Change (NAFCC):
- State Action Plan on Climate Change (SAPCC).

➤ **Nationally Determined Contributions (NDC):**
  ○ India's commitments to reduce greenhouse gas emissions and adapt to climate change.
  ○ Pledged to **reduce the emissions intensity of GDP by 45%** by 2030 from 2005 levels and generate **50% of electricity from non-fossil fuel sources by 2030.**
  ○ Pledged to create additional carbon sink and **achieve net zero emissions by 2070.**

➤ **National Adaptation Fund on Climate Change (NAFCC):**
  ○ Established in 2015 **to provide financial assistance to state governments for implementing adaptation projects** in various sectors.

➤ **State Action Plan on Climate Change (SAPCC):**
  ○ Encourages all states and union territories to prepare their own SAPCCs based on their specific needs and priorities.
  ○ SAPCCs outline strategies and actions for addressing climate change at the sub-national level.
  ○ Aligned with the objectives of the NAPCC and the NDC.

Promoting Coal Gasification in India

Why in News?

The Ministry of Coal is considering a Comprehensive Scheme to promote **Coal Gasification**, aiming to achieve **100 Million Tonne (MT) coal Gasification by FY 2030**.

➤ The Ministry is also considering an incentive to reimburse the **Goods and Services Tax (GST) compensation cess** on coal utilized in gasification projects for a period of 10 years after the commercial operational date (COD), provided that the GST compensation cess is extended beyond FY27. This incentive aims to offset the i**nability of entities to claim Input Tax Credit for the same.**

What are the Key Points of the Scheme?

➤ **About:**
  ○ The initiative incorporates a comprehensive set of **measures that capitalize on natural resources** and demonstrate financial and technical feasibility of **Coal Gasification.**
  ○ It aims to attract Government PSUs and the Private Sector, fostering innovation, investment, and sustainable development in the coal gasification sector.

➤ **Process:**
  ○ The selection of entities for the coal/lignite gasification scheme will be carried out through a competitive and transparent bidding process.
  ○ The government will provide **budgetary support to eligible Government PSUs**, and Private sector enabling them to undertake coal gasification projects.

➤ **Significance:**
  ○ This initiative holds the potential to alleviate the **environmental burden by reducing carbon emissions** and fostering sustainable practices, contributing to our global commitments towards a greener future.

What is Coal Gasification?

➤ **About:**
  ○ Coal gasification is a process in which **coal is partially oxidized with air, oxygen, steam or carbon dioxide** to form a fuel gas.
  ○ This gas is then used i**nstead of piped Natural Gas**, methane and others for deriving energy.
  ○ In-situ gasification of coal – or **Underground Coal Gasification (UCG)** – is the technique of converting coal into gas while it is still in the seam and then extracting it through wells.

➤ **Production of Syngas:**
  ○ It produces **Syngas** which is a mixture consisting primarily of **methane (CH_4), carbon monoxide (CO), hydrogen (H_2), carbon dioxide (CO_2)** and water vapour (H_2O).
  ○ Syngas can be used to produce a **wide range of Fertilizers, Fuels**, solvents and synthetic materials.

➤ **Significance:**
  ○ Steel companies can **reduce costs by replacing expensive imported coking coal with syngas** from coal gasification plants in their manufacturing process.
  ○ It is primarily used for electricity generation, for the production of chemical feedstocks.
  ○ The hydrogen obtained from coal gasification can be used for various purposes such as making ammonia and powering a hydrogen economy.

Basics of coal gasification process

Oxygen

Coal

Water

Extreme conditions
1. Pressure > 30 kg/sq cm
2. Temperature 725 - 1225 deg C
3. Corrosive slag and H2S gas

Syngas(CO + H2)
(CO/H2 ratio adjustable)
By-products
H2S, CO2, and slag

Cleaning of syngas
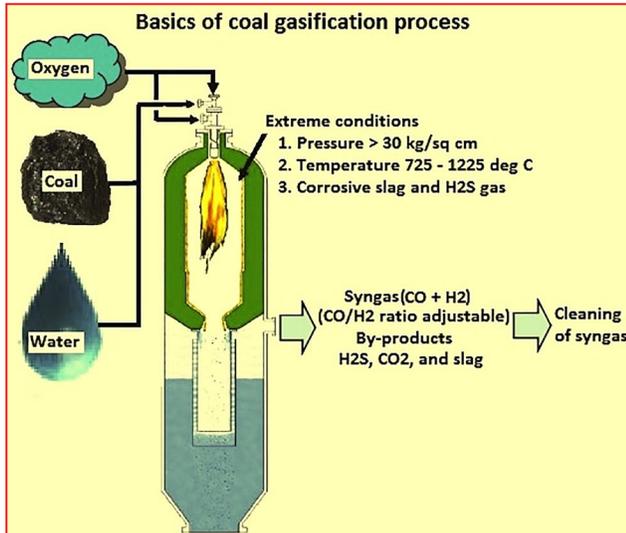
➤ **Concerns:**
  ○ The syngas process converts a **relatively high-quality energy source (coal) to a lower quality state (gas)** and consumes a lot of energy in doing so. Thus, the efficiency of conversion is also low.

### What is the Need for Promoting Coal Gasification Projects in India?

➤ The adoption of gasification technology in India can **revolutionize the coal sector, reducing reliance on imports** of Natural Gas, Methanol, Ammonia and other essential products.
  ○ Currently, India i**mports approximately 50% of its Natural Gas**, over 90% of its total Methanol consumption and around 13-15% of its total ammonia consumption to cater to the domestic demand.
  ○ It can contribute to India's vision of becoming **Aatmanirbhar** and create a surge in employment opportunities.
  ○ The implementation of **coal gasification is expected to make significant contributions** to the nation's development by reducing imports by 2030.

Climate Shifts in Kaas Plateau

Why in News?

A recent study conducted by the **Agharkar Research Institute (ARI)** and the National Centre for Earth Sciences has shed light on significant climate shifts in the **Kaas Plateau** during the Early-Mid-Holocene and late **Holocene Periods.**

➤ The researchers studied the **sediments of a seasonal lake** to understand and decipher the **past climate of the Kaas Plateau.**
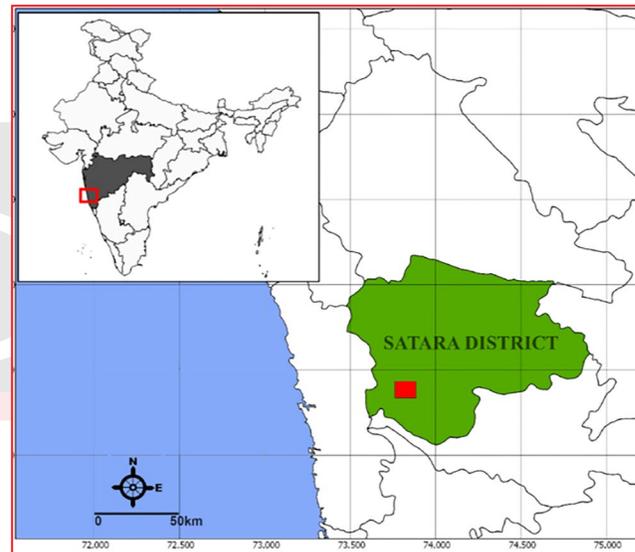
SATARA DISTRICT

What is Kaas Plateau?

➤ The Kaas Plateau, located in Maharashtra's Satara district, is a **UNESCO** World Natural Heritage Site and a designated biodiversity hotspot.
➤ Known as Kaas Pathar in Marathi, its name is derived from the **Kaasa tree, botanically known as *Elaeocarpus glandulosus* (rudraksha family).**
➤ The plateau have various seasonal flowers forming a **floral carpet over the entire lateritic crust during August and September.**

What are the Key Findings of the Study?

➤ **Ancient Lake and Environmental Preservation:**
  ○ The present "Flower Wonder" of the Kaas Plateau is located on an ancient lake that dates back to the **Early-Mid-Holocene period,** approximately 8000 years ago.

Note:

drishti

○ The seasonal lake has been preserved **over a long time and provided valuable insights** into the past climate of the region.

➢ **Climate Shifts during the Early-Mid-Holocene:**
○ Around 8664 years ago, there was a change in the climate from freshwater to drier conditions with low rainfall.
○ **Pollen and diatom data indicated a major shift** in the Indian summer monsoon activity during this time.
○ Despite the drier conditions, there were **intermittent humid periods suggested by a significant rise** in the number of diatoms.

➢ **Late Holocene Climate Changes:**
○ During the late Holocene, approximately 2827 years ago, there was a **decrease in rainfall** and a weakened **Southwest Monsoon.**

➢ **Recent Environmental Impact:**
○ Over the last 1000 years, there is evidence of **lake Eutrophication**, indicated by the presence of high numbers of planktonic and pollution-tolerant diatom taxa.
  ● Eutrophication is the process of **a water body becoming overly enriched with minerals and nutrients** which induces **excessive growth of algae or algal bloom**, thereby, leading to oxygen depletion of the water body.
○ Human activities, including agriculture and cattle/livestock farming in the catchment area, likely contributed to this environmental impact.

➢ **Monsoon Intensity and Duration:**
○ The southwest monsoon intensified during the **Early Holocene, around 8000 years ago.**
○ The northeast monsoon relatively weakened around 2000 years ago.
○ It is likely that the 'Flower Wonder' of the Kaas Plateau existed for a longer duration, up to March-April, during the early–mid-Holocene (8000–5000 years), when the monsoon rainfall was more abundant, with more than 100 rainy days.

Note:

Security

Highlights

● *Left Wing Extremism in India*

Left Wing Extremism in India

Why in News?

In a recent announcement, the **Ministry for Home Affairs** revealed that starting from 2022, India is maintaining separate data for incidents involving **Left Wing Extremists**.

➤ **LWE** has been a significant security challenge in India for several decades, particularly in regions affected by civil unrest and armed conflicts.

What is Left Wing Extremism?

➤ **About**:
  ○ **Left-wing extremism**, also known as left-wing terrorism or radical left-wing movements, refers to political ideologies and groups that advocate for significant **societal and political change through revolutionary means.**
  ○ LWE groups may target **government institutions, law enforcement agencies,** or private property to further their agenda.
  ○ The LWE movement in India originated in a **1967 uprising in Naxalbari, West Bengal.**

➤ **Status in India:**
  ○ Union Home Ministry has stated that violence related to LWE had come down by **76% in 2022 as compared to 2010**
    ● Also, there has been a decrease in the geographical spread of violence as o**nly 46**

districts reported LWE-related violence in 2021, compared to 96 districts in 2010.

➤ **Responsible Factors for LWE:** The **2006 D Bandopadhyay Committee** identified governance gaps and extensive discrimination against tribals in economic, socio-political, and cultural spheres as the primary causes of Naxalism's proliferation.

  ○ **Socio-economic Disparities:** India has significant socio-economic disparities, with large sections of the population living in poverty and facing issues such as, **unemployment, and lack of access to basic amenities.**
    ● Left-wing extremist groups have historically **capitalized on these grievances** and used them to gain support among the marginalized communities.

A map of India's Maoist conflict

A crackdown on Maoist rebels has led to a rise in the number of casualties in the country's tribal areas. Here are the regions that are most affected.

■ Highly affected
■ Moderately affected
■ Marginally affected
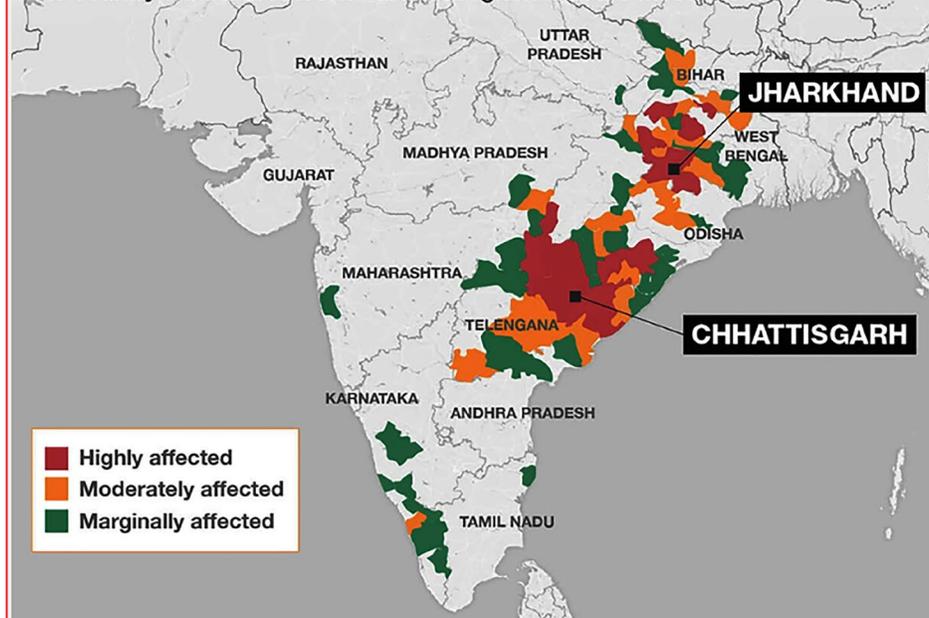
Note:

○ **Land Alienation and Displacement:** The issue of land rights and land alienation has been a major concern for many rural communities in India.

- The development projects and acquisition of land for industrial purposes have sometimes led to the **displacement of local communities** without adequate compensation or rehabilitation.
  - This has been a **focal point of Naxalite agitation.**

○ **Adivasi Rights:** India is home to a significant number of Adivasis, **who are indigenous communities** with their distinct cultures and traditions.

- Left-wing extremist groups often advocate for Adivasi rights and resist **perceived exploitation of their resources** and displacement from their ancestral lands.

➢ **Government Initiatives:**

○ **'National Policy and Action Plan to address Left Wing Extremism 2015:** The plan adopted a comprehensive approach that involved various facets of **governance, security, and development.**

- It aims to enhance the capabilities of security forces to combat LWE and contain its spread.

- It ensures that the **rights and entitlements of local communities are safeguarded**, thereby reducing grievances that fuel extremist ideologies.

- It also focuses on **socio-economic development in affected regions** to address the root causes of extremism and improve the lives of local communities.

○ **Juvenile Justice (Care and Protection of Children) Act, 2015:** The Juvenile Justice Act, enacted in 2015, plays a crucial role in **protecting children affected by LWE**, particularly those in distress situations, including:

- **Children in Conflict with Law (CCL):** Children involved in illegal activities related to LWE are provided with care and protection through this act.

- **Children in Need of Care and Protection (CNCP):** Children who are victims of or affected by armed conflicts, civil unrest, or natural calamities are recognized as needing care and protection under this act.

- **Criminal Prosecution:** The act makes it clear that any **non-state, self-styled militant group** or outfit r**ecruiting or using children** for any purpose will face criminal prosecution.

○ **SAMADHAN:** It is the one-stop solution for the LWE problem. It encompasses the entire strategy of government from short-term policy to long-term policy formulated at different levels. SAMADHAN stands for-

- S- Smart Leadership,

- A- Aggressive Strategy,

- M- Motivation and Training,

- A- Actionable Intelligence,

- D- Dashboard Based KPIs (Key Performance Indicators) and KRAs (Key Result Areas),

- H- Harnessing Technology,

- A- Action plan for each Theatre,

- N- No access to Financing.

■■■

Note:

History

Highlights

- *Bal gangadhar tilak*

Bal gangadhar tilak

bal gangadhar tilak
(23 July 1856 - 1 August 1920)

One of the earliest, most vocal proponents of complete independence (Swarajya)

Brief Profile

- Also known as **Lokmanya Tilak**
- **Mahatma Gandhi** called him **"The Maker of Modern India"**
- Educationist: A prolific writer and journalist
- Co-founded: **Deccan Education Society** (1884) and **Fergusson College** (1885)

Social and Political Contributions

- **Ideology:** A devout Hindu; used Hindu scriptures to rouse people
- **Role in INC:** Joined in 1890; Significant role in **Surat Split (1907)** - wanted by extremists to preside over Surat Session
- **Slogan:** "Swaraj is my birthright, and I shall have it!"
- Lal-Bal- Pal Trio: Led the extremist group with **Lala Lajpat Rai** and **Bipin Chandra Pal**

Contribution to Freedom Movement

- Propagated swadeshi movement
- Led the **Indian Home Rule Movement** with **Annie Besant**
- Founded All India Home Rule League in April 1916

Lucknow Pact (1916) - signed between INC headed by Tilak and All-India Muslim League headed by Jinnah for Hindu-Muslim unity in nationalist struggle

Literary Works

- **Newspapers:** "Kesari" (Marathi) and "The Maratha" (English)
- **Books: Gita Rahasya** (his *Magnum Opus*) and **Arctic Home of the Vedas**

दृष्टि The Vision | d
Drishti IAS

...

Note:

drishti

Geography

Highlights

- *Flash Floods in Himachal Pradesh*
- *Lightning in India*

Flash Floods in Himachal Pradesh

Why in News?

The 2023 **Monsoon** rain in Himachal Pradesh has brought severe **Flash Floods** in many regions causing unprecedented loss of lives and assets.

What are Flash Floods?

➤ **About:**
  ○ They are **sudden surges in water levels** generally during or following an **intense spell of rain.**
    ● These are highly **localised events of short duration** with a very high peak and usually have less than six hours between the occurrence of the rainfall and peak flood.
  ○ The flood situation worsens in the **presence of choked drainage lines** or encroachments obstructing the natural flow of water.

➤ **Causes:**
  ○ It may be caused by heavy rain **associated with a severe thunderstorm**, hurricane, tropical storm, or meltwater from ice or snow flowing over ice sheets or snowfields.
  ○ Flash Floods can also occur due to Dam or Levee Breaks, and/or Mudslides (Debris Flow).

How have been the Instances of Precipitation in Himachal Pradesh (HP)?

➤ In the Himalayas, there is a noticeable **pattern of increased precipitation occurring in shorter periods** of time.
  ○ The **IPCC (Intergovernmental Panel on Climate Change) 6 report has clearly** stated that the Himalayas and coastal regions of India **will be the hardest hit by climate change.**

○ The **India Meteorological Department (IMD)** data shows that the normal rainfall during this period is expected to be between 720mm and 750 mm. However, in certain instances, it has exceeded **888 mm in 2010 and 926.9 mm in 2018.**

➤ In 2023, the precipitation in HP so far has been attributed to the combined effect of the **South-West Monsoon** with **Western Disturbances**.
  ○ The total rainfall from June to date **was 511 mm.**

What are the Factors of Such Flash Floods in Himachal Pradesh?

➤ **Developmental Model Led by Liberalization:**
  ○ Himachal Pradesh's development model **brought progress and ranked second in social development** for mountainous regions.
  ○ **Liberalization** led to fiscal reforms, self-reliance, however increased **exploitation of natural resources**, causing ecological impacts.

➤ **Hydropower Projects:**
  ○ Uncontrolled construction of the Hydropower Projects has turned **mountain rivers into mere streams**.
  ○ The diversion of water through tunnels and disposal of excavated material (muck) along riverbeds **exacerbate the impact during periods of heavy rainfall** or cloudbursts.
    ● Improper disposal of muck not only creates a **favorable situation for landslides during the rainy season** but **also clogs river valleys with heavy sediments dumped by humans**, leading to water diversion, overflow, **and, consequently, floods.**

➤ **Tourism and Road Expansion:**
  ○ Tourism-driven Road expansion has led to **four-lane and two-lane road transformations**, bypassing essential geological studies.

Note:

○ Vertical cutting roads of mountains during road construction has **resulted in landslides and damage to existing roads** during even normal rainfall, exacerbating **destruction during heavy rain or floods.**

- **Earlier** there were terraced and curved roads in mountains which were somewhat safer against landslides, but **the vertical roads** are more susceptible to landslides and erosion.

➤ **Cement Plants:**

○ Massive cement plant **establishment and extensive mountain cutting have altered land use patterns**, reducing the land's water absorption capacity, and contributing to **flash floods during rainfall.**

➤ **Changes in Crop Patterns:**

○ The shift to cash crop and horticulture economies over traditional cereal farming, which have implications for transportation **to markets within short timeframes, since they are perishable in nature.**

○ Hasty road construction for cash crops or larger farm fields without proper land cutting and drainage leads to **rapid swelling of rivers during rainfall**, further contributing to the floods.

What are the Government Initiatives to Tackle Flash Floods?
➤ National Flood Risk Mitigation Project (NFRMP)
➤ **National Disaster Management Plan (NDMP).**
➤ **National Disaster Management Authority** (NDMA).
➤ **India Meteorological Department** (IMD)
➤ **National Flood Management Programme**
➤ **Rashtriya Barh Ayog (National Flood Commission) 1976**

Lightning in India

Why in News?

Lightning has been a cause of concern in India, leading to a significant number of fatalities each year. As demands arise from states like **Bihar and West Bengal** to declare **lightning a natural disaster**, the Union government has taken a cautious stance.

➤ If approved, victims would be entitled to compensation from the **State Disaster Response Fund (SDRF)**, of which **75% is contributed by the Central government.**

Note:

At present **cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloudburst, pest attack, frost and cold waves** are considered disasters that are covered under the SDRF. This does not include lightning yet.

What is the Current Scenario of Lightening in India?

➤ **About:**

○ **Lightning** is a **powerful and visible electrical phenomenon** that takes place when there is a **buildup of electrical charges within clouds and between clouds and the ground.**

- The discharge of this electrical energy results in a **brilliant flash of light and a rapid expansion of air**, creating the characteristic thunder that accompanies lightning.

- **Cloud-to-ground (CG)** lightning is dangerous because it can electrocute people due to its high electric voltage and current.

○ India ranks among the **five countries worldwide** with an **early warning system for lightning.**

- The system provides forecasts ranging from **five days to as close as three hours before the occurrence of lightning.**

➤ **Lightning Fatalities: Statistics and Trends**

○ **National Crime Records Bureau (NCRB) Data**: In 2021**, lightning accounted for 2,880 deaths**, comprising **40% of all accidental deaths caused by "forces of nature."**

- The trend indicates an increase in lightning-related fatalities compared to other natural events.

➤ **Geographical Distribution in India:**

○ Lightning frequency is highest in northeastern states and West Bengal, Sikkim, Jharkhand, Odisha, and Bihar.

- However, the number of lightning-related deaths is higher in central Indian states like **Madhya Pradesh, Maharashtra, Chhattisgarh, and Odisha.**

○ Bihar is one of the **most vulnerable states to lightning strikes**, with a significant number of deaths reported annually.

- In 2023, till July 6, **Bihar recorded 107 deaths due to lightning.**

Note:

➢ **Union Government's View About Lightning:**
  ○ The **Union government opposes declaring lightning a natural disaster.** The government believes that education and awareness can help prevent lightning-related deaths effectively.

What are the Possible Factors Behind the Increasing Trend of Lightning Strikes?

➢ **Climate Change**: **Global warming** and **climate change** could potentially influence atmospheric conditions, leading to an increase in thunderstorms and lightning activity.
  ○ As the planet's temperature rises, there may be **changes in the distribution of moisture, instability, and convective processes** that could favor more frequent lightning occurrences.
  ○ Kalbaisakhi is a localised thunderstorm occurrence that is **accompanied by lightning,** typically observed during the **pre-monsoon season in the Indian subcontinent.**

➢ **Urbanization:** The expansion of urban areas can create what is known as the **"urban heat island effect."**
  ○ Cities tend to be warmer than surrounding rural areas due to increased **human activity, energy consumption**, and impervious surfaces.
  ○ These localized heat islands may lead to the formation of more thunderstorms and, consequently, an increase in lightning strikes.

➢ **Land Use Changes: Deforestation**, changes in agricultural practices, and alterations of natural landscapes may disrupt local atmospheric conditions.
  ○ Such changes might contribute to the development of thunderstorms and, consequently, more lightning.

➢ **Pollution and Aerosols**: Air pollution, including aerosols and particulate matter, can affect cloud formation and electrical activity within storms.
  ○ **Anthropogenic emissions** might influence the frequency and intensity of thunderstorms, potentially leading to more lightning strikes

Note:

Ethics

Highlights

- *Controlled Human Infection Studies and Ethical Concerns*

Controlled Human Infection Studies and Ethical Concerns

Why in News?

The **Indian Council of Medical Research's (ICMR)** Bioethics Unit has drafted a consensus policy statement addressing the ethical aspects of **Controlled Human Infection Studies (CHIS)**, opening the door for its potential implementation in India.

What is Controlled Human Infection Studies and Related Ethical Concerns?

➢ **About**:
- ○ CHIS is a research model that **intentionally exposes healthy volunteers to pathogens** under controlled conditions.
- ○ It has been utilized in various countries to study **diseases such as malaria, typhoid, and dengue.**

➢ **Benefits of CHIS Implementation:** ICMR recognizes that CHIS has the potential to provide numerous benefits for medical research and public health:
- ○ **Insights into Disease Pathogenesis:** CHIS can offer unique insights into **how diseases develop and progress,** leading to a deeper understanding of infectious diseases.
- ○ **Accelerated Medical Interventions:** By allowing researchers to study disease progression more rapidly, **CHIS can expedite the development of new treatments and vaccines.**

- ○ **Cost-effective and Efficient Outcomes:** CHIS requires **smaller sample sizes compared to large clinical trials**, making it a more cost-effective research model.
- ○ **Contributions to Public Health Response**: Findings from CHIS can inform public health responses, healthcare decision-making, and policy development.
  - Understanding disease dynamics through CHIS can enhance preparedness for future pandemics.
- ○ **Community Empowerment:** Involving communities in CHIS research can empower them to **take ownership of their health** and participate actively in healthcare initiatives.

➢ **Ethical Challenges:**
- ○ **Deliberate Harm and Participant Protection**: Exposing healthy volunteers to pathogens raises concerns about potential harm to participants.
- ○ **Inducement and Compensation:** Determining appropriate compensation for participants in CHIS can be challenging.
  - Offering too much compensation might **unduly induce people to participate,** potentially compromising informed consent.
  - Conversely, offering inadequate compensation **might exploit vulnerable individuals.**
- ○ **Third-party Risk:** The risk of disease transmission to third parties beyond the research participants is a concern.
- ○ **Justice and Fairness:** There is a concern that CHIS may disproportionately involve participants from **low-income or marginalized communities.**

▪▪▪

Note:

drishti

Miscellaneous

Highlights

- *International SMS Tariffs*
- *Henley Passport Index 2023*

International SMS Tariffs

Why in News?

Tech firms and telecom operators are facing off over steep **SMS tariffs**, causing **one-time passcodes and messages to consumers** from abroad to cost several times more than what they cost domestically.

➢ The **Telecom Regulatory Authority of India (TRAI)** has issued a consultation paper to seek views on whether there is a need to change the definition of **'international traffic',** a key term that determines what an international SMS is, and by extension, what it should cost.

What is International Traffic?

➢ According to the consultation paper by **TRAI**, **'international traffic'** is the international **long-distance load or data transmitted over a telecommunication network** that **originates in one country and is destined for another country**.

   ○ For example, a voice call or an SMS from India to Bangladesh would be considered as international traffic.

➢ It includes various types of communication, **such as voice calls, SMS messages, and data transfer,** that cross national boundaries.

   ○ An international SMS is a text message that originates in a foreign country and terminates in India, or vice versa.

➢ International traffic is distinct from **domestic traffic, which involves communication within a single country.**

➢ It influences pricing structures and policies related to international communication services, such as call rates, SMS tariffs, and data roaming charges.

➢ The existing **Unified Licensing Agreement** in India focuses primarily on regulating **domestic traffic,** leaving **international traffic,** without clearly defined regulations and pricing structures.

➢ **Telecommunication Traffic in India**:
   ○ Telecommunication in India is **divided into 22 circles,** which are geographical **regions or zones** designated for efficient administration and regulation of telecommunication services. These circles ensure effective coverage and management of telecommunication operations across the country.
   ○ **Domestic Traffic:**
     ● **Intra-Circle Traffic:** Communication within the boundaries of the **same Telecom Circle/ Metro Area.**
     ● **Inter-Circle Traffic:** Long-distance communication **originating in one Telecom Circle/Metro Area and terminating in another.**
   ○ **International Traffic:**
     ● Communication between **India and foreign countries.**
   ○ **Termination Charges:**
     ● **Domestic SMS:** Regulated termination charges.
     ● **International SMS:** Telecom operators have the freedom to set termination charges, making it highly profitable.

What is the Issue of Redefinition of International Traffic?

Telecom Operators' Stance	Tech Firms' Perspective
➢ Telecom operators believe that **international SMS tariffs should remain the same**.	➢ The **Broadband India Forum**, representing Big Tech firms like Amazon and Google as well as Internet Service Providers, disagrees with strictly **defining SMS based on geographical boundaries.**

➤ They argue that messages sent through **Indian gateways should not be exempt from the international SMS termination charge.**	➤ The forum believes that since **messages can be sent over the internet to an Indian gateway**, the classification of **internationalSMS becomes unnecessary**.
➤ Exempting international SMS from the charge would result in a **significant revenue loss for Indian telecom operators.**	➤ They argue that the high prices charged for international SMS are **not justified by the actual cost of providing the service**.
	➤ The expensive international SMS pricing can contribute to fraud, putting **companies at risk of financial losses.** ➤ Twitter alleges that **telecom operators worldwide defraud the company of 60 million USD annually by creating bot accounts** that request bogus SMS OTPs, resulting in significant costs for the firm.

Telecom Regulatory Authority of India

➤ TRAI, established under the **Telecom Regulatory Authority of India Act, 1997,** regulates **telecom services and tariff fixation/revision.**

➤ It ensures a **fair and transparent policy environment**, fostering a level playing field and promoting fair competition.

➤ The establishment of Telecom Disputes Settlement and Appellate Tribunal (**TDSAT),** **as an amendment to the TRAI Act,** transfers adjudicatory and dispute functions from TRAI. TDSAT resolves disputes between **licensors, licensees, service providers, and consumers**, and handles appeals against TRAI's directions, decisions, or orders.

Henley Passport Index 2023

Why in News?

In the latest **Henley Passport Index** 2023, Indian passport has climbed seven places to **secure the 80th rank**, up from 87th in 2022, giving its holders visa free access to **57 countries.**

What is Henley Passport Index?

➤ **About**:

  ○ The Henley Passport Index is a ranking system that evaluates all the world's passports based on the **number of travel destinations their holders can access without the need for a prior visa.**

   ● This index encompasses **199 different passports and covers 227 travel destinations**.

  ○ It is compiled and **published by Henley & Partners**, a global citizenship and residence advisory firm.

➤ **India's Passport Performance Over the Years:**

Slight uptick
A look at India's ranking over the years, according to the Henley Passport Index
India's rank improved from 87 in 2022 to 80 in 2023
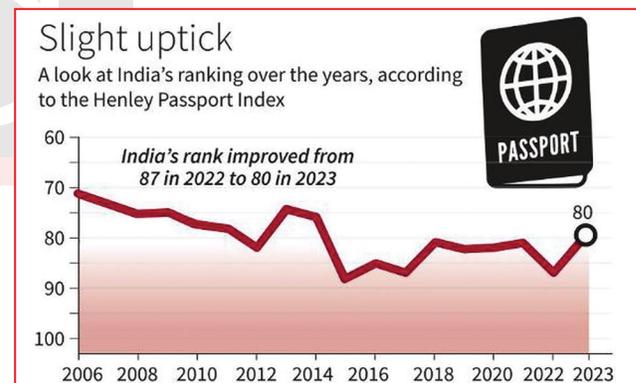
➤ **Global Rankings and Shifts:**

  ○ **Top Position: Singapore** now holds the most powerful passport in the world, granting its citizens visa-free access to an impressive **192 travel destinations out of 227 worldwide.**

   ● **Japan** previously held the top spot on the Henley Passport Index for **five years.**

  ○ **Runners-up: Germany, Italy, and Spain** share the second position on the index.

   ● **Japan, along with Austria, Finland, France, Luxembourg, South Korea, and Sweden,** shares the third spot.

  ○ **Decline of the United States:** Over the past decade, the United States has experienced a steady decline on the index, **falling two places to the eighth spot**.

Note:

- ➢ **Henley Openness Index:**
  - ○ **About**:
    - Henley & Partners also introduced the **Henley Openness Index**, which measures the number of nations a country allows visa-free access to.
    - In this ranking, **India was placed 94th out of 97 countries,** offering **visa-free access to only four nations.**
  - ○ **Most Open Countries:** The top 20 'most open' countries predominantly comprise **small island nations and African states**, with the **exception of Cambodia.**
    - 12 countries offer exceptional openness, providing **visa-free or visa-on-arrival entry** to all 198 passports in the world (excluding their own).
    - These countries are **Burundi, Comoro Islands, Djibouti, Guinea-Bissau, Maldives, Micronesia, Mozambique, Rwanda, Samoa, Seychelles, Timor-Leste, and Tuvalu.**

  - ○ **Least Open Countries: Afghanistan, North Korea, Papua New Guinea, and Turkmenistan** were ranked at the bottom of the Henley Openness Index, as they do not permit visa-free access for any passport holders.

Visa-Free Access
V/s Visa on Arrival
- ➢ **Visa-Free Access:** Visa-free access means that citizens of certain countries can enter another country **without the need to obtain a visa in advance.**
  - ○ They are allowed to **stay for a specified period**, usually determined by bilateral agreements or international treaties, **without the requirement of obtaining a visa.**
- ➢ **Visa on Arrival:** Visa on arrival means that travelers from specific countries can **obtain a visa upon arriving at their destination country's airport** or border checkpoint.
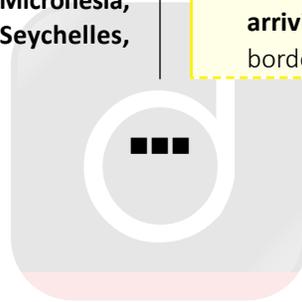
Note:

Rapid Fire Current Affairs

Highlights

- Dongria Kondh Tribe
- 46,000-Year-Old Worms and Cryptobiosis
- Nyaya Vikas Portal
- World Nature Conservation Day with Mission-LiFE
- SMILE-75 Scheme
- Vibrant Villages Programme
- Lithium Ore in Jammu and Kashmir
- Indian Army Inaugurates First PAEC for Aadhaar Services
- National Coal Index (NCI) Shows Significant Decline
- Scrub Typhus
- Hygroelectricity
- Silvopasture System
- Herbig-Haro 46/47
- Resource Efficiency Circular Economy Industry Coalition
- Impact of Pollen Diversity on Honeybee Diets
- India Hosts Asian Youth & Junior Weightlifting Championships 2023
- FDA Approves Over-the- Counter Birth Control Pill Opill
- Heli Summit 2023 and UDAN 5.2
- Mission Shakti- Hub for Empowerment of Women
- Batagaika Crater: A Disturbing Symbol of Accelerating Permafrost Thaw
- WHO's Updated HIV and Mpox Guidelines
- Meri Maati Mera Desh Campaign
- India's Unorganized Sector Workers
- Fluoromix
- Silver Cockscomb
- Bal Gangadhar Tilak Birth Anniversary
- Pratihara Ruler Mihir Bhoja

- Medicine Project
- Chandra Shekhar Azad
- Tiger Orchids
- Bura Chapori Wildlife Sanctuary
- Srivilliputhur Megamalai Tiger Reserve
- Tankai Method
- Advancing Aviation Sector in India
- Positive Impact of Centre's Mandated Health Spending
- India Bans Non-Basmati White Rice Exports to Stabilize Domestic Market
- Barges Navigating Sundarbans Allegedly Trigger Erosion and Disrupt Siltation
- Ensuring Accountability and Safety in AI Development
- International Moon Day 2023
- Mangal Pandey Birth Anniversary
- Gomti River: Controversy Over Perennial Status and Protection
- India-Russia Vande Bharat Deal
- Commission on Genetic Resources for Food and Agriculture
- Mission Organic Value Chain Development for Northeastern Region
- Gambusia Fish Release for Mosquito Control in Andhra Pradesh
- Tribute to Nawab Wajid Ali Shah, the Last King of Awadh
- CRCS-Sahara Refund Portal
- Russia's Halting of Black Sea Grain Initiative Impacts Global Food Security
- 15th Edition of NOMADIC ELEPHANT-23
- 120th Birth Anniversary of Thiru Kumaraswami Kamaraj
- Oppenheimer: The Father of the Atomic Bomb
- World Snake Day

Dongria Kondh Tribe

The **Niyamgiri Hills in Odisha,** home to the **Dongria Kondh tribe**, face potential threats due to proposed amendments to the **Forest (Conservation) Act, 1980**, raising concerns about the protection of their **ancestral land and cultural identity.**

➤ The Dongria Kondh tribe is **one of the 13 PVTGs** in Odisha, India.

➤ The proposed **Forest Conservation (Amendment) Bill, 2023**, seeks to alter the **definition of 'forest' set by the Supreme Court of India in 1996.**

➤ According to the amendment, the Forest Conservation Act, of 2023, will apply only to notified **'forest' areas as per the Indian Forest Act, 1927,** and government records from **October 25, 1980, onwards**.

○ About **95% of Niyamgiri land is not classified as 'forest'** in government records.

Note:

➤ The amendment may potentially open a window for diverting **land not classified as 'forest' in government records** to other purposes, which could impact the Niyamgiri hill range and other forest areas in Odisha.

Read more: Dongria Kondh tribe, Forest Conservation Amendment Bill 2023 , Major Tribes in India

46,000-Year-Old Worms and Cryptobiosis

Scientists found and revived **two frozen microscopic nematodes** in Siberia five years ago. A recent study published in the *journal PLOS Genetics* revealed key findings about these ancient organisms, showing that **these worms are 46,000 years old.** The study provides valuable insights into the incredible phenomenon of **cryptobiosis.**

➤ Cryptobiosis is a **state of extreme inactivity** in response to adverse environmental conditions. In the cryptobiotic state:

○ **All metabolic procedures stop**, preventing **reproduction, development, and repair.**

○ Organisms can **survive extreme conditions by entering a dormant state** where they **halt their life processes** surviving between life and death.

➤ The study significantly increases the documented cryptobiosis period in **nematodes by tens of thousands of years.**

○ Ancient worms' remarkable ability to survive in a dormant state has profound implications for evolutionary studies and understanding species adaptation, shedding light on how **animals endure habitat changes** due to **climate change**.
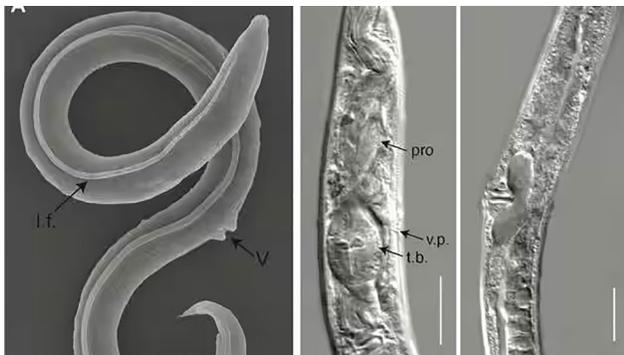
Nyaya Vikas Portal

Recently, the Union Minister of Law and Justice provided valuable insights into the **Nyaya Vikas Portal** during a written reply in the Lok Sabha.

➤ Nyaya Vikas is an online monitoring system developed with the technical expertise of the **National Remote Sensing Centre of ISRO**.

○ To leverage space technology effectively, the **Nyaya Vikas Web Portal and mobile app were launched in 2018,** providing efficient and real-time monitoring of infrastructural projects related to judiciary.

➤ Other initiatives Targeted to reform the Indian Judiciary include:

○ **AI based SUPACE Portal**

○ **Centrally Sponsored Scheme (CSS) for the Development of Infrastructure Facilities.**

Read more: Infrastructure Facilities for Judiciary

World Nature Conservation Day with Mission-LiFE

World Nature Conservation Day is observed annually on **July 28 annually with an** aim to preserve **natural resources, biodiversity and ecology** across all regions.

➤ The National Zoological Park, New Delhi commemorated **World Nature Conservation Day** linking it with the goals of **Mission-LiFE**.

➤ At UNFCCC COP26, India's Prime Minister introduced **Mission LiFE**, aiming to prioritize individual behaviors in global climate action.

○ LiFE seeks to **shift from the wasteful 'use-and-dispose' economy** to a sustainable **circular economy** based on mindful and intentional consumption.

➤ Theme for World Nature Conversation Day 2023 is '**Forests and Livelihoods: Sustaining People and Planet'**

Read more: Mission-LiFE

SMILE-75 Scheme

Recently, the **Minister of State for Ministry of Social Justice and Empowerment** provided valuable insights into the SMILE-75 Initiative during a written reply in the Rajya Sabha.

➤ **The** umbrella scheme **"SMILE - Support for Marginalized Individuals for Livelihood and Enterprises"** also includes sub-scheme - 'Central Sector Scheme for Comprehensive Rehabilitation of persons engaged in the act of Begging'.

➤ The objective of SMILE- 75 is to make Indian cities/ town and municipal areas **begging-free and make**

Note:

a strategy for comprehensive rehabilitation of the persons engaged in the act of begging through the coordinated action of various stakeholders.

➢ According to **Census 2011**, India has **over 4 lakh beggars**. **West Bengal** tops the chart followed by **Uttar Pradesh and Bihar** at number two and three respectively.

    Read more: SMILE-75 Scheme, Census in India

Vibrant Villages Programme

Recently, the Ministry of Home Affairs provided valuable insights into the **Vibrant Villages Programme (VVP)** during a written reply in the **Rajya Sabha**.

➢ VVP is a **Centrally Sponsored Scheme** approved on 15th February 2023 and **officially launched on 10th April 2023**. focusing on the comprehensive development of select villages in **46 blocks across 19 districts abutting the northern border in Arunachal Pradesh, Himachal Pradesh, Sikkim, Uttarakhand, and UT of Ladakh.**

➢ The program aims to create **livelihood opportunities** through **tourism promotion, cultural heritage preservation, skill development, entrepreneurship, and development of cooperative societies,** including agriculture and cultivation of medicinal plants/herbs.

➢ Interventions under the program include road connectivity, housing, village infrastructure, renewable energy, television & telecom connectivity, and more, with the objective of providing sufficient incentives for people to stay in the selected villages.

➢ Additionally, under the **Border Area Development Programme (BADP),** essential infrastructure projects have been approved in census villages/towns, semi-urban, and urban areas **located within 0-10 km** distance from the **first habitation at the International Boundary (IB)** in 16 states and 2 UTs abutting land borders.

➢ Specific villages in Kinnaur and Lahul & Spiti districts of Himachal Pradesh, as well as Chamoli, Uttarkashi, and Rudraprayag districts, have been selected for the **VVP.**

    Read more: Vibrant Villages Programme

Lithium Ore in Jammu and Kashmir

Recently, the Ministry of Coal, Mines, and Parliamentary Affairs provided important details regarding the **Geological Survey of India's G3 stage mineral exploration project** and the significant **discovery of lithium ore in the Salal-Haimna areas of Reasi District, Jammu & Kashmir.**

➢ An inferred resource (G3) of 5.9 million tonnes of **lithium ore has been confirmed in the region.**

➢ **Geological Survey of India (GSI)** is a **geo-scientific organisation** that was **established in 1851 to find coal deposits** and now provides **national geo-science information and mineral resource assessment.**

➢ The GSI is an attached office to the **Ministry of Mines** and has its **headquarters in Kolkata** and has six regional offices located at Lucknow, Jaipur, Nagpur, Hyderabad, Shillong and Kolkata. Every state has a state unit.

➢ The decision regarding auctioning of the Lithium mineral block in Jammu & Kashmir will be taken up by the Government of Jammu and Kashmir.

    Read more: GSI Discovers Lithium Resources in J&K

Indian Army Inaugurates First PAEC for Aadhaar Services

➢ **Indian Army** inaugurated its inaugural **Permanent Aadhaar Enrolment Centre (PAEC)** recently, at the **1 Central Base Post Office (CBPO)** in New Delhi.

  ○ The establishment of the PAEC marks a crucial milestone for the tri-services personnel and their dependents, as it will **offer Aadhaar-related services,** including enrolment and updation, at **48 identified locations across the country through the Field Post Offices (FPOs).**

  ○ The PAEC's comprehensive coverage, including both **Field and Peace locations,** ensures that all army personnel, including those stationed in remote areas, can **conveniently avail themselves of the Aadhaar services**.

    Read more: Aadhar and its Voluntary Use, Indian Army

National Coal Index (NCI) Shows Significant Decline

The **National Coal Index (NCI)** has shown a significant decline of **33.8% in May 2023** compared to May 2022. This decline is an indication of a robust supply of **coal** in the market.

Note:

- ➤ **NCI is a price index** that **combines coal prices from all sales channels,** including notified prices, auction prices and import prices.
  - ○ **Established with the base year as fiscal year 2017-18**, it serves as a reliable indicator of market dynamics, providing valuable insights into coal price fluctuations.
    - **Read more: National Coal Index**

Scrub Typhus

The **Kerala Health department has issued an alert against scrub typhus in Alappuzha**, Kerala

- ➤ **About:** Scrub typhus, also known as **bush typhus**, caused by a bacteria called **Orientia tsutsugamushi**.
- ➤ **Spread:** It is spread to people through bites of **infected chiggers** (larval mites).
  - ○ Humans mostly get the **disease when bitten by chiggers present on the body of animals** such as rats, rabbits, mice, and squirrels.
- ➤ **Affected Areas:** Rural areas of Southeast Asia, Indonesia, China, Japan, India, and northern Australia
- ➤ **Treatment:** Antibiotics. **No vaccine available**.

DANGER OF BEING UNDETECTED

CAUSED BY Bacteria called orientia tsutsugamushi

CARRIED BY Mite called **Leptotrombidium,** also known as chigger

SYMPTOMS | Fever, muscle pain, cough, gastrointestinal symptoms, liver and spleen enlargement, and meningitis in extreme cases

TREATMENT | Doxycyclin, fluids, supportive measures

WHERE DO CHIGGER MITES STAY?
➤ Moist, grassy areas like fields, forests, lawns, lakes and streams

BABY BITES
➤ Adult chiggers do not bite. It's the babies, at the larval stage, that you have to watch out for
➤ They're red, orange, yellow, or straw-coloured, no more than 0.3mm in length

Read More: Scrub Typhus

Hygroelectricity

A team at the University of Massachusetts (UMass) Amherst **published a paper declaring they had successfully generated a small but continuous electric current from humidity in the air which is called Hygroelectricity**.

- ➤ **Significance:**
  - ○ Hygroelectricity **has the potential to be a renewable and sustainable energy source** as it relies **on the continuous availability of atmospheric moisture**.

- ○ Unlike **traditional power generation methods that may rely on finite resources**, hygroelectricity could **provide a consistent source of energy from ambient environmental conditions**.
  - **Read More: Renewable Energy**

Silvopasture System

Silvopasture is an **ancient and proven practice that harmoniously integrates trees, forage and livestock on the same land**.

- ➤ **Benefits of Silvopasture system:**
  - ○ Trees in silvopasture act as **potent natural carbon sinks**, capturing five to ten times more carbon than treeless pastures, without compromising productivity.
  - ○ It also **regulates local climatic conditions**, buffering against temperature and wind extremes, providing a **favourable living environment for livestock**.
  - ○ Trees in silvopasture aid **nutrient cycling, enhance soil stability and quality, and combat erosion** through their extensive root systems. Silvopasture is a **sustainable land-use practice that can improve the health and productivity of the land over the long term**.
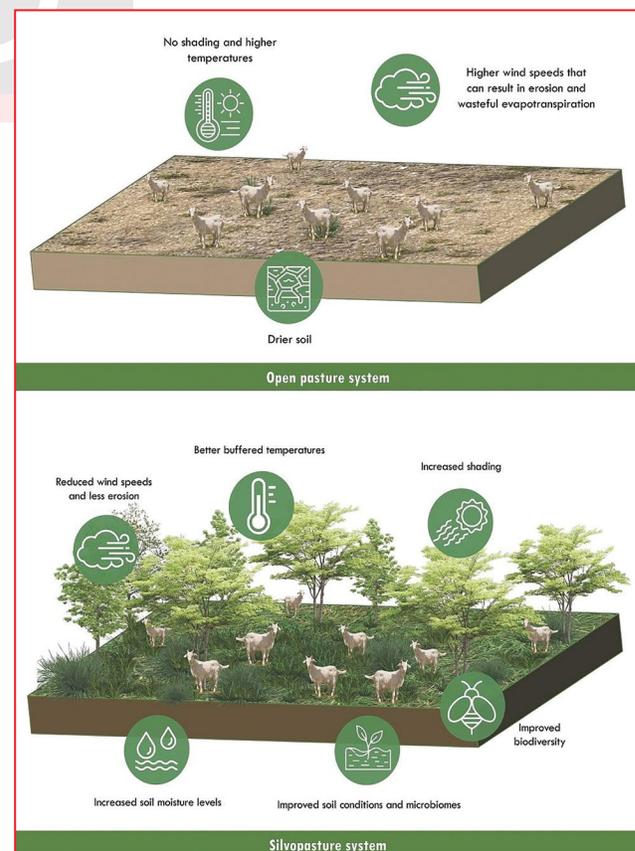
Read More: Soil Erosion, Deforestation

Note:

Herbig-Haro 46/47

NASA recently released a **high-resolution image from the James Webb Space Telescope (JWST)**, showing **two actively forming stars known as Herbig-Haro 46/47**.

➤ These **young stars are hidden within an orange-white blob surrounded by gas and dust**, indicating their early stages of growth.

   ○ They **will give insights into the mass accumulation of stars over time**.

➤ Observing the **orange lobes helps understand how stars ejected and consumed gas, shaping the lobes over thousands of years**.

JWST:

➤ It is a large, **infrared telescope designed to observe the most distant objects in the universe**. It is the **successor to the Hubble Space Telescope**.

➤ It is a c**ollaboration between NASA**, the **European Space Agency (ESA), and the Canadian Space Agency (CSA)**.
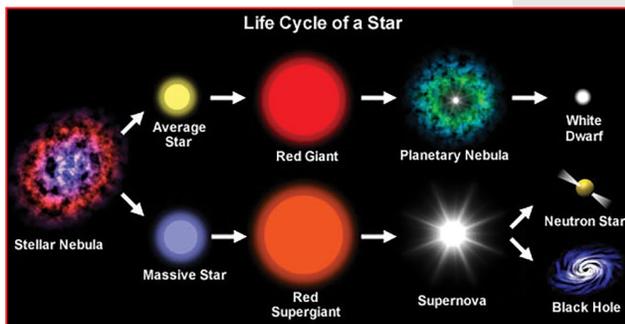
Read More: James Webb Space Telescope (JWST), Objects in Space

Resource Efficiency Circular Economy Industry Coalition

Recently, the Union Minister for Environment, Forest and Climate Change launched the **Resource Efficiency Circular Economy Industry Coalition (RECEIC)** during the **4th G-20 Environment and Climate Sustainability Working Group (ECSWG)** meeting in Chennai.

➤ The ECSWG aims to enhance cooperation among the **G20 nations** for a **sustainable future.**

➤ RECEIC, with 39 multinational corporations, aims to **adopt resource efficiency** and **circular economy** principles to **address environmental challenges from waste.**

➤ It focuses on tackling **waste-related issues like plastics, microplastics, e-waste, and chemical waste.**

➤ India's efforts in mitigating plastic waste burdens through **Extended Producers' Responsibility (EPR)** guidelines are emphasized.

   ○ **41 lakh tonnes of plastic waste generated in India in 2021-22,** with 30 lakh tonnes allocated to registered recyclers and plastic waste processors.

   ○ 2.6 million tonnes worth of EPR certificates generated by plastic waste processors, with around 1.51 million tonnes purchased by PIBOs against 2022-23 obligations.

Read more: India's Circular Revolution

Impact of Pollen Diversity on Honeybee Diets

Researchers from **Texas A&M AgriLife Research** seek insights into the **impact of pollen diversity on honeybee diets** and their regulation of pollen collection and consumption.

➤ Honeybees **balance their protein-lipid intake,** ensuring they **do not overconsume either nutrient beyond what is required.**

➤ **Inadequate nutrition and landscape transformations** are two significant contributors to the **decline of over 40% of managed honeybees in the United States annually.**

   ○ Nutritional deficits can have adverse negative impacts on bees and colonies.

➤ The researchers' primary hypothesis is that **honeybees tightly control their multiple nutrient intakes using a two-level process.**

   ○ First, foragers judiciously gather **pollen based on its nutritional content.**

   ○ Next, nurse bees selectively **feed on accumulated pollen, or bee bread, to balance their nutrient intake**.

➤ The findings of the research will equip beekeepers with valuable insights, enabling them to **provide essential dietary supplements and improve the health of their colonies.**

Note:

India Hosts Asian Youth & Junior Weightlifting Championships 2023

Recently, the **Asian Youth and Junior Weightlifting Championships 2023** was inaugurated at **Gautam Buddha University, Greater Noida.**

➢ It is the first time India is hosting this event. The championship sees the participation of **15+ nations from Asia.**

➢ India's weightlifters recently won a record-breaking **61 medals at the Weightlifting Commonwealth Championships.**

Read more: Role of Sport in Aspirational India

FDA Approves Over-the-Counter Birth Control Pill Opill

The U.S. FDA recently approved **Opill, the first over-the-counter birth control pill.**

➢ **Opill is a progestin-only pill** that uses a synthetic hormone called **norgestrel to prevent pregnancy** by thickening cervical mucus and thinning the uterus lining.

  ○ Opill is **advised for breastfeeding mothers,** those intolerant to **estrogen**, and individuals with certain health conditions.

➢ It is **not recommended to use Opill** with other hormonal birth controls or as an emergency **contraceptive.**

Read more: Medical Termination of Pregnancy (MTP) Amendment Act, 2021

Heli Summit 2023 and UDAN 5.2

Recently, the Ministry of Civil Aviation inaugurated the **Heli Summit 2023 and UDAN 5.2** in **Khajuraho, Madhya Pradesh**, focusing on **regional connectivity through helicopters and small aircraft.**

➢ Heli Summit 2023, jointly organized by the **Ministry of Civil Aviation, Government of Madhya Pradesh, Pawan Hans Ltd., and Federation of Indian Chambers of Commerce and Industry (FICCI),** emphasizes regional connectivity through helicopters and small aircraft.

➢ UDAN 5.2 aims to **achieve last-mile connectivity** with **small aircraft (Category 1A <9 seats and Category 1 <20 seats)** in remote and regional areas.

➢ UDAN 5.2 increases the **viability gap funding (VGF)** and reduces **fare caps to enhance accessibility.**

➢ **HeliSewa mobile application** is launched to create an **ecosystem between helicopter operators and district authorities for seamless operations.**

Read more: UDAN 5.0 Scheme

Mission Shakti- Hub for Empowerment of Women

Recently, **National Institute of Public Cooperation and Child Development (NIPCCD)** under Ministry of Women and Child Development organised the **First Capacity Building Programme** on **'Mission Shakti- Hub for Empowerment of Women'** for State Nodal Officers and State Mission Coordinators.

➢ NIPCCD is **an autonomous Institute** under the Ministry of Women and Child Development that works to **promote voluntary action, research, training and documentation in the field of women and child welfare.**

➢ It was **established in 1966** and has its **headquarters in Delhi** and four regional centres in **Bangalore, Guwahati, Indore and Lucknow.**

➢ **Mission Shakti** scheme focuses on making women **economically empowered, ensuring their safety from violence, and increasing their participation in the labor force.**

  ○ 'Mission Shakti' comprises two sub-schemes - **'Sambal' for safety and security of women** and **'Samarthya' for their empowerment.**

    ● Sambal includes components like **One Stop Centre, Women Helpline, Beti Bachao Beti Padhao, and Nari Adalats for gender justice.**

    ● Samarthya incorporates schemes like **Swadhar Greh, Working Women Hostel, National Creche Scheme, and Pradhan Mantri Matru Vandana Yojana**, along with a new component of Gap Funding for Economic Empowerment.

  ○ **Hub for Empowerment of Women** It is an **initiative under the Samarthya sub-scheme.**

Hub for Empowerment of Women

Batagaika Crater: A Disturbing Symbol of Accelerating Permafrost Thaw

Russia's Batagaika crater, the world's largest **1km-long permafrost** crater, **expands due to global warming** and thawing permafrost.

➢ Deforestation triggered underground permafrost melting, causing the crater's growth in the **Sakha Republic, Russia.** It also holds dangerous organic carbon, **exacerbating global warming.**

➢ Russia is warming is occurring at an alarming rate, **approximately 2.5 times faster than the global average**.

➢ As a result, large areas of the country's long-frozen tundra, **covering about 65% of its landmass**, are experiencing significant thawing, releasing **potent greenhouse gases like methane.**

➢ Permafrost is **any ground that remains completely frozen—32°F (0°C) or colder**—for **at least two years straight.**

 ❍ These permanently frozen grounds are most common in regions with high mountains and in Earth's higher latitudes: **near the North and South Poles.**

Read more: Permafrost, Global warming

WHO's Updated HIV and Mpox Guidelines

The **World Health Organization (WHO)** presented updated guidance on **human immunodeficiency virus (HIV)** during the **12th International AIDS Society Conference.**

➢ The guidelines stress the **significance of HIV viral suppression and undetectable virus levels** in improving individual health and curbing virus transmission.

➢ Additionally, the **WHO urged countries to integrate mpox (monkeypox)** detection, prevention, and care with existing HIV and sexually transmitted infection programs.

 ❍ Mpox is a viral illness caused by the **monkeypox virus, a species of the genus Orthopoxvirus.**

 ❍ It can be transmitted to humans through physical contact with someone who is infectious, with contaminated materials, or with infected animals.

 ❍ A multi-country outbreak of mpox in **2022-2023 reported over 82,000 cases, with around 32,000 linked to HIV**.

➢ The guidelines highlighted the **effectiveness of antiretroviral therapy (ART) in preventing HIV transmission** when achieving undetectable virus levels.

Read more: World Health Organization, HIV, Monkeypox

Meri Maati Mera Desh Campaign

The Indian government has initiated the **'Meri Maati Mera Desh' campaign** as part of the **'Azadi Ka Amrit Mahotsav'** celebration of 75 years of Independence.

➢ Soil collected from various parts of the country will be used to **develop the Amrit Vatika Garden along the Kartavya Path in Delhi.**

➢ Events planned at different levels, from **panchayat and village to state and national levels.**

➢ **Shilaphalakam (memorial plaque)** with the names of bravehearts who made the supreme sacrifice to be installed.

➢ Pledge taken by people affirming their commitment to the country.

Note:

- Planting **75 saplings of indigenous species** in every gram panchayat or village **under 'Vasudha Vandhan'.**
- 'Veeron Ka Vandan' to felicitate freedom fighters and families of deceased freedom fighters.

  Read more: Azadi Ka Amrit Mahotsav

India's Unorganized Sector Workers

Recently, the Union Minister of State for Labour and Employment has mentioned about various initiatives to address the **India's Unorganized Sector Workers** in a written reply in the **Lok Sabha.**

- As per the **Economic Survey, 2021-22,** total number of people working in the **unorganized sector is around 43.99 crores during 2019-20.**
- The government introduced the **'Aatmanirbhar Bharat' package** with a fiscal stimulus of **over Rs. 27 lakh crores to mitigate Covid-19's impact on workers** and the economy.
- The **'Aatmanirbhar Bharat Rojgar Yojana (ABRY)'** incentivized **job creation and restoration, benefiting 60.3 lakh beneficiaries.**
- To address the challenges faced by unorganized workers who returned to their home states, the **'Pradhan Mantri Garib Kalyan Rojgar Abhiyan'** was initiated in **116 districts to offer employment and livelihood opportunities.**
- The **'Atal Beemit Vyakti Kalyan Yojana (ABVKY)'** scheme provided **increased relief to insured persons who lost their jobs,** offering financial support during the crisis.
- The **'Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)'** scheme, 5 kg of food grain per person was provided free of cost.

  Read more: Covid-19 pandemic, Aatmanirbhar Bharat

Fluoromix

Scientists from the **University of Oxford** developed a **safer and less energy-intensive method to obtain fluorine atoms**.

- Fluorine comes from a calcium salt called **calcium fluoride, or fluorspar**. Fluorspar is mined and then treated with sulphuric acid at a high temperature to release **hydrogen fluoride.**

- **Fluorine is a highly reactive element** used to make fluorochemicals, which in turn are used to produce **plastics, agrochemicals, lithium-ion batteries, and drugs.**
- By taking inspiration from the **natural calcium phosphate biomineralisation process** found in bones and teeth, the researchers created a compound called **Fluoromix** by milling **fluorspar with potassium phosphate**, avoiding the use of the toxic and corrosive hydrogen fluoride.
- Fluoromix proved highly effective, **yielding around 50 different fluorochemicals with up to 98% efficiency** when combined with **organic compounds,** presenting significant promise for industries relying on fluorochemicals.

Silver Cockscomb

Silver cockscomb, also known as **lagos spinach**, is a troublesome **weed** that can spread rapidly and hinder the growth of other crops.

- However, the **Soliga tribe in Karnataka's** Chamarajanagara **district** considers it a nutritious leafy green vegetable, using it in traditional dishes like **massanne and ullsoppu sambar.**
- Scientific studies have shown that **silver cockscomb has beneficial properties**, including antibacterial activity, high nutrient content (vitamin **E, calcium, and iron**), and lower levels of harmful substances like **oxalic acid and phytic acid**.
- This weed, prevalent in **regions like South and Southeast Asia, Latin America, and parts of the US and Australia,** has been used by communities worldwide for medicinal purposes and as a wild vegetable and fodder.
  - By documenting and exploring traditional knowledge, silver cockscomb could potentially be recognized as a valuable superfood.

  Read more: Scheduled Tribes in Karnataka,

Bal Gangadhar Tilak Birth Anniversary

Recently, the Prime Minister of India has paid tributes to **Bal Gangadhar Tilak** on his Jayanti on 23rd July,2023.

- Bal Gangadhar Tilak, born on 23rd July 1856, was a **freedom fighter, lawyer, and educationist known as Lokmanya Tilak.**

Note:

- Founder of the **Deccan Education Society** in 1884, he also established the **Fergusson College in 1885.**

- Tilak emphasized the need for **self-rule or swarajya** and popularized the slogan **"Swaraj is my birthright and I shall have it!"**

- Tilak joined the Indian National Congress in 1890 and played a significant role in the **Surat Split in 1907,** advocating complete independence or swarajya.

- He propagated the Swadeshi and Boycott Movement to promote Indian self-reliance.

- Tilak founded the **All-India Home Rule League** in April 1916, aiming for Hindu-Muslim unity through the Lucknow Pact in 1916.

- Known for his newspapers **Kesari (Marathi) and Mahratta (English) and authored books like Gita Rhasya and Arctic Home of the Vedas.**

- Bal Gangadhar Tilak passed away on **1st August 1920,** leaving behind a significant contribution to India's freedom movement.

   Read more: Bal Gangadhar Tilak

Pratihara Ruler Mihir Bhoja

A controversy surrounding the unveiling of a statue of **Samrat Mihir Bhoj,** a 9th-century ruler, in Kaithal district, Haryana, has led to a significant boycott by the Rajput community.

- Mihir Bhoja or Bhoja I (836- 885 CE) is the greatest ruler of the Pratihara Dynasty.

- Mihir Bhoj had made **Kannauj his capital**. He was a devotee of **Vishnu**, so in honor of Vishnu, he had assumed titles like Varaha and Prabhas.

- The achievements of Mihir Bhoj have been described in his Gwalior Prashasti inscription.

   Read more: Pratihara Ruler Mihira Bhoj The Cannabis

Medicine Project

- Government of India recently announced the **Cannabis Medicine Project.** This research project, undertaken by **CSIR-IIIM Jammu,** is the first of its kind in India, and it represents a collaboration between the **Indian government and a Canadian firm.**

  - It aims to explore the medicinal potential of cannabis, benefiting patients with neuropathies, cancer, and epilepsy.

- Besides the therapeutic implications, the project will also **boost investment in Jammu and Kashmir,** creating a positive impact on the region's economy.

   Read More: Neuropathies, Cancer, Epilepsy

Chandra Shekhar Azad

On **July 23rd,** we commemorate the birth anniversary of Chandra Shekhar Azad, an iconic and fearless freedom fighter of India.

- Born in **Bhabhra village (now in Alirajpur District of Madhya Pradesh)** in 1906, Azad joined Mahatma Gandhi's non-cooperation movement at a young age of 15 and adopted the name "**Azad**" as a symbol of his defiance against British rule.

- He became a prominent member of the Hindustan Socialist Republican Association (HSRA), a revolutionary group dedicated to armed struggle against the colonial government.

- Azad was also involved in daring acts of resistance, including the **Kakori train robbery.**

- Known for his organizational skills and mastery of **disguise**, he pledged to never be captured alive. Tragically, he lost his life on **February 27, 1931,** in a fierce gunfight with the police.
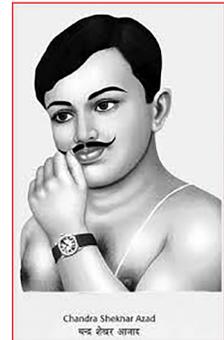
Tiger Orchids

The **Tiger Orchids (*Grammatophyllum speciosum*) are in bloom at the Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI),** Palode.

Note:

The **plant was listed by the Guinness Book of World Records as the world's tallest orchid**.

➢ **Important Facts about the plant include:**

➢ **Native Distribution:** Indonesia, Malaysia, Philippines, Papua New Guinea

➢ **Native Habitat:** Terrestrial (Primary Rainforest, Freshwater Swamp Forest, Riverine)

➢ **Preferred Climate Zone:** Tropical, Sub-Tropical / Monsoonal

➢ **CITES Protection:** True (Appendix II)

➢ **Growth Form:** Its stem is 3 m or longer, and up to 5 cm thick. It is also the largest orchid species in the world.

    Read More: Rare Orchids in India.

Bura Chapori Wildlife Sanctuary

Recently, **violence erupted in Assam's Bura Chapori Wildlife Sanctuary**, resulting in the death of a woman and injuries to six others, including forest guards.

Important Facts about the Wildlife Sanctuary include:

➢ **About:** It is a part of the Laokhowa-Burachapori ecosystem.

➢ **Location:** South bank of the **Brahmaputra River**.

➢ **Fauna:** This sanctuary is home to the **Great Indian one-horned rhinoceros**, **tiger**, **leopard**, **wild buffalo**, **hog deer**, **wild pig**, and **elephants**.

   ○ The bird list includes the **Bengal Florican** (highly endangered), Black-necked Stork, Mallard, Open billed Stork, Teal, and Whistling Duck among others.

   ○ Due to several **wetlands** it is an **ideal breeding place for several species of migratory birds during the winter season**.

➢ **Flora:** The grassland is also rich in various kinds of medicinal herbs and plants.

Srivilliputhur Megamalai Tiger Reserve

The **forest department has identified 12 illegal, unauthorised or unrecognised resorts in Srivilliputhur Megamalai Tiger Reserve (SMTR)**, Megamalai division in Theni.

Important Facts about the Wildlife Sanctuary include:

➢ **About:** It was established in 2021.

   ○ It is the fifth Tiger Reserve in Tamil Nadu and 51st tiger reserve in India.

   ○ It **provides protection to Megamalai, the Vaigai's primary catchment**, in turn helping water levels to rise in the river.

➢ **Fauna:** Animals seen here are **Bengal tiger**, **elephants**, **gaur**, Indian giant squirrel, **leopard**, **Nilgiri Tahrs**, etc.

➢ **Flora:** It has a mix of tropical evergreen forests and semi-evergreen forests, dry deciduous forests and moist mixed deciduous forests, grassland.

➢ **Other four Tiger reserves of Tamil Nadu:**

   ○ **Anamalai tiger reserve**

   ○ **Kalakkad - Mundanthurai tiger reserve**

   ○ **Mudumalai tiger reserve**

   ○ **Sathyamangalam tiger reserve**

    Read More: Srivilliputhur-Megamalai Tiger Reserve & Vaigai River

Tankai Method

The **Ministry of Culture** and the **Indian Navy** sign a Memorandum of Understanding (MOU) to revive the **"ancient, stitched shipbuilding method (Tankai method).** The Indian Navy will oversee the implementation and execution of the entire project.

➢ The **'stitched shipbuilding method'** is a traditional boat building technique that involves **sewing the planks of a boat together with cord or wire** instead of using nails or screws.

➢ This method is still used in some parts of the world for building small boats. It is a 2000-year-old technique of shipbuilding known as the 'stitched shipbuilding method'.

➢ The stitched ship holds significant cultural value in India, given its historical importance and the **preservation of traditional craftsmanship**.

➢ These ships offered flexibility and durability, making them **less susceptible to damage from shoals and sandbars.**

    Read more: Global Hub for Green Ship Building by 2030

Advancing Aviation Sector in India

Ministry of Civil Aviation (MoCA) **investing Rs. 98,000 crore (2019-2024) in airport infrastructure to meet growing air traffic demands.**

➢ **Safety oversight** is ensured through regular surveillance and audits by the **Directorate General of Civil Aviation (DGCA).**

➢ Emphasis on **sustainable aviation, encouraging carbon neutrality** and **adoption of green energy at airports.**

➢ The MoCA is committed to achieving **Sustainable Aviation** in collaboration with the **International Civil Aviation Organization (ICAO),** following the principles and provisions of the **United Nations Framework Convention on Climate Change (UNFCCC).**

➢ MoCA strives to achieve the same under the **National Civil Aviation Policy 2016,** which aims to **limit CO2 emissions** in Indian aviation.

Positive Impact of Centre's Mandated Health Spending

The Study in *Public Health for All journal* reveals the positive impact of the Centre's mandated spending on health through the **National Health Mission (NHM)** over 15 years.

➢ NHM linked funding to **compliance with the Central government's schemes, encouraging States to invest more in primary health care.**

➢ Increased allocation in States' health budgets due to NHM's conditional allocation.

➢ **Target of 8% of the total State budget for health remains unachieved.**

➢ NHM's efforts contributed to a decline in **infant mortality rate** and **reduced disparities in per capita public spending** across States.

➢ Study recommends States develop concrete plans for **primary health care delivery.**

➢ Urges Centre to establish a **National Database of Health System Cost to estimate comprehensive primary health care expenses.**

➢ Realistic cost estimates for delivering healthcare and assessing cost-per-year of **quality-adjusted life year (QALY)** gained through primary healthcare interventions are crucial for progress.

Read more: National Health Mission (NHM)

India Bans Non-Basmati White Rice Exports to Stabilize Domestic Market

The Indian government has imposed an immediate ban on the export of **non-basmati white rice,** except for certain ongoing shipments.

➢ This variety of rice had accounted for **25% of the total rice exports from the country.**

➢ This step was taken in response to the **11.5% increase in domestic rice prices** in 2022 and a subsequent 35% surge in **exports of this rice** variety during 2022-23.

  ○ The Ministry attributed this surge in exports to various factors, including high international prices driven by **geopolitical scenarios, El Nino influences, and extreme climatic conditions** in other rice-producing countries.

➢ The ban aims to stabilize the domestic market and ensure adequate availability of non-basmati white rice for Indian consumers, while **export policies for basmati rice and non-basmati parboiled rice remain unchanged.**

Read more: Basmat Rice, El Nino, Extreme climatic conditions

Barges Navigating Sundarbans Allegedly Trigger Erosion and Disrupt Siltation

The **Sundarbans**, a fragile ecosystem comprising around **100 islands shared by humans and wildlife**, is facing threats as allegations arise that barges transporting **fly ash** from Indian power plants to Bangladesh are causing erosion along river banks.

➢ While the **Inland Waterways Authority of India** refutes the claims, locals report increased erosion near inhabited islands.

➢ **Balancing economic interests and conservation** becomes crucial, prompting authorities to assess the impact of barge traffic on the Sundarbans' unique environment and protect it for the future.

Note:

Read more: Sundarbans, Inland Waterways Authority of India, Fly ash

Ensuring Accountability and Safety in AI Development

During the **first United Nations Security Council meeting on Artificial Intelligence (AI)**, concerns were raised regarding the **safety and responsible development of AI.**

AI leverages computers and machines to mimic the **problem-solving and decision-making capabilities of the human mind**. Therefore, the international community emphasized the need to develop methods to test AI systems for **capabilities, misuses, and safety flaws to avoid chaotic or unpredictable behavior**.

UN Secretary-General stressed the importance of **adopting standards and best practices** at the UN to address issues such as **bias, discrimination, and authoritarian surveillance that can be amplified by AI**. The development of AI should be consistent with **democratic values and human rights** to ensure **human-centric and trustworthy AI systems.**

Read more: United Nations Security Council , Artificial Intelligence (AI)

International Moon Day 2023

International Moon Day, observed on July 20, commemorates the **historic Apollo 11 mission's landing on the Moon in 1969.** Astronauts **Neil Armstrong and Buzz Aldrin** made history by **stepping onto the lunar surface** at the site named **Tranquility Base,** while **Michael Collins piloted the Columbia Command Module in lunar orbit**. The **United Nations General Assembly** declared it as an international day to be observed in its resolution 76/76 on "International cooperation in the peaceful uses of outer space" in 2021.

Read more: Apollo 11 mission

Mangal Pandey Birth Anniversary

Mangal Pandey, born on **July 19, 1827**, in Nagwa village, Uttar Pradesh, played a pivotal role in the **First Indian War of Independence**. On March 29, 1857, at the Barrackpore military cantonment near Calcutta, **he defiantly rebelled against British officers by refusing to use the controversial Enfield rifle cartridges** greased with animal fat.

This courageous act served as a **catalyst**, inspiring countless others to rise against British colonial rule, ultimately leading to the widespread **Indian Rebellion of 1857**. His arrest and subsequent execution on April 8, 1857, by British authorities only further fueled public outrage and united various communities in opposition to British rule.

Read more: Indian Rebellion of 1857

Gomti River: Controversy Over Perennial Status and Protection

The **Gomti River,** a significant tributary of the **Ganga River,** has become the center of a contentious issue surrounding its perennial status and protection.

The Irrigation department of the Uttar Pradesh government in September 2020 declared the Gomti as a **"non-perennial river,"** drawing criticism from water experts and river rights activists. Moreover, the Gomti plays a vital role in replenishing the **Ganga during monsoons,** making it indispensable to the region's ecosystem.

The river's dire need for protection is further highlighted by a report from the **Central Pollution Control Board (CPCB)**, ranking the Gomti as the fifth most polluted river in the country as of 2022.

Read more: Ganga River, Central Pollution Control Board

India-Russia Vande Bharat Deal

Recently, the **India-Russia Vande Bharat joint venture (JV) deal** was revived as **Rail Vikas Nigam Limited (RVNL)** subsidiary, Kinet Railway Solutions Limited, signed a share purchase agreement with Russian company Metrowagonmash and Locomotive Electronic Systems. This JV aims to **manufacture 120 Vande Bharat train sets**. The consortium aims to develop **two prototype trains by June 2025,** followed by **annual production of 12 to 18 trains**. Maintenance services **will be provided for 35 years**, with a **total investment of USD 1.8 billion for train supply and USD 2.5 billion for maintenance.**

Read more: **Vande Bharat Trains, Vande Bharat Express 2.0**

Commission on Genetic Resources for Food and Agriculture

Recently, delegates worldwide gathered in **Rome, Italy** the **Food and Agriculture Organization's (FAO) headquarters,** for the **19th session** of the **Commission on Genetic Resources for Food and Agriculture (CGRFA)**. The five-day session will focus on three key topics: **a review of work on biodiversity, nutrition, and human health; access and benefit-sharing for food and agriculture; and digital sequence information for food and agriculture**.

The CGRFA is a specialized agency of **FAO** of the **United Nations.** It is the main **intergovernmental body** that deals with all matters related to **biodiversity for food and agriculture** and aims to conserve and use it **sustainably for food security, human well-being, and development worldwide.**

Read more: **Food and Agriculture Organization's (FAO)**

Mission Organic Value Chain Development for Northeastern Region

Recently **Mission Organic Value Chain Development for Northeastern Regio**n was reviewed with focus on how to liquidate the committed liability of Phase III and roadmap for implementation of Phase IV of the scheme starting 2023-24.

Realizing the **potential of organic farming in the North-Eastern Region** of the country **Ministry of Agriculture and Farmer Welfare has launched "Mission Organic Value Chain Development for North-Eastern Region**" for implementation in the states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura, **during the 12th plan period**. It is a **Central Sector Scheme which aims at development of certified organic production in a value chain** mode to link growers with consumers and to support the development of entire value chain starting from inputs, seeds, certification, to the creation of facilities for collection, aggregation, processing marketing and brand building initiative.

Read more: **Organic Farming in India**

Gambusia Fish Release for Mosquito Control in Andhra Pradesh

The Andhra Pradesh government's recent release of approximately **10 million Gambusia fish,** also known as **mosquitofish**, into the

state's water bodies to **combat mosquito-borne diseases** has sparked concerns about potential harm to native species and ecosystem balance. The **Gambusia fish, native to the southeastern United States,** can consume 100 to 300 mosquito larvae per day.

While the fish is widely used as a **biological agent to control mosquito larvae**, its **introduction as an invasive**

Note:

alien species raises questions about its effectiveness and unintended consequences.

International Union for Conservation of Nature declare **Gambusia one of the 100 worst invasive alien species in the world.** Multiple countries, including India have also listed Gambusia as invasive species.

However, the fish continues to be a prominent part of the country's malaria control program and the fish continue to be released into freshwater bodies across the country, like **Andhra Pradesh, Chandigarh and Uttar Pradesh**.

Read more: International Union for Conservation of Nature, Invasive alien species

Tribute to Nawab Wajid Ali Shah, the Last King of Awadh

Kolkata is all set to celebrate the **bicentenary year of Nawab Wajid Ali Shah**, the last king of **Awadh** who was **deposed by the British** and **exiled to Metiabruz**, a suburb of Kolkata, where he spent his final years.

Nawab Wajid Ali Shah was a fine connoisseur of **art, music, dance, poetry and cuisine,** and he **supported many artists and performers in his court.** Although Wajid Ali Shah's pen-name was "**Qaisar**," he used pseudonym "**Akhtarpiya**" for his numerous compositions.

CRCS-Sahara Refund Portal

The Ministry of Cooperation inaugurated the '**CRCS-Sahara Refund Portal**' in New Delhi, marking a significant step towards addressing the grievances of depositors of the **Sahara Group of Cooperative Societies**. This dedicated portal aims to streamline the **disbursement process of Rs. 5000 Crores,** transferred from the "**Sahara-SEBI Refund Account**" to the **Central Registrar of Cooperative Societies (CRCS),** as directed by the **Supreme Court.** Genuine depositors can now conveniently submit their claims through this online platform.

Cooperatives are governed by state jurisdictions, those operating across multiple states are registered under the **Multi-State Co-operative Societies Act (MSCS) of 2002,** with administrative and financial control under the central registrar.

Read more: Cooperative Societies

Russia's Halting of Black Sea Grain Initiative Impacts Global Food Security

The recent **halt in the Black Sea Grain Initiative by Russia** has raised concerns over **global food security.** This breakthrough accord, brokered by the **United Nations** and **Turkey in July 2022,** allowed **Ukraine to ship grain to countries in Africa, the Middle East, and Asia.** However, Russia's decision to suspend the deal has disrupted the **flow of essential food supplies,** particularly in regions where hunger is a **growing threat and high food prices** have already pushed more people into poverty.

Read more: Black Sea Grain Initiative

15th Edition of NOMADIC ELEPHANT-23

Indian Army contingent comprising 43 personnel has embarked on a **journey to Mongolia** to participate in the **15th edition of the bilateral joint military exercise named "NOMADIC ELEPHANT-23."** The exercise is scheduled in **Ulaanbaatar, Mongolia from 17 to 31 July 2023.** NOMADIC ELEPHANT is a **training event** conducted alternatively in Mongolia and India.

India is also an active participant in an **annual week-long joint training exercise** called the **Khaan Quest, hosted by Mongolia.**

Read more: India-Mongolia Relations

Note:

120th Birth Anniversary of Thiru Kumaraswami Kamaraj

Recently, the Prime Minister of India paid tribute to **Thiru Kumaraswami Kamaraj on his Jayanti (15 July 1903 – 2 October 1975)**, acknowledging his significant contributions to India's development. Thiru K. Kamaraj actively participated in the **Salt March** in 1930, earning a two-year prison sentence. He faced imprisonment again from 1942 to 1945 due to his prominent involvement in the **Quit India campaign** against British rule. He was a **freedom fighter, politician, and social reformer** who served as the **Chief Minister of Madras State (now Tamil Nadu)** for nine years and as the **President of the Indian National Congress** for four years. He was known as the **"Kingmaker"** for choosing **Lal Bahadur Shastri and Indira Gandhi as Prime Ministers** of India after the death of Jawaharlal Nehru and Shastri, respectively. He was also a champion of education and poverty alleviation, introducing schemes like **free school uniforms, textbooks, midday meals, and scholarships for poor students in Tamil Nadu**. He was awarded the **Bharat Ratna, India's highest civilian honor, posthumously in 1976.**
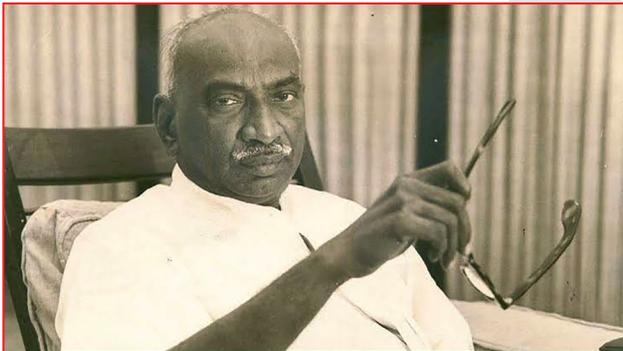
World Snake Day

World Snake Day was observed and celebrated by **National Zoological Park** on **July 16, 2023**, with the aim of **protecting snakes** and raising awareness about their significance in India's ecosystem.

Currently, India is home for **over 300 snake species, 60 of which are venomous**. Out of those 60, the majority of the snake bites occur due to the Big 4 species: **Daboia russelii** (Russell's viper), **Naja naja** (common **Indian Cobra**), **Bungarus caeruleus** (common krait), and **Echis carinatus** (saw-scaled viper).

Read more: Snakebite Envenoming

Oppenheimer: The Father of the Atomic Bomb

J. Robert Oppenheimer, an American theoretical physicist is known for his pivotal role in the creation of the atomic bomb. As the head of the Los Alamos Laboratory and leader of the Manhattan Project, Oppenheimer and his team harnessed advancements in nuclear physics to develop the **first atomic bomb.** The dawn of the Atomic Age occurred on **July 16, 1945, with the Trinity Test,** marking the successful detonation of the first atomic bomb. Subsequently, the **United States dropped atomic bombs on Hiroshima and Nagasaki in Japan,** resulting in devastating destruction and the loss of hundreds of thousands of lives, primarily civilians. These bombings concluded **World War II** in the eastern theater and initiated a nuclear arms race, with the Soviet Union, Britain, France, and China developing their own atomic weapons.

Oppenheimer, plagued by doubts about the implications of bestowing humanity with the means for its own annihilation, sought solace and reflection in the philosophy of the **Bhagavad Gita.** Oppenheimer's contemplation of the Bhagavad Gita allowed him to reconcile his actions, **comparing his role in developing the atomic bomb to the moral dilemmas faced by Arjuna in the epic.**

Read More: **Hiroshima and Nagasaki**, **Bhagavad Gita**,**World War II**.

Key Points

Details

Summary

Key Points

Details

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Summary