



drishti

**Current  
Affairs  
(CONSOLIDATION)**

**NOVEMBER 2023  
(PART – II)**

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# Polity and Governance

## Highlights

- Postal Ballots and EVMs
- Centre Exempts CERT-In from Ambit of RTI Act
- ECI Revokes Rythu Bandhu Scheme Disbursement
- Special Category Status
- Governor's Powers Over State Bills
- The Constitution Day
- Social Audits in MGNREGS
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- Digital Advertisement Policy, 2023
- Supreme Court Upholds Key Provisions of IBC
- SHREYAS Scheme for OBC & Others

## Postal Ballots and EVMs

### Why in News?

Recently, the Madhya Pradesh political parties filed a complaint with the state **Chief Electoral Officer**, accusing manipulation of **postal ballots** in the strong room and questioning the efficacy of **Electronic Voting Machines (EVMs)**.

- However, District Election Officer explained that the strong room was opened by the **assistant returning officer** with prior notice to representatives for **ballot sorting, not counting**.

### What are the Postal Ballots and Journey of EVMs?

- **Postal Ballots:**
  - Postal ballots serve as a voting option for service voters, absentee voters (**such as those above 80 years, individuals with benchmark disabilities, or those affected by Covid-19**), voters on **election duty**, and electors under **preventive detention**.
  - Eligible individuals, after completing necessary forms, receive postal ballots from the **Returning Officer (RO)** through **the mail or, in the case of election duty voters, at a facilitation center**.
- **EVM's Journey from Checks to Storage:**
  - The EVMs undergo a process before reaching polling stations. After the completion of first-level checks

and randomization exercises, **the machines are handed over to the ROs** while following guidelines outlined in the **Election Commission's (EC's) latest manual issued in August, 2023**.

- After voting is over, EVMs and **Voter-Verifiable paper audit trails (VVPATs)** are escorted back to collection or reception centres where **they are stored in strong rooms**.
- As per the EC manual, **all candidates have to be informed of this** and are allowed to send their representatives to oversee the security arrangements.
- **Security Measures and Storage of EVMs:**
  - The journey of EVMs involves **stringent security measures**, including **armed escort and storage in air-conditioned strong rooms**.
  - These strong rooms **serve as a secure location for EVMs until polling day, ensuring the integrity and confidentiality of the voting process**.
  - Political party representatives play a role in overseeing this storage process, **adding an extra layer of transparency to the electoral system**.

### What is the Procedure for Postal Ballots and Absentee Voters?

- **Postal Ballots' Procedures:**
  - According to EC instructions, the facilitation centre in-charge handling postal ballots is required to **open the drop box daily in the presence of party and candidate representatives**.

Note:

- Each constituency's ballots are placed in a large envelope or cotton bag and then **sent to the RO at the end of each voting day.**
- The RO assumes custody of these bags, **storing them securely in a designated "special strong room."**
- **Absentee Voters:**
  - For absentee voters, **Booth Level Officers (BLOs)** deliver **ballot form** to the electors' homes. **BLOs return within five days** of the election notification to collect the filled-in forms, submitting them daily to the ROs.
  - Essential services personnel among absentee voters can utilize special postal voting centres, **conducting voting for three consecutive days before polling day.** The packets of postal ballots from these centres are sent to the RO at the end of each day.
- **Secure Handling and Counting Preparations for Postal Ballots:**
  - In cases **where votes are to be counted at a location other than the RO's headquarters**, a day before counting, the postal ballots are transferred to **another strong room** at the counting centre.
  - This meticulous process ensures the **secure handling, documentation, and eventual counting** of postal ballots in adherence to electoral guidelines.

#### Voter Verified Paper Audit Trail

- VVPAT is an independent verification printer machine and is attached to electronic voting machines. It allows voters to verify if their vote has gone to the intended candidate.
- When a voter presses a button in the EVM, a paper slip is printed through the VVPAT. The slip **contains the poll symbol and name of the candidate.** It allows the voter to verify his/her choice.
- After being visible to the voter from a glass case in the **VVPAT for seven seconds**, the ballot slip will be cut and dropped into the drop box in the VVPAT machine and a beep will be heard.
- VVPAT machines can be accessed **by polling officers only.**

#### What are the Different Measures to Secure EVMs?

- **Functional Check:** The machines are **cleaned and earlier results are cleared.** Switches, buttons, cables and latches are inspected for damage.

- **Random Check:** A mock poll is **conducted on 5% of the total number of EVMs to be used for a poll.** About 1,000 votes are polled and the result printouts are shared with representatives of various political parties.
- **Throwing the Dice:** EVMs are **randomly placed in the constituencies and booths** and it is difficult to know which machine is kept where. During the first, **EVMs are allocated at random to a constituency.** In the second round, **they are randomised and allocated to a polling booth.**
- **A Dry Run:** Before the start of the actual poll, a **mock poll is conducted with at least 50 votes in the presence of candidates or their agents.**
  - The mock poll is then closed and the results are displayed. **On poll day, various checks are conducted by polling agents,** observers and central paramilitary forces.
- **Safe and Secure:** EVMs are placed in their carrying cases and sealed. **The machines are transported back to the reception centres** under armed escort and kept in the strong room.
- **Increasing the Existing VVPAT Verification Rate:** The order of the **Supreme Court** on increasing the existing VVPAT verification rate from **one to five random EVMs per Assembly constituency or segment,** tries to reassure those sceptical about the integrity of counting by means of EVMs.

## Centre Exempts CERT-In from Ambit of RTI Act

### Why in News?

The Centre, through the Department of Personnel and Training (DoPT), has recently issued a notification exempting the **Indian Computer Emergency Response Team (CERT-In)** from the purview of the **Right to Information Act, 2005.**

- CERT-In, will now operate outside the scope of the RTI Act, 2005 **limiting public access to information about its activities and functioning.**

### How was CERT-In Exempted?

- The Centre has used its powers given under **Section 24(2) of the RTI Act to exempt CERT-In from the purview of the transparency law.**

Note:

- Section 24(2) of the RTI Act, 2005 allows the Central Government to change the Schedule by **adding or removing intelligence or security organizations** established by the Government.
  - However, the subsection does not apply to the information pertaining to the **allegations of corruption and human rights violations**, not to the cases where such allegations are made.
- Moreover, the information related to the allegations of human rights violations can only be provided after the approval of the **Central Information Commission**.
- The Centre can amend the Second Schedule through a notification in the Official Gazette. However, every such notification shall be laid before each **House of Parliament**.
- Similar powers have been given to the state government under Sub-section 4 of Section 24 of the RTI Act.
- Using those powers, the Centre has included CERT-In in the Second Schedule of the RTI Act, alongside 26 other intelligence and security organizations that are already exempted from the Act.
  - The list includes prominent intelligence and security organizations such as **Intelligence Bureau, Directorate of Revenue Intelligence, Directorate of Enforcement, Narcotics Control Bureau**, and others.

### What is CERT-In?

- **About:**
  - CERT-In is the national nodal agency responsible for handling cyber security threats, such as **hacking and phishing**. It operates under the **Ministry of Electronics and Information Technology**.
  - CERT-In has been **operational since January 2004**.
- **Functions of CERT-In:**
  - According to the Information Technology Amendment Act 2008, CERT-In has been designated to serve as the **national agency** to perform the following functions in the area of cyber security:
    - Collection, analysis and dissemination of information on cyber incidents.
    - Forecast and alerts of **cyber security** incidents.
    - Emergency measures for handling cyber security incidents.

- Coordination of cyber incident response activities.
- Issue guidelines, advisories, vulnerability notes and whitepapers relating to information security practices, procedures, prevention, response and reporting of cyber incidents.
- Such other functions relating to cyber security as may be prescribed.

### ➤ Importance for India:

- CERT-In is important for India because it helps to **protect the country's critical information infrastructure** and **digital assets** from cyber-attacks.
- It also helps to enhance the **cyber resilience** and readiness of the country's various sectors, such as government, defence, banking, telecom, etc.
- It also contributes to the **national security and economic development** of the country by promoting a safe and secure cyber environment.

### What is the Right to Information Act, 2005?

#### ➤ About:

- Enacted in 2005, the RTI Act is a legislative framework granting Indian citizens access to information held by public authorities.
- Its foundation lies in **Article 19(1)(a) of the Constitution**, ensuring freedom of speech and expression.
  - The act replaced the Freedom of Information Act 2002.

#### ➤ Constitutional Backing:

- Derived from Article 19(1)(a), the RTI Act is considered a **fundamental right**, as established in the **Raj Narain vs. State of Uttar Pradesh case**.

#### ➤ Time Period and Exemptions:

- In normal course, information to an applicant is to be supplied **within 30 days**, or **48 hours if related to life or liberty**.
  - Section 8(1) outlines exemptions, covering national security, strategic state matters, foreign relations, and more.

#### ➤ Implementation:

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

Note:



- **Appellate Authority:**
  - If dissatisfied with the PIO's response, citizens can appeal to the First Appellate Authority within the same public authority. Further appeals can be made to the **Central or State Information Commission** if needed.
- **Recent Amendments in RTI Act:**
  - **Amendment in 2023:**
    - Recently, section 44 (3) of the Digital Personal Data Protection Act 2023 modified Section 8 (1)(j) of the RTI Act, **creating an exemption for all personal information from disclosure** and removing the previously established exceptions that permitted the release of such information.
  - **Right to Information (Amendment) Act, 2019:**
    - Altered tenure and conditions of **Chief Information Commissioner (CIC) and Information Commissioners (ICs)**.
- ICs' terms made subject to central government prescription (currently set for 3 years, not the previous fixed 5-year term).
  - Salary, allowances and other service conditions of the CIC and ICs (of centre as well as states) shall be such as prescribed by the central government.
  - **Eliminated provisions for deduction of pension** or retirement benefits for previous government service at the time of CIC and ICs' appointment.

## ECI Revokes Rythu Bandhu Scheme Disbursement

### Why in News?

The **Election Commission of India (ECI)** has revoked its earlier 'no objection' for the disbursement of funds under **Telangana's Rythu Bandhu scheme**.

- The move comes amid allegations of violations of the **Model Code of Conduct (MCC)**.

### Why did the ECI Reverse Rythu Bandhu Disbursement?

- The ECI gave a 'no objection' for Rythu Bandhu disbursement during the MCC period, like for other

existing Central and state government schemes, on the condition that it would not be published for political gains and that the disbursement would not be **during the silence period, i.e. the 48 hours preceding the date of poll**.

- The scheme, similar to **PM Kisan Samman Nidhi**, aimed to **assist farmers**, and the government received permission under certain guidelines.
- A speech by a Telangana minister, **publicizing the release of funds** under the Rythu Bandhu scheme **during the elections**, was found to violate the MCC and prompted the ECI's reversal.
- The EC's order directs an immediate withdrawal of permission for Rythu Bandhu disbursement during the MCC.
  - Disbursement is now halted until the MCC in Telangana ceases to apply, potentially impacting farmers' financial aid.

### Rythu Bandhu Scheme

- It is a Telangana government initiative that provides **farmers with investment support for agriculture and horticulture crops**.
- The idea is to **reduce the debt burden** of the farmers. As per the scheme, each farmer gets a **Direct Benefit Transfer (DBT)** of Rs.5,000 per acre each season for the purchase of seeds, fertilizers, pesticides and other requirements.
- Beginning with 50.25 lakh farmers in 2018, when the scheme was launched, the Rythu Bandhu beneficiaries have gone up to 70 lakh.

### What is ECI's Model Code of Conduct (MCC)?

- **About:**
  - The MCC, is a set of guidelines issued by the ECI, that regulates parties and candidates before elections, aligning with **Article 324 of the Constitution**.
  - It empowers the EC to oversee and ensure **fair elections to Parliament and State Legislatures**.
    - It is active from election schedule announcement to result declaration.
- **MCC for Political Parties and Candidates:**
  - **General Conduct:**
    - Parties and candidates must avoid activities that **create mutual hatred or tension** among different castes, communities, religious, or linguistic groups.

Note:

- **Criticism** of other parties should be **limited to policies, past records, and work, avoiding personal aspects.**
- Appeals to **caste or communal feelings for votes are prohibited.**
- Places of worship should not be used for election propaganda.
- **Party in Power:**
  - The MCC incorporated certain restrictions in 1979, regulating the conduct of the party in power.
  - Ministers must not combine **official visits with election work** or use official machinery for the same.
  - Ministers and authorities **should refrain from granting payments**, announcing financial grants, laying foundation stones, promising projects, making ad-hoc appointments, or **influencing voters in favour of the party in power** from the time elections are announced.
  - The party **must avoid advertising at the cost of the public exchequer** or using official mass media for publicity on achievements to improve chances of victory in the elections.
  - Ministers from the central or state government **should not enter polling stations** or counting places except in their **capacity as candidates, voters, or authorized agents.**
- **Election Manifestos:**
  - ECI directs that political parties and candidates must adhere to the following guidelines while releasing election manifestos for any election (Parliament/State Legislatures):
    - Manifestos should align with the Constitution and MCC.
    - Avoid promises that may influence voters unduly.
    - Manifestos should reflect rationale and financial considerations.
  - Manifestos shall **not be released during the prohibitory period**, as prescribed under **Section 126 of the Representation of the People Act (RPA) 1951**, for single or multi-phase elections.
- **Meetings:**
  - Parties must **inform the local police authorities of the venue and time** of any meeting in time

to enable the police to make adequate security arrangements.

- **Processions:**
  - If **two or more candidates plan processions** along the **same route**, the political parties must establish contact in advance to ensure that the **processions do not clash.**
  - **Carrying and burning effigies** representing members of other political parties is **not allowed.**
- **Polling Day:**
  - Only voters and those with a valid pass from the EC are allowed to enter polling booths.
  - All authorized party workers at **polling booths should be given suitable badges or identity cards.**
  - Identity slips supplied by them to voters **shall be on plain (white) paper and shall not contain any symbol, name of the candidate or the name of the party.**
- **Observers:**
  - The EC will appoint observers to whom any candidates may report problems regarding the conduct of the election.
- **Legality of MCC:**
  - Though the MCC does not have any statutory backing, it has come to acquire strength in the past decade because of its strict enforcement by the EC.
  - Certain provisions of the MCC may be enforced through invoking corresponding provisions in other statutes such as the **Indian Penal Code of 1860, Code of Criminal Procedure of 1973, and RPA of 1951.**
  - In 2013, the Standing Committee on Personnel, Public Grievances, Law and Justice **recommended making the MCC legally binding** and recommended that the MCC be made a part of the RPA 1951.

## Special Category Status

### *Why in News?*

Recently, the Bihar Cabinet has passed a resolution seeking the grant of **Special Category Status (SCS)** to Bihar.

- The demand comes in the backdrop of the findings from the **“Bihar Caste-based Survey, 2022”**, which revealed that **nearly one-third of Bihar’s population continues to live in poverty.**

Note:

## What is a Special Category Status?

### ➤ About:

- SCS is a classification given by the **Centre to assist development of states that face geographical and socio-economic** disadvantages.
- The Constitution does not make a provision for SCS and this classification was later done on the recommendations of the **5<sup>th</sup> Finance Commission in 1969**.
- Status was first accorded to Jammu and Kashmir, Assam and Nagaland in 1969.
- SCS for plan assistance was granted in the past by the National Development Council of the **erstwhile Planning Commission**.
- Eleven States including Assam, Nagaland, Himachal Pradesh, Manipur, Meghalaya, Sikkim, Tripura, Arunachal Pradesh, Mizoram, Uttarakhand and Telangana have been accorded the special category state status.
  - Telangana, the newest State of India, **was accorded the status as it was carved out of another state** Andhra Pradesh.
- SCS is different from **Special status which imparts enhanced legislative and political rights**, while SCS deals with only economic and financial aspects.
  - For instance, J&K used to have Special status before **Article 370** was repealed.

### ➤ Parameters (Based on Gadgil Formula):

- Hilly Terrain;
- Low Population Density and/or Sizeable Share of Tribal Population;
- Strategic Location along Borders with Neighbouring Countries;
- Economic and Infrastructure Backwardness; and
- Nonviable Nature of State finances.

### ➤ Benefits:

- In the past, SCS states used to receive approximately 30% of central assistance, determined by the Gadgil-Mukherjee formula.
  - However, following the recommendations of the 14<sup>th</sup> and **15<sup>th</sup> Finance Commissions (FC)** and the dissolution of the Planning Commission, this assistance to SCS States has been subsumed in an increased **devolution of the divisible pool funds for all States (increased to 41% in the 15<sup>th</sup> FC from 32%)**.

- The Centre pays 90% of the funds required in a **Centrally-Sponsored Scheme** to special category status states as against **60% or 75% in case of other states**, while the remaining funds are provided by the state governments.
- Unspent money in a financial year does not lapse and is carried forward.
- Significant concessions are provided to these states in excise and customs duties, income tax and corporate tax.
- **30% of the Centre's Gross Budget** goes to Special Category states.

## Why is Bihar

### Demanding Special Category Status (SCS)?

#### ➤ Economic Disparities:

- Bihar faces **significant economic challenges, including a lack of** industrial development and limited investment opportunities.
- The bifurcation of the state resulted in the shifting of industries to **Jharkhand, exacerbating the employment and economic growth** issues in Bihar.

#### ➤ Natural Calamities:

- The state grapples with **natural calamities like floods in the northern region** and severe droughts in the southern part.
- These recurring disasters **disrupt agricultural activities**, affecting livelihoods and economic stability.

#### ➤ Lack of Infrastructure:

- Infrastructure, especially in terms of irrigation facilities and water supply, remains inadequate.
- The absence of sufficient resources for irrigation impacts agricultural productivity, a primary **source of livelihood for a large portion of the population**.

#### ➤ Poverty and Social Development:

- Bihar has a high poverty rate, with a significant number of families living below the poverty line.
- With a per-capita GDP of around Rs 54,000, Bihar has **consistently been one of the poorest States**. Bihar is home to around 94 lakh poor families and the granting of SCS will help the government get about RS 2.5 lakh crore required to fund various welfare measures over the next five years.

#### ➤ Funding for Development:

- Seeking SCS is also a means to secure substantial financial assistance from the central government,

Note:

allowing Bihar to access funds required for development projects and addressing long-standing socio-economic challenges.

### Does Bihar Fulfill Criteria for the Grant of SCS?

- Although Bihar meets most of the criteria for the grant of SCS, it does not fulfil the requirement of **hilly terrain and geographically difficult areas**, which is considered to be the **primary reason for difficulty** in infrastructural development.
- In 2013, the Raghuram Rajan Committee set up by the Centre, placed Bihar in the **“least developed category”** and suggested a new methodology based on a ‘multi-dimensional index’ for devolving funds instead of a SCS, which can be **revisited to address the State’s socio-economic backwardness**.

#### Do other States also Want SCS?

- Since its bifurcation in 2014, Andhra Pradesh has asked for a grant of SCS on the grounds of revenue loss due to **Hyderabad going to Telangana**.
- Additionally, Odisha has also been requesting for the SCS, highlighting its vulnerability to natural calamities such as cyclones and a large tribal population (nearly 22%).
- However, the Central government citing the 14th FC report, which made a recommendation to the Centre that no State be accorded the SCS, has repeatedly denied their demands.

### What are the Concerns Related to Special Category Status?

- **Resource Allocation:**
  - Granting SCS entails providing additional financial assistance to the state, which can strain the **central government’s resources**. Balancing the allocation of funds among various states becomes crucial, and granting SCS might lead to **disparities or dissatisfaction among non-SCS states**.
- **Dependency on Central Assistance:**
  - States with SCS often become heavily reliant on central assistance. This could potentially **discourage efforts toward self-sufficiency** and independent economic growth strategies.
- **Implementation Challenges:**
  - Even after the grant of SCS, there might be challenges in utilizing the funds effectively **due to administrative inefficiencies**, corruption, or lack of

proper planning. Ensuring that the allocated funds are used for intended purposes is a significant challenge.

## Governor’s Powers Over State Bills

### Why in News?

Recently, the **Supreme Court (SC)** of India has stated when the Governor chooses to withhold assent to a Bill, it is mandatory for them to follow a specific course of action outlined in **Article 200 of the Constitution**.

- The key aspect of Article 200 is that it mandates the Governor to communicate their reasons for withholding assent and prompt the Legislature to reconsider the Bill.

### What is the Ruling of the Supreme Court?

- If a Governor refuses to approve a Bill, they **have to follow Article 200**.
- The SC has held that **if a Governor decides to withhold assent to a Bill**, then he has to return the bill to the legislature for reconsideration.
- The Governor’s withholding of assent without the necessary step of communicating the need for the Legislature to reassess the **Bill violates constitutional principles**.
- The elected Legislature has the final say on the Bill, and the Governor’s message doesn’t force them to agree. That is, **once the House re-passes the returned Bill**, with or without amendments, **the Governor has no choice but to grant consent**.
- The ultimate authority to **accept or reject a Bill lies with the elected Legislature**, and the Governor’s message **does not bind the legislative body**.

### What are the Governor’s Powers over Bills?

- **Article 200:**
  - Article 200 of the Indian Constitution **outlines the process for a Bill passed by the Legislative Assembly** of a State to be presented to the Governor for assent, who may either assent, withhold assent or reserve the Bill for consideration by the President.
  - The Governor **may also return the Bill** with a message requesting reconsideration by the House or Houses.

Note:

# Governor



## Eligibility Criteria

- Must be a **citizen of India**
- At least **35 years** of age
- Must **not be a member of (either) house** of Parliament/State Legislature
- Must not hold any **office of profit**

## 'Dual Capacity'

- **Constitutional head of the state** and **Representative of the Union government**

## Appointment and Tenure (Part VI)

- Appointed by President (**Article 153**)
- One person can be appointed as Governor for **2+ States (7th Const. Amendment in 1956)**
- Holds the office at the **Pleasure of the President** (maximum **5 years**)

## Ending Tenure before 5 Years

- **Dismissal by President** (on advice of the Council of Ministers headed by PM)
  - Dismissal of governors without a valid reason is not permitted
- On grounds of **acts upheld by courts as unconstitutional** and malafide
- **Resignation** by the governor

## Powers (Part VI)

- Article 161: **Pardoning powers**
- Article 164: Power to **appoint the CM and other Ministers**
- Article 176: **Special Address** by Governor
- Article 200: Power to **(withhold) assent/reserve a bill** (Legislative Assembly)
- Article 213: Power to **promulgate Ordinances**

## Responsibilities

- **Appoints** – CM, other Ministers, Advocate General of State, Members of State PSC, judges of HC and districts
- Act as **ex-officio chancellor** of state Universities

Note:

- **Article 201:**
  - It states that when a Bill is reserved for the consideration of the President, the **President may assent to or withhold assent** from the Bill.
  - The President may also direct the Governor to return the Bill to the House or Houses of the Legislature of the State for reconsideration.
- **Options Available with the Governor:**
  - He may give assent, or he **can send** it back to the Assembly requesting it to reconsider some provisions of the Bill, or the Bill itself.
  - He may reserve the bill for the consideration of the President. The reservation is obligatory where the bill passed by the state legislature endangers the position of the state high court. However, the governor can also reserve the bill if it is of the following nature:
    - Against the provisions of the Constitution
    - Opposed to the **Directive Principles of State Policy (DPSP)**.
    - Against the larger interest of the country
    - Of grave national importance
    - Deals with compulsory acquisition of property under Article 31A of the Constitution.
  - Another option is to withhold the assent, but this is not normally done by any Governor because it would be an extremely unpopular action.

### **Can the Governor withhold His Assent to a Bill in Exercise of His Discretionary Powers?**

- While a **plain reading of Article 200** suggests that the Governor can withhold his assent, experts question whether he can do so only on the advice of the Council of Ministers.
- The Constitution provides that the Governor can exercise his executive powers only on the **advice of the Council of Ministers under Article 154**.
- The larger question is why a Governor should be allowed to withhold assent when the Bill is passed by the Assembly.

### **What are the Issues with Pending Bills?**

- **Delay in Decision-Making:**
  - The Governor's failure to take a decision on the Bills passed by the legislature **leads to a delay in decision-making**, which affects the effective functioning of the state government.

- When the Governor fails to make a decision on a Bill passed by the assembly, it **delays the implementation of policies** and laws.
- **Undermines the Democratic Process:**
  - The Governor, who is appointed by the Centre, can use his powers to delay or reject Bills passed by state assemblies for political reasons, which undermines the democratic process.
- **Public Perception:**
  - The public often views pending Bills with the Governor as a sign of inefficiency or even corruption in the state government, which can damage the government's reputation.
- **Lack of Accountability:**
  - When the Governor withholds assent, he does not provide any reason for his decision.
  - This lack of accountability undermines the principles of transparency and accountability in governance.

## **The Constitution Day**

### **Why in News?**

The Ministry of Law and Justice, in collaboration with the Indian Law Institute, celebrated **Constitution Day** on 26<sup>th</sup> November 2023.

### **What are the Key Facts About Constitution Day?**

- The Constitution Day, also known as **National Law Day** or **Samvidhan Diwas**, is celebrated in India on **26<sup>th</sup> November every year** to commemorate the adoption of the Constitution of India.
  - On 29<sup>th</sup> August, 1947, the Constituent Assembly set up a Drafting Committee under the Chairmanship of Dr. B.R. Ambedkar to prepare a **Draft Constitution for India**.
  - On 26<sup>th</sup> November 1949, the Constituent Assembly of India adopted the Constitution of India, which came into effect on 26<sup>th</sup> January 1950.
- The **Ministry of Social Justice and Empowerment** on 19<sup>th</sup> November, 2015, notified the decision of the Government of India to celebrate **26 November as 'Constitution Day'**.
- The day is observed to spread the importance of the constitution and the thoughts and ideas of **B. R. Ambedkar**, the chief architect of the constitution.

Note:

### What are the Key Facts about the Constitution of India?

- The Constitution of India is the **longest-written constitution** of any sovereign country in the world.
  - Originally, the Constitution of India was written in **English and Hindi**.
- The Constitution of India was handwritten by **Prem Behari Narain Raizada** in a calligraphy font, and each page was decorated by artists from **Shantiniketan under the guidance of Nandalal Bose**.
  - The framing of the Constitution took over 2 years, 11 months and 18 days.

- The basic structure of the Indian Constitution stands on the **Government of India Act, 1935**.
- The Constitution of India declares India a **sovereign, socialist, secular, and democratic republic** and assures its citizens justice, equality, and liberty, and endeavours to promote **fraternity**.
- The Constitution of India was drafted by a **committee of seven members**, headed by **Dr. B. R. Ambedkar**, who is regarded as the **father of the Indian Constitution**.
- The Constitution of India was inspired by various other constitutions, such as the US Constitution, the UK Constitution, the Irish Constitution, the French Constitution, the Canadian Constitution, the Australian Constitution, and the Japanese Constitution.

#### Indian Constitution Borrowed Features

1.	British Constitution	Parliamentary form of Government, Rule of Law, Law making procedure, Single Citizenship; Institution of Speaker, doctrine of pleasure tenure of civil servants.
2.	American Constitution	Judicial System, Fundamental Rights
3.	Canadian Constitution	Federal System with a strong central authority; Residual powers, Centre State Relation.
4.	Irish Constitution	Directive Principles, Election of the President of India
5.	Australian Constitution	Concurrent list; Freedom of Trade & Service within country
6.	Weimar Constitution	Emergency Provision
7.	Soviet Constitution	Five Year Plans; Fundamental duties
8.	Govt of India Act 1935	Office of the governor, powers of the federal jury.
9.	South African	Amendment of Constitution.

## Social Audits in MGNREGS

### Why in News?

Recent data from the Management Information System (MIS) on **Social Audit**, maintained by the **Ministry of Rural Development (MoRD)**, sheds light on the progress and challenges of the social audit in the **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)**.

### What is the Progress of Social Audits in MGNREGS?

- According to the data from the MIS on Social Audit, Out of the 34 States and Union Territories, only **6 have surpassed the 50% mark in completing social**

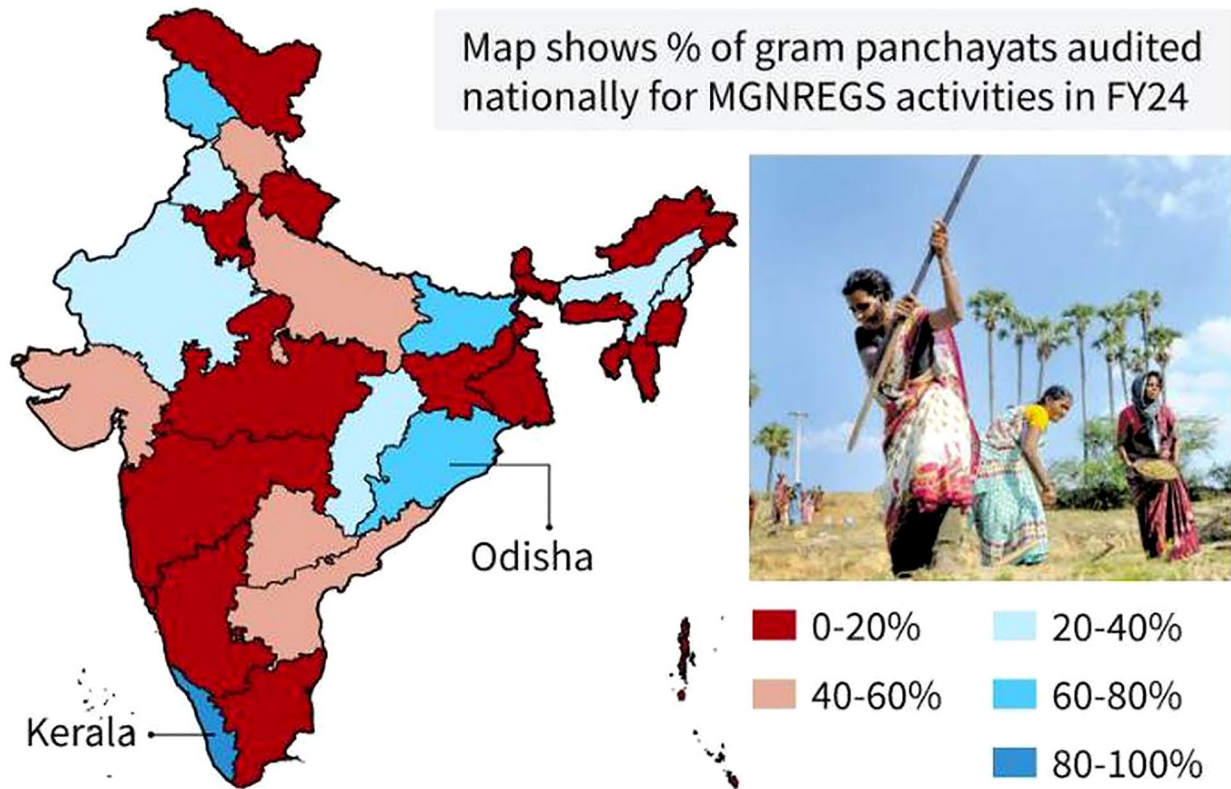
**audits** of works done under MGNREGS in gram panchayats.

- Kerala emerges as the frontrunner, achieving **100% coverage of gram panchayats** in social audits, showcasing a comprehensive and inclusive approach.
  - Apart from Kerala, five other states have surpassed the 50% mark in social audit coverage, namely **Bihar (64.4%), Gujarat (58.8%), Jammu and Kashmir (64.1%), Odisha (60.42%), and Uttar Pradesh (54.97%)**.
- Only three States have covered 40% or more villages Telangana (40.5%), Himachal Pradesh (45.32%) and Andhra Pradesh (49.7%).
- Other than Telangana, among the poll-bound States, the numbers are really low — Madhya Pradesh (1.73%), Mizoram (17.5%) Chhattisgarh (25.06%), and Rajasthan (34.74%).

Note:

# Audited panchayats

Kerala is the only State that has completed social audits of all activities done under MGNREGS in each of its Gram Sabhas



Source: Union Ministry of Rural Development (as of November 10, 2023)

## What is a Social Audit?

### ➤ About:

- Social audit is a process of **reviewing official records** and determining whether state reported expenditures reflect the actual money spent on the ground.
- Social audit is the inbuilt **anti-corruption mechanism in the MGNREGA Act, 2005**.
  - It involves quality checks of infrastructure created under the MGNREGA, financial misappropriation in wages, and checking for any procedural deviations.

### ➤ Objectives:

- Aimed at empowering local communities, social audits enable citizens to scrutinize and assess

the efficiency and effectiveness of government initiatives.

### ➤ Legal Framework:

- In the context of MGNREGS, **Section 17 of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)** mandates the gram sabha to monitor the execution of works, providing a legal basis for social audits.
- The **Audit of Scheme Rules, 2011**, also known as the Mahatma Gandhi National Rural Employment Guarantee Audit of Schemes Rules, 2011, were developed by the Ministry of Rural Development in collaboration with the **Comptroller and Auditor General (CAG) of India**.
  - These rules outline the procedures for social audits and the duties of various entities, including

Note:



the **Social Audit Unit (SAU)**, state government, and field workers of MGNREGA, to be followed nationwide.

- Social audit units operate **independently of the implementing authorities**, ensuring an unbiased evaluation of the programs.
  - To ensure the autonomy of Social Audit Units, they are entitled to funds equivalent to **0.5% of the MGNREGA expenditure** incurred by the state in the previous year.
  - In cases where states fail to conduct regular social audits, the Centre has the authority to withhold funds allocated under MGNREGS.
- **Challenges in Implementation:**
- Limited **awareness** of the legal framework for social audits, especially among **local communities**, can impede their active involvement in the process.
  - Limited **financial resources for Social Audit Units** can compromise their ability to carry out thorough and effective audits, restricting the scope of their activities.
  - The intrusion of **political influence** can hinder the impartiality of social audits, impacting the authenticity and objectivity of the evaluation process.
  - Lack of **cooperation and coordination** of the implementing authorities and the social audit units.
  - Lack of **follow-up and action on the findings and recommendations** of the social audit reports.
  - Lack of **protection and support for the social auditors** and the **whistle-blowers** who face threats and harassment from the vested interests.

#### What is MGNREGS?

##### ➤ About:

- The MGNREGS is one of the largest work guarantee programmes in the world launched in **2005 by the Ministry of Rural Development**.
  - The MGNREGA is the legal framework that enables the implementation of the scheme and gives the **right to work to the rural poor**.
- Under MGNREGS a total of 11.37 Crore households availed employment and a total of 289.24 crore person-days employment has been generated (till 15<sup>th</sup> December 2022).

##### ➤ Objectives:

- The scheme aims to provide **at least 100 days of guaranteed wage employment** in a financial year to rural households whose adult members volunteer to do unskilled manual work.
- Strengthening the **livelihood resource** base of the poor.
- Proactively ensuring social inclusion.
- Strengthening **Panchayati Raj Institutions (PRIs)**.

##### ➤ Achievements of MGNREGA:

- GIS-Based Planning of Gram Panchayats (GPs):
  - The Ministry has initiated an integrated holistic planning of the Gram Panchayats based on **watershed development principles** (ridge to valley approach) using the **Geographical information system (GIS)**.

- As of December 2022, plans for 2,62,654 GPs have been designed in a saturation mode for three years of planning.

##### ○ National Electronic Fund Management System (NeFMS)/ DBT:

- Under the MGNREGA, 99% of wage seekers are receiving their **wages directly into their Bank/Post Office accounts**.
- It is a big step towards transparency and timely release of wages.

##### ○ SECURE:

- SECURE is an online application designed and developed specially for the **estimate preparation and approval for MGNREGA works**.

##### ○ Skill Development:

- The project **"UNNATI"** intends to upgrade the skill-base of the MGNREGA workers, and thereby improve their livelihoods, so that they can move from the current partial employment to full employment.

- As of December 2022, 27,383 candidates have been trained.

- New Initiatives for the implementation of the programme:

- **Amrit Sarovar.**
- **Jaldoot App.**
- **Ombudsperson.**

Note:

## Appropriate Age for Class 1 Admission

### Why in News?

The issue of the appropriate age of **admission to Class 1** has been a matter of debate in India for a long time.

- There were 14 States and Union Territories, as of March 2022, that allow Class 1 admission for children **who have not completed six years**.
- However, the Union government has recently ordered all states and UTs to **make six years the minimum age** of admission for Class 1, by the **New Education Policy (NEP) 2020**.

### What does the NEP 2020 Say About the Minimum Age for Class 1 Admission?

- The new NEP pitches for a “5+3+3+4” design for formal schooling corresponding to the **age groups 3-8 years (foundational stage), 8-11 years (preparatory stage), 11-14 years (middle stage), and 14-18 years (secondary stage)**.
  - This brings early childhood education (also known as **preschool education** for children of ages **3 to 5 years**) under the ambit of formal schooling.
- This effectively means that a **child should be 6 years old** to be eligible for admission into Class 1, after completing three years of early childhood education.

#### Note:

- **Right to Education (RTE) Act, 2009** guarantees education from the **age of 6 years to 14 years**.
- This means that a child is expected to begin elementary education (Class 1) at the age of 6 years.

### What does Research Say About the Entry Age for Formal Education?

- Comparative studies in New Zealand observed groups of children starting formal literacy lessons at ages 5 and 7.
  - Children who started at **age 5 showed less positive attitudes** towards reading and exhibited poorer text comprehension compared to those who started later.

### Global Perspective on Entry Age:

- Six is the standard age for primary school in East Asia and most European countries.
  - Scandinavian countries start formal education at seven.

## Aadhaar Services Outages

### Why in News?

Recently, the **Unique Identification Authority of India (UIDAI)** has revealed that there was significant outage in Aadhaar authentication services in 2023, raising concerns about the reliability of Aadhaar services.

- There were **delays in sending one-time passcodes by SMS**, and ‘intermittent’ and ‘minor fluctuations’ in authentication were faced by **Aadhaar servers for hours-long periods** throughout the year till September 2023, amounting to 54 hours and 33 minutes of disruptions.

### What is Aadhaar Authentication?

#### About:

- Aadhaar Authentication is a **process by which the Aadhaar number along with demographic information** (such as name, date of birth, gender etc) or biometric information (Fingerprint or Iris) of an individual is submitted to UIDAI’s Central Identities Data Repository (CIDR) for its verification and UIDAI verifies the correctness of the details submitted, or the lack thereof, on the basis of information available with it.
  - Aadhaar authentication is fundamental to accessing services, requiring individuals to **use their fingerprints or SMS passcodes to verify their identity** for tasks such as accessing rations and government services.

#### Concern:

- The prolonged and repeated outages in 2023 raise questions about the overall reliability of Aadhaar services, especially as they have processed over 100 billion authentications since the platform’s launch in 2009.

#### Implications of the Outage in Recent Aadhaar Authentication:

- **Access to Essential Services:** Aadhaar authentication is **integral to accessing a wide range of essential**

Note:

services, including government welfare programs, rations, and other entitlements. The outage may have resulted in individuals being denied timely access to these services, leading to potential hardships.

- **Impact on Government Programs:** Government initiatives often rely on Aadhaar authentication to streamline service delivery and prevent leakages. Outages can disrupt the smooth functioning of these programs, affecting the targeted beneficiaries and the overall efficacy of welfare schemes.
- **Financial Transactions:** Aadhaar-enabled services, such as ATM transactions, depend on authentication. The disruption may have hindered individuals' ability to conduct financial transactions, impacting their day-to-day financial activities and access to banking services.
- **Public Trust and Confidence:** Repeated outages can erode public trust in the reliability of Aadhaar services. Citizens depend on Aadhaar for various aspects of their lives, and interruptions may lead to a loss of confidence in the system's ability to securely manage personal information and facilitate smooth service delivery.

#### What is Aadhaar?

- Aadhaar is a **12-digit individual identification number** issued by the Unique Identification Authority of India on behalf of the Government of India. The number serves as proof of identity and address, anywhere in India.
- The Aadhaar number is unique for each individual and will remain valid for life time.
- Aadhaar number will help the residents to avail various services provided by banking, mobile phone connections and other Govt and Non-Govt services in due course.
- Establishes identity of individuals on the basis of demographic and biometric information.
- It is a voluntary service that **every resident can avail irrespective of present documentation.**

## Transit Anticipatory Bail

### Why in News?

Recently, the **Supreme Court (SC) of India** in the case of *Priya Indoria vs State of Karnataka and Ors, 2023*

ruled that a **Sessions Court or the High Court** in a state can **grant transit anticipatory bail** to an accused through the **First Information Report (FIR)** is registered outside their jurisdiction.

- The SC emphasizes the constitutional imperative of **protecting citizens' right to life and personal liberty** as enshrined in **Article 21 of the Constitution of India.**

#### Note:

- Transit anticipatory bail serves as a **form of protection for the accused** against arrest **until they can reach a court with territorial jurisdiction** for the alleged offense.
  - The term "transit anticipatory bail" is **not explicitly defined in the Code Of Criminal Procedure (CrPC) or any other legislation.**
  - The SC introduced the concept of transit anticipatory bail in the case of *State of Assam v. Brojen Gogol in 1998.*
- This type of bail provides **equitable and interim relief**, particularly for individuals residing in a different state, allowing them to seek anticipatory bail.

### What is the SC's Ruling on Transit Anticipatory Bail?

- SC rules that the **High Court/Sessions Courts should grant transit anticipatory bail** in the form of interim protection under **Section 438** of the **Code Of Criminal Procedure (CrPC), 1973** in the interest of justice concerning **FIR registered outside the territorial jurisdiction** of the said court,
  - SC highlighted that an absolute bar on jurisdiction **could lead to unjust consequences**, especially for bona fide(genuine) applicants facing wrongful, mala fide, or politically motivated prosecution.
- The SC noted transit anticipatory bail should be granted in **"exceptional and compelling circumstances only"** to prevent irreparable harm to the applicant.
- **The SC Laid Down Conditions for Interim Protection:**
  - Notice to the investigating officer and public prosecutor is mandatory during the first hearing.
  - The order granting limited relief must explicitly record reasons explaining why the applicant anticipates an **inter-state arrest** and the potential impact of such protection on the ongoing investigation.

Note:

- The applicant must satisfy the court regarding their inability to seek anticipatory bail from the court with territorial jurisdiction over the FIR.
  - The satisfaction could be based on apprehension of **threats to life or personal liberty** in the jurisdiction where the FIR is registered, concerns about arbitrariness, or medical reasons.
- The ruling acknowledges the possibility of accused **individuals choosing a favourable court for interim protection.**
- To prevent abuse, the court highlights the importance of a **territorial connection** between the accused and the court's jurisdiction.

### What is Bail and What are its Types?

#### ➤ Definition:

- Bail is the **conditional/provisional release** of a person held under legal custody (in matters which are yet to be pronounced by the Court), by undertaking a promise to appear in the Court as and when required.
- It signifies a **security/collateral deposited before the Court** for release.
  - In the *Supt. and Remembrancer of Legal Affairs v. Amiya Kumar Roy Choudhry* (1973) case, the Calcutta High Court explained the **principle behind giving Bail.**

#### ➤ Types of Bail in India:

- **Regular Bail:**
  - It is a direction given by the **Court (any Court within the country) to release** a person who is already under arrest and kept in police custody.
- For such Bail, a person can file an application under Sections 437 and 439 of the **Code Of Criminal Procedure (CrPc), 1973.**
- **Interim Bail:**
  - Bail granted for a **temporary and short period** by the Court till the application seeking Anticipatory Bail or Regular Bail is pending before a Court.
- **Anticipatory Bail or Pre-arrest Bail:**
  - It is a legal provision that allows an accused person to apply for bail before being arrested. In India, pre-arrest bail is granted under **section 438 of the CrPc, 1973.**
  - It is issued only by the **Sessions Court and High Court.**

- The provision of pre-arrest **bail is discretionary**, and the court may grant bail after considering the nature and gravity of the offence, the **antecedents of the accused**, and other relevant factors.
- The court may also impose certain **conditions while granting bail**, such as surrendering the passport, refraining from leaving the country or reporting to the police station regularly.
  - **Statutory Bail:**
    - The remedy of statutory bail, also known as **default bail**, is distinct from bail obtained in the **ordinary procedure under CrPC Sections 437, 438, and 439.**
    - As the name implies, statutory bail is **given when the police or investigating agency fails to file its report/complaint** within a certain time frame.
- This is enshrined in Section 167(2) of the CrPC.

## Haryana's Private Sector Quota Law

### Why in News?

The Punjab and Haryana High Court has recently quashed the **Haryana State Employment of Local Candidates Act, 2020**, which mandated **75% reservation for local candidates in private sector jobs.**

- The court has declared the law as **unconstitutional** and violative of the **fundamental rights** of citizens and employers.

### What is the Haryana Private Sector Quota Law?

- The Haryana State Employment of Local Candidates Act, 2020 was enacted by the state government in March 2021.
  - The law provided for 75% reservation for local candidates in private sector **jobs with a monthly salary of less than Rs 30,000 (originally Rs 50,000)** for 10 years.
- The Act covered various entities, including companies, societies, trusts, partnership firms, and large individual employers.
  - Employers with 10 or more employees were included, but **central or state governments and their organizations were exempt.**

Note:

- The law required the employers to register their employees on a government portal and to obtain a certificate of domicile for the local candidates.
  - A **“local candidate” domiciled** in the State of Haryana could avail the reservation by registering on a designated online portal.
- The law was aimed at providing employment opportunities and skill development for the local youth, especially the unskilled and semi-skilled workers, and to reduce the influx of migrants from other states.

**Note:**

- Job reservation Bills or laws for domiciles have also been announced in other States including Andhra Pradesh, Madhya Pradesh and Jharkhand.
- The job quota Bill passed in the Andhra Pradesh Legislative Assembly in 2019, also reserved three-fourths of private jobs for locals.

**What are the Concerns Regarding the Haryana Private Sector Quota Law?**

- The Faridabad Industries Association and other Haryana-based associations went to high court, contending that Haryana wanted to create reservations in the private sector by introducing a policy of **“sons of the soil”**, which was an infringement of the **constitutional rights of employers**.
  - The petitioners argued that private sector jobs are **purely based on skills and an analytical bent of mind**, and employees have a fundamental right to work in any part of India.
  - They asserted that the government’s act of forcing employers to hire local candidates **violated the federal structure of the Constitution**, acting contrary to the public interest and benefiting only one class.
- The Haryana government argued that it had the power to create such reservations under **Article 16(4)** of the Constitution, stating that the **right to equality in public employment** doesn’t prevent the state from providing reservations for any backward class not adequately represented in state services.
  - The Haryana government said the law was necessary to **protect the right to life and livelihood of the people** domiciled in the state and to protect their health, living conditions and their right to employment.

**What Did the High Court Rule?**

- The court noted that Section 6 of the Act, mandating quarterly reports on local candidates, and Section 8, enabling authorized officers to demand verification, were criticized as establishing an **“Inspector Raj.”**
  - Inspector Raj refers to over regulation/supervision by the Government of factories and industrial units.
- The court said the law violated the fundamental right to equality **under Article 14 of the Constitution**, as the law discriminated against the citizens and employers **based on place of birth and residence**.
  - Article 14 guarantees equality before the law and equal protection of the laws to all persons within the territory of India.
- The law also violated the fundamental right to **freedom of trade and commerce under Article 19 (1) (g) of the Constitution**, as it imposed unreasonable restrictions on the employers to hire local candidates, irrespective of their merit and suitability.
- The court believes that forcing private employers to hire only local candidates goes **against the Constitution’s vision**, as it could lead to widespread enactments by states **providing similar protection for their residents, creating barriers** that were not intended by the framers of the Constitution.

**Uttarkashi Tunnel Collapse****Why in News?**

Recently, an under-construction **Silkyara-Barkot tunnel** along the **Yamunotri National Highway in Uttarkashi district, Uttarakhand**, collapsed, trapping a significant number of workers inside.

- The incident raises concerns about **tunnel construction**, prompting closer examination of **potential causes and preventive measures**.

**What Could be the Potential Cause of Tunnel Collapse?**

- **About:**
  - The **Silkyara-Barkot tunnel** is part of the ambitious **Char Dham all-weather road project** of the Central Government.
  - The construction of the tunnel was tendered to **Hyderabad-headquartered Navayuga Engineering**

Note:

**Company** by the **National Highways and Infrastructure Development Corporation Ltd (NHIDCL)**, a fully owned company of the Ministry of Road Transport & Highways, Government of India.

- **Potential Causes of Tunnel Collapse:** The exact cause of the tunnel collapse is yet to be ascertained, but a possible factor could be:
  - The collapsed section, **situated around 200-300 meters from the tunnel mouth**, might have contained a **hidden loose patch** of fractured or weak rock, undetectable during construction.
  - Water seepage through this compromised rock could have **eroded it over time, creating an unseen void atop the tunnel structure**.

### **What are the Critical Aspects of Tunnel Construction?**

- **Tunnel Excavation Techniques:**
  - **Drill and Blast Method (DBM):** Involves **drilling holes into rock** and detonating explosives to break it apart.
    - DBM is often used in regions like the **Himalayas (Jammu & Kashmir and Uttarakhand)** due to the challenging terrain.
  - **Tunnel-Boring Machines (TBMs):** It bore through rock while supporting the tunnel behind with precast concrete segments. It is a more expensive but safer method.
    - TBMs are ideal when the **rock cover is up to 400 metres tall**. Underground tunnels for the Delhi Metro were dug using a TBM at shallow depth.
- **Aspects in Tunnel Construction:**
  - **Rock Investigation:** **Thoroughly examining the rock's strength and composition through seismic waves and petrographic analysis** to assess its load-bearing capacity and stability.
  - **Monitoring and Support:** **Continuous monitoring using stress and deformation meters**, along with various support mechanisms like **shotcrete, rock bolts, steel ribs, and specialized tunnel pipe umbrellas**.
  - **Geologist Assessments:** Independent geologists play a crucial role in examining the tunnel, **predicting potential failures**, and determining the rock's stability duration.

### **What are the Other Major Tunnels in India?**

- **Atal Tunnel: Atal Tunnel** (also known as **Rohtang Tunnel**) is a highway tunnel built under the **Rohtang Pass in the eastern Pir Panjal range** of the Himalayas on the **Leh-Manali Highway in Himachal Pradesh, India**.
  - At a length of 9.02 km, it is the **longest tunnel above 10,000 feet (3,048 m) in the world**.
- **Pir Panjal Railway Tunnel:** This 11.2 km long tunnel is **India's longest transportation railway tunnel**.
  - It runs through the Pir Panjal mountain range between **Quazigund and Baramulla**.
- **Jawahar Tunnel:** It is also called **Banihal Tunnel**. The length of the tunnel is 2.85 km.
  - The tunnel facilitates round-the-year road connectivity between **Srinagar and Jammu**.
- **Dr Syama Prasad Mookerjee Road Tunnel:** It was previously known as **Chenani-Nashri Tunnel** and is the longest road tunnel of India. The length of this road tunnel is **9.3 km**.

## **Sub-Categorisation Within Castes**

### **Why in News?**

The issue of **sub-categorization within Scheduled Castes (SCs)** has recently gained attention, with the Prime Minister of India expressing a commitment to identifying and assisting the most backward communities within the SCs.

- This move has sparked discussions on the legality, challenges, and potential impact of sub-categorization.

### **What is Sub-Categorisation Within Castes?**

- **About:**
  - Sub-categorisation within castes refers to the process of **creating sub-groups within the existing categories** of **Scheduled Castes (SCs)**, **Scheduled Tribes (STs)**, and **Other Backward Classes (OBCs)** for reservation and affirmative action.
  - Sub-categorisation aims to address the **intra-category inequalities** and ensure a **more equitable distribution of benefits** and opportunities among the most deprived and marginalized sections of society.

Note:

- **Legality of Sub-Categorisation:**
  - **Historical Attempts:**
    - States like Punjab, Bihar, and Tamil Nadu have attempted sub-categorization, facing legal challenges that have reached the Supreme Court.
  - **Constitutional Dilemma:**
    - The **Supreme Court of India**, in the case of ***E.V.Chinnaiah vs State Of Andhra Pradesh And Ors, 2004***, asserted that **only Parliament has the authority to create** and notify SC and Scheduled Tribes (STs) lists.
    - However, in another case of ***State of Punjab and Others versus Davinder Singh and Others, 2020*** judgment, a five-judge Bench ruled that **States could decide on the quantum of benefits in the lists of SCs/STs** already notified without “tinkering” with them.
      - The contradiction between the 2004 and 2020 judgments has led to the 2020 judgment being referred to a larger Bench.
    - There is a constitutional mandate and a judicial endorsement for sub-categorisation within castes, as **Article 16 (4) of the Constitution** empowers that the State can make any provision for **reservation in matters of promotion in favour of the SCs and STs** if they are not adequately represented in the services under the State.

### **Why is Sub Categorisation within Castes Needed?**

- There is a significant **diversity and heterogeneity within the SC, ST, and OBC** categories, based on factors such as occupation, education, income, social status, and regional variations.
  - There is evidence of disproportionate and skewed representation of certain **dominant and influential sub-groups** within the SC, ST, and OBC categories, who have cornered the **lion’s share of the reservation benefits**, leaving behind the weaker and more backward sub-groups.
- There is a demand from various sub-groups within the SC, ST, and OBC categories, such as the **Madigas in Telangana**, the Paswans in Bihar, and the Jatavs in Uttar Pradesh, for sub-categorisation and separate quotas to ensure fair and adequate representation.

### **What are the Challenges of Sub-Categorisation within Castes?**

- There is a **lack of reliable and updated data** on the population and socio-economic status of various sub-groups within the SC, ST, and OBC categories, which hampers the objective and scientific basis for sub-categorisation.
- There is a possibility of **legal and political backlash** from the dominant and influential sub-groups within the SC, ST, and OBC categories, who may resist and oppose the sub-categorisation and the reduction of their share of reservation benefits.
- There is a risk of further fragmentation and division within the SC, ST, and OBC categories, which may **weaken their collective identity** and solidarity and undermine their political and social empowerment.

## **Adultery and Related Intricacies**

### **Why in News?**

The **Parliamentary Committee on Home Affairs** has suggested that **adultery should be re-instituted as a crime in the Bharatiya Nyaya Sanhita (BNS), 2023**, the proposed law to replace the **Indian Penal Code (IPC), 1860**.

### **What is the Legal Position on Adultery in India?**

- **About Adultery:**
  - Adultery is the voluntary act of engaging in sexual relations by a married individual (man or woman) with someone other than their spouse.
- **Legal Position in India:**
  - Before 2018, the **Indian Penal Code included Section 497**, which classified adultery as a criminal act punishable by imprisonment for up to five years, a fine, or both.
    - Notably, **only men could face penalties under Section 497**, while women were exempt from prosecution.
    - This **ran counter to the broader definition of adultery encompassing both genders** engaging in voluntary sexual relations outside marriage.
  - In a landmark case, ***Joseph Shine vs Union of India (2018)***, the **Supreme Court** unanimously **struck down Section 497**.

Note:

- The ruling highlighted discrimination and constitutional violations, **asserting Articles 14, 15, and 21** of the Indian constitution, protecting **equality, non-discrimination, and life and liberty**, respectively.
- Recently, the **Parliamentary Committee on Home Affairs** proposed re-instituting adultery as a **crime in the Bharatiya Nyaya Sanhita (BNS), 2023**.
- However, it suggests a crucial change: **making it gender-neutral, applicable to both men and women**.
- It argued that **Section 497 was struck down on grounds of discrimination**, and making it gender-neutral would address this deficiency.

#### Legal Standing V/s Legislative Action

- The recent Parliamentary Committee on Home Affairs proposal appears to challenge the legal standing of the Supreme Court.
- The **Supreme Court's decision holds as the law of the land**. While Parliament cannot directly contravene the Supreme Court's decision, it has the authority to pass legislation that addresses the judgment's basis, aiming to rectify the identified defects while potentially considering retrospective or prospective laws to align with the court's observations.
- In the **Madras Bar Association vs. Union of India (2021) case**, the Supreme Court clarified that for a validating law to be considered valid, **it must effectively rectify the flaw identified in the initial judgment**.
  - This implies that if the changes proposed by the statute had been in place during the earlier judgment, they should have addressed the issue raised in a way that prevented the flaw from being highlighted.

#### What are the Arguments in Favour and Against Criminalising Adultery?

- **Arguments For Criminalizing Adultery:**
  - **Preserving Marital Sanctity:** Proponents argue that **criminalizing adultery safeguards the institution of marriage**, maintaining its sanctity and traditional values within society.
  - **Deterrent Effect:** Making adultery a punishable offense **might act as a deterrent, discouraging individuals from engaging in extramarital affairs**, thereby reducing the incidence of such actions.

- **Legal Recourse:** Criminalizing adultery provides a **legal avenue for addressing the breach of marital fidelity**, offering recourse to the aggrieved spouse for an act perceived as a violation of trust.
- **Moral Grounds:** Some argue that adultery is **morally wrong** and should therefore be punishable under the law, **reflecting societal norms and ethical standards**.
- **Arguments Against Criminalizing Adultery:**
  - **Autonomy and Privacy:** The Supreme Court highlighted that **criminalizing adultery infringes upon individual autonomy** within marital relationships.
    - Criminalizing adultery was seen as a violation of constitutional principles, particularly **Article 21**, which safeguards the right to dignity and privacy of both spouses.
    - It was suggested that **such matters should be addressed as grounds for divorce** rather than as a criminal offense.
  - **Civil vs. Criminal Matter:** Critics argue that **adultery is primarily a civil matter, centered on breach of trust** within a marriage.
    - Treating it as a criminal offense may not be proportionate to the nature of the offense, potentially escalating the situation unnecessarily.
  - **Impact on Relationships:** Treating adultery as a criminal offense could exacerbate already strained relationships.
    - **Legal ramifications might intensify emotional distress** and damage the prospects of reconciliation between spouses.
  - **Legal Complexity:** Adultery often involves **subjective and nuanced circumstances** within relationships.
    - Attempting to legislate and prosecute such cases may lead to legal complexities, **burdening the judicial system with subjective matters**.

## Frictions in Centre-State Relations

### Why in News?

In recent years, the frequency and intensity of disputes between the Centre and States have increased, weakening the Pillars of **Cooperative Federalism** and also have implications on the Indian Economy.

Note:



**Note: In Cooperative federalism, the Centre and states share a horizontal relationship, where they “cooperate” in the larger public interest.**

- It is an important tool to enable **states’ participation in the formulation** and implementation of national policies.
- Union and the states are constitutionally obliged to cooperate with each other on the matters specified in **Schedule VII of the constitution**.

### **What are the Issues of Centre-State Relations?**

- **Background:**
  - Continuing **Economic Reforms** since 1991 has led to the **relaxation of many controls on investments**, giving some room to States, but the autonomy regarding public expenditure policies is not **absolute as State governments depend on the Centre** for their revenue receipts.
  - Several States have recently pushed back as a result of which the ‘give and take’ equation between the Centre and the States has given **way to a more hardened stand by both**, leaving little room to negotiate.
  - The increasingly fractious Centre-State ties have **chipped away at the edifice of Cooperative Federalism**.
- **Complexities of Contemporary Disputes:**
  - The areas of contention include the **homogenisation of social sector policies**, functioning of regulatory institutions and the powers of central agencies.
  - Ideally bulk of the policies in these spheres should be at the discretion of States, with an apex central body overseeing the process of resource allocation.
  - However, the **apex bodies have often attempted to increase their influence and push States** in directions that are amenable to the Centre.

### **What are the Constitutional Provisions Related to Centre-State Relations in India?**

- **Legislative Relations:**
  - **Articles 245 to 255 in Part XI of the Constitution** deal with the legislative relations between the Centre and the states.
    - Given the federal nature of the Indian Constitution, it divides the legislative powers between the Centre and the states with respect to both the territory and the subjects of legislation.

- **Distribution of Legislative Subjects (Article 246):** Indian Constitution provides for a division of the subjects between the Centre and the states through three lists – **List-I (Union), List-II (State) and List-III (Concurrent)** in the Seventh Schedule.
- **Parliament Legislation in State Field (Article 249):** In abnormal times, the scheme of distribution is either modified or suspended.
- **Administrative Relations (Article 256-263):**
  - Articles spanning from **256 to 263 in Part XI** of the Constitution deal with the administrative relations between the Centre and the states.
- **Financial Relations (Article 256-291):**
  - Articles spanning from **268 to 293 in Part XII** of the Constitution deal with Centre – state financial relations.
    - Because India is a federal country, it adheres to the division of powers when it comes to taxation, and it is the responsibility of the Centre to allocate funds to the states.
  - **Schedule VII** describes the ability of the **Centre and states to levy taxes**.
    - The **Goods and Services Tax**, a dual structure tax, is a recent example of a financial centre-state relationship.

### **How Fiscal Federalism has been Compromised in Recent Times?**

- **Centre Dominance and Investment Shifts:**
  - The expanded scope of the Centre’s activities can lead to a scenario where it **encroaches upon States’ investment territory**.
    - For example, the Centre launched the PM Gati Shakti, where all States and UTs had to prepare and operationalise a State master plan in line with the national master plan for seamless implementation.
  - However, the flexibility of States in formulating their master plan is **curtailed by the centralisation of planning** and implementation of the national master plan, leading to **underinvestment by States**.
    - Consequently, States witnessed a **decline in capital expenditure on roads and bridges**, falling to a meagre 0.58% of the gross domestic product.
- **Peculiar Fiscal Competition:**

Note:

- While federal systems typically witness fiscal competition between regions/states, India has seen states engaging in competition not only amongst themselves **but also with the Centre**.
- This scenario arises **due to the Centre's augmented fiscal space**, granting it more spending power, while states **face limitations in raising non-tax revenues**.
  - Furthermore, **spending has become more concentrated** within the three largest States of **Uttar Pradesh, Maharashtra and Gujarat**, accounting for nearly half of the expenditure by 16 States between 2021-22 and 2023-24.
- This imbalance leads to **reduced financial autonomy for states** and skews welfare provisioning dynamics.
- **Inefficiencies from Parallel Policies:**
  - Federal abrasions between the Centre and states have resulted in the emergence of 'parallel policies.'
    - For instance, the **National Pension System (NPS)** heralded a shift from a defined benefit scheme to a defined contribution scheme.
    - While most states initially adopted the NPS, some are reverting to the old pension scheme due to perceived fiscal implications.
  - The lack of trust within the federal system drives states to duplicate policies, leading to **inefficiencies and long-term fiscal repercussions on the economy**.

### ***How can Federalism be Strengthened in India?***

- **Collaborative Dialogue:**
  - Foster **open and transparent communication** between the Centre and states. Encourage regular meetings and discussions to address concerns and find common ground on issues affecting both.
- **Empower States:**
  - Devolve **more decision-making powers and resources** to states while ensuring accountability. This can empower states to take charge of their development agenda without solely relying on the Centre.
- **Cooperative Policies:**
  - Encourage cooperative policies where the **Centre and states work together to formulate and implement initiatives**. This collaboration can optimise resources and ensure comprehensive development.
- **Clarity in Roles:**

- **Define clear roles and responsibilities** for both levels of government to **reduce overlapping jurisdictions** and conflicts. This clarity can streamline operations and prevent policy duplications.
- **Building Trust:**
  - Foster a culture of trust and cooperation through mutual respect and understanding. Establishing trust can facilitate smoother implementation of policies and reforms.

## **Government's Push for Data Ownership**

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

The Indian Government is reportedly considering directing major tech giants like Facebook, Google, and Amazon to **share anonymised personal data** for a **government-backed database**.

- This potential development, outlined in the upcoming **Digital India Bill, 2023** focused on data ownership and could impact the landscape of **artificial intelligence (AI) models**.

### ***What is Anonymised Data?***

- It is any data set that **does not contain personally identifiable information**. It could include **aggregated information**, such as the overall health data of a particular demography, weather and climate data of an area, and traffic data, among others.
  - It is **different from personal data**, which is data that relates to an identified or identifiable individual, such as email, biometrics, etc.
- Anonymised data can be used for various purposes, such as **statistical analysis, market research, product development, etc., without compromising the privacy** of the individuals whose data was used.

### ***Why is the Government***

#### ***Considering Access to Big Tech's Data?***

- This move is part of an upcoming **Digital India Bill**, in which there is a provision to mandate big tech companies to deposit all the **non-personal data** they hold into a government-backed database known as the India datasets platform.
  - As per the working group constituted by the Ministry of Electronics and Information Technology, the

Note:



India datasets platform, is envisioned as a unified national data sharing and exchange platform catering to various stakeholders, including governments, private companies, **Micro, Small and Medium Enterprises (MSMEs)**, academia, and more.

- Non-personal data held by the India datasets platform could be monetized, playing a crucial role in economic benefits.
- Earlier in May 2022, the government released the **draft National Data Governance Framework Policy** under which it **merely “encouraged” private companies** to share non-personal data with startups and Indian researchers.
- The government argues that **big tech companies have benefited** from building algorithms based on Indians’ non-personal data and **should not claim exclusive ownership over it.**

### What are the Key Highlights of the Digital India Bill?

- The Digital India Bill, 2023 (if passed, will serve as the successor of the **Information Technology Act of 2000**) is a crucial part of a comprehensive legal framework that includes various legislative measures.
- It is part of a comprehensive approach that includes measures like the **Digital Personal Data Protection Act, 2023**, the **draft Indian Telecommunication Bill, 2022**, and a policy addressing the governance of non-personal data.
- The bill aims to **boost the AI ecosystem in India** by providing a robust foundation for data-driven innovation and development.
- This bill has been designed to establish comprehensive oversight over India’s digital landscape, effectively tackling contemporary challenges like **cybercrime, data protection, deepfakes, competition among internet platforms**, online safety, and the **negative impact of artificial intelligence (AI).**

## Jurisdiction of Lokpal

### Why in News?

Recently, the **Lokpal of India** stated that it cannot consider a plea from the wife of a government official in Uttar Pradesh who died by suicide, citing jurisdictional limitations.

- The official was allegedly pressured by superiors to sign completion certificates for Central government projects under the **Swadesh Darshan Scheme.**

### What was the Stand Taken by the Lokpal Of India?

- **Jurisdictional Limitations of Lokpal in Uttar Pradesh Case:**
  - The Lokpal, clarified that it lacks the authority to address a complaint against the Principal Secretary, Tourism and Culture, and Director General, Tourism, Uttar Pradesh.
  - The issue, involving alleged criminal activities, falls under the **purview of criminal law and procedure**, prompting the Lokpal to declare it cannot entertain the plea.
- **Forwarding the Complaint:**
  - Despite its jurisdictional constraints, the Lokpal **took a step forward by forwarding the complaint to the Union Tourism Secretary** for further investigation.

### Swadesh Darshan Scheme:

- The Swadesh Darshan Scheme was launched by the Centre in **2014-15** for the **integrated development of theme-based tourist circuits.** Under the scheme, the **Ministry of Tourism** provides financial assistance to State governments for the development of tourism infrastructure in the country.
- The second phase of the scheme was launched **earlier in 2023.** Important circuits for promoting tourism under the scheme include:
  - **Buddhist circuit**
  - **Ramayana circuit**
  - **Spiritual Circuit etc.**

### What are Lokpals?

- **About:**
  - The Lokpal and Lokayukta Act, 2013 provided for the establishment of Lokpal for the Union and Lokayukta for States.
  - These institutions are **statutory bodies without any constitutional status.**
- **Functions:**
  - They perform the function of an **“ombudsman”** and inquire into allegations of corruption against certain public functionaries and for related matters.

Note:

### **What comes under the Jurisdiction of Lokpal and its Powers?**

- **Related to Prime Ministers (PMs) and Ministers:**
  - Jurisdiction of Lokpal includes **PMs, Ministers, Members of Parliament (MPs), Groups A, B, C and D officers and officials** of Central Government.
  - Jurisdiction of the Lokpal included the **Prime Minister** except on allegations of corruption relating to international relations, security, public order, atomic energy and space.
    - The Lokpal **does not have jurisdiction over Ministers and MPs** in the matter of anything said in Parliament or a vote given there.
- **Related to Civil Servants and Bureaucrats:**
  - Its jurisdiction also includes any person who is or has been in charge (**director/ manager/ secretary of anybody/ society set up by central act or any other body financed/ controlled by central government**) and any other person involved in act of abetting, bribe giving or bribe-taking.
  - The Lokpal Act mandates that all public officials should furnish the assets and liabilities of themselves as well as their respective dependents.
- **Related to Central Bureau of Investigation (CBI):**
  - It has the powers to **superintendence over, and to give direction to CBI.**
    - If Lokpal has referred a case to CBI, the investigating officer in such case cannot be transferred without the approval of Lokpal.

### **What are the Concerns Regarding the Working of Lokpal?**

- **Lack of Fulltime Chairperson:** The Lokpal has not had a **full-time chairperson since May 2022**, raising concerns about its ability to function effectively.
- **Inaction in Dealing with Corrupt Officials:** According to a **parliamentary committee report** tabled in **Parliament** in April 2023, the **Lokpal "has not prosecuted even a single person accused of graft till date."**
  - According to data provided by the Lokpal office to the panel on Department of Personnel and Training (DoPT), since 2019-20, **the anti-corruption body received 8,703 complaints out of which 5,981 complaints were disposed of.**
  - However, the fact that no one has been prosecuted for **corruption** despite the large number of

complaints received has raised concerns about the Lokpal's ability to take action against corrupt officials.

- **Lack of Transparency:** Some experts have also criticized the Lokpal's **lack of transparency and accountability**, which they say undermines its credibility and effectiveness.

## **Digital Advertisement Policy, 2023**

### **Why in News?**

Recently, the Ministry of Information and Broadcasting has approved the **Digital Advertisement Policy, 2023** to enable and empower the Central Bureau of Communication (CBC) to undertake campaigns in the **Digital Media** space.

- The CBC operates under the Ministry of Information and Broadcasting and is responsible for creating awareness and disseminating information about various government programs, schemes, and policies in India.
- CBC is committed to adapting to the **changing media landscape and embracing new technologies** to reach a wider audience.

### **What are the Key Policies under the Digital Advertisement Policy, 2023?**

- **Expansion to Digital Platforms:**
  - The CBC can advertise on social media, **Over-the-Top (OTT)** platforms, digital audio platforms, mobile applications, and websites.
  - It mandates that the websites, mobile apps, OTT platforms and digital audio platforms **need to be at least a year old to be eligible** to apply under the scheme.
- **Advertisement Rates and Transparency:**
  - Advertising rates will be linked to subscriber base and viewership numbers, determined through competitive bidding to ensure transparency and efficiency.
  - Rates discovered through this process will remain valid for three years.
- **OTT Platforms Engagement:**
  - OTT platforms can be empanelled not only for placing advertisements during regular content **but also for the production of embedded/in-film**

Note:

advertisements, promotions, or branding activities as per CBC's Letter of Intent.

➤ **Funding Source:**

- The CBC typically utilizes 2% of the total outlay of government schemes for publicity and outreach activities, and this fund is used for advertisements and campaigns.

**What is the Significance of Digital Advertisement Policy, 2023?**

- This policy marks a pivotal moment in CBC's mission to disseminate information and create awareness regarding various schemes, programs, and policies of the Government of India in response to the evolving media landscape and the increased digitalization of media consumption.
- The huge subscriber base in the Digital Universe, coupled with technology enabled messaging options through Digital advertisements will facilitate effective delivery of citizen centric messages in a targeted manner, resulting in cost efficiencies in public oriented campaigns.
- In recent years, the way audiences consume media has witnessed a significant shift towards the digital space.
- The Government of India's Digital India program has led to a huge growth in the number of people in the country who are now connected to the internet, social and digital media platforms.
  - As per TRAI's Indian Telecom Services Performance Indicators January–March 2023, the internet penetration in India as of March 2023, is over 880 million, and the number of telecom subscribers as of March 2023 is over 1172 million.

## Supreme Court Upholds Key Provisions of IBC

### Why in News?

Recently, the **Supreme Court (SC)** has upheld crucial provisions of the **Insolvency and Bankruptcy Code (IBC)** that were challenged on constitutional grounds.

- The Court addressed concerns regarding the violation of fundamental rights, including the right to equality, in insolvency proceedings.

## THE FINE PRINT

### What's the case

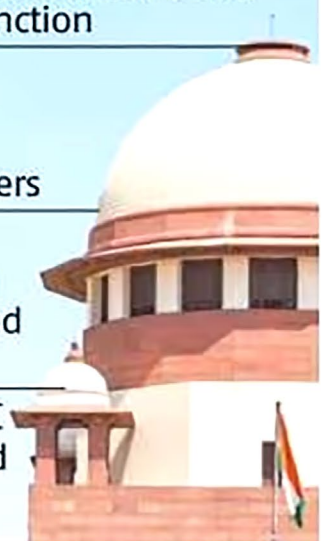
- ▶ Petitioners had challenged the constitutional validity of IBC provisions
- ▶ Personal guarantors were not given an opportunity to present their case or contend the initiation of insolvency process, they said

### SC ruling

- ▶ IBC does not suffer from the vices of manifest arbitrariness
- ▶ RP not intended to perform an adjudicatory function

### Impact of judgment

- ▶ Relief for lenders
- ▶ Setback for promoters who have guaranteed debt
- ▶ Experts say IBC timelines would be met



### What are the Concerns

#### Raised by the Petitions and SC's Observations?

➤ **Petitioners Arguments:**

- The main issue was that the personal guarantor was not given an opportunity to present their case or contend the initiation of the insolvency resolution process or have a say in the appointment of the RPs (Resolution Professionals).
  - A personal guarantor is an individual who provides a personal guarantee for a loan or

Note:

**financial obligation** undertaken by another party. When someone borrows money or obtains credit, a lender may require a personal guarantee as a form of security.

- The petitioner argued that the challenged parts of the **Insolvency and Bankruptcy Code (IBC)** didn't follow fair principles (natural justice) and affected fundamental rights like the right to livelihood, trade, and equality under the Constitution's **Articles 21, 19(1)(g), and 14**.

#### ➤ **Court's Observation:**

- **Constitutionality and Personal Guarantors:** The Court upheld the constitutionality of key provisions of the IBC, including allowing insolvency proceedings against personal guarantors.
  - The court ruled that IBC is not retroactive and held that Sections 95 to 100 cannot be deemed unconstitutional simply because they **do not give personal guarantors a chance to be heard before creditors' insolvency petitions**.
  - It ruled against claims that these provisions lacked fairness or violated natural justice, stating that fairness should be assessed case by case.
- **Role of Resolution Professionals (RPs):** The Court rejected the idea of involving **judicial intervention before appointing RPs**, stating that adding an adjudicatory role before a certain section would disrupt the IBC's set timelines.
  - It clarified that RPs are facilitators who gather information and make recommendations, not decision-makers.
- **Moratorium Provisions:** The Court agreed that these provisions primarily protect **debts rather than debtors**.
  - It supported the legislature's decisions on when the moratorium should apply and highlighted the differences between **individual debtors, partnerships**, and corporate debtors in the IBC.

#### **What can be the Potential Impact of SC's Judgement on IBC?**

##### ➤ **Creditor Confidence:**

- The affirmation of the IBC's provisions, particularly regarding personal guarantors, may boost creditor confidence.

- Creditors will feel **more secure about initiating insolvency proceedings against guarantors**, potentially leading to a more assertive approach in recovering debts.

##### ➤ **Clarity and Predictability:**

- The clarity provided by the Court's ruling could enhance predictability within the insolvency framework. This could **encourage smoother and more efficient resolution processes**, reducing uncertainties that might have previously hindered creditor actions.

##### ➤ **Promoter Caution:**

- The ruling might instill caution among promoters and **individuals providing personal guarantees for corporate debts**.
- Promoters, even of solvent companies, may become **more circumspect about extending personal guarantees** due to the potential risks highlighted by this judgement.

#### **What is Insolvency & Bankruptcy Code, 2016?**

- The Government implemented the **IBC, 2016** to consolidate all laws related to insolvency and bankruptcy and to **tackle Non-Performing Assets (NPA)**, a problem that has been pulling the Indian economy down for years.
  - Insolvency is a situation where **individuals or companies are unable to repay their outstanding debt**.
  - Bankruptcy, on the other hand, is a **situation whereby a court of competent jurisdiction has declared a person or other entity insolvent**, having passed appropriate orders to resolve it and protect the rights of the creditors. It is a legal declaration of one's inability to pay off debts.
- The IBC Covers all individuals, companies, **Limited Liability Partnerships (LLPs) and partnership firms**.
  - **Adjudicating authority:**
    - National Company Law Tribunal (NCLT) for companies and LLPs.
    - Debt Recovery Tribunal (DRT) for individuals and partnership firms.

Note:

## SHREYAS Scheme for OBC & Others

### Why in News?

The scheme **Scholarships for Higher Education for Young Achievers Scheme (SHREYAS)**, has been proposed to be implemented during the 2021-22 to 2025-26 by **placing two ongoing Central Sector Schemes** for **OBC (Other Backward Classes)** and EBC.

- These schemes are, **National Fellowship for OBC** and **Dr. Ambedkar Central Sector Scheme of Interest Subsidy on Educational Loans for Overseas Studies** for OBCs and Economically Backward Classes (EBCs).

### What is SHREYAS Scheme?

#### ➤ About:

- The main objective of the schemes is Educational Empowerment of OBC & EBC students by **way of awarding fellowship (financial assistance) in obtaining quality higher education** and interest subsidy on educational loan for overseas studies.

#### ➤ Nodal Ministry:

- Ministry of Social Justice and Empowerment.

#### ➤ Key Components:

- **National Fellowship for OBC Students:**
  - **About:** It aims to provide financial assistance to OBC students pursuing higher education, **specifically M.Phil and Ph.D. degrees** in various recognized universities, research, and scientific institutions.
    - The scheme offers **1000 Junior Research Fellowships** annually for advanced studies and research. These fellowships are awarded to students who have qualified through specific tests like the UGC-NET or UGC-CSIR NET-JRF Joint Test.
  - **Key Features:** Financial assistance is provided through the National Backward Classes Finance and Development Corporation (a

Government of India Undertaking, under the administrative control of Ministry of Social Justice & Empowerment).

- Fellowship rates are set at Rs. 31,000 per month for JRF and Rs. 35,000 per month for SRF, in addition to contingencies.
- Reservation of seats for students with disabilities and additional slots beyond reserved government quotas.
- The **UGC is the nodal agency** for implementing the scheme.

#### ○ **Dr. Ambedkar Scheme of Interest Subsidy on Educational Loans for Overseas Studies for OBCs & EBCs:**

- It aims to provide interest subsidies on educational loans for OBCs and EBCs pursuing **approved courses abroad at the Masters, M.Phil, and Ph.D. levels.**
- The scheme is implemented through Canara Bank and is applicable for higher studies abroad, linked with existing Educational Loan Schemes.
- Eligibility criteria include income restrictions based on Creamy Layer criteria for OBC candidates and an income cap of Rs. 5.00 lakh per annum for EBC candidates.
- 50% of the financial assistance is reserved for women candidates.
- The government bears 100% interest payable during the moratorium period, after which the student assumes responsibility for the loan repayments.

#### What are the Other Schemes Related to Education in India?

- **National Programme on Technology Enhanced Learning.**
- **Beti Bachao Beti Padhao**
- **PM SHRI Schools**
- **National Means cum Merit Scholarship (NMMS)**
- **Swachh Vidyalaya Abhiyan**
- **Eklavya Model Residential Schools**



Note:

# Economic Scenario

## Highlights

- *Dollarisation and Economic Shifts*
- *Seven Years of the Insolvency and Bankruptcy Code*
- *India to Chair International Sugar Organisation in 2024*
- *Investor Risk Reduction Access Platform*
- *International Container Transshipment Port in Great Nicobar Island*
- *India Grants Record Patents in 2023-24*
- *Rural Wage Disparities*
- *RBI Tightens Capital Norms for Unsecured Loans*
- *Menace of Fraudulent Loan Apps in Digital Lending Landscape*
- *Cyprus as a Tax Haven*
- *Wholesale Prices in Deflation Zone*

## Dollarisation and Economic Shifts

### Why in News?

Argentina, plagued by **severe inflation** and **widespread poverty**, faces a pivotal moment. **Dollarisation** is seen as a **potential remedy for the country's economic challenges**.

- The recently elected President of Argentina promises to replace the **Argentine Peso with the dollar**. However, the immediate implementation of dollarisation seems unlikely due to the scarcity of dollar reserves in Argentina.
- **Dollarization** is the **use or adoption of the United States Dollar** as the primary currency in a country, **replacing or supplementing the local currency**.

### How Dollarisation can Save an Economy?

- **Stabilizing Inflation:** Dollarisation can potentially **curb hyperinflation** by introducing a **stable currency**, **breaking the cycle of rising prices** fueled by uncontrolled money supply. This stabilization fosters confidence in the economy, encouraging investment and consumer spending.
- **Enhanced Trade Opportunities:** A dollarized economy incentivizes a **focus on export-oriented strategies**.
  - With a stable currency, **foreign investors are more inclined to engage**, fostering foreign trade. This orientation towards exports can bolster economic growth and stability.
- **Long-Term Planning:** A stable dollar value allows for better long-term economic planning. Businesses, **both**

**local and international**, can make **more accurate forecasts** and investments without being hindered by the volatility of a depreciating domestic currency.

- **Reduced Speculative Risks:** Dollarisation can **mitigate speculative risks associated with fluctuating exchange rates**.
  - This stability can attract foreign investors, as they perceive reduced risks, ultimately promoting capital inflow and economic growth.
- **Financial Discipline:** By **relinquishing control of monetary policy**, dollarisation forces governments to rely on fiscal policies for economic stability.
  - This shift **may encourage more prudent fiscal management**, potentially curbing government overspending and promoting **economic discipline**.

### Experience of a Fully Dollarized Economy: Ecuador

- Ecuador's journey provides valuable insights. Despite **initial political upheaval** following dollarisation in **2000**, the **nation experienced significant economic progress**. Reduced inflation rates, lowered debt ratios, and improved social welfare showcased the potential benefits of such a move.
- However, **Ecuador's success was not solely due to dollarisation**. Booming oil and gas reserves during the 2000s contributed significantly to economic growth. Furthermore, expanded government intervention and social spending played a crucial role in sustaining prosperity.

### What are the Major Challenges Related to Dollarisation?

- **Policy Constraints:** Dollarisation significantly **limits a country's ability to independently manage monetary policy**.

Note:





- Loss of **control over money supply** and interest rates can hamper the government's capacity to respond to economic downturns.
- **Economic Shock Vulnerability:** With a fixed currency, **dollarized economies might become more vulnerable to external economic shocks.**
  - They lack the flexibility of adjusting exchange rates to counterbalance sudden changes in the global economic environment.
  - The situation in Greece is a warning example of issues associated with adopting a foreign currency.
    - Although there was some **growth after Greece started using the euro**, the **Eurozone crisis** showed the problems of using a currency without having control over its policies.
    - Greece had to accept **strict budget cuts** and financial help in return for using the euro.
- **Limited Export Competitiveness:** **Loss of control over the exchange rate** can restrict a country's ability to use **currency devaluation as a tool to enhance export competitiveness.**
- **Inability to Address Internal Imbalances:** **Dollarisation may not address internal structural issues within the economy.**
  - Dependency on a foreign currency might **overshadow the need for internal reforms**, such as **productivity improvements or addressing income inequality**, crucial for sustained economic development.

**Note:** In 2022, the IMF observed that central banks around the globe **were not maintaining the same levels of reserves in the US dollar**, as they had done in the past.

#### What is De-dollarisation?

- **About:** **De-dollarisation** refers to a **deliberate or unintentional process** undertaken by a country or region to **reduce reliance on the US dollar** in its financial system or economy.
  - This can involve various measures aimed at decreasing the use of the dollar in **transactions, reserves, trade**, or as a standard for pricing goods and services.
- **Reasons Associated:** Governments might **pursue de-dollarisation for several reasons**, such as **reducing exposure to the impact of US monetary policy, asserting economic sovereignty, mitigating the effects of dollar fluctuations**, or seeking greater independence in global finance.

- **Strategies for De-dollarisation:** It can include diversifying currency reserves, promoting the use of alternative currencies in **trade agreements, establishing currency swap agreements, or encouraging the use of regional currencies** in financial transactions.
  - For instance, **in March 2023**, the RBI put in place the mechanism for rupee trade settlement with as many as 18 countries.
    - Banks from these countries have been allowed to open **Special Vostro Rupee Accounts (SVRAs)** for settling payments in Indian Rupees.

## Seven Years of the Insolvency and Bankruptcy Code

### Why in News?

The **Insolvency and Bankruptcy Code (IBC)**, introduced in 2016, has been a transformative tool in resolving **stressed assets and improving the credit culture** in India.

- However, a recent report by CRISIL Rating highlights certain challenges that are impacting the success of the IBC as it completes seven years.

#### Note:

- CRISIL Rating is a subsidiary of CRISIL Limited, a leading **credit rating agency** in India.
- It is a full-service rating agency that rates the entire range of debt instruments, from manufacturing companies to financial institutions.

### What's Hampering the IBC's Success?

- **Falling Recovery Rates:**
  - Recovery rates have witnessed a significant **decline from 43% to 32%** between March 2019 and September 2023.
    - The recovery rate is the percentage of the admitted claims that the creditors recover from the resolution or liquidation of the corporate debtor under the IBC.
  - **Root Causes:**
    - **Limited Judicial Bench Strength:** The IBC resolution process is impeded by a **shortage of judges**, resulting in a **deceleration of case**

Note:

**processing.** This, in turn, contributes to prolonged resolution times.

- **Delays in Default Identification:** Time-consuming processes for identifying and acknowledging defaults contribute to reduced recovery rates. It hampers the **timely initiation of resolution proceedings**, contributing to reduced recovery rates.

○ **Impact:**

- Diminution in asset values.
- Sub-optimal recoveries, affecting creditors and stakeholders.

➤ **Increased Resolution Time:**

- The average resolution time has surged from **324 to 653 days**, well beyond the stipulated 330 days.
  - Resolution time is the duration between the admission of the insolvency application and the approval of the resolution plan or the order of liquidation by the **National Company Law Tribunal (NCLT)**.
- **Root Causes:**
  - **Prolonged Pre-IBC Admission Stage:** Significant delays in this stage, **lasting 650 days in fiscal 2022 (up from about 450 days in fiscal 2019)**.

○ **Impact:**

- Slower resolution processes.
- Suppression of recovery rates due to delays in initiating proceedings.

### ***What is the Insolvency and Bankruptcy Code (IBC), 2016?***

➤ **About:**

- The IBC, 2016 is the **bankruptcy law of India** that consolidates and amends the **existing laws relating to insolvency and bankruptcy** of corporate persons, partnership firms, and individuals.
  - Insolvency is a state where the **liabilities** of an individual or an organization **exceeds its asset** and that entity is unable to raise enough cash to meet its obligations or debts as they become due for payment.
  - Bankruptcy is when a person or company is **legally declared incapable of paying their due and payable bills**.
- The IBC aims to provide a time-bound and creditor-driven process for insolvency resolution

and to improve the credit culture and business environment in the country.

- IBC resolves claims involving insolvent companies. This was intended to tackle the **bad loan problems** that were affecting the banking system.

➤ **Regulating Authority:**

- The Insolvency and Bankruptcy Board of India (IBBI) was established under the Insolvency and Bankruptcy Code, 2016.
- It is a statutory body, responsible for making and implementing rules and regulations for insolvency and bankruptcy resolution of corporate persons, partnership firms, and individuals in India.
- The IBBI has 10 members, representing the Ministry of Finance, the Ministry of Corporate Affairs, and the **Reserve Bank of India**.

➤ **Adjudicating Authority:**

- **National Company Law Tribunal (NCLT)** has jurisdiction over companies, other limited liability entities.
- **Debt Recovery Tribunal (DRT)** has jurisdiction over individuals and partnership firms other than Limited Liability Partnerships.

➤ **Amendments in the IBC:**

- The IBC has undergone significant amendments in the past 12 months to address emerging challenges and enhance its effectiveness.
  - These amendments include the approval for the sale of assets or resolution plans on a segregated basis, an increase in the number of **NCLT benches to 16**, and extended timelines for filing claims.
  - Sector-specific amendments, provisions for the audit of corporate debtors, and modifications in Form G2 have been introduced to address unique challenges.

➤ **Achievements:**

- Since its inception in 2016, **IBC has resolved Rs. 3.16 lakh crore** of debt stuck in 808 cases in seven years, according to CRISIL.
- It has resolved a significant amount of stressed assets with **better recovery rates** compared to previous mechanisms like the Debt Recovery Tribunal, the **Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002** and **Lok Adalat**.

Note:

- IBC has achieved higher recovery rates, with creditors realizing 32% of admitted claims on average and 169% of the liquidation value.
  - In contrast, other mechanisms had recovery rates ranging from 5-20%.
- IBC's deterrent effect is evident as borrowers, fearing the loss of companies, have proactively settled over Rs. 9 lakh crore in **debt before cases entered the insolvency process**.
  - This highlights a significant behavioral change among borrowers, showcasing the efficacy of the Insolvency and Bankruptcy Code in encouraging timely settlements.

### How Can the IBC Overcome Challenges?

- CRISIL Rating suggested a **CDE approach** to enhance the IBC's performance, where C stands for Capacity augmentation, D for Digitalisation and E for Expansion of pre-pack resolutions to large corporates.
  - Capacity augmentation involves **enhancing the infrastructure and human resources** of key institutions like the NCLT, responsible for IBC implementation.
    - This aims to boost case throughput, mitigating the backlog of 13,000 cases in different stages of resolution.
  - Digitalisation refers to creating a digital platform for **connecting all the stakeholders** involved in the IBC process.
    - This will help eliminate data asymmetry, enhance transparency, and facilitate faster decision-making.
  - Expansion of the pre-packaged insolvency resolution process (PPIRP) to large corporates will help in preventing value erosion due to time.

## India to Chair International Sugar Organisation in 2024

### Why in News?

The recent announcement at the **63<sup>rd</sup> council meeting of the International Sugar Organisation (ISO)**, headquartered in London, heralded a significant moment for India.

- **India is set to chair the organization in 2024**, marking a pivotal milestone in its global stature within the **sugar industry**.

### What is the International Sugar Organization?

- The **International Sugar Organization** serves as a vital intergovernmental body dedicated to enhancing the global sugar market. It represents:
  - **87%** of world sugar production
  - **64%** of world sugar consumption
- With a membership of around **88 nations, India being among them**, the organization encompasses a diverse range of countries.
- The ISO administers the **International Sugar Agreement (ISA), 1992** aiming to:
  - Foster international cooperation in sugar-related matters
  - Facilitate intergovernmental discussions to improve the global sugar economy
  - Collect and disseminate market information
  - Encourage expanded sugar use, especially in non-traditional applications.

### What is the Status of the Sugar Industry in India?

- **About:**
  - India is the **largest consumer and second-largest producer of sugar globally**. With a substantial **15% share in global sugar consumption** and a robust **20% production rate**, India's strategies significantly impact the international sugar market.
  - India stands as the **Eastern Hemisphere's** market leader in sugar, complementing **Brazil's stronghold in the Western Hemisphere**.
- **Geographical Conditions for the Growth of Sugar:**
  - **Temperature:** Between 21-27°C with hot and humid climate.
  - **Rainfall:** Around 75-100 cm.
  - **Soil Type:** Deep rich loamy soil.
- **Distribution:** The sugar industry is predominantly located across two primary production regions: the northern belt encompassing **Uttar Pradesh, Bihar, Haryana, Punjab and Bihar** and the southern belt comprising **Maharashtra, Karnataka, Tamil Nadu, and Andhra Pradesh**.
  - The **southern region benefits from a tropical climate, which is conducive to higher sucrose content in crops**, resulting in increased yields per unit area compared to northern India.

Note:

- **Related Indian Government Initiatives:**
  - **Fair and Remunerative Price (FRP):** The government has set the FRP for the 2023-2024 sugar season at **Rs. 315 per quintal**.
    - FRP is the minimum price that sugar mills must pay sugarcane farmers. It is announced annually by the Centre.
      - The government fixes the FRP based on recommendations from the **Commission for Agricultural Costs and Prices (CACP)**.
    - Under the FRP system, the price paid to farmers for sugarcane is not linked to the profits generated by sugar mills.
  - **Ethanol Blended Petrol Programme**
    - **Ethanol** is an **agricultural by-product** primarily sourced from the **processing of sugarcane for sugar**, and can also be derived from alternative sources like rice husk or maize.
      - When ethanol is mixed with petrol to reduce the consumption of fossil fuels in vehicle operation, **it is termed Ethanol Blending**.
    - India aims to achieve a **20% ethanol-blended petrol target by the year 2025**.

## Investor Risk Reduction Access Platform

### **Why in News?**

Recently, the **Securities and Exchange Board of India (SEBI)**, has launched the **Investor Risk Reduction Access (IRRA)** in order to provide a 'safety net' for investors in case of technical glitches faced by **a trading member or a stock broker**.

- A **trading member or stock broker** is an individual or a firm **that is authorized and licensed to buy and sell securities** (stocks, bonds, commodities, etc.) on behalf of investors in financial markets. They act as intermediaries between buyers and sellers, facilitating transactions within the stock market or other financial exchanges.

### **What is the IRRA Platform?**

- **About:**
  - The IRRA platform has been developed to **reduce risks faced by investors in the eventuality of technical glitches** at the trading member's end at both the primary site and disaster recovery site.
  - Its purpose is to provide investors with **an opportunity to square off/close their open positions**

**and cancel pending orders** using the IRRA platform in case of technical glitches or unforeseen outages that render the trading member's site inaccessible.

- It is **not meant for taking fresh positions or orders**, but only to cancel the pending orders.
- **Developed By:**
  - IRRA has been jointly developed by all the stock exchanges – **BSE (Bombay Stock Exchange), NSE (National Stock Exchange), NCDEX (National Commodity and Derivatives Exchange), MCX (Multi Commodity Exchange)** and Metropolitan Stock Exchange of India (MSE)
- **Mechanism of Working:**
  - IRRA can be invoked by trading members **when they are faced with a technical glitch** at their end impacting their ability to service clients across exchanges from both – the primary site and disaster recovery site, where relevant.
  - Even stock exchanges **can also monitor parameters like connectivity**, order flow and social media posts, and suo moto initiate the enablement of the IRRA service, if needed, irrespective of any such request by the trading member.
  - This service shall be enabled by the exchanges, suo moto, only in case of disruption of trading services of trading members across all the exchanges, where the trading member is a member.
- **Need:**
  - With technology glitches **increasingly disrupting trading services**, investors face **risks, especially in volatile markets**, with no means to close positions.
  - Despite business continuity plans, certain disruptions like **delayed recovery sites or Cyber-Attacks** persist.
  - This initiative ensures **contingency services by stock exchanges** during such crises.

## International Container Transshipment Port in Great Nicobar Island

### **Why in News?**

Recently, the Union Minister for Ports, Shipping and Waterways (MoPSW) visited the site of the proposed **International Container Transshipment Port (ICTP)** at Galathea Bay in **Great Nicobar Island**.

Note:

- ICTP is envisioned to be a transformative initiative aligning with the **Maritime India vision 2030** as well as one of the key projects in the **Amrit kaal Vision 2047**.

### What are the Key Facts About the ICTP Project?

#### ➤ About:

- The ICTP is a major infrastructure project that aims to facilitate the **transshipment of containers between different ports**.
  - A transshipment deepwater seaport facilitates the **handling of large cargo vessels**, featuring a **deep water channel** and expansive **berth** areas for efficient loading, unloading, and the seamless transfer of goods between ships at the port.
- The proposed ICTP at Galathea Bay, Great Nicobar Island, is strategically positioned just **40 nautical miles** from the **International shipping trade route**.
- The ICTP aims to become a **leading container transshipment** port by leveraging its strategic location, natural water depth, and capacity for the transshipment of cargo from nearby ports.

#### ➤ Significance:

- In India, nearly **75% of transshipped cargo** is handled at ports outside the country.
  - **Colombo, Singapore and Klang handle more than 85%** of this cargo with 45% of it handled at Colombo Port alone.
- India is banking on the strategic location of Galathea Bay for export-import trade as it lies on international shipping routes.

#### ➤ Benefits:

- The project is expected to generate **forex savings**, attract **foreign direct investment**, and boost economic activity at other Indian ports.
- It will also contribute to enhanced logistics infrastructure, employment generation, and increased revenue share.
- The development of this Mega Container Terminal is a **part of the holistic development of Great Nicobar Island**.

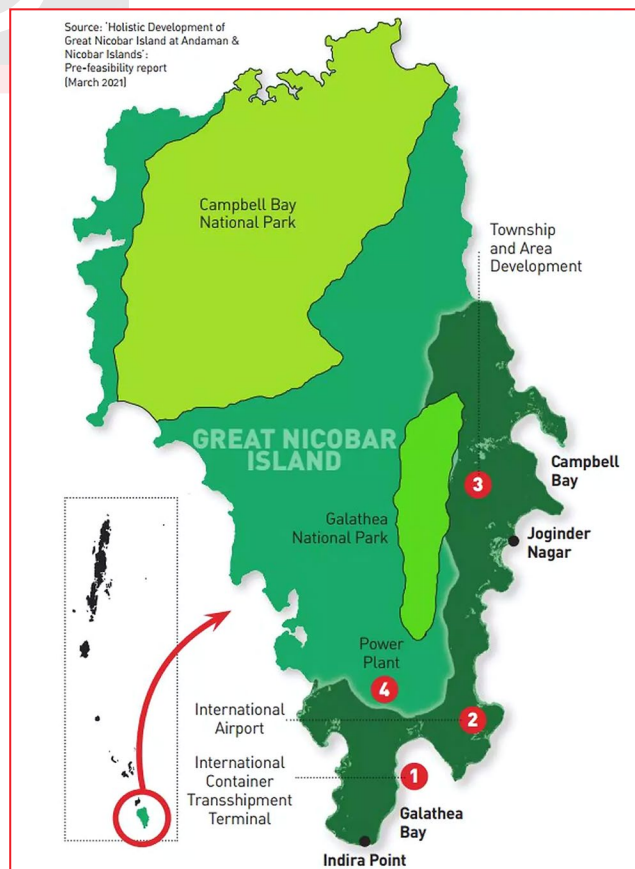
#### ➤ Status of the Project:

- The project has received **environmental clearance** from the Ministry of Environment, Forests & Climate Change (MoEF&CC).
  - Stage 1 forest clearance has also been obtained for the project.

- The project is planned to be developed in four phases, with Phase 1 proposed to be commissioned in the year 2028 with a handling capacity of approximately **4 Million (twenty-foot equivalent units) TEUs**.
  - The handling capacity is expected to increase to **16 Million TEUs in the ultimate stage of development by 2058**.

### Key Facts About Great Nicobar

- It is the southernmost island of the Nicobar Islands Archipelago.
  - The Indira Point is the southernmost point of India's territory at the Great Nicobar Island of **Andaman and Nicobar Islands**.
- It has tropical evergreen forest ecosystems. It is home to very rich ecosystems.
- The **Great Nicobar Biosphere Reserve** harbours a wide spectrum of ecosystems comprising tropical wet evergreen forests, **mountain ranges reaching a height of 642 m (Mt. Thullier)** above sea level, and coastal plains.
- The Nicobar Islands are home to two '**Mongoloid**' tribes they are the **Shompen and Nicobarese**.



Note:

## India Grants Record Patents in 2023-24

### Why in News?

Recently, the **Indian Patent Office (IPO)** has granted the **highest number of 41,010 patents** till November 2023.

- In 2013-14 fiscal year, 4,227 patents were granted. According to a **World Intellectual Property Organization (WIPO)** report, patent applications by Indians grew 31.6% in 2022, extending an 11-year run of growth unmatched by any other country among the top 10 filers.
- The surge in patent grants in India reflects the **country's progress in innovation, technology, and competitiveness**. It also impacts the society, economy, and the youth by addressing challenges, creating opportunities, and nurturing talent.

**Note:** The IPO, governed by the Office of Controller General of Patents, Designs and TradeMarks (CGPDTM), Ministry of Commerce and Industry, is responsible for administering and regulating patents, designs, and geographical indications in India.

### What is a Patent?

- **About:**
  - A Patent is a **statutory right for an invention granted for a limited period of time to the patentee** by the Government, in exchange of **full disclosure of his invention** for excluding others, from making, using, selling, importing the patented product or process for producing that product for those purposes without his consent.
  - The patent system in India is governed by the **Patents Act, 1970** as amended by the Patents (Amendment) Act, 2005 and the Patents Rules, 2003.
    - The Patent Rules are regularly amended in consonance with the changing **environment, most recent being Patents (Amendment) Rules, 2021.**
- **Term of a Patent:**
  - The term of every patent granted is 20 years from the date of filing of application.
  - However, for applications filed under the national phase under **Patent Cooperation Treaty (PCT)**, the term of patent will be 20 years from the international filing date **accorded under PCT.**

- PCT is an international treaty with more than 150 Contracting States, making it possible to seek **patent protection for an invention simultaneously in each of a large number of countries** by filing an international patent application.

- Such an application may be filed by anyone who is a national or resident of a PCT Contracting State, and generally be filed with the national patent office of the Contracting State or at the applicant's option, with the International Bureau of WIPO in Geneva.

### ➤ Criteria of Patentability:

- An invention is patentable **subject matter if it meets the following criteria,**
  - It should be novel.
  - It should have inventive steps or it must be non-obvious
  - It should be capable of Industrial application.
  - It should not attract the provisions of section 3 and 4 of the Patents Act 1970.

### ➤ Scope of Patent Protection:

- Patent protection is a territorial right and therefore it is effective only within the territory of India. There is no concept of global patent.
- However, filing an application in India enables the applicant to file a **corresponding application for the same invention** in convention countries or under PCT, within or before expiry of twelve months from the filing date in India.

### ➤ Patents 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.
- After the amendment, the provisions relating to Exclusive Marketing Rights (EMRs) have been repealed, and a provision for enabling grant of compulsory license has been introduced. The provisions relating to pre-grant and post-grant opposition have also been introduced.

Note:

### What are the Treaties and Conventions related to Patent and Intellectual Property Rights?

#### ➤ Global:

- India is a member of the **World Trade Organisation** and committed to the Agreement on **Trade Related Aspects of Intellectual Property (TRIPS Agreement)**.
- India is also a member of World Intellectual Property Organization (WIPO), 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
  - Paris Convention for the Protection of Industrial Property
  - Convention Establishing the World Intellectual Property Organization
  - Berne Convention for the Protection of Literary and Artistic Works
  - **Patent Cooperation Treaty**

#### ➤ National:

- **National Intellectual Property Rights (IPR) Policy 2016:**
  - The National Intellectual Property Rights (IPR) Policy 2016 was adopted in May 2016 as a vision document to guide future development of IPRs in the country.
  - Its clarion call is "Creative India; Innovative India".
  - It sets in place an institutional mechanism for implementation, monitoring and review.
  - It aims to incorporate and adapt global best practices to the Indian scenario.

## Rural Wage Disparities

### Why in News?

Recent data from the **Reserve Bank of India** highlights stark differences in **rural wages across different states in India**, showcasing significant disparities in earnings for farm and non-agricultural workers.

- The stark contrast in rural wages across states underscores the **need for equitable distribution and policies that bridge this disparity**, ensuring a more balanced livelihood for agricultural and non-agricultural workers nationwide.

### What are the Major

#### Highlights of the Rural Wages Data by RBI?

- **Rural Economic Disruptions:** During the **fiscal year 2021-22**, the rural economy faced challenges due to the **Covid-19 pandemic** affecting employment and income levels.
  - Subsequently, in the **fiscal year 2022-23**, **elevated inflation rates and increased interest rates** significantly disrupted rural demand.
  - These factors **heavily impacted job opportunities and income stability** in rural areas across the nation.
- **Rural Wage Disparities:** Rural wages in **Madhya Pradesh for agricultural and non-agricultural workers are significantly below the national average** standing at Rs 229.2 and Rs 246.3 daily, respectively, impacting the livelihoods of rural families.
  - **Kerala boasts the highest wages across various sectors**, with rural farm workers earning Rs 764.3 per day.
  - In case of wages for rural construction workers too, **Kerala and Madhya Pradesh stand at opposite ends of the spectrum at Rs 852.5 and Rs 278.7 daily**, respectively.
- **National Average Wages:**
  - Agricultural workers: Rs 345.7
  - Non-agricultural workers: Rs 348
  - Construction workers: Rs 393.3
- **Stagnant Rural Income Growth:** Despite some wage growth peaks in **2022-23**, rural income prospects remained subdued, **stagnating the real rural wage growth** and indicating an incomplete recovery in the unorganized segment of the economy.
  - For instance, **MGNREGA job demand dipped** but remained higher than pre-pandemic levels in 2022-23, signaling **an incomplete recovery**, especially in the unorganized sector.

### What are the Major Factors

#### Responsible for Wage Inequality in India?

- **Economic Development Disparities:** Regions or states with varying levels of economic development showcase **substantial wage differences**.

Note:

- Advanced industrial regions tend to offer higher-paying non-agricultural jobs compared to agrarian-centric areas.
- **Policy Interventions:** Diverse state-level policies regarding **minimum wages, labor regulations, and social security schemes** also create wage disparities. States with stringent labor laws may offer higher wages but could also face fewer job opportunities.
- **Market Forces and Demand-Supply Dynamics:** Wage rates often align with market demand for **specific skills or labor**. Regions with higher demand and limited workforce supply in certain sectors tend to offer higher wages.
- **Cost of Living and Standard of Living:** Variations in the **cost of living, housing expenses, and other essential amenities** directly impact wage disparities. Areas with higher living standards or higher costs of necessities often offer higher wages to compensate.
- **Geographical Factors and Agricultural Cycles:** **Weather conditions and agricultural cycles** influence the availability of work in rural areas. Seasonal fluctuations and dependence on agricultural activities can lead to **seasonal wage variations**.
- **Migration and Labor Mobility:** Labor mobility from **low-wage regions to high-paying areas** creates imbalances in wages, impacting both source and destination regions' wage structures.

#### What are the Related Indian Government Initiatives?

- **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)**
- **Atmanirbhar Bharat Rojgar Yojana (ABRY)**
- **National Career Service (NCS) Project**
- **Deendayal Antyodaya Yojana- National Rural Livelihood Mission (DAY-NRLM)**
  - Rural Self Employment Training Institute (RSETI)
- **PM Kaushal Vikas Yojna**

## RBI Tightens Capital Norms for Unsecured Loans

### Why in News?

Recently, the **Reserve Bank of India (RBI)** has increased **Risk Weight on Bank Exposure** to check on **Unsecured Loans**, like Personal Loans, Credit Card Receivables etc.

- The RBI's move to increase the risk weight on unsecured loans is a way of increasing the **Capital to Risk-Weighted Assets Ratio (CRAR)** requirement for banks that lend to these categories.
- An Unsecured Loan is a loan that **does not require one to provide any collateral to avail them**. It is issued by the lender on one's creditworthiness as a borrower. And hence, having an excellent credit score is a **prerequisite for the approval of an Unsecured Loan**.

#### What is Capital Adequacy Ratio (CAR)?

- The CAR is a **measure of a bank's available capital expressed** as a percentage of a bank's risk-weighted credit exposures.
- The Capital Adequacy Ratio, also known as Capital-to-Risk Weighted assets ratio (CRAR), is used to protect **depositors and promote the stability and efficiency of financial systems** around the world.

#### What is Risk Weight on Bank Exposure?

- **About:**
  - Risk weight on bank exposure refers to a method used by regulators, such as central banks or financial supervisory authorities, to assess the risk associated with various types of assets held by banks.
  - This method determines the amount of capital that banks need to hold against these assets as a **buffer to cover potential losses**.
  - The risk weight assigned to different categories of assets is based on their perceived riskiness.
  - Lower risk assets receive lower risk weights, **requiring banks to allocate less capital against them**, while higher risk assets have higher risk weights, necessitating a greater capital allocation.
- **Examples:**
  - Low-risk assets like cash or government securities might have a risk weight of 0% or a very low percentage. This implies that **banks need to allocate minimal capital against** these assets
  - Higher-risk assets like unsecured consumer loans, corporate loans, or derivatives may have risk weights ranging **from 20% to 150% or higher**, depending on their perceived risk. This means banks must allocate more capital as a buffer against potential losses from these assets.

Note:

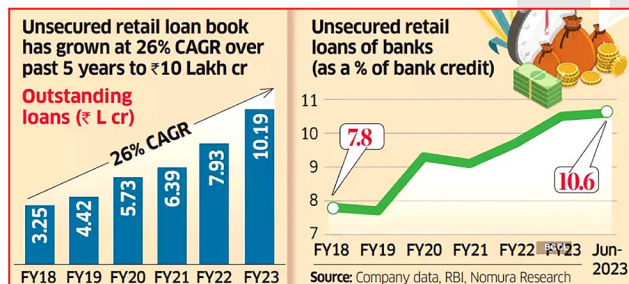


## What is the RBI's Move

### Pertaining to Unsecured Loans and Need for it?

#### ➤ Increased Risk Weights:

- The RBI has raised the risk weight on banks' exposure to certain categories like consumer credit, credit card receivables, and NBFCs.
  - The risk-weights on banks' unsecured personal loans and consumer durable loans have been **increased to 125% from 100%**, and that on credit cards have **been increased to 150% from 125%**.
  - Further, **the risk-weights on NBFCs' unsecured personal and consumer durables loans, and credit cards have been increased to 125% from 100%**.
  - It means that banks and financial institutions **need to set aside more capital as a buffer** against potential losses arising from these specific loan categories.
- The RBI has, however, exempted microfinance loans by NBFCs from the risk-weight increase.



#### ➤ Need for Such a Move:

- **Control Unbridled Growth:** Unsecured Loans, especially consumer Loans, had been expanding rapidly, surpassing the **growth rate of less risky lending assets**. This unchecked growth could pose risks to the stability of the financial system.
  - These loans are not backed by collateral, making them riskier for lenders. If borrowers **default on these loans due to economic downturns** or personal financial issues, it can lead to significant credit losses for banks and other lending institutions.
- **Risk Mitigation:** By increasing risk weights on consumer loans provided by banks, **NBFCs (Non Banking Financial Companies)**, and credit card providers, the RBI aims to make these loans more capital-intensive for financial institutions.

- This helps in **aligning the capital requirements with the associated risks**, making it more expensive for lenders to extend such loans.
- **Prevent Escalation of Risk:** Establishing board-monitored processes for these advances helps ensure that **banks have proper risk assessment mechanisms** in place. This step intends to prevent the escalation of risk associated with unsecured retail lending.
- **Maintain Financial Stability:** The overarching goal is to maintain financial stability by **addressing the imbalance in lending practices** and ensuring that the rapid growth in unsecured retail loans doesn't pose a systemic risk to the banking and financial sectors.

## What is the Current

### Scenario of Unsecured Credit for Banks?

- Unsecured credit, excluding microfinance institutions, for large banks is only about 5-13% of their total loans. Further, loans extended to **NBFCs constitute another 5-12% for banks**.
- According to analysts' estimates, the share of the total impacted book, which is NBFC and unsecured loans, is the **lowest for IndusInd Bank at 10%**, and ranges from 15 to 20% for other major banks.
- Among NBFCs, the most affected would be SBI Cards, as **100% of the loans are unsecured**.
  - The next would be Bajaj Finance as unsecured loans form 38% of the total loan, followed by Aditya Birla Capital with a 20% exposure in unsecured consumer loans.

## What will the

### Implications of this Move on Banks and NBFCs?

- **Impact on Borrowing Costs:**
  - It can cause a rise in lending rates for consumers due to these regulatory changes.
  - This increase in lending rates by banks to non-banking financial institutions might also **affect corporate bonds**, leading to higher yields and widening credit spreads for these institutions.
- **Can Address Systemic Risks Associated with Such Lending:**
  - The higher capital requirements are expected to moderate the growth of unsecured loans and potentially **address systemic risks associated** with such lending.

Note:

### Way Forward

- Banks and NBFCs may need to reassess their risk models and lending practices for unsecured loans.
- They might focus more on creditworthiness assessments and consider alternative strategies to manage risk while continuing to lend.
- Financial institutions might diversify their loan portfolios by shifting focus to more secured lending or exploring other creditworthy segments to balance the impact of increased risk-weighting on unsecured loans.

## Menace of Fraudulent Loan Apps in Digital Lending Landscape

### Why in News?

The proliferation of **fraudulent loan apps on social media platforms** poses a significant risk to borrowers, with instances of outrageous interest rates and mental harassment on the rise.

- Despite the rapid growth in **digital lending**, a regulatory vacuum allows scam apps to thrive, exploiting unsuspecting users.

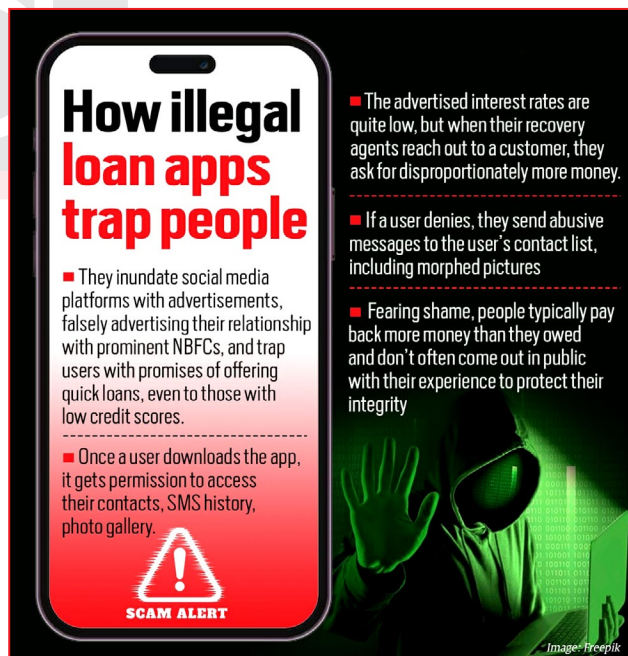
#### Note:

- Digital lending refers to the process of **providing loans or credit** to individuals or businesses **through online platforms or digital channels** without the need for traditional physical documentation or in-person interactions.

### What are Fraudulent Loan Apps?

- **About:**
  - Fake loan apps are **unauthorized and illegal digital lending platforms** that offer loans, from as little as Rs.1,000 to Rs.1 lakh targeting low-income and financially untrained individuals.
  - They claim to provide **instant and hassle-free loans without any credit checks**, documentation, or collateral.
- **Operating Procedure:**
  - Fraudulent loan apps often present themselves as **legitimate financial tools**, such as loan calculators or aggregators, exploiting the **trust of users** seeking financial assistance.

- These apps freely advertise on popular **social media platforms** like Instagram, Facebook, and WhatsApp, leveraging the vast user base.
  - Even though there are warning signs, the absence of careful investigation allows them to continue their deceptive advertising.
- Users, attracted by false claims and promises, fall victim to these deceptive apps, exposing them to **exorbitant interest rates and harassment**.
  - If the borrower fails to repay the loan on time, the app starts sending abusive and threatening messages, calls, and emails to the borrower and their contacts.
- The app may also access the borrower's photos and videos, and create morphed and obscene images to **blackmail** them.
- Some apps may even resort to **physical violence and harassment** by hiring recovery agents.
- In some cases, the borrowers are driven to suicide due to the extreme pressure and humiliation.



- **Growth of Digital Lending and Emergence of Fraudsters:**
  - Over the last 11 years, the digital lending market has experienced significant growth, reaching an estimated USD 350 billion by 2023, having grown at a compounded annual growth rate of almost 40%, much of this is powered by **genuine fintech companies** backed by **Non-Banking Finance Companies (NBFCs)** and banks.

Note:

- However, this growth has also provided an opportunity for fraudsters, with the **illegal lending market potentially reaching USD 700-800 million.**
  - Led by banks, **NBFCs**, and fintech companies, digital lending is expected to reach 80 billion in 2023. The collaboration between banks, NBFCs, and fintech firms contributes to the sector's expansion.

### **What are the Concerns Regarding the Fraud Loan Apps?**

- **Absence of Regulatory Norms:**
  - Stakeholders highlight the absence of government and regulatory norms, enabling online platforms to conduct minimal due diligence.
    - Different regulators like the **Reserve Bank of India (RBI)**, Ministry of Electronics and Information Technology (MeitY), **Telecom Regulatory Authority of India (TRAI)**, and state governments lack coordination and supervision.
  - There is a lack of enforcement and accountability, as many illegal loan apps evade detection and action by using **fake or foreign identities**, changing their names and logos frequently, and operating through **multiple channels and intermediaries.**
- **RBI's Limited Guidelines:**
  - While the **RBI released guidelines for digital lending** in September 2022, these guidelines **only apply to regulated entities like banks and NBFCs. Fraudulent apps, without such associations, remain largely unchecked.**
- **Lack of Seriousness by Social Media Companies:**
  - Despite the growing menace, social media companies are criticized for not actively monitoring advertisements of fake loan apps.
    - Some argue that **corporate greed** plays a role in the weak oversight.
- **Regulatory Uncertainty Impacting Legitimate Apps:**
  - Regulatory crackdowns sometimes affect legitimate lending apps, causing uncertainty.
    - The **ban on certain apps in 2021** impacted genuine lending companies, showcasing the challenges in regulatory actions.
- **Misrepresentation of Legitimate NBFCs:**
  - Legitimate NBFCs express concerns about their **misrepresentation by illegal lending apps.**

- A few fraudulent apps can tarnish the reputation of the entire sector.

#### ➤ **Consumer Awareness:**

- There is a lack of **consumer awareness and protection**, as many borrowers do not verify the credentials and terms of the loan apps, and fall prey to their deceptive and coercive practices

## **Cyprus as a Tax Haven**

### **Why in News?**

The recent **Cyprus Confidential investigation** has brought to light a complex web of financial activities involving offshore entities in **Cyprus** and their connection to wealthy individuals in India.

- This global offshore investigation, conducted in collaboration with the **International Consortium of Investigative Journalists (ICIJ)**, exposes the use of **Cyprus as a tax haven** by the rich and powerful from around the world.

#### **Note:**

- A tax haven is generally an **offshore country** that offers foreign individuals and businesses **little or no tax liability** in a politically and economically static environment.
- An offshore company is incorporated in a jurisdiction other than its home country.
  - The main purpose of setting up an offshore company is to take advantage of the **favourable tax laws or economic environment** in a foreign country.

### **What Tax Benefits Does Cyprus as a Tax Haven Offer?**

- **Corporate Taxation:**
  - Offshore companies and offshore branches managed and controlled from **Cyprus are taxed at 4.25%.**
  - Offshore branches managed from abroad and offshore partnerships enjoy **total exemption from tax.**
- **Withholding Tax and Dividends:**
  - Cyprus imposes **no withholding tax** on dividends.
  - Beneficial owners of offshore entities or branches are not liable for additional tax on dividends or profits.

Note:

- **Capital Gains and Estate Duty:**
  - No capital gains tax is payable on the sale or transfer of shares in an offshore entity.
  - Inheritance of shares in an offshore company is exempt from estate duty.
- **Import Duty Exemptions:**
  - No import duty on the purchase of cars, office, or household equipment for foreign employees.
- **Anonymity and Confidentiality:**
  - Cyprus ensures the anonymity of the beneficial owners of offshore entities.
  - Offshore trusts in Cyprus do not need to be registered with any government or authority, ensuring confidentiality.
- **Offshore Trusts:**
  - Offshore trusts are trusts whose property and income are outside Cyprus, and even the settlor and beneficiaries are not permanent residents of Cyprus.
    - **Offshore trusts in Cyprus are exempt from estate duty** if the trustee is Cypriot.
    - No tax on the income and gains generated by offshore trusts.
  - The trust need **not be registered with any government** or other authority, and confidentiality is enshrined in the new law.

### What is India's Tax Treaty with Cyprus?

- **Before 2013:**
  - **Exemption from Capital Gains Tax**
    - India and Cyprus had a tax treaty **exempting investors from capital gains** tax upon exit.
      - Zero taxation on capital gains in both countries made **Cyprus a favoured destination** for equity investments in India.
    - Cyprus offered a low 4.5% withholding tax, enhancing its attractiveness for individuals and businesses.
      - Withholding tax served as a means to ensure tax compliance by non-residents, applicable to payments made to non-resident individuals.
      - Payees were responsible for deducting tax, deposited with the government at rates defined by the Income-tax Act, 1961, or the **Double Taxation Avoidance Agreement (DTAA)**, whichever was lower.

#### Note:

- A DTAA is a tax treaty signed **between two or more countries**. Its key objective is that tax-payers in these countries **can avoid being taxed twice for the same income**.
  - A DTAA applies in cases where a taxpayer **resides in one country and earns income in another**.
- DTAA's can either be comprehensive to cover all sources of income or be limited to certain areas such as taxing income from shipping, air transport, inheritance, etc.

#### ➤ Since 2013:

- India designated Cyprus as a **Notified Jurisdictional Area (NJA)** on November 1, 2013, under Section 94A of the Income-tax Act.
  - NJA status resulted in consequences such as a higher withholding tax rate (30%) for payments to entities in Cyprus.
- Transactions with entities in NJA became subject to Indian **transfer pricing regulations**.
  - Transfer pricing is the **setting of the price for goods and services sold between controlled (or related) legal entities** (may be situated in different countries) within an enterprise.

#### ➤ Since 2016:

- In 2016, a revised **DTAA** with Cyprus was signed, clarifying the rescission of the NJA status with retrospective effect from 2013.
- The new DTAA introduced for **source-based taxation of capital gains** from the alienation of shares.
  - Alienation refers to the **voluntary sale/ transfer or relinquishment of the asset by the owner**.
- A **grandfathering clause** protected investments made before April 1, 2017, allowing taxation of capital gains in the country of the taxpayer's residence.

#### ➤ Analysis and Implications:

- The phased evolution reflects the dynamic nature of India's tax arrangements with Cyprus.
  - The move towards source-based taxation aligns with global efforts to curb **tax evasion** and ensure fair revenue distribution.
  - Increased scrutiny on tax-related matters globally, as evidenced by offshore investigations, influenced India's approach to tax treaties.

Note:

- The **grandfathering clause** aimed to provide continuity and stability for investments made before significant policy changes.
- **Legality of Indian Companies in Cyprus:**
  - It is **not illegal** to establish an offshore company in Cyprus.
  - India has DTAA with several countries, including Cyprus, which offer low tax rates.
    - Companies use their **tax residency certificates** in such countries to enjoy tax benefits that are available legally.
    - These jurisdictions are generally characterised by lax regulatory oversight and airtight secrecy laws.

### How do Investors use Cyprus as a Tax Haven?

- In Cyprus **money laundering** is facilitated by channelling funds through multiple networks of **shell companies**.
  - A shell company is a firm that **does not conduct any operations** in the economy, but it is formally registered, incorporated, or **legally organized in the economy**.
- Cyprus has a high level of **banking secrecy and does not exchange** information on financial accounts with other countries automatically.
  - This aids the investors in **hiding assets and income** from authorities and creditors.
- Furthermore, investors **may influence politics and policy-making** through strategic donations and lobbying practices.

### How can India Curb the Use of Cyprus as a Tax Haven?

- **Strengthening Compliance Mechanism:** India can counter the use of Cyprus as a tax haven by strengthening the enforcement and compliance mechanisms, and ensuring that the **tax authorities have adequate resources and powers to detect, investigate, and prosecute** the cases of tax evasion and **avoidance**.
- **Accountability Measures:** India should enhance the **transparency and accountability of the offshore entities**, and requiring them to disclose their beneficial owners, directors, and financial activities.
  - India can also impose **withholding taxes and anti-avoidance measures** on payments made to Cypriot entities or individuals.

- **Robust Legislations:** India can address the abuse of tax treaties by enacting and implementing robust laws. This involves expanding the scope and coverage of these laws and ensuring their effective implementation and monitoring.
- **Promotion of Ethical Behaviour:** There should be promotion and incentive for the **ethical and responsible behaviour of the taxpayers**, and encouraging them to pay their fair share of taxes and contribute to the national development

### Key Facts About Cyprus

- Cyprus is an island country in the **Eastern Mediterranean Sea**, with an area of about 9,251 square kilometers.
- It is the **third-largest and third-most populous island in the Mediterranean**, with a population of about 1.2 million people.
- **Capital:** Nicosia
- Cyprus has been a member of the **European Union** since 2004.
- Cyprus has a pleasant Mediterranean climate, with hot summers and mild winters.
- Cyprus is physically divided with the **southern part ruled by the internationally-recognised government** and the **northern part controlled by Turkey**.

## Wholesale Prices in Deflation Zone

### Why in News?

In October 2023, India's **Wholesale Price Index (WPI)** recorded an **annual inflation rate of -0.52%**, down from **-0.26% in September 2023**.

- The **negative inflation is due to price declines** in sectors such as chemicals, electricity, textiles, basic metals, food products, and paper compared to October 2022.
- This deflationary trend is influenced by a **high base effect from October 2022** when wholesale price inflation was 8.4%.

**Note:** In terms of food prices, the **Wholesale Food Index** increased by 1.07% compared to the 2022. Within the food basket, there were divergent trends, notably a substantial 21% decrease in vegetable prices, while inflation in paddy and cereals experienced an acceleration.

Note:

### What is the Wholesale Price Index?

- WPI represents the **price of goods at a wholesale stage i.e. goods that are sold in bulk and traded between organizations** instead of consumers.
  - Whereas, **Consumer Price Index (CPI)** captures changes in prices levels at the consumer level.
  - WPI does not capture changes in the prices of services, which CPI does.
- In India, WPI is published by the **Office of Economic Adviser, Department for Promotion of Industry and Internal Trade (DPIIT)**, under the Ministry of Commerce and Industry.
  - It is used as an **important measure of inflation in India.**
- Base year of WPI is **2011-2012.**
- Weightage of Commodities in WPI:

All commodities/Major groups	Weight (%)
All Commodities	100.0
I. Primary Articles	22.62
II. Fuel & Power	13.15
III. Manufactured Products	64.23
Food Index	24.38

### Key Terms

- **Inflation Rate:**
  - In the context of WPI, Inflation rate is the **difference between WPI calculated at the beginning and the end of a year.**
  - The percentage increase in WPI over a year gives the rate of inflation for that year.
- **Deflation:**
  - Deflation is a decrease in the general price level of goods and services. It occurs when the inflation rate falls below 0%, which is known as **negative inflation.**
- **Base Effect:**
  - Base effect is the **impact of inflation in the previous year on the current year's price levels.**
  - For instance, if the prior year had low inflation, even marginal price hikes in the current period could **yield disproportionately high inflation rates.**

Note:

# International Relations

## Highlights

- India-Lithuania Relations
- Changing Dynamics of China-US Relations
- 2nd CII India Nordic-Baltic Business Conclave 2023
- Civil War in Myanmar
- Second Voice of the Global South Summit
- India-Australia 2+2 Ministerial Dialogue
- Second Anti-Piracy Patrol in the Gulf of Guinea
- 10th ASEAN Defence Ministers' Meeting-Plus
- Asia-Pacific Economic Cooperation Leaders' Summit 2023
- NATO Suspends CFE Treaty Amid Russian Withdrawal
- Ben Gurion Canal Project
- 6th India-OPEC Energy Dialogue

## India-Lithuania Relations

### Why in News?

Recently, Indian Minister of State for **Ports, Shipping, and Waterways** and **Vice Minister in the Ministry of Foreign Affairs of the Republic of Lithuania**, convened in New Delhi to bolster the **maritime bilateral relations between India and Lithuania**.

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

- **Resident Mission Inauguration in Vilnius:** The inauguration of **India's Resident Mission in Vilnius** was commended, highlighting it as a significant step affirming India's commitment to strengthening bilateral relations with Lithuania.
- **Bilateral Trade Growth:** India emphasized the **positive trajectory of bilateral trade**, citing a consistent increase to **USD 472 million by the fiscal year 2022-23**, signifying a steady rise in economic collaboration between the two nations.
- **Collaboration on Port Infrastructure and Klaipeda Port's Advantages:** Discussions centered on exploring collaboration opportunities, **leveraging India's expertise in port infrastructure development**.
  - This collaboration is aimed at **capitalizing on Lithuania's strategic location** as a gateway to vital industrial areas in Eastern Europe.
  - The spotlight was on the **unique advantages of Klaipeda port**, notably its **year-round ice-free status**.
    - As the **leading Baltic port for container transshipment**, it holds a pivotal position in facilitating trade, boasting advantageous land

connections to **key industrial zones in Eastern Europe**.

- **Diverse Investment Opportunities:** India presented a spectrum of investment avenues to Lithuania across various sectors, including **Port Modernization (PPP), Port Connectivity, Coastal Shipping, Maritime Technology, Sagarmala Project, and Decarbonization initiatives**, aiming to foster comprehensive economic partnerships and sustainable growth.



### What are the Major Aspects of India-Lithuania Relations?

- **Historical Ties**
  - **Linguistic Similarities:** Lithuanian and **Sanskrit languages** share linguistic commonalities, suggesting ancient connections.

Note:

- Pre-Christian Lithuania worshiped nature and revered a trinity of gods - **Perkunas, Patrimpas, and Pikuolis**.
- **Intellectual Exchange: Vyduanas**, a 19th-century philosopher, drew parallels between **Lithuanian and Hindu spiritual culture**, creating a philosophical system inspired by Vedanta.
  - Lithuanian travelers like **Antanas Poska and Matas Salcius** delved into Sanskrit and Indian culture in the 1930s and 1940s.
  - **Sanskrit became part of Vilnius University's academic curriculum** in the 1970s, fostering academic ties between India and Lithuania.
- **Political Relations:**
  - **Recognition:** India acknowledged **Lithuania's independence from the USSR in 1991**, establishing diplomatic relations in **1992**.
  - **Embassy and Consulates:** Lithuania opened its Embassy in New Delhi in 2008 and maintains three Honorary Consuls in India.
    - An Honorary Consul of India has operated in Vilnius since 2014.
  - **India-Lithuania Forum:** Initiated in 2010, fostering multi-dimensional ties encompassing culture, education, business, and science.
- **Trade Dynamics:**
  - **Major Indian imports From Lithuania:** Edible vegetables, wood and articles of wood, textiles, electrical machinery and equipment, iron and steel, optical, photographic and measuring instruments.
  - **Major Indian Exports to Lithuania:** Nuclear boilers and reactors, pharmaceutical products, fish, organic chemicals, tobacco and manufactured tobacco, textile articles, iron and steel.
- **Cultural Engagement**
  - **Yoga and Spiritual Interests:** Lithuanians exhibit keen interest in Indian cultural traditions, particularly Yoga. Celebrations of **International Yoga Day** are widespread in Lithuania.
  - **Indian Technical and Economic Cooperation Programme (ITEC) Program:** Over 400 Lithuanian nominees attended various courses under **India's ITEC program**, fostering mutual learning and cooperation.

## Changing Dynamics of China-US Relations

### Why in News?

Recently, China and the US have held a Bilateral Meeting on the sidelines of the **Asia-Pacific Economic Cooperation (APEC)** summit, in San Francisco, US, raising concerns for India about **Changing Dynamics in China-US Relations**.

- China-US relations have undergone significant shifts and complexities over recent decades, reflecting a mix of **cooperation, competition, and periods of tension**.

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

#### ➤ New Areas of Engagement:

- The summit discussed **emerging areas of US-China collaboration**, particularly in regulating **Artificial Intelligence (AI)**, which could profoundly impact global AI regulations and technological advancements.

#### ➤ Agreement on Energy:

- The US and China announced an agreement to sharply increase **Clean Energy**, displace **Fossil Fuels** and reduce emissions that are warming the planet.
  - Together, they account for **38% of the world's greenhouse gases**.
- The countries agreed to "pursue efforts to triple renewable energy capacity globally by 2030," with the intention "to accelerate the substitution for coal, oil and gas generation."

### How have China-US Relations Been in Recent Years?

- In recent years the US adopted a **more confrontational approach**, initiating a **Trade War**, targeting Chinese tech firms, and challenging China's territorial claims. Human rights issues, especially regarding Xinjiang and Hong Kong, further strained relations.
- The US has maintained a tough stance on various fronts, particularly on trade, technology, and human rights, while seeking cooperation on global issues like climate change.

### What are India's Concerns over Changes in US-China Relations?

- **Potential G-2 Dynamics:**

Note:



- India remains cautious about the emergence of a dominant Sino-American collaboration in Asia (termed 'G-2') that might sideline **other global players**, affecting **India's strategic interests**.
- **US-China Engagement in AI Regulation:**
  - India is attentive to new areas of US-China engagement, particularly in regulating **Artificial Intelligence (AI)**.
  - Potential understandings between the two nations in this field **could significantly impact Global AI Regulations** and technological advancements, influencing India's tech landscape.
- **US Business Relations with China:**
  - China's attempts to allure **US business leaders back to China** raise concerns for India. If successful, it might undermine **India's attractiveness for Western capital**, affecting economic engagements and investments.
  - India cannot afford complacency assuming the 'China option' is no longer viable for Western businesses.
  - Sustaining India's appeal for **Western capital remains crucial**, necessitating continuous efforts to engage productively with Western economic interests.
- **Indo-Pacific Dynamics and Taiwan Issue:**
  - The **lack of substantial breakthroughs in regional security** discussions, especially on sensitive issues like **Taiwan**, is a concern.
  - India observes the **US-China dialogue on the Indo-Pacific closely**, understanding its implications for regional stability and security dynamics.

## 2<sup>nd</sup> CII India Nordic-Baltic Business Conclave 2023

### Why in News?

Recently, the 2<sup>nd</sup> **CII (Confederation of Indian Industries) India Nordic-Baltic Business Conclave 2023** was held in New Delhi, aiming to foster collaboration between **India and the Nordic Baltic Eight (NB8) countries**, known for their prowess in innovation and technology.

### What is Nordic Baltic (NB) 8?

- The NB8 is a **regional cooperation format** that brings together the Nordic countries and the Baltic states.
  - It comprises **five Nordic countries**: Denmark, Finland, Iceland, Norway, and Sweden, along with **three Baltic states**: Estonia, Latvia, and Lithuania.
- The group shares **historical, cultural, and geographical ties**, fostering collaboration and cooperation in various fields, including politics, economics, trade, security, and culture.
- While the Nordic countries are **located in Northern Europe** and share similarities in governance, social systems, and values, the **Baltic states are situated in Northeastern Europe** and have their unique historical backgrounds and geopolitical positioning.



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

- **Food Processing and Sustainability:**
  - Discussions focused on **transforming food systems towards sustainability** by sharing experiences, innovations, and best practices between India and the Nordic-Baltic nations.
  - Collaboration aimed to address global challenges with a holistic approach encompassing economic, social, and environmental dimensions.
- **Blue Economy and Maritime Cooperation:**
  - Emphasis was placed on **efficient management of the Blue Economy** to enhance **Global Supply Chain Resilience**, promote sustainable marine practices, encourage innovation, and foster greater maritime cooperation between India and the **Nordic-Baltic countries**.

Note:



- **Renewable Energy Integration:**
  - Deliberations **centered around India's push for Renewable Energy integration**, identifying resources, policy support, energy storage, and advanced technology initiatives.
  - The aim was to seek **support from innovative Nordic-Baltic economies** in identifying and implementing clean energy-related technologies.
- **Transition to Industry 5.0:**
  - Collaboration discussions **focused on leveraging advanced technologies like AI (Artificial Intelligence), IoT**, and smart manufacturing to enhance productivity and efficiency in the manufacturing sector.
  - The aim was to **explore how cooperation between India and Nordic-Baltic nations** could contribute to India's goal of becoming a developed nation by 2047.
- **Green Financing for Climate Action:**
  - The conclave highlighted the significance of **climate finance** in achieving green and sustainable transitions. Discussions aimed at exploring strategies and solutions to drive funding and investments, fostering greater collaboration between India and the Nordic-Baltic countries in advancing climate action.
- **Information Technology and AI Collaboration:**
  - Emphasis was placed on exploring potential areas of cooperation between India and the Nordic-Baltic countries in leveraging IT and AI to address complex societal challenges. Skill development initiatives were also discussed to enable inclusive AI and IT growth.
- **Resilient Supply Chain and Logistics:**
  - Discussions revolved around the need to build efficient and resilient supply chains, aligning with India's Logistics Policy. The conclave aimed to explore how India and the Nordic-Baltic countries could collaborate to strengthen global value chains using technological advancements.

### ***How have the Economic Relations between India and the Nordic-Baltic countries been?***

- **Trade and Investments:**
  - Cumulative **Foreign Direct Investment (FDI)** received

from Nordic countries has reached a significant figure, demonstrating mutual investment interests.

- India's combined trade in goods with the NB8 countries is currently around USD 7.3 billion and the cumulative FDI received from Nordic countries **from 2000 to 2023 is USD 4.69 billion.**
- Moreover, the presence of over 700 Nordic companies in India and close to 150 Indian companies in the Nordic-Baltic region showcases the bilateral investment and trade partnerships.
- **Bilateral Collaborations:**
  - Specific collaborations and partnerships have been established in various domains.
  - Examples include **sustainability partnerships with Finland**, a **green strategic partnership with Denmark** focusing on water solutions, wind energy, and agriculture, and joint projects with Iceland in harnessing geothermal energy.
- **Sectoral Engagements:**
  - Collaboration in sectors such as renewable energy, food processing, logistics, IT, AI, maritime cooperation, and blue economy initiatives **has been identified as potential areas for joint efforts** and investments.
  - The alignment of India's ambitious renewable energy targets with the technological expertise of the **Nordic-Baltic countries** offers opportunities for collaboration.
- **Space Technology and Polar Research:**
  - There is potential for collaboration in space technology, geospatial sectors, and polar and climate research, with discussions around joint research projects and opportunities in the Arctic and Antarctic regions.
- **Global Engagement and Partnerships:**
  - Both India and the Nordic-Baltic countries are actively **engaged in global partnerships**, such as India's engagement with the **Global South through G20**, which provides opportunities for collaboration in finding solutions for sustainable growth.
  - Additionally, exploration of partnerships in joint development projects, especially in Africa, underlines the potential for expanding their collective global footprint.

Note:

## Civil War in Myanmar

### Why in News?

Recently, due to the ongoing Civil War in Myanmar, 1,500 nationals of Myanmar took refuge in Mizoram's Champhai district following an intense gunfight between the **Myanmar Army**, and **pro-democracy militias** in the country's western Chin State abutting Mizoram.



### What is a Civil War?

- A civil war is a **prolonged conflict between organized groups** within the same country or nation.
- It involves armed confrontations between **factions or groups with distinct social, political, or ideological differences**, all vying for control or dominance over the nation's governance, territory, or resources.

Note:



drishti

## What is Background of the Current Civil War in Myanmar?

- **2020 Elections and Military Coup:**
  - In the November 2020 elections, Aung San Suu Kyi's party National League for Democracy (NLD) won the election. However, the **military junta, known as the Tatmadaw**, claimed electoral fraud without substantial evidence and rejected the election results.
  - In February, 2021, the military **staged a coup, detaining Aung San Suu Kyi** and other elected leaders, declaring a **state of emergency, and seizing control of the government.**
- **Protests and Resistance:**
  - The coup triggered widespread protests across Myanmar, with citizens demanding the **restoration of democracy and the release of detained leaders.**
  - Civil servants, activists, and various groups joined the civil disobedience movement, **staging strikes and demonstrations.**
- **Formation of Resistance Forces:**
  - As the Tatmadaw intensified its crackdown on dissent, opposition groups, including **Ethnic Armed Organizations (EAOs)** and armed civilians, formed the **People's Defence Forces (PDFs)** to resist the military junta.
  - These groups aligned themselves with the **National Unity Government (NUG)**, established by ousted lawmakers, aiming to challenge the military's authority.
- **Current Scenario:**
  - Fighting has also broken out elsewhere in the country, led by various local resistance forces — in the Rakhine State, Kayin State, Sagaing region bordering Manipur, and Chin State bordering Mizoram.

## What does Ongoing Civil War in Myanmar Mean for India?

- **Balanced Stance:**
  - India has so far walked a fine line between expressing concern at the "interruption" of democracy in Myanmar, and **engaging with the junta to protect its "vital interests"**.
- **Immediate Concern for India:**

- The influx of Myanmar nationals in the border states of the Northeast.
- This too at a time when the situation in Manipur remains volatile.
- **Capturing of Two Important Towns by Rebels:**
  - The anti-junta forces have captured two important towns close to the only two border crossing points between Myanmar and India. These are:
    - Rikhawdar, close to Zokhawthar in Mizoram, and
    - Khampat in Sagaing region, around 60 km from Moreh in Manipur.
  - The latter (Khampat in Sagaing region) is also part of the proposed India-Myanmar-Thailand trilateral highway project.

## What is the Current Legislative Framework in India to Handle Refugees?

- India treats all foreigners whether **illegal immigrants, refugees/asylum seekers** or those overstaying visa permits under
  - **Foreigners Act of 1946:** Under Section 3, the central government is empowered to detect, detain and deport illegal foreign nationals.
  - **Passport (Entry into India) Act, 1920:** Under Section 5, authorities can remove an illegal foreigner by force under Article 258(1) of the Constitution of India.
  - **Registration of Foreigners Act of 1939:** Under this, there is a mandatory requirement under which all foreign nationals (excluding overseas citizens of India) visiting India **on a long-term visa (more than 180 days)** are required to register themselves with a Registration Officer within 14 days of arriving in India.
  - **Citizenship Act, 1955:** It provided provisions for renunciation, termination, and deprivation of citizenship.
    - Further, **Citizenship Amendment Act, 2019 (CAA)** seeks to provide citizenship to Hindu, Christian, Jain, Parsi, Sikh, and Buddhist immigrants persecuted in Bangladesh, Pakistan, and Afghanistan.
- **India issued a Standard Operating Procedure (SOP)** to be followed by all concerned agencies while dealing with foreign nationals who claim to be refugees.

Note:

## Second Voice of the Global South Summit

### Why in News?

India recently concluded its second '**Voice of the Global South Summit**' (VOGSS), held virtually. This summit follows the inaugural summit in **January 2023**, signaling India's commitment to fostering solidarity among nations and **consolidating its leadership in the Global South**.

### What are the Key Highlights of Second VOGSS?

- **Themes:** The inaugural session centered around '**Together, for Everyone's Growth, with Everyone's Trust**', while the concluding session emphasized '**Global South: Together for One Future**.'
- **Objectives of the Summit:** Disseminating **outcomes of the G20 summit** hosted by India and ensuring sustained momentum for effective implementation of G20 decisions, with a **specific focus on the interests of developing countries**.
- **Key Outcomes:**
  - **Global South Center of Excellence 'DAKSHIN':** Indian PM inaugurated this initiative, aimed at **fostering collaboration among developing nations** by serving as a knowledge repository and think tank.
  - **Thematic Discussions:** Ministerial sessions delved into a wide array of topics, including **Sustainable Development Goals, energy transition, climate finance, digital transformation, women-led development, counter-terrorism, and global institution reforms**.
  - **Call for Restraint Amid Israel-Hamas Conflict:** India articulated deep concern regarding the plight of civilians affected by the Israel-Hamas conflict.
    - He emphasized the urgent need for **all involved parties to exercise restraint**, prioritize the safety of innocent civilians, and work towards **de-escalation**.
  - **5 'Cs' for Global South:** India also called for 5 'Cs' for the Global South: **consultation, cooperation, communication, creativity and capacity building**.

### What is Global South?

- **About:**
  - The **Global South**, often misconceived as a purely geographical concept, encompasses diverse countries, **drawing upon geopolitical, historical, and developmental factors**.
    - While it is not **solely defined by location**, it broadly represents nations **facing developmental challenges**.
    - Many countries included in the Global South are in the northern hemisphere, such as **India, China** and all of those in the northern half of Africa.
- Whereas, **Australia and New Zealand**, both in the southern hemisphere, are not in the Global South.
- **Historical Context:**
  - **Brandt Line:** The line was proposed by former **German Chancellor Willy Brandt** in the 1980s as a visual depiction of the **north-south divide based upon per-capita GDP**.
    - This line symbolizes the **global economic divide**, zigzagging across continents, encompassing parts of **Africa, the Middle East, India, and China**, excluding Australia and New Zealand.



- **G-77:** In 1964, the **Group of 77 (G-77)** countries came into existence when they signed a Joint Declaration during the first session of the **UN Conference on Trade and Development (UNCTAD)** in Geneva.
  - The G-77 became the largest intergovernmental organization of developing countries at the time.

Note:

### ➤ Resurgence of Global South:

#### ○ Economic Dynamics:

##### ● Economic Imbalances Exposed by Covid-19:

The pandemic amplified **existing economic disparities**, disproportionately impacting Global South countries due to **limited healthcare infrastructure**, disrupted supply chains, and heavy reliance on sectors vulnerable to lockdowns.

##### ● Shifts in Trade and Supply Chains:

Reevaluations of global supply chains post-pandemic and in **context of recent geopolitical conflicts like Russia-Ukraine war**, opened discussions on repositioning production centers, providing an opportunity for some Global South economies to restructure and enhance their roles.

#### ○ Geopolitical Realities:

##### ● The Global South's collective voice **gained traction in international forums like G20**, altering power dynamics and prompting greater consideration of their perspectives and interests.

#### ○ Environmental and Climate Impact:

##### ● **Vulnerability to Climate Change:** The Global South is **disproportionately affected by climate change**, driving discussions on **climate adaptation**, resilience-building, and the need for equitable global climate action.

##### ● **Renewable Energy and Sustainable Development:** Emphasis on sustainable development goals, **renewable energy investments, and environmental conservation initiatives within the Global South** attracted global attention and support.

### **What Evidence Showcases the Escalating Influence of the Global South?**

- The establishment of the '**Loss and Damage Fund**' during **COP27 in Egypt** highlighted the **disproportionate burden faced by the Global South**.
- **Japan's G7 summit** made a commendable effort to include countries like **India and Brazil**, fostering a more inclusive dialogue.
- The expansion of **BRICS to 11 members** emphasized increased engagement with the Global South.

- The **G-77 summit in Cuba** successfully brought together numerous developing nations to address critical issues.
- The **inclusion of the 55-nation African Union in the G20** signifies a growing recognition of African nations' global significance and their valuable contributions to shaping the global order.

### **What are the Challenges for India as a Voice of the Global South?**

- **Addressing Divergent Interests:** The Global South comprises countries with varied **political ideologies, economic structures, and geopolitical ambitions**. Harmonizing these differences to present a unified stance on global issues like trade, climate change, and security can be challenging.
- **Overcoming Power Asymmetry:** The Global South includes **both emerging powers like India, Brazil, and South Africa, alongside least developed countries**.
  - Balancing power dynamics within this group and ensuring equitable representation can be challenging, as stronger nations might overshadow the concerns of smaller, less influential countries.
- **Negotiating with Global Powers:** Advocating for the interests of the Global South amidst the dominance of global powers demands strategic negotiation skills. India must navigate its relationships with established powers like the US and the EU, ensuring that the **voice of the Global South is heard and considered in global decision-making processes**.
- **Resource Constraints:** India needs to balance its own developmental needs with its role as a representative of the Global South. Limited resources and competing domestic priorities within Global South countries often pose challenges for India.

## **India-Australia 2+2 Ministerial Dialogue**

### **Why in News?**

Recently, the **2nd India-Australia 2+2 Ministerial Dialogue** was held in New Delhi, India, where foreign Affairs Ministers and Defense Ministers of both countries attended the Meeting.

Note:



### What are the Key Highlights of the India-Australia 2+2 Ministerial Dialogue?

#### ➤ Enhanced Cooperation:

- Both nations emphasized further cooperation in information exchange and Indo-Pacific **Maritime Domain Awareness (MDA)**, underlining the importance of these aspects in strengthening their strategic ties.
- The Quad's Indo-Pacific MDA is in the implementation phase, slated to be a prominent agenda item at the upcoming Quad summit hosted by India.

#### ➤ Implementing Arrangements:

- Both sides discussed the implementing arrangements on **hydrography cooperation** and cooperation for **air-to-air refueling**, signaling a step toward concrete collaboration in defense areas.

#### ➤ Niche Training Areas:

- There's a **shared vision to collaborate in specialized training areas** such as **Artificial Intelligence (AI)**, **Anti-Submarine Warfare**, anti-drone warfare, and

the cyber domain, highlighting a commitment to developing advanced defense capabilities.

#### ➤ Defense Industry Collaboration:

- Both countries recognized **the potential of deepening cooperation in defense** industry and research as a means to enhance their already strong relationship.
- They Identified potential areas of collaboration including shipbuilding, ship repair and maintenance, as well as **aircraft maintenance, repair, and overhaul**.

#### ➤ Research in Underwater Technologies:

- Discussion on joint research in underwater technologies and collaboration between defense start-ups **signifies a push for innovation and technological advancement** in defense strategies.

#### ➤ Reaffirmed Bilateral Defense Relations:

- Both countries reaffirmed **commitment to strengthen bilateral defense relations** and expressed satisfaction over increasing military-to-

Note:



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military cooperation, joint exercises, exchanges, and institutional dialogues.

### **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**.
- India-Australia relations touched a historic low when the **Australian Government condemned India's 1998 nuclear tests**.
- 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 2021, the prime ministers of both the countries met during **COP26** at Glasgow.
- In 2022, there has been 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 **2+2 Ministerial Dialogue** took place in September 2021, and the Deputy Prime Minister and Defence Minister of Australia visited India in June 2022.
- The **Mutual Logistics Support Agreement (MLSA)** was signed during the Virtual Summit in June 2020 to enhance defence cooperation.
- **Joint military exercises:**
  - Australia will host the "**Malabar**" exercises in August 2023, with participation from India, Japan, and the US.

- India has been invited to join the Talisman Sabre exercises in 2023.

#### ➤ **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 **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**, 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.
  - It has resulted in an immediate reduction of duty to zero on 96% of Indian exports to Australia in value (that is 98% of the tariff lines) and zero duty on 85% of Australia's exports (in value) to India.
- **Supply Chain Resilience Initiative (SCRI):**

Note:



- 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**.
- **Bilateral Trade:**
  - Australia is the 17th largest trading partner of India and India is Australia's 9th largest trading partner.
  - Bilateral trade between India and Australia was US\$ 27.5 billion in 2021, there is potential for it to reach around US\$ 50 billion in five years.
- **Cooperation on Clean Energy:**
  - In February 2022, 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 USD 5.8 million to the three-year **India-Australia Critical Minerals Investment Partnership**.

### What are the Challenges in India-Australia Relations?

- **Adani Coal Mine Controversy:**
  - There was controversy over the Adani coal mine project in Australia, with some activists protesting against it, which created a strain in the relationship between the two countries.
- **Visa Issues:**
  - There have been concerns over visa restrictions for Indian students and professionals seeking to work in Australia.
- **Violence with Indian Diaspora:**
  - Attacks on Indian Diaspora and temples in the recent past by Khalistan supporters have been an issue of strain.

## Second Anti-Piracy Patrol in the Gulf of Guinea

### Why in News?

The **Indian Navy** recently completed its **second anti-piracy patrol in the Gulf of Guinea(GoG)** in the **Atlantic**

**Ocean**, with the Offshore **Patrol Vessel INS Sumedha** playing a pivotal role in this mission.

- The maiden GoG anti-piracy patrol was undertaken by **INS Tarkash** in September/October 2022.

### What are the Key Highlights of the Second GoG Anti-Piracy Patrol?

- INS Sumedha operated in the GoG undertaking a 31-day anti-piracy patrol, which is on an extended-range operational deployment in the Atlantic Ocean along the West Coast of Africa.
  - Sumedha's deployment also ensured enhancing **Navy to Navy connection** with regional navies including Senegal, Ghana, Togo, Nigeria, Angola and Namibia.
- INS Sumedha's deployment aimed to **boost regional partners' capabilities** through joint training, emphasizing India's commitment to the philosophy of '**Vasudhaiva Kutumbakam**'-The World is One Family.
- The objective of the patrol was to **deter and prevent piracy and armed robbery at sea**, protect the Indian and international merchant vessels, and enhance maritime security and stability in the region.

### What are the Key Facts About the Gulf of Guinea (GoG)?

- The GoG is an inlet of the **Atlantic Ocean** on the **western African coast**, extending westward from **Cape Lopez in Gabon to Cape Palmas in Liberia**.
  - A gulf is defined as a **portion of the ocean that penetrates the land**. They are formed as a result of plate tectonics and are often connected to the ocean by narrow water passages known as straits.
- It is found at the junction of the **Prime Meridian and the Equator at 0°0'N and 0°0'E**.
- Major rivers that drain into the Gulf of Guinea include the **Volta and Niger rivers**.
- The GoG is one of the world's most dangerous gulfs because of the **widespread piracy** that has severely affected many countries in West Africa along with other international countries.
  - The number of vessels attacked by pirates in the gulf is about 100 every year.
- The GoG region accounts for **more than 35% of the world's total petroleum reserves**.
  - Several minerals including diamonds, uranium, copper, etc., are found here.

Note:

- The principal economic activities of the Gulf of Guinea region are petroleum exploration, mining and gas flaring, port operations, and fishing.
- The **16 coastal countries** that are situated along the Gulf of Guinea are Angola, Benin, Cameroon, Cote d'Ivoire, Democratic Republic of Congo, Republic of Congo, Guinea, Equatorial Guinea, Guinea-Bissau, Gabon, Nigeria, Ghana, São Tomé and Príncipe, Togo and Sierra Leone.



### What Strategic Significance Does the Gulf of Guinea Hold for India?

- The Gulf of Guinea holds immense strategic importance for India's national interests, being a significant source of the **country's energy requirements**.
  - In recent years, Nigeria has been one of the main sources of crude for India lies in GoG, the country emerged as the **fourth-largest supplier of crude oil and Liquefied natural gas (LNG) to India in 2020**.
- The GoG is also a region of security concern for India, as it faces the challenges of piracy, armed robbery, terrorism, and transnational crime.
  - **India has been a victim of piracy incidents in the GoG**, as several Indian nationals have been held hostage by pirates in the past.

#### INS Sumedha

- INS Sumedha is the **third of the indigenously developed Naval Offshore Patrol Vessel (NOPV)** of the **Saryu class** deployed for multiple roles independently and in support of Fleet Operations.

- The ship is equipped with several weapon systems, sensors, state-of-the-art navigation and communication systems and an Electronic Warfare system.
- INS Sumedha is aimed at meeting the **increasing ocean surveillance** and patrolling requirements of the Indian Navy.
  - The primary role of the ship is to undertake **exclusive economic zone (EEZ)** surveillance, anti-piracy patrols, fleet support operations, provide maritime security to offshore assets and carry out escort operations for high-value assets.
- Participated in the maiden **India-EU Joint Exercise** in the Gulf of Guinea, showcasing international collaboration in maritime security.
- Played a crucial role in **Operation Kaveri**, contributing to the evacuation of the Indian diaspora from war-hit Sudan in April 2023.

Note:

### What are India's Initiatives Related to Maritime Security?

- **SAGAR policy.**
- **India reiterated its support for the UN Convention on Law of Sea (UNCLOS).**
- **International Fusion Centre (IFC).**

## 10<sup>th</sup> ASEAN Defence Ministers' Meeting-Plus

### Why in News?

Recently, the Defence Minister of India has participated in the 10<sup>th</sup> **Association of SouthEast Asian Nations (ASEAN) Defence Ministers' Meeting-Plus (ADMM-Plus)** in Jakarta, Indonesia.

### What are the Key Highlights of the Indian Address in ADMM-Plus Meeting?

- **ASEAN Centrality:**
  - India affirmed the importance of **ASEAN's central role** and commended its efforts in fostering dialogue and consensus in the region.
- **Commitment to International Laws:**
  - India reiterated its commitment to freedom of navigation, overflight, and lawful commerce in international waters, aligning with international laws, notably the **United Nations Convention on the Law of the Sea (UNCLOS) 1982.**
- **Regional Security Initiatives:**
  - India advocated for consultative and **development-oriented security initiatives** that reflect consensus among stakeholders, aiming for practical, forward-looking cooperation within **ADMM-Plus to enhance Maritime Security** in the region.
- **Dialogue and Diplomacy:**
  - India stressed the significance of dialogue and diplomacy for enduring peace and global stability, emphasizing moving away from an **"us versus them" mindset, asserting that this is not an era of war.**
- **Collaborative Initiatives:**
  - India appreciated ASEAN Member States' participation in joint initiatives like the Initiative for **Women in UN Peacekeeping Operations**, Initiative for Marine Plastic Pollution Response, ASEAN-India

Maritime Exercise, and Expert Working Group (EWG) on **Humanitarian Assistance & Disaster Relief (HADR).**

- India proposed to **co-chair the EWG on Counter-Terrorism**, a concern endorsed by ADMM-Plus due to terrorism's serious threat in the ASEAN region.
- In the present cycle from 2021-2024, **India is co-chairing EWG on HADR along with Indonesia.**

### What is ADMM-Plus?

#### ➤ About:

- The ADMM-Plus is a platform for **ASEAN** (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam) and its **eight Dialogue Partners** Australia, China, India, Japan, New Zealand, Republic of Korea, Russia and the United States (collectively referred to as the "Plus Countries"), to strengthen **security and defence cooperation for peace, stability, and development** in the region.

- The ADMM is the **highest defence consultative and cooperative mechanism** in ASEAN.

#### ➤ Establishment:

- The Inaugural ADMM-Plus was convened in **Ha Noi, Viet Nam**, in 2010.
- Since 2017, the ADMM-Plus meets annually, to allow enhanced dialogue and cooperation among **ASEAN and the Plus Countries** in the midst of an increasingly challenging regional security environment.

#### ➤ Objectives:

- To benefit ASEAN Member States in building **capacity to address shared security challenges**, while cognisant of the differing capacities of various ASEAN Member States.
- To promote mutual trust and confidence between defence establishments through greater dialogue and transparency;
- To enhance regional peace and stability through cooperation in defence and security, in view of the transnational security challenges the region faces;
- To facilitate the implementation of the Vientiane Action Programme, which calls for ASEAN to build a peaceful, secure and prosperous ASEAN, and to adopt greater outward-looking external relation strategies with our friends and Dialogue Partners.

Note:

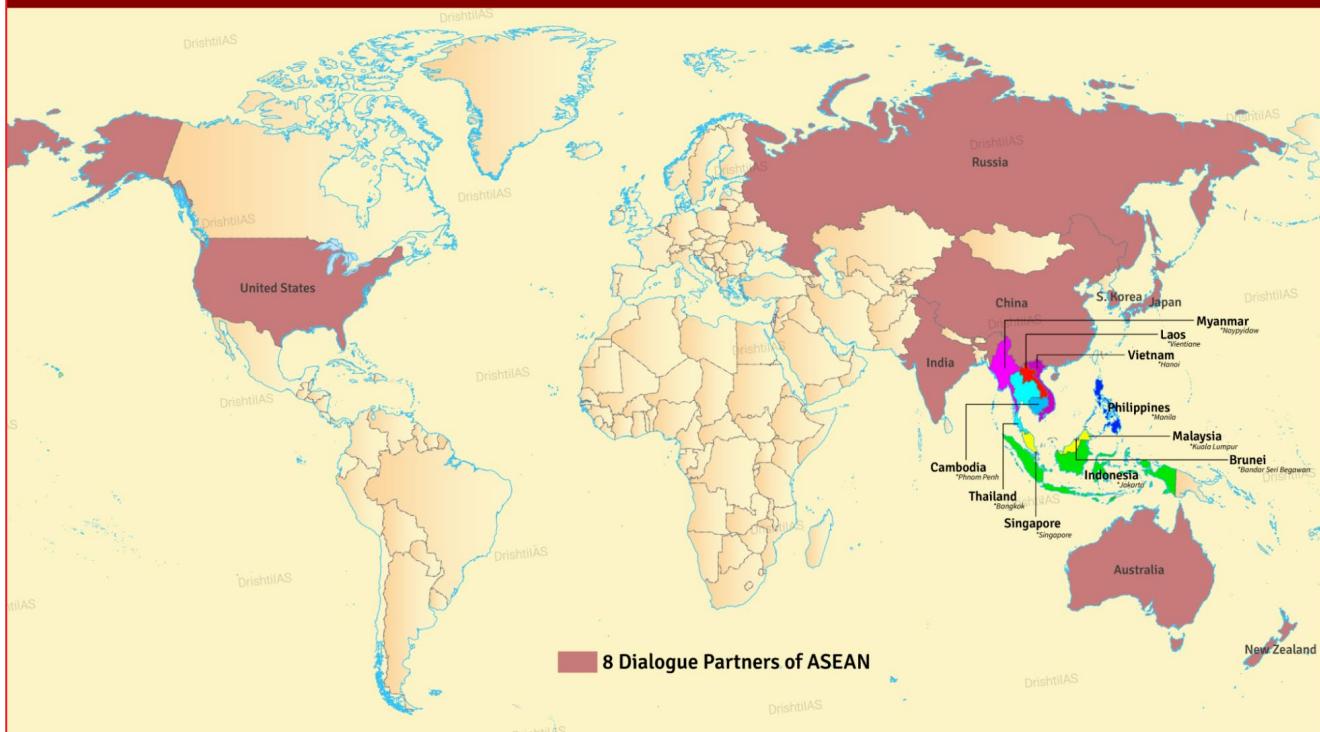
➤ **Achievements:**

- The ADMM-Plus has become an effective platform for practical cooperation among the participating countries' defence establishments.
- The ADMM-Plus currently focuses on **seven areas of practical cooperation**, namely maritime security (MS), counter-terrorism (CT), humanitarian assistance and disaster management (HADR), peacekeeping operations (PKO), military medicine (MM), humanitarian mine action (HMA) and cyber security (CS).
- Experts' Working Groups (EWGs) have been established to facilitate cooperation in these areas.
- The EWGs are each co-chaired by one **ASEAN Member States and one Plus Country**, operating in a three-year cycle.



# ASEAN

Association of Southeast Asian Nations



**Founded:** By signing ASEAN Declaration (Bangkok Declaration) (1967)

**Founding Members:** Indonesia, Malaysia, Philippines, Singapore and Thailand

**Secretariat:** Indonesia, Jakarta

**Chairmanship:** Rotates annually

**ASEAN Summit Meetings:** Occur biannually

**ASEAN Economy:**

- Combined GDP: ~ USD 3.66 trillion (2022)
- Total Exports: USD 1.73 trillion (8.24% of global exports in 2021)
- Major Export Item: Monolithic Integrated Circuit, Palm Oil, Data Processing Equipment

**ADMM+Meeting:** Platform for ASEAN and its 8 Dialogue Partners (India, Australia, US, Japan, S. Korea, China, Russia and New Zealand)

- First Convened in: Hanoi, Vietnam (2010)

Note:

## Asia-Pacific Economic Cooperation Leaders' Summit 2023

### Why in News?

Recently, the **Asia-Pacific Economic Cooperation (APEC) Leaders' Summit 2023** took place in **San Francisco, United States**.

### What are the Key Highlights of the APEC Leaders' Summit 2023?

- The APEC 2023 summit's theme is **"Creating a Resilient and Sustainable Future for All"**.
- APEC reaffirmed their commitment to free, fair, and open trade and investment, and to advancing inclusive and sustainable growth in the region.
- The summit concluded with the adoption of the **Golden Gate Declaration**.
  - The declaration underscores the commitment to creating a resilient and sustainable future for all member economies.

- The APEC leaders endorsed the APEC Action Agenda on Climate Change and Energy Security, which outlined a set of concrete actions and targets to enhance cooperation and coordination on addressing the climate crisis and ensuring energy security.

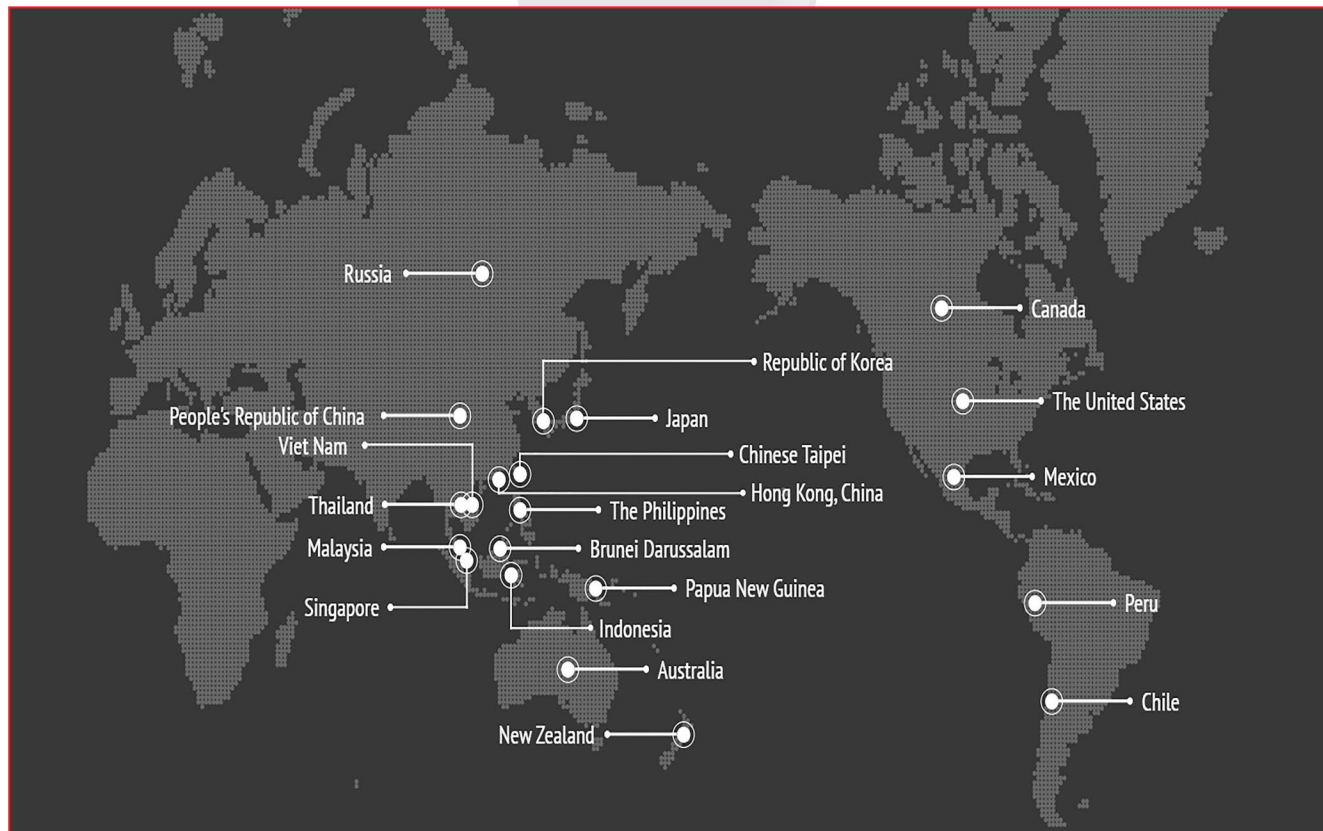
### What is Asia-Pacific Economic Cooperation?

#### ➤ About:

- The APEC is a regional economic forum established in 1989 to leverage the **growing interdependence of the Asia-Pacific**.
- APEC aims to create greater prosperity for the people of the region by promoting **balanced, inclusive, sustainable, innovative and secure growth** and by accelerating regional economic integration.
- The APEC process is supported by a **permanent secretariat based in Singapore**.

#### ➤ Members:

- Australia, Brunei, Canada, Chile, China, Hong Kong, Indonesia, Japan, South Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, Philippines, Russia, Singapore, Chinese Taipei, Thailand, Vietnam and the United States.
- India currently has the 'observer' status.



Note:



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➤ **Significance:**

- APEC accounts for approximately **62% of world GDP** and **48% of world trade in 2021**.
  - It is one of the oldest and most influential multilateral platforms in the Asia-Pacific region.
- APEC operates based on **no binding commitments or treaty obligations**. Commitments are undertaken voluntarily and capacity-building projects help members implement APEC initiatives.
- APEC's main goals are to support economic growth and prosperity, enhance regional economic integration, strengthen human security, and address common challenges such as climate change, health, and food security.

➤ **India- APEC:**

- India wanted to join APEC in 1991, it was the same year when **liberalisation** was introduced in the Indian economy which opened up its economy and trade more with other countries.
  - Some APEC members liked the idea of having India in the group. But some APEC members did not like the idea, because they thought **India still had too many rules and restrictions** that made it hard for them to do business with India.
- Another reason why India could not join APEC was that the **group decided to stop accepting new members in 1997**, to focus on improving the existing cooperation among the current members.
  - This decision was supposed to last until 2012, but it was not changed after that, so India still could not join APEC.

## NATO Suspends CFE Treaty Amid Russian Withdrawal

### *Why in News?*

Recently, **NATO (North Atlantic Treaty Organization)** has announced the formal suspension of the **Treaty on Conventional Armed Forces in Europe (CFE)**, a key **Cold War-Era Security Treaty** in response to **Russia's pullout from the deal**.

### *What is the Background of Russia's Pullout from CFE?*

➤ **About CFE Treaty:**

- The CFE Treaty, signed in **1990 and fully ratified in 1992**, aimed to prevent **massing of conventional armed forces by NATO and Warsaw Pact** countries near mutual borders during the Cold War.
- It placed **limits on the deployment of conventional military forces** in Europe and played a significant role in **reducing tensions and arms build-up in the region**.
  - This treaty was **one of several Cold War-era agreements** involving Russia and the United States.

➤ **Russia's Withdrawal:**

- Russia had suspended its participation in the CFE Treaty in 2007 and formally announced **its intention to withdraw in 2015**.
- The recent move to finalise the withdrawal came after the Russian President signed a bill **denouncing the treaty in May 2023**.
- Russia has blamed the US and its allies for the withdrawal, **citing their "destructive position on the treaty"**.

➤ **Ukraine Conflict's Impact:**

- **Russia's invasion of Ukraine** in February 2022, which led to a **significant military presence in Ukraine**, influenced its decision to **withdraw from the treaty**.
- The conflict has **direct implications for NATO member states** that share borders with Ukraine, such as Poland, Slovakia, Romania, and Hungary.

### *What are Russia's Concerns and NATO's Position?*

- Russia claims CFE is no longer serves its interests because it was signed to restrict the use of conventional weapons and equipment and not other advanced weapons.
- Russia cited that preserving the CFE Treaty has become unacceptable from the standpoint of **its fundamental security interests**, citing developments in Ukraine and NATO's expansion.
- NATO underlines its commitment to reducing military risk, preventing misperceptions, and maintaining security.
- The suspension of the CFE Treaty underscores the ongoing tensions between Russia and NATO, which have significant implications for **global security and regional stability**, particularly in **Eastern Europe**.

Note:



### What is the Cold War?

- The Cold War was a **period (1945-1991) of geopolitical tension** between the Soviet Union and its satellite states (the Eastern European countries), and the United States with its allies (the Western European countries) after **World War II**.
- Post World War II, the world **got divided into two power blocs** dominated by two superpowers viz. the Soviet Union and the US.
  - The two superpowers were primarily engaged in an ideological war between the capitalist USA and the communist Soviet Union.
- The term “Cold” is used because there **was no large-scale fighting directly between the two sides**.



### What are Other Cold-War Era NATO and USSR Treaties?

#### ➤ The North Atlantic Treaty (1949):

- The North Atlantic Treaty, also known as the **Washington Treaty**, established NATO on 4<sup>th</sup> April, 1949.
- It was a **collective defence alliance formed by Western nations**, including the US, Canada, and various European countries.

#### ➤ The Warsaw Pact (1955):

- The Warsaw Pact, formally known as the **Treaty of Friendship, Cooperation, and Mutual Assistance**, was signed on 14<sup>th</sup> May, 1955.
- It was a response to NATO and established a similar mutual **defence alliance among the Eastern Bloc countries**, led by the Soviet Union.
- The Warsaw Pact included the **Soviet Union, East Germany, Poland, Hungary, Czechoslovakia, Bulgaria, and Romania**, among others.

Note:

- **The Four Power Agreement on Berlin (1971):**
  - This agreement, signed on 3<sup>rd</sup> September, 1971, between the **United States, the United Kingdom, France, and the Soviet Union**, addressed the **status of Berlin during the Cold War**.
  - It aimed to **improve relations and ease tensions** in the divided city.
- **The Intermediate-Range Nuclear Forces (INF) Treaty (1987):**
  - It was signed on 8<sup>th</sup> December, 1987, by the U.S. President and Soviet General Secretary, the INF Treaty eliminated an **entire class of intermediate-range nuclear missiles from Europe**.
  - The treaty marked a significant step in **reducing Cold War tensions** and nuclear arms.
- **The Strategic Arms Limitation Talks (SALT) and START Treaties:**
  - **SALT** were a **series of bilateral conferences and international treaties** signed between the United States and the Soviet Union.
  - These treaties had the goal of **reducing the number of long-range ballistic missiles (strategic arms)** that each side could possess and manufacture.
  - First treaty, known as SALT I, was signed in 1972.
    - By signing SALT I, the US and the USSR agreed to a limited number of ballistic missiles, as well as a limited number of missile deployment sites.

**Note:** In February 2023, Russia had announced to **suspend its participation in the New START Treaty**, the last remaining major military agreement with the United States.

- The New START Treaty came into force in February, 2011 between the United States of America and the Russian Federation on measures for the **further reduction and limitation of strategic offensive arms**.
- **The Helsinki Accords (1975):**
  - The Helsinki Final Act, signed in August, 1975, was not a treaty but a **declaration of principles agreed upon by 35 countries**, including NATO members and Warsaw Pact countries.
  - It aimed to improve **relations between East and West** and included commitments to respect human rights and territorial integrity.

## What is NATO?

### ➤ About:

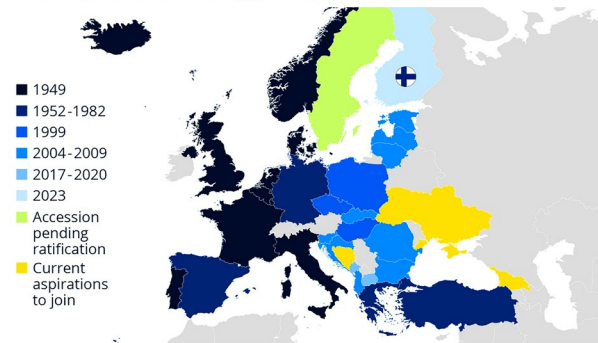
- **NATO, or the North Atlantic Treaty Organization**, is a political and military alliance consisting of 31 member countries.
- It was formed in 1949 to promote mutual defence and collective security among its members.

### ➤ Members:

- **In 1949, there were 12 founding members of the Alliance:** Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom and the United States.
- **Since then, 19 more countries have joined the Alliance:** Greece and Turkey (1952); Germany (1955); Spain (1982); Czechia, Hungary and Poland (1999); Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia and Slovenia (2004); Albania and Croatia (2009); Montenegro (2017); North Macedonia (2020); and Finland (2023).

## Finland Becomes 31st Member of NATO

European countries by year they joined NATO



Map excludes the United States and Canada, both founding members of NATO.

### ➤ Headquarters: Brussels, Belgium:

- Headquarters of Allied Command Operations: **Mons, Belgium**.

### ➤ Special Provision:

- **Article 5:** Article 5 of the NATO treaty is a key provision that states that an attack on one member is an attack on all members.
  - This provision has only been invoked once, **after the 9/11 terrorist attacks** in the United States.

Note:



- However, NATO's protection **does not extend to members' civil wars or internal coups.**

➤ **Alliances of NATO:**

- **Euro-Atlantic Partnership Council (EAPC)**
- **Mediterranean Dialogue**
- **Istanbul Cooperation Initiative (ICI)**

## Ben Gurion Canal Project

### Why in News?

Recently, there has been renewed interest in the **Ben Gurion Canal Project**, a proposed 160-mile-long sea-level canal that would connect the **Mediterranean Sea with the Gulf of Aqaba**, bypassing the **Suez Canal**.



### What is the Ben Gurion Canal Project?

➤ **Historical Roots:**

- Originating in the 1960s, the Ben Gurion Canal Project was conceptualized as a transformative infrastructure initiative.
- Named after **Israel's founding father, David Ben-Gurion (1886-1973)**, reflecting its historical significance.

➤ **Strategic Objective:**

- Aims to create an alternative maritime route connecting the Red Sea with the Mediterranean, bypassing the Suez Canal.

- Envisions reshaping global maritime dynamics by **challenging Egypt's monopoly** on the shortest Europe-Asia route.

➤ **Gulf of Aqaba to Mediterranean Coast:**

- Proposes cutting a canal through the Negev Desert (Israel), starting from the Gulf of Aqaba (eastern arm of the Red Sea).
  - Extends to the Eastern Mediterranean coast, providing an alternative trade route.
  - The Gulf of Aqaba has a coastline shared by four countries: Egypt, Israel, Jordan, and Saudi Arabia.

➤ **Economic Implications:**

- Speculations suggest that **Israel's desire to control Gaza and eliminate Hamas** is linked to unlocking economic opportunities tied to the canal.
- If completed, the Ben Gurion Canal Project would have a significant impact on global trade and geopolitics. It would create a new shipping route between **Europe and Asia**, bypassing the Suez Canal and reducing Egypt's control over global shipping.

➤ **Challenges and Viability:**

- Gigantic **logistical, political, and funding challenges** pose substantial obstacles.
  - High complexity and prohibitive costs estimated to be as much as USD 100 billion.
- The imperative of **political stability and the constant military threat** as significant security concerns.
  - Another challenge is the **security situation in the region**. The Gaza Strip is a potential security threat, and any canal would need to be protected from attack.

### Suez Canal

- The Suez Canal is a **man-made waterway that opened in 1869** running north to south across the Isthmus of Suez in Egypt, that connects the **Mediterranean Sea and the Red Sea**, allowing a shorter route for shipping between Europe and Asia.
  - The canal separates the African continent from Asia.
- The 150-year-old canal was controlled by British and French interests in its initial years, but was nationalised in 1956 by Egypt.
  - The Suez Canal now is controlled by Egypt, which collects toll revenues from the vessels that use it.
  - In 2021, the canal generated a record of USD 9.4 billion for Egypt, accounting for nearly 2% of its GDP.

Note:

- The Suez Canal is a vital trade route that accounts for approximately **12% of global trade** passes through the Suez Canal, representing **30% of all global container traffic**, and over USD 1 trillion worth of goods per annum.
- The canal enables India to access the markets of Europe, Africa, and the Middle East more easily and economically.
  - India imports most of its **oil and gas from the Gulf countries**, and the canal facilitates the smooth flow of energy supplies to India.
  - The canal also helps India export its products, such as textiles, chemicals, and agricultural goods, to the global markets.

### 6<sup>th</sup> India-OPEC Energy Dialogue

#### Why in News?

The 6<sup>th</sup> High-Level Meeting of the **India-Organization of the Petroleum Exporting Countries (OPEC) Energy Dialogue** brought together key representatives at the **OPEC Secretariat in Vienna, Austria**.

- The meeting delved into critical aspects of **oil and energy markets**.

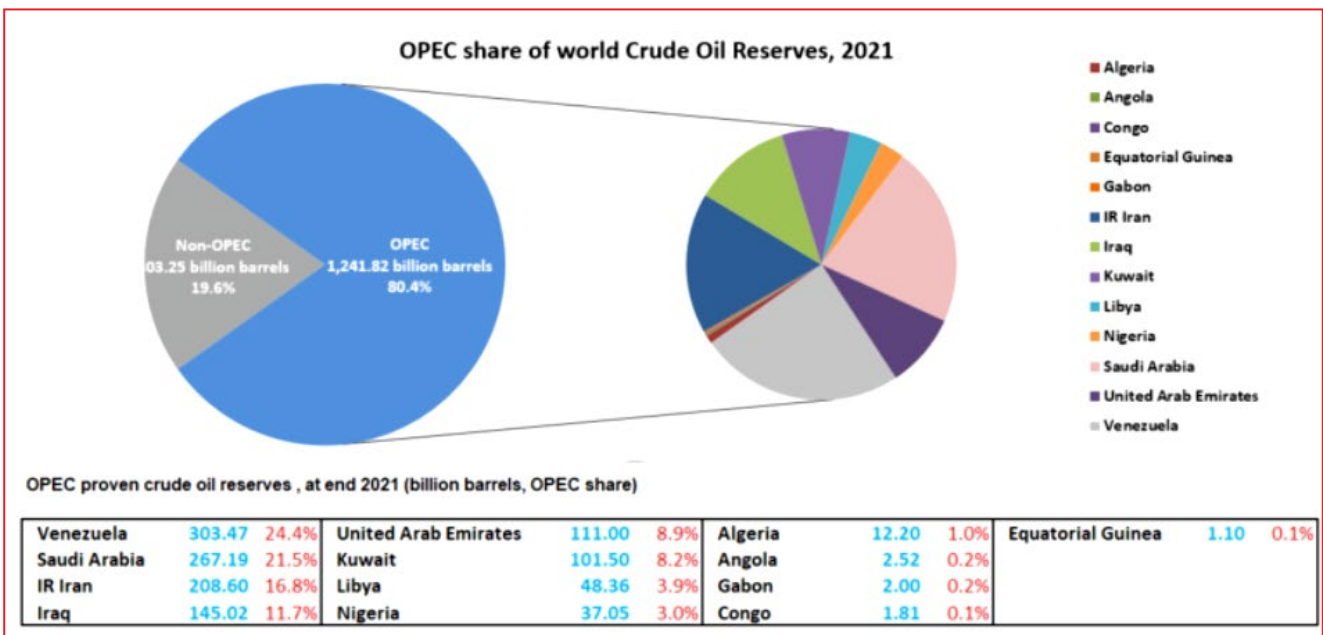
#### What are the Key Highlights of India-OPEC Energy Dialogue?

- The Meeting focused on key issues related to oil and

- energy markets with a specific emphasis on **ensuring availability, affordability and sustainability**, which are necessary to ensure the stability of energy markets.
- The meeting concluded with both parties underscoring the importance of fostering enhanced **cooperation between OPEC and India** moving forward.
- **World Oil Outlook 2023**, which forecasted that **India would be the fastest-growing major developing economy**, averaging long-term growth of **6.1% between 2022-2045** and accounting for **over 28% of incremental global energy demand** during the same period.
  - Both sides have recognized the importance of **India as the third-largest energy consumer, crude oil importer and the fourth-largest global refiner**, in global economic growth and energy demand.
- The meeting also acknowledged the achievements and initiatives of India in the fields of **renewable energy, energy efficiency, hydrogen economy, and climate change mitigation**.
- It was agreed to hold the next High-Level Meeting of the India-OPEC Energy Dialogue in 2024 in India.

#### What is the Organization of the Petroleum Exporting Countries (OPEC)?

- **About:**
  - The OPEC is a permanent, intergovernmental Organization, created at the Baghdad Conference in 1960, by Iran, Iraq, Kuwait, Saudi Arabia and Venezuela.



Note:

- It is **headquartered in Vienna, Austria.**

➤ **Objective:**

- OPEC's objective is to **coordinate and unify petroleum policies among Member Countries**, to secure **fair and stable prices** for petroleum producers; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on capital to those investing in the industry.

➤ **Members:**

- Algeria, Angola, Congo, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, United Arab Emirates and Venezuela.
- OPEC nations produce about 30% of the world's crude oil.
  - **Saudi Arabia is the biggest single oil supplier within the group**, producing more than 10

million barrels a day.

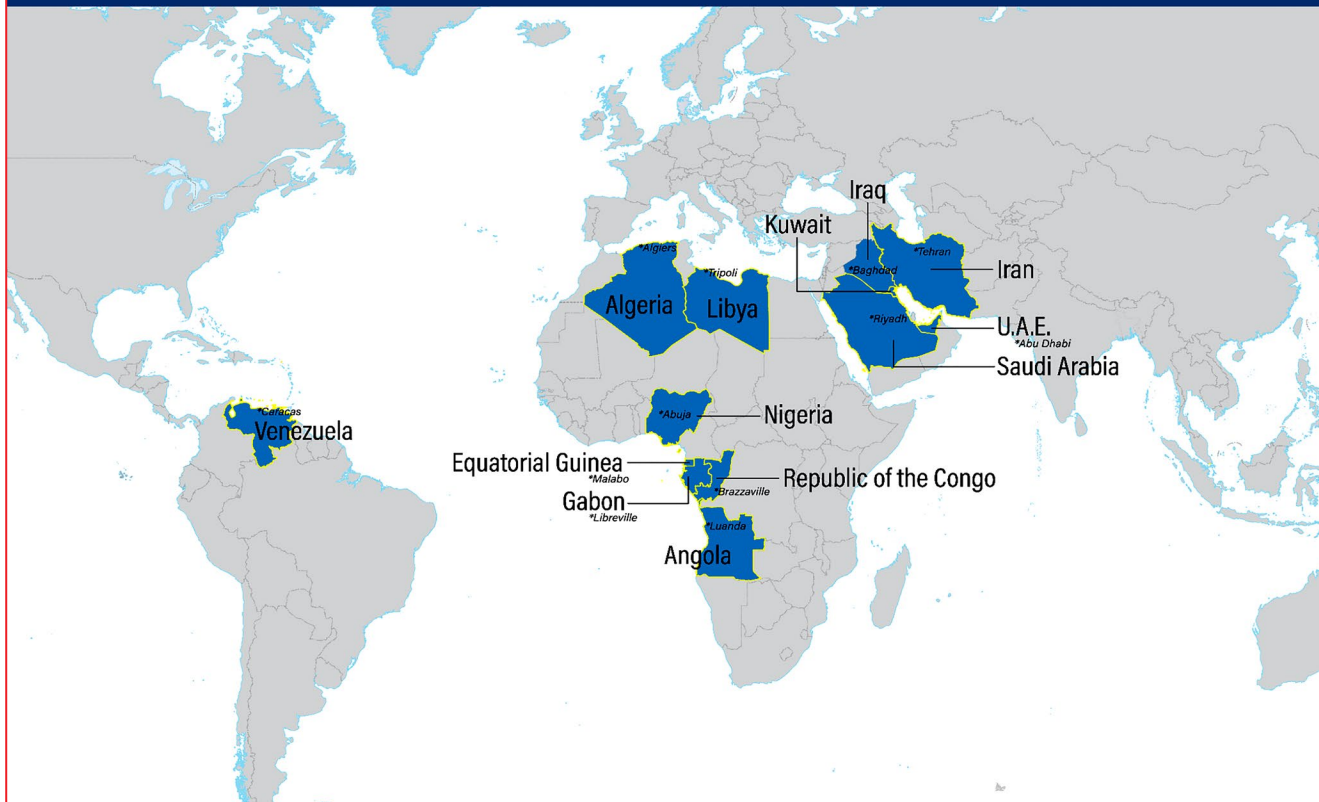
➤ **Reports and Outlooks:**

- Monthly Oil Market Report, Annual Statistical Bulletin and the World Oil Outlook.

➤ **OPEC+:**

- In 2016, largely in response to falling oil prices driven by significant increases in U.S. shale oil output, **OPEC signed an agreement with 10 other oil-producing countries** to create what is now known as **OPEC+**.
  - OPEC+ now includes the 13 OPEC member countries along with Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan, and Sudan.
- **OPEC+ countries produce about 40% of all the world's crude oil.**

## Organization of the Petroleum Exporting Countries (OPEC)



- Intergovernmental organisation, created at the Baghdad Conference (1960)
- Headquarter – Vienna, Austria
- Current Members – 13
- Members who Quit – Ecuador (2020), Qatar (2019), Indonesia (2016)
- Membership – Open to any country that is a substantial exporter of oil
- OPEC Fund for International Development – Only globally mandated development institution that provides financing from member to non-member countries exclusively.

Note:

# Social Issues

## Highlights

- Call for Safer and Healthier Working Environments: ILO
- Walking Pneumonia
- Gender-Related Killings of Women and Girls
- Child Pornography
- Supreme Court Urges to Boost Adoption Pool
- Climate Impact on Women in Agri-Food Systems
- Key Initiatives for Tribal Groups
- Gender Disparity in Organ Transplants
- Indian Army's Proactive Measures for Mental Health

## Call for Safer and Healthier Working Environments: ILO

### Why in News?

Recently, the **ILO (International Labour Organization)** has released a report titled '**A Call for Safer and Healthier Working Environments**', which will be discussed at the **23<sup>rd</sup> World Congress on Safety and Health at Work (WCSHW)** in Sydney, Australia.

- The WCSHW, first held in 1955, is one of the largest international conferences for **work health and safety**. It aims to connect global leaders in safety and harm prevention from over 120 countries.

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

- **Annual Deaths:**
  - Approximately 30 lakh (3 million) workers globally die each year due to work-related accidents and diseases.
  - **More than 63% of these deaths occur in the Asia-Pacific region.**
- **Major Causes of Deaths:**
  - Long working hours (55 hours or more per week) **led to the most fatalities in 2016**, accounting for nearly 7.45 lakh deaths.
  - Exposure to occupational particulate matter, **gases, and fumes resulted in around 4.5 lakh deaths.**
  - Occupational injuries caused approximately 3.63 lakh deaths.
- **Fatal Occupational Injury Rate (FOIR):**
  - Sectors such as mining and quarrying, construction, and utilities were identified as the **most hazardous**

**globally based on fatal occupational injury rates.**

- The FOIR is a **statistical measure used to quantify** the number of deaths resulting from work-related accidents or injuries within a specific occupational group, industry, or geographic region over a specified period.
- **ILO Conventions:**
  - So far 79 out of the 187 member countries **have ratified the ILO Occupational Safety and Health Convention**, while 62 countries have ratified the **Promotional Framework for Occupational Safety and Health Convention, 2006.**
    - **India has not ratified** both the conventions. Recently, in the wake of **Uttarkashi tunnel incident**, the Central Trade Unions had urged the Union government to ratify the conventions.
- **Work-Related Diseases:**
  - A significant portion of work-related deaths (26 lakh) is attributed to **work-related diseases**, including circulatory diseases, **malignant neoplasms (Cancerous tumours), and respiratory diseases.**
  - Changing trends in diseases due to occupational exposure, such as increased **cases of trachea, bronchus, and lung cancers attributable** to chromium exposure, and rising cases of mesothelioma due to asbestos exposure.
- **Decrease in Certain Health Risks:**
  - Deaths due to exposure to asthmagens and particulate matter, gases, and fumes have decreased by over 20%.
- **Recommendations:**
  - ILO called for five categories of "**Fundamental Principles and Rights at Work**" for ensuring safety and health at work. These principles include:

Note:



- Freedom of association and the effective recognition of the right to collective bargaining
- Elimination of all forms of forced or compulsory labor
- Abolition of child labor
- Elimination of discrimination in respect of employment and occupation
- A safe and healthy working environment

#### What is the International Labor Organization?

- It is the only tripartite **United Nation (UN) agency**. It brings together governments, employers and workers of 187 member States (India is a member), to set labour standards, develop policies and devise programmes promoting decent work for all women and men.
  - It received the **Nobel Peace Prize** in 1969.
- It was established in 1919 by the **Treaty of Versailles as an affiliated agency of the League of Nations** and became the first affiliated specialized agency of the UN in 1946.
- Headquarters: Geneva, Switzerland

## Walking Pneumonia

### Why in News?

Recently, a mysterious influenza-like illness termed as **Walking Pneumonia** has gripped school children in China.

- The outbreak's exact cause is unknown, but medical experts speculate it might be linked to **mycoplasma pneumoniae**, a common bacterial infection known as 'walking pneumonia.'
- Chinese authorities assert it involves familiar pathogens like **mycoplasma pneumoniae**, **adenovirus**, and **influenza virus**, ruling out novel pathogens like **Severe Acute Respiratory Syndrome (SARS) coronavirus**.

### What is Walking Pneumonia?

- **About:**
  - Walking pneumonia, also known as atypical pneumonia, is a **milder form of pneumonia** caused by bacteria like **Mycoplasma pneumoniae**.
  - It's termed "walking" pneumonia because its symptoms are often mild enough that **individuals can continue their daily activities** without requiring bed rest or hospitalization.

- The condition is **more prevalent among children, particularly those aged 5 to 15**, who are in close contact at schools and can easily transmit the infection to family members.
- **Transmission:**
  - Transmission occurs through airborne **droplets from coughing**, sneezing, or talking, making close contact a significant factor in spreading the infection.
- **Symptoms:**
  - Typical symptoms include a persistent cough, fever, sore throat, headache, runny nose, ear pain, and sometimes chest discomfort due to coughing.
- **Treatment:**
  - Treatment typically involves antibiotics to target the specific bacteria causing the infection.

#### What are the Initiatives Related to Pneumonia?

- **India:**
  - **Social Awareness and Action to Neutralise Pneumonia Successfully (SAANS):** The aim is to reduce child mortality due to pneumonia, which contributes to around 15% of deaths of children under the age of five annually.
    - The government aims to achieve a target of reducing pneumonia deaths among children to less than three per 1,000 live births by 2025.
  - In 2014, India launched '**Integrated Action Plan for Prevention and Control of Pneumonia and Diarrhoea (IAPPD)**' to undertake collaborative efforts towards prevention of diarrhoea and Pneumonia related under-five deaths.
- **Global:**
  - The **World Health Organisation** and **United Nations Children's Fund (UNICEF)** had launched an integrated Global Action Plan for Pneumonia and Diarrhoea (GAPPD) with the objective of **eliminating preventable childhood deaths from pneumonia and diarrhoea by 2025**.

## Gender-Related Killings of Women and Girls

### Why in News?

Recently, the **United Nations Office on Drugs and Crime (UNODC)** and UN Women released a study titled- Gender-related killings of women and girls (femicide/

Note:

femicide), revealing an increase in gender-related killings of women and girls in 2022.

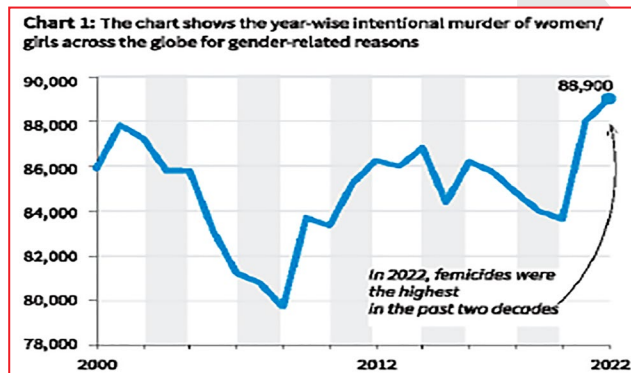
### What is Femicide/Feminicide?

- Femicide or feminicide refers to the **deliberate killing of women or girls purely because they are female**. It's a gender-based crime rooted in deeply ingrained societal attitudes and discrimination against women.
- Femicide differs from homicide in that it specifically targets individuals due to their gender, often involving situations where women are killed by their partners, family members, or individuals due to reasons like misogyny, gender-based violence, or cultural beliefs that devalue women.

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

#### ➤ Femicide Trends:

- Globally, nearly 89,000 women and girls were **killed intentionally in 2022**, the highest yearly number recorded in the past two decades.
- While the overall number of homicides globally has begun to fall in 2022 after a spike in 2021, the **number of female homicides are not decreasing**.



#### ➤ Perpetrator-Victim Disparity:

- Women are more **likely to be victims of intimate partner or family-related homicides** compared to men.
- While most homicides worldwide are committed against men and boys (80% in 2022), women and girls are disproportionately affected by homicidal violence in the home: they represent **approximately 53% of all victims of killings in the home** and 66% of all victims of **intimate partner killings**.

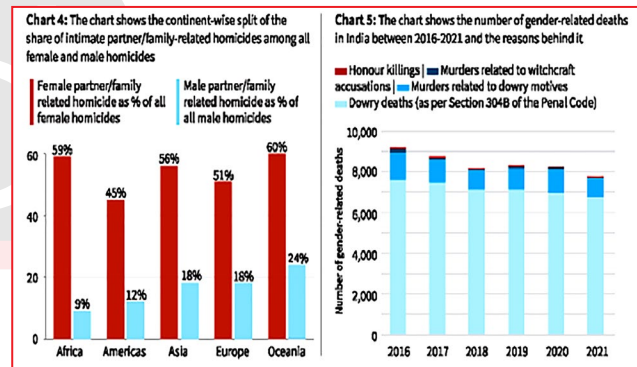
#### ➤ Continental Trends:

- Africa reported the **highest number of intimate partner/family-related homicides** of women in 2022, surpassing Asia for the first time in 13 years.

- The Americas, while reporting fewer cases, exhibited relatively **higher rates of such femicides per 100,000 female population**.

#### ➤ Regional Variations and Recent Changes:

- With an estimated 20,000 victims in 2022, Africa has – for the first time since 2013 surpassed Asia as the region with the **highest number of victims in absolute terms**.
- In 2022, Africa was also the region with the highest number of victims relative to the size of its female population (2.8 victims per 100,000 women).
- Between 2010 and 2022, Europe witnessed an **average reduction in the number of female intimate partner/family-related homicides** (by 21%), albeit with differences across sub-regions and with some setbacks in Western and Southern Europe, especially since the onset of the Covid-19 pandemic in 2020.



#### ➤ India-Specific Insights:

- India experienced a **slight decline in gender-based killings** over the past decade, although issues like dowry-related deaths, honour killings, and witchcraft accusations persist.
- Dowry-related reasons **consistently topped the list as the leading cause of gender-related deaths** in India, with honour killings and witchcraft-related murders forming a smaller percentage.

### What is the United Nations Office on Drugs and Crime (UNODC)?

- It was established in 1997 and was named as a UNODC in 2002.
- It acts as the Office for Drug Control and Crime Prevention by combining the **United Nations International Drug Control Program (UNDCP)** and the Crime Prevention and Criminal Justice Division of the United Nations Office at Vienna.

Note:

## Child Pornography

### Why in News?

Recently, the EU lawmakers agreed to draft rules requiring **Alphabet's Google, Meta and other online services** to identify and remove **Online Child Pornography**, stating that **end-to-end encryption** would not be affected.

- The draft rule on **Child Sexual Abuse Material (CSAM)**, proposed by the European Commission in 2022, has been a bone of contention between advocates of online safety measures and privacy activists worried about surveillance.
- The European Commission proposed rules requiring online services to identify and remove CSAM, addressing the inadequacy of **voluntary detection and reporting systems by tech companies**.

### What is Child Pornography?

- **About:**
  - Child pornography refers to the **creation, distribution, or possession of sexually explicit material** involving minors. In India and globally, it's a heinous crime with severe implications, perpetuating the **sexual exploitation and abuse of children**.
  - Online child pornography is the **manifestation of digital exploitation**, refers to the production, distribution, or possession of sexually explicit material **involving minors through digital platforms**.
  - The **Protection of Children from Sexual Offences (Amendment) Act, 2019** defines child pornography as any visual depiction of sexually explicit conduct involving a child including photograph, video, digital or computer generated image indistinguishable from an actual child.
- **Indian Scenario:**
  - The spike in cases of child pornography reflects the grim picture of online child sexual abuse in India. According to **NCRB (National Crime Report Bureau) 2021** the **cases have increased from 738 (2020) to 969 (2021)**.
- **Impact:**
  - **Psychological Impact:** Porn creates a psychological impact on children. It is associated with depression, anger and anxiety. It can lead to mental distress. It also impacts day to day functioning of children,

their biological clock, their work, and their social relationship.

- **Impact on Sexuality:** When seen regularly, it gives a sense of sexual gratification and sexual obsession, which leads to a willingness to do the same things in real life.
- **Sexual Addiction:** According to some experts, pornography is like an addiction. It produces a similar effect on the brain as produced by consumption of drugs or alcohol on a regular basis.
- **Behavioral Impact:** Adolescent pornography use is associated with stronger beliefs in gender stereotypes, particularly for males. Male adolescents who view pornography frequently are more likely to view women as sex objects.
  - Pornography may strengthen attitudes supportive of sexual violence and violence against women.

### What are the Challenges to Deal with Pornography?

- The effect of pornography is different in children belonging to the lower class compared to children belonging to the high class. A single approach **won't be able to handle the issue effectively**.
- In India, **sex is seen as negative (something which should be hidden)**. There is no healthy family dialogue regarding sex. It leads the child to learn this from outside which leads to an addiction to pornography.
- It's very difficult for **agencies to detect the activities of child pornography** and monitor them effectively.
- Availability of obscene content on regular websites and OTT (over the top) services like Amazon Prime, Netflix, Hotstar, etc, make it difficult to differentiate between the non-vulgar content and vulgar content.

### What are the Indian Initiatives to Check Child Pornography and Child Abuse?

- **Protection of Children from Sexual Offences (POCSO) Act, 2012:**
  - The Posco act has **been amended in 2019**, the amended POCSO included stringent measures such as the death penalty for aggravated sexual assault on children.
  - The Protection of Children from Sexual Offences (Amendment) Act, 2019 has **introduced several provisions to curb child pornography in India**.

Note:

- According to the amended act, whoever uses a child or children for pornographic purposes **shall be punished with imprisonment for a term which shall not be less than five years** and shall also be liable to fine, and in the event of second or subsequent conviction with imprisonment for a term which shall not be less than seven years and also be liable to fine.
- **Other Initiatives:**
  - **IT act 2000.**
  - **Child Abuse Prevention and Investigation Unit**
  - **Beti Bachao Beti Padhao**
  - **The Juvenile Justice (Care and Protection of Children) Act, 2015**
  - **Child Marriage Prohibition Act (2006)**
  - **Child Labour Prohibition and Regulation Act, 2016**
  - **POCSO Courts under Special Fast Track Courts.**

## Supreme Court Urges to Boost Adoption Pool

### Why in News?

The **Supreme Court of India** in a recent hearing of a petition filed by a **Non-governmental Organization(NGO)**, has issued a series of directions to the Centre, the States, and the Union Territories to **expedite and simplify the adoption process in the country.**

- The Court has also expressed concern over the **low rate of adoption** and the large number of children living in **childcare institutions (CCIs) without a permanent family.**

### What did the Supreme Court Say About Adoption?

- The Court said that children living in CCIs, whose parents have not visited them for over a year or have **“unfit” parents or guardians**, should be identified and brought into the adoption pool.
  - The Court defined an **“unfit guardian” as someone who is “unable or unwilling for parenting**, indulging in substance (drug) abuse, abuse or alcohol, known to have abused or neglected the child, having a criminal record, in need of care themselves, mentally unsound, etc”.

- The Court ordered States and Union Territories to begin a **bi-monthly drive** to identify children in the **orphaned-abandoned-surrendered (OAS) category** in CCIs.
- The Court also directed States and Union Territories to compile data on potential children for adoption, especially amongst those weakened in CCIs, and hand over the details to the **Central Adoption Resource Authority (CARA)** and the Ministry of Women and Child Development.
- The Court said that the States must ensure registration of all **OAS children in the district on the Child Adoption Resource Information and Guidance System(CARINGS) portal**, the online platform for adoption in India.

### What is the Central Adoption Resource Authority (CARA)?

- CARA, is a statutory body of the Ministry of Women and Child Development.
- It functions as a **nodal body for the adoption of Indian children** and is mandated to monitor and regulate in-country and inter-country adoption.
- CARA is designated as the Central Authority to deal with inter-country adoptions in accordance with the provisions of the **Hague Conventions** on Inter-Country Adoptions, 1993, ratified by the Government of India in 2003.
- CARA primarily deals with the adoption of orphan, abandoned and surrendered children through its associated /recognised adoption agencies.

### What are the Current Trends and Statistics of Adoption in India?

- According to CARA, there are only about **4,000 child adoptions annually in the country**, while there are over 3 Crore orphans till 2021.
- There is also a huge mismatch between **children available for legal adoption** and the number of **prospective adoptive parents (PAPs)** according to CARA's online portal, the CARINGS.
  - PAPs are individuals or couples who are in the process of becoming adoptive parents.
  - A State-wise break-up of the figures provided by CARA showed that **2,146 children were available** for adoption as of October 2023.
  - As opposed to this, about **30,669 PAPs have been registered** for in-country adoption as of October 2023.

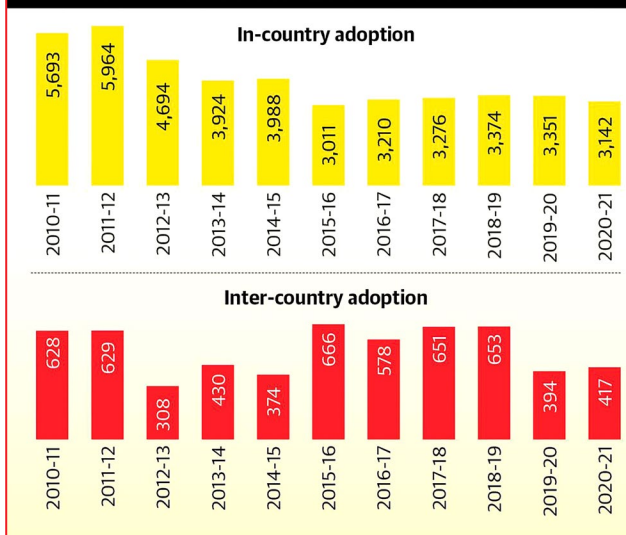
Note:





- PAPs have to wait for between **three to four years** to get 'a healthy and young child' due to the huge mismatch in the number of registered PAPs and children available for adoption.
  - CARA's tabulation indicates that 69.4% of registered PAPs opt for children in the **age group of zero to two years**; 10.3% in the age group of two to four years; and 14.8% in the age group of four to six years.
- Further, out of 760 districts in the country, only 390 districts have Specialised Adoption Agencies.

### The number of adoptions in the country has been on the decline for a decade now



### What are the Challenges Related to Adoption in India?

- **Lengthy and Complex Adoption Process:**
- The adoption process in India, governed by the **Juvenile Justice (Care and Protection of Children) Act, 2015 (which was later amended in 2021)**, and **Hindu Adoptions and Maintenance Act, 1956 (HAMA)**, involves multiple intricate steps.
    - Steps include registration, home study, child referral, matching, acceptance, pre-adoption foster care, court order, and follow-up.
  - The **extended timeline of the adoption process** is influenced by factors such as the availability of children, the preferences of parents, the efficiency of authorities, and the legal formalities.
- **High Rate of Child Returns:**
- Unusual upsurge in child returns reported by CARA between 2017-19 raises concerns.

- According to the data, of the **children returned, 60% were girls, 24% had special needs**, and many were older than six.
- Challenges arise as disabled and older children **face extended adjustment periods in adoptive families**, compounded by inadequate preparation and counselling from institutions on transitioning to a new family environment.

➤ **Limited Adoption of Children with Disabilities:**

- Only 40 children with disabilities were adopted between 2018 and 2019, accounting for approximately 1% of the total number of children adopted in the year.
  - Annual trends reveal a **decline in domestic adoptions of children with special needs**, highlighting a disparity in the adoption landscape.

➤ **Issues of Child Trafficking:**

- The **diminishing pool of adoptable children has led** to an increase in illegal adoption activities.
- The threat of **child trafficking during the pandemic**, particularly affecting poor or marginalized families, raises ethical and legal concerns.
- Child trafficking for adoption contributes to social disruption by undermining the integrity of legal adoption processes and eroding trust in the system.

➤ **Traditional Family Norms and LGBTQ+ Parenthood:**

- Legal recognition challenges for **LGBTQ+ families seeking adoption** hinder their ability to become adoptive parents, prompting an increase in illegal adoptions within the queer community.

➤ **Societal Stigma and Lack of Awareness:**

- Social stigma surrounding adoption, particularly for certain demographics, impacts adoption rates.
- Limited awareness about the adoption process contributes to misconceptions and creates barriers for prospective adoptive parents.

➤ **Corruption and Litigation:**

- Instances of **corruption within the adoption process** compromise its integrity and create challenges.
- Legal disputes and litigation further slow down adoption proceedings, adding to the complexities of the overall process.

### What are the Benefits of Adoption for Children and Society?

- Adoption can provide a **loving and stable family environment for children** who are deprived of parental care.

Note:

- Adoption can also ensure the holistic development and well-being of the children, including their physical, mental, emotional, social, and educational needs.
- Adoption can also contribute to the **social and economic development** of the country, by reducing the burden on the state and the society, and by empowering the children to become productive and responsible citizens.
- Cultivates a **positive adoption culture, breaking down social stigmas** and raising awareness about the benefits of adoption.

## Climate Impact on Women in Agri-Food Systems

### **Why in News?**

A recent study published in the journal *Frontiers in Sustainable Food Systems* highlights the unequal impact of the **climate crisis on women engaged in agri-food systems** across the globe.

- The research sheds light on the **vulnerability of women in agricultural sectors** and identifies hotspots where climate risks are most severe.

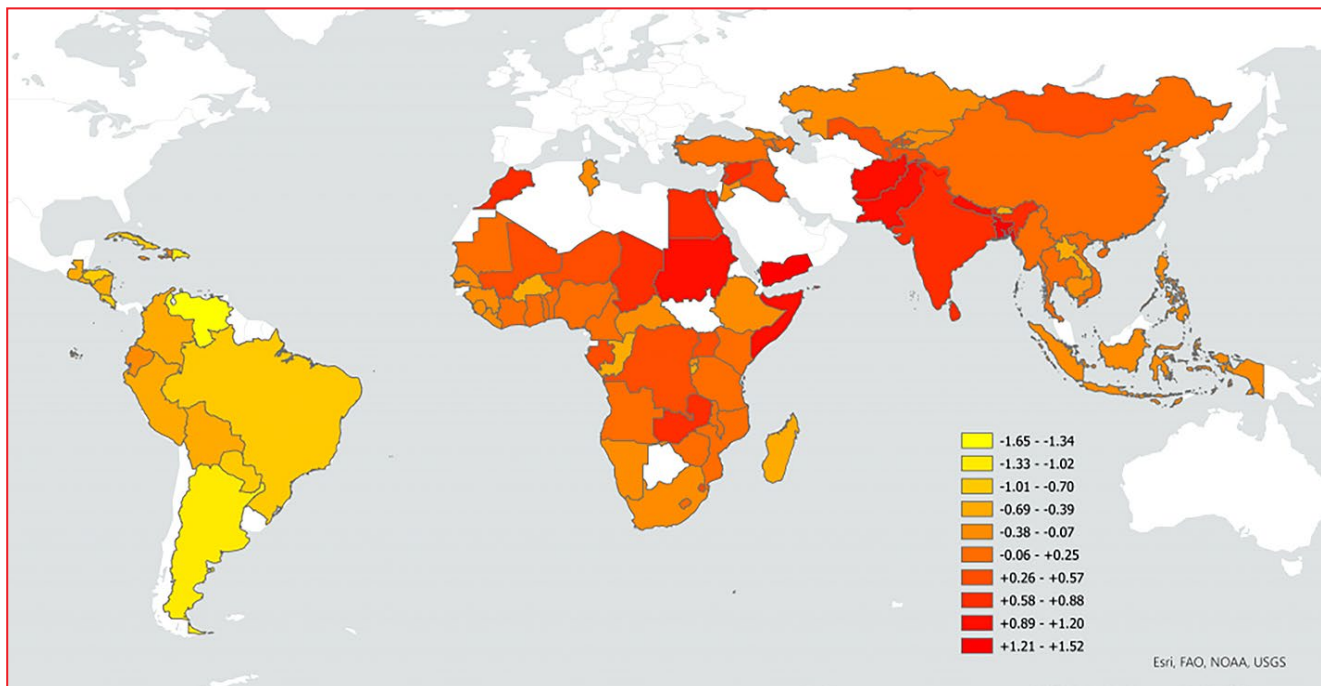
### **Note:**

- Agri-food systems are the **networks of people, activities, and resources** that produce, process, distribute, and consume food.
  - They include farmers, traders, processors, retailers, consumers, and others, who are involved in the food value chain.

### **What are the**

### **Key Highlights of the Study?**

- **Global Ranking of Climate Change Threats:**
  - The study ranks 87 countries based on the climate change threat faced by women in agri-food systems.
    - **India ranks 12<sup>th</sup>**, with other Asian nations like Bangladesh, and Pakistan, Afghanistan, and Nepal also facing significant risks.
- **Identification of High-Risk Regions:**
  - Agri-food systems, encompassing production, post-harvest handling, and distribution, are particularly at risk.
  - Within African and Asian regions, central, **east and southern Africa and west and south Asia** emerge as regions with heightened vulnerability.
    - People living in **low-and middle-income countries (LMIC)** are at heightened risk.
- **Climate Agriculture Gender Inequality Hotspots:**



Note:

- The research combined insights on **climate, gender and agri-food systems** to map the regions as ‘**climate–agriculture–gender inequality hotspots**’.
  - The study calculated each country’s risk based on these indicators and plotted the score for each LMIC country on a color-coded map.
  - The hotspot maps can guide gender-responsive climate action, especially in upcoming climate conferences like **Climate Conference (COP 28)** and climate investments.
    - This is particularly relevant in ongoing negotiations around a **loss and damage fund** and other climate investments.
- **Policymaking and Climate Action:**
- The study serves as a crucial entry point for **policymaking** by illustrating the unequal impact of hazards on women in agriculture.
  - Previous studies highlighted that **women and girls are more likely to go hungry** following natural disasters linked to climate change.
    - In India, **twice the number of women compared to men** reported **eating less** in response to a **drought**.
  - The hotspot maps can aid decision-makers and investors in **targeting finance and investments** to areas where women are hardest hit by climate change risks.

### ***How does Climate Change Affect Women Engaged in Agri-Food Systems?***

- **Reduced Food Security and Income:**
- Climate change disrupts agricultural production, reduces crop yields and quality, and increases the risk of pests and diseases.
    - This **affects the food security and income of women farmers**, who often depend on agriculture for their livelihoods.
    - Women farmers also face more challenges in **accessing markets, credit, inputs**, and extension services, which limits their ability to cope with climate shocks and stresses.
- **Increased Workload:**
- Climate change increases the **demand for water, labour, and natural resources**, which adds to the workload of women farmers, who are often

responsible for collecting water, fuelwood, and fodder, as well as performing **household and care duties**.

- Women farmers also have to adapt to **changing weather and rainfall patterns**, which may require them to adopt new crops, **technologies, or practices, or to migrate to other areas**.
- **Reduced Health and Well-being:**
- Climate change affects the health and well-being of women farmers, who are more exposed to **heat stress, waterborne and vector-borne diseases, malnutrition, and mental stress**.
    - Women farmers also have **less access to health care**, sanitation, and hygiene facilities, which increases their vulnerability to climate-related health risks.
    - Climate change also exacerbates **gender-based violence**, especially in conflict and disaster situations.
- **Limited Participation and Empowerment:**
- Climate change affects the participation and empowerment of women farmers, who are **often excluded from decision-making processes** and institutions related to agriculture and climate change.
  - Women farmers also have less access to information, education, and training, which **limits their awareness and capacity to adapt to climate change**.
    - Women farmers also face **social and cultural norms** and barriers that restrict their mobility, autonomy, and rights.

### ***What are the Government Initiatives Related to Women in Agri-Food Systems?***

- **Rashtriya Mahila Kisan Diwas** (celebrated annually on **October 15<sup>th</sup> in India** to recognize and appreciate the valuable contribution of **women farmers in the agricultural sector**).
- **National Mission on Sustainable Agriculture (NMSA)**.
- **Paramparagat Krishi Vikas Yojana**.
- **Mahila Kisan Sashaktikaran Pariyojana (MKSP)**.
- **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)**

Note:

## Key Initiatives for Tribal Groups

### Why in News?

On the Occasion of **Janjatiya Gaurav Diwas (15<sup>th</sup> November)** the Prime Minister (PM) has launched three **key Initiatives** to ensure last-mile welfare scheme delivery and protection for **Particularly Vulnerable Tribal Groups (PVTGs)**.

- The PM launched '**Viksit Bharat Sankalp Yatra**', Pradhan Mantri Particularly Vulnerable Tribal Groups (PM PVTG) Development Mission and Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan.

### What is Janjatiya Gaurav Divas?

- The Janjatiya Gaurav Divas is celebrated every year on the **Birth Anniversary of Birsa Munda**, to recognize the efforts of the tribals in the preservation of cultural heritage and promotion of Indian values of national pride, valour, and hospitality.
- Tribals held several tribal movements across different regions of India against the British colonial rule. These tribal communities include Tamars, Santhals, **Khasis, Bhils, Mizos, and Kols to name a few.**

### What are these Key Initiatives?

- **PM Janjati Adivasi Nyaya Maha Abhiyan (PM JANMAN):**
  - **About:** PM JANMAN aims to **protect and nurture tribal groups**, especially those on the verge of extinction, by providing them with necessary support, development, and connectivity to mainstream services and opportunities.
  - **Coverage:** The initiative covers 75 Particularly Vulnerable Tribal Groups (PVTGs) residing in 18 states and union territories, spread across 22,544 villages in 220 districts.
    - Approximately 28 lakh people belong to these identified tribal groups.
  - **Significance:** PM JANMAN underscores the government's commitment to uplifting and safeguarding tribal communities, preserving their cultural heritage, and integrating them into the mainstream development process.
    - It emphasizes the need to bridge the gap between tribal populations and essential services while ensuring their socio-economic empowerment.
- **Viksit Bharat Sankalp Yatra:**

- The focus of the Yatra will be on **reaching out to people, creating awareness and providing benefits of welfare schemes** like sanitation facilities, essential financial services, electricity connections, access to LPG cylinders, housing for the poor, food security, proper nutrition, reliable healthcare, clean drinking water, etc.
- Enrolment of potential beneficiaries will be done through details ascertained during the Yatra.
  - The Yatra will start from districts with significant tribal populations initially and will cover all districts across the country.

### ➤ PM PVTG Mission:

- The PM-PVTG Development Mission program aims to improve the socio-economic status of **Vulnerable Tribal Groups (PVTGs)**.
  - For this, availability of Rs 24000 Crore for Scheduled Tribes has been envisaged in the Union Budget.
- The mission includes **providing basic facilities like safe housing**, clean drinking water and sanitation, education, health and nutrition, better access to roads in settlements for backward scheduled tribes.

### What are the Other

### Government Initiatives Related to Tribals?

- **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)**

## Gender Disparity in Organ Transplants

### Why in News?

In India, a stark gender disparity in **organ transplants** has been revealed by data from the **National Organ and Tissue Transplant Organisation (NOTTO)**. Between 1995 and 2021, **four out of every five organ recipients were men**, indicating a significant healthcare imbalance.

- The low representation of women in organ transplants highlights the need and importance of **equitable access to healthcare** for all.

Note:



**Note:**

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

### What are the Trends in Organ Transplants in India?

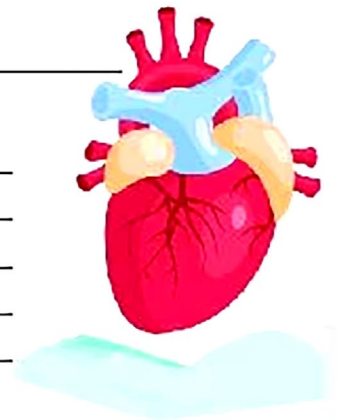
- According to the data collated by the NOTTO, the nodal agency for organ and tissue donation and transplantation in India, there is a significant gender disparity among organ recipients and donors in the country.
  - The data shows that between 1995 and 2021, out of the total 36,640 patients who underwent organ transplants, **29,695 were men and only 6,945 were women.**

- Although studies show that the **number of women donors is higher than men.**

- This indicates that **women who need organ transplants are not getting adequate access** to healthcare and treatment, due to various socio-cultural and economic factors.
- According to the NOTTO data, there has been an **overall increase in the number of organ transplants in India**, with a record high of 16,041 such procedures in 2022.
- Among the different types of organ transplants, **kidney transplants are the most common**, followed by liver, heart, and lung transplants.
- Among the different states, **Delhi topped the table in living donor transplants**, while **Tamil Nadu remained the leader in deceased donor transplants**, where organs from brain-dead patients are used.
  - Also, India conducts the **third highest number of transplants** in the world.

## OVER 58,000 TRANSPLANTS IN LAST 5 YEARS

Year	Total transplants	Living donor transplants	Deceased donor transplants
2018	10,340	78.19%	21.81%
2019	12,666	83.72%	16.28%
2020	7,443	86.75%	13.25%
2021	12,259	86.78%	13.22%
2022	16,041	83.15%	16.85%



### Highest number of living donor transplants\*

Delhi	3,422
Tamil Nadu	1,690
Kerala	1,423
Maharashtra	1,222
West Bengal	1,059

Source: NOTTO

\*In 2022

### Highest number of deceased donor transplants\*

Tamil Nadu	555
Telangana	524
Karnataka	478
Gujarat	398
Maharashtra	303

### What are the Causes and Consequences of Gender Disparity in Organ Transplants?

- Causes of Gender Disparity in Organ Transplants:

Note:

- The gender disparity in organ transplants **reflects the prevailing gender inequality and discrimination in Indian society**, where women's health and well-being are often neglected or compromised.
- Lack of **awareness and education among women** and their families about the need and benefits of organ transplants.
- **Preference for male members as recipients**, especially in cases of living donor transplants, where organs from family members are used.

- **Fear and stigma** associated with organ donation and transplantation, especially among women, who may face social exclusion or marital problems.
- **Financial constraints and affordability issues**, as organ transplants are expensive and require long-term follow-up and medication.
- **Consequences of Gender Disparity in Organ Transplants:**
  - **Gender bias and discrimination** in the healthcare system, where women may face harassment, negligence, or denial of treatment by the medical staff or authorities.

### Laws Related to Organ Donation in India

#### ➤ **Transplantation of Human Organs Act, 1994:**

- It was enacted to provide a system of removal, storage and transplantation of human organs for therapeutic purposes and for the prevention of commercial dealings in human organs.

#### ➤ **National Organ Transplantation Guidelines:**

### The tweaks in policy

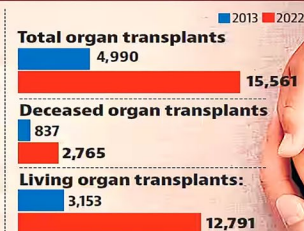
According to officials familiar with the matter, the guidelines are likely to undergo following changes:

#### UPPER LIMIT CHANGED:

The Centre has removed the upper age limit as life expectancy has increased, and a 65-year-old is no longer considered a very old patient.

**NO DOMICILE REQUIREMENT:** A citizen can now register for organ donation in any state; previous requirement of registering in the state of domicile has been removed

**NO REGISTRATION FEES:** The Centre has asked state governments to stop taking fees to register a patient for organ transplants



Since health is a state subject, the Centre has begun consultation with states to bring them on board with the changes

## Indian Army's Proactive Measures for Mental Health

### Why in News?

The Indian Army, acknowledging the critical **issue of suicides and fratricides** within its ranks, has taken significant steps to address the **mental well-being** of its personnel.

- In a comprehensive study initiated in August 2023, in collaboration with the **Defence Institute of Psychological Research (DIPR)**, the Army is focusing on understanding and mitigating stress factors affecting troops and their families.
- The DIPR is an institution under the **Defence Research and Development Organisation (DRDO)** of India, engaged in research and development in the field of psychology and human behaviour to support the defence and security sector.

#### Note:

- Fratricide in the military refers to a **soldier or security personnel killing their colleagues**.

- Suicides and fratricides are extreme acts undertaken by an individual due to high levels of stress, that are mainly caused due to domestic problems, family disputes, a sense of isolation and/ or dejection besides professional hazards.
- As per information given in **Parliament**, there were 2 fratricide cases annually from 2019 to 2021, with one case reported in 2021.
  - The suspected suicide cases in the Army numbered 104, 75, and 80 during the years 2016, 2017, and 2018, respectively.

### What are the Stressors Faced by the Army Personnel?

- In a study, by the **United Service Institution of India (USI)**, a service think tank, found that there has been a significant increase in **stress levels among Army personnel** in the last two decades, due to **operational and non-operational stressors**.
  - **Operational Stressors:** Related to the **nature and conditions of the military service**, such as
    - Prolonged exposure to **counter-insurgency and counter-terrorism (CI/CT)** environment, which involves high risk, uncertainty, and violence.

Note:

- Frequent transfers and separations from family, which affect the personal and social life of the soldiers.
- **Lack of adequate facilities** and infrastructure, especially in remote and difficult areas.
- **Non-operational Stressors:** Related to the **organizational and personal aspects of the military service**, such as
  - Poor leadership, callous attitude of seniors, and lack of trust and confidence in the chain of command.
  - Denial of leave, even in emergencies, and **lack of grievance redressal** mechanisms.
  - **Family-related disputes**, financial problems, marital issues, or health concerns.
  - **Low job satisfaction, career progression**, and recognition, especially among the officers.

### **What Initiatives are Implemented for Mental Well-being within the Army?**

- **Advisory and Guidelines:**
  - The Army issued an advisory in August 2023, emphasizing the posting of officers, religious teachers, and selected other ranks in each unit to address stress and psychological issues.
    - The advisory provides guidelines to address factors leading to **increased stress levels, warning signs, and intervention measures**.
- **Psychometric Assessments:**
  - Pilot projects, including collaboration with a civil agency (**Disha Kiran**), are being undertaken at three nodal military stations to gauge the mental well-being of military personnel and their families.
- **Training Programs:**
  - Various training programs are implemented, such as the annual training of 30 officers at the **Defence Institute of Psychological Research (DIPR)** and the conduct of **“Religious Teachers Counsellor Courses”** for four weeks at Command Hospitals, Base Hospitals, and Military Hospitals.

- **Unit Psychological Counsellor Course:**
  - A 12-week Unit Psychological Counsellor Course is conducted for Junior Commissioned Officers and Non-Commissioned Officers to equip them with **skills for addressing psychological concerns within their units**.
  - The Indian Army has employed **civilian counsellors** in all major military stations to enhance mental well-being support for all ranks.
- **Helplines:**
  - Helplines offering immediate counseling services have been established across all Command Headquarters.
- **Psychiatry Centres:**
  - These have been set up at major military stations under the Directorate General of Medical Service.
- **Holistic Approaches:**
  - Measures include **yoga, meditation, sports, and recreation activities, liberalized leave policies, improvement of amenities in military stations, mutual buddy system for soldiers, and a prompt grievance handling mechanism**.
  - Regular seminars on mental well-being, financial management, and domestic issues are conducted.
- **Continuous Evaluation and Improvement:**
  - The ongoing study, training programs, and collaborative projects reflect the Army’s commitment to continuous evaluation and improvement in addressing mental health challenges.

#### **Government Initiatives Related to Mental Health**

- **National Mental Health Programme (NMHP)**
- **Ayushman Bharat – Health and Wellness Centres (AB-HWC)**
- **National Tele Mental Health Programme**
- **Kiran Helpline**
- **Rashtriya Kishor Swasthya Karyakram**
- **World Mental Health Day**



Note:

# Science & Technology

## Highlights

- Plant-to-Plant Warning Signals
- Casgevy Therapy for Sickle Cell Disease and Thalassaemia
- Night Sky Sanctuary in Ladakh
- Fibre Optic Cables
- Ixchiq Vaccine for Chikungunya
- NASA's Psyche Spacecraft
- Decentralised Autonomous Organisations
- Collection of Farm Fire Data in India
- HERVH's Role in Eliminating Unfit Cells
- NASA's Atmospheric Waves Experiment
- 2D Protein Monolayer Unravels Amyloidosis
- E Prime Layer
- Tantalum
- Distant Gamma-Ray Burst Disturbed Earth's Upper Atmosphere
- Rashtriya Vigyan Puraskar Awards
- Euclid Mission for Dark Matter and Dark Energy

## Plant-to-Plant Warning Signals

### Why in News?

Recently, scientists have unveiled pivotal insights into how plants perceive and respond to danger signals from neighboring plants.

- This discovery offers potential avenues for leveraging **plant communication** to enhance agricultural pest control without resorting to **pesticides**.

### How do Plants Warn Each Other of Danger?

- **Plant Communication and Coordination:** Plants are **not passive organisms that merely react to their environment**. They can communicate with each other and coordinate their responses to various threats.
  - They possess the **ability to intercept damage happening to other nearby plants**.
  - By mounting a defense response, **plants can make themselves less palatable or even indigestible** to the insect attackers.
- **Green Leaf Volatiles as Signaling Agents:** One of the ways that plants communicate is by **releasing and sensing airborne chemicals** called **Green leaf volatiles (GLVs)**.
  - **GLVs**, emitted by plants when injured, **create the pleasant smell of fresh cut grass for humans**. However, to neighboring plants, **this scent functions as a warning signal, indicating potential danger**.
  - It is mediated by **calcium**, a **common mediator of chemical and electrical signals** found throughout biology.

- When insects nibble on plant leaves, calcium ions flood the cells, prompting them to **emit a glow**.

- **Response of Mutant Mustard Plant to GLVs:** Scientists recently **experimented mutant mustard plant**, designed to check if it could also react to GLVs.
  - When exposed to **air laden with GLVs**, the **plant exhibited a glowing response under the microscope**, signifying its ability to sense volatile components released by damaged plants.

### How Plant

### Communication Can be

### Utilized for Sustainable Agriculture?

- **Reduced Chemical Usage:** Leveraging plant defense mechanisms **may reduce the need for chemical interventions**. This could lead to a **decrease in pesticide application**, minimizing **environmental pollution** and promoting healthier ecosystems.
- **Enhanced Crop Resilience:** It can bolster **crop resilience against stressors**.
  - By implementing strategies that encourage communication between plants, such as **companion planting or intercropping**, farmers may improve overall crop health and resilience.
- **Genetic Engineering:** It can guide genetic engineering efforts. By enhancing plants' natural defense mechanisms through genetic modification, **scientists could develop crops that are more resistant to pests and diseases**, potentially reducing reliance on external interventions.

Note:





# Casgevy Therapy for Sickle Cell Disease and Thalassaemia

## Why in News?

Recently, the UK Drug Regulator sanctioned a **gene therapy** called **Casgevy** heralded as a significant breakthrough for **treating sickle cell disease** and **thalassaemia**.

- Notably, this marks the **world's inaugural licensed therapy leveraging the CRISPR-Cas9 gene editing technology** that earned its innovators a **Nobel Prize in Chemistry 2020**.

## How does the Casgevy Therapy Work?

- Both **sickle cell disease** and **thalassaemia** are caused by **errors in the gene for haemoglobin (Hb)**, a protein in the red blood cells that carry oxygen to organs and tissues.
  - The therapy **uses the patient's own blood stem cells**, which are precisely **edited using CRISPR-Cas9**.
  - A gene called **BCL11A**, which is crucial for switching from **foetal to adult haemoglobin**, is targeted by the therapy.
- **Foetal haemoglobin**, which is naturally present in everyone at birth, does not carry the same abnormalities as adult haemoglobin.
  - The therapy **uses the body's own mechanisms to start producing more of this foetal haemoglobin**, alleviating the symptoms of the two conditions.
- Casgevy involves a single treatment wherein **blood stem cells are extracted via apheresis** and then edited over approximately six months before being reintroduced into the patient.
  - Apheresis is a medical procedure that involves removing specific components from blood and returning the rest to the body.

## What are Sickle Cell Disease and Thalassaemia?

- **Sickle Cell Disease:**
  - **About:** Sickle cell disease is a genetic blood disorder characterized by an abnormality in hemoglobin,

the **protein responsible for carrying oxygen in red blood cells**.

- It causes **red blood cells to adopt a sickle or crescent shape**, hindering their movement through vessels, leading to potential complications like **severe pain, infections, anaemia, and strokes**.
- In India alone, an estimated **30,000-40,000 children** are born with sickle cell disease annually.
- **Types:** It encompasses various types, each dependent on the **inherited genes from parents**, all encoding abnormal hemoglobin. The most prevalent forms of SCD include:
  - **HbSS (Sickle Cell Anemia):** Individuals **inherit two "S" genes**, one from each parent, resulting in **abnormal hemoglobin "S."**
    - This type often leads to severe manifestations characterized by **rigid, sickle-shaped red blood cells**.
  - **HbSC:** Inheriting an **"S" gene from one parent and a different abnormal hemoglobin, "C,"** from the other, leads to this milder variant of SCD.
  - **HbS Beta Thalassaemia:** This form arises from **inheriting an "S" gene from one parent and a beta thalassaemia gene from the other**.
    - The severity varies based on the type of beta thalassaemia inherited either **"zero" (HbS beta0)** or **"plus" (HbS beta+)**, with the former typically resulting in a severe form and the latter in a milder manifestation.
- **Thalassaemia:** Similar to **sickle cell disease**, individuals with **thalassaemia experience severe anaemia due to low haemoglobin levels**, necessitating lifelong blood transfusions and **chelation therapy** to manage iron accumulation.
  - Major symptoms include **fatigue, paleness or jaundice, shortness of breath, delayed growth, facial bone deformities (in severe cases)** among others.

**Note:** Chelation therapy is a proven treatment for **heavy metal poisoning**. It uses substances that bind to **heavy metals and help clear them from the body**.

Note:

## GLOBAL BURDEN OF SICKLE CELL DISEASE

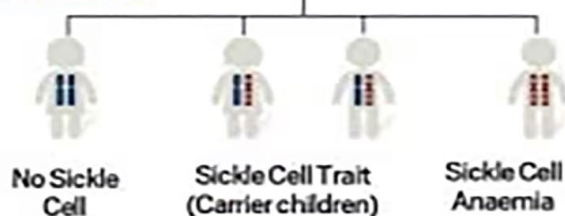


### INHERITANCE OF SICKLE CELL

#### PARENTS



#### CHILDREN



■ Normal haemoglobin A gene    
 ■ Sickle haemoglobin S gene

**ABOVE**, each parent has one normal haemoglobin A gene and one haemoglobin S gene. This means each of their children has:

**25%** CHANCE of inheriting two normal A genes. This child will not have either sickle cell trait or sickle cell disease

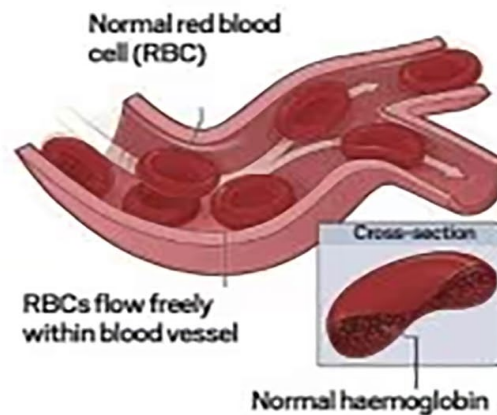
**50%** CHANCE of inheriting one normal A gene and one S gene. This child will have sickle cell trait, and be a carrier

**25%** CHANCE of inheriting two S genes. This child will have sickle cell disease

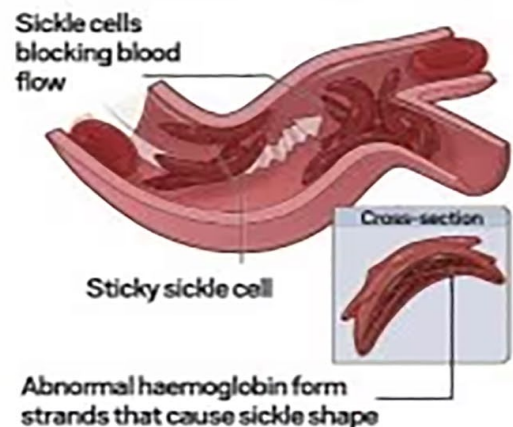
**EACH TIME** the couple has a child, chances of the child having sickle cell disease remain same

### IMPACT ON RED BLOOD CELLS

#### Normal red blood cells



#### Abnormal, sickled, RBC (sickle cells)



*US National Institutes of Health (NIH)*

Note:

**Note:** The **National Sickle Cell Anemia Eradication Mission** in India targets the elimination of sickle cell anemia by 2047.

### What is CRISPR-Cas9 Technology?

- **CRISPR-Cas9** is a groundbreaking technology that empowers geneticists and medical researchers to modify specific portions of the genome.
  - This is achieved through the **precise removal, addition, or modification of segments within the DNA sequence.**
- It involves two essential parts for editing DNA. First, there is **Cas9**, which acts like **molecular scissors**, cutting DNA at specific spots.
  - Then, there is **guide RNA (gRNA)**, containing a designed sequence. This sequence guides Cas9 to the exact spot in the genome to make the cut.
  - This **precise guidance ensures Cas9 works accurately where needed**, allowing for specific changes in the DNA.

## Night Sky Sanctuary in Ladakh

### Why in News?

The **Government of India**, recently announced the upcoming establishment of South East Asia's first **Night Sky Sanctuary in Ladakh**.

### What are the Key Points

#### Related to Night Sky Sanctuary in Ladakh?

- It will be located at **Hanle village in Eastern Ladakh** as a part of **Changthang Wildlife Sanctuary**.
- It is being set up with the help of **Indian Institute of Astrophysics Bengaluru**, which is affiliated to the **Department of Science & Technology, Govt of India**.
  - Spread over **1,073 square kilometers**, it is adjacent to the **Indian Astronomical Observatory**, the second-highest optical telescope in the world.
- It will boost **Astro-tourism in India** and will be one of the **world's highest-located sites for optical, infra-red, and gamma-ray telescopes**.

## DARK SKY RESERVES AROUND THE WORLD

Country	Name	Year, area (sq kms)
 France	Alpes Azur Mercantour	2019, 2,250
	Cévennes National Park	2018, 3,600
	Pic du Midi	2013, 3,112
	Regional Natural Park of Millevaches in Limousin	2021, 3,350
 United Kingdom	Cranborne Chase	2019, 981
	Exmoor National Park	2011, 181
	Moore's Reserve	2016, 1,627
	North York Moors National Park	2020, 1,440
 Wales	Yorkshire Dales National Park	2020, 2,180
	Brecon Beacons National Park	2013, 1,347
 Snowdonia National Park	Snowdonia National Park	2015, 2,132
	Australia	River Murray
 New Zealand	Aoraki Mackenzie	2012, 4,367
 Germany	Rhön	2014, 1,720
	Westhavelland	2014, 1,529
 US / Mexico	Greater Big Bend International Dark Sky Reserve	2022, 38,850
 US	Central Idaho	2017, 3,668
 Canada	Mont-Mégantic	2007, 5,300
 Ireland	Kerry	2014, 700
 Namibia	NabimRand Nature Reserve	2010, 2,022

### What are the Major Types of Dark Sky Places?

- The **International Dark Sky Association**, a U.S.-based non-profit, designates places as International Dark Sky Places, Parks, Sanctuaries and Reserves, depending on the criteria they meet:
  - **Dark Sky Parks:** These are **conservation areas, publicly or privately owned**, that implement effective outdoor lighting practices and offer programs centered around experiencing dark skies.
  - **Dark Sky Sanctuaries:** These are **extremely remote and often the darkest places on Earth**. They require stringent conservation measures due to their fragile state.
  - **Dark Sky Reserves:** These reserves have a **defined dark "core" zone surrounded by populated areas**. Policies are implemented to safeguard the darkness of the core zone while accommodating nearby communities.

Note:

- **Urban Night Sky Places:** These urban sites strive to provide an authentic night time experience despite significant artificial light. Here focus is on creating environments where people can still appreciate the night sky.
- **Dark Sky Communities:** Cities and towns recognized for their quality outdoor lighting ordinances and efforts to educate residents about the significance of preserving dark skies.

#### What Makes Ladakh a Suitable Site for Night Sky Sanctuary?

- Ladakh's high elevation, cold desert terrain, and sparse population, situated at approximately 3,000 meters above sea level, create an ideal environment for astronomical observatories.
  - Also, the **absence of extensive urban areas** preserve the natural darkness in Ladakh and contributes to minimal **Light Pollution**, fostering ideal conditions for Night Sky Sanctuary.

## Fibre Optic Cables

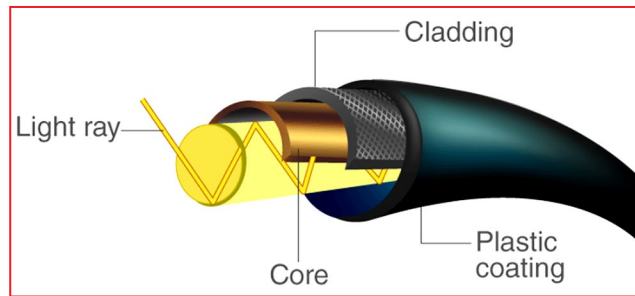
### Why in News?

With the increasing demand for high-speed internet connections **Optical Fibres** have been materialized into the present-day reality of high-speed data transmission.

### What is an Optical Fibre?

- **About:**
  - Optical Fibres are thin, cylindrical strands composed of glass, with a diameter typically comparable to that of a human hair.
  - These fibres possess the **remarkable ability to transmit various forms of information**, including text, images, audio, video, phone calls, and any data that can be digitized, across vast distances at **speeds approaching that of light**.
  - They are **strong, lightweight, and remarkably flexible**, making them suitable for burial underground, submersion underwater, or coiling around a spool.
  - Almost 60 years ago, physicist **Charles Kao proposed the concept of using glass Fibres** as a superior medium for telecommunications, superseding the prevalent copper wires.

- His groundbreaking contributions to Fibre optic communication earned him a share of the 2009 Nobel Prize in Physics.



### Working:

- **Principle of Total Internal Reflection:** The phenomenon of Total Internal Reflection (TIR) **forms the basis for guiding light within optical Fibres**.
  - If light travels from a higher refractive index medium (like glass) to a lower one (such as air) at a specific angle, it may not exit the medium **but be entirely reflected back within it**. This phenomenon is called TIR.
- **Signal Encoding:** Information is encoded into optical signals as **rapidly blinking light pulses**, typically representing binary digits (zeros and ones).
  - These optical signals are fed into one end of an optical Fibre, where they travel by reflecting and bouncing between the glass walls due to total internal reflection.
- **Signal Transport:** The optical Fibre carries the encoded signals across several kilometers without significant loss of signal integrity.
  - At the destination, a receiver reproduces the encoded information from the transmitted optical signal.
- **Benefits:**
  - **High Speed:** Fibre provides more bandwidth and has standardized performance up to 10 Gbps and beyond, something that it is impossible to achieve when using copper.
    - More bandwidth means that Fibre can carry more information with far greater efficiency than copper wire.
  - **Range of Transmission:** Since data travels in the form of light in Fibre-optic cables, very little signal loss occurs during transmission and data can move at higher speeds and greater distances.

Note:

- **Not susceptible to interference:** Fibre-optic cable is also much less susceptible to noise and electromagnetic interference than copper wire.
  - It is so efficient, in fact, that roughly 99.7% of the signal reaches the router in most cases.
- **Durability:** Fibre-optic cable is completely immune to many environmental factors that affect copper cable.
  - The core is made of glass, which is an insulator, so no electric current can flow through.

### What is the Current

#### Scenario of Fibre Optics in India?

- Fibre optics technology has since been widely used in **telecommunication, medical science, laser technology, and sensing.**
- With a goal to securing communication and promoting quantum science, the Government of India announced a national mission in the Union Budget of 2020. The proposed budget for this '**National Mission on Quantum Technologies and Applications**' is Rs 8,000 crore over a period of five years.
- The possibilities of fibre optic networks are growing at an accelerated rate, reaching all the way into our homes. Along with **quantum optics, fibre optic communication** stands on the cusp of a new era.

## Ixchiq Vaccine for Chikungunya

### Why in News?

Recently, the **Food and Drug Administration (FDA) in the United States** approved the world's inaugural vaccine for **chikungunya**.

- This novel vaccine, named **Ixchiq** and developed by **European vaccine manufacturer Valneva**, marks a significant leap in combating the **chikungunya virus (CHIKV)**.

### What are the Key Features of Ixchiq Vaccine?

- It is administered as a single dose via injection into the muscle. It contains a **live, weakened version of the chikungunya virus**, potentially causing symptoms akin to the disease in vaccine recipients.
- The vaccine has been approved for administration in **people who are 18 years or older**, and are at increased risk of exposure to the virus.

### What is Chikungunya?

- **About:** Chikungunya is a **mosquito-borne viral disease**. It was **first recognized in 1952** during an outbreak in southern Tanzania.
  - It is a **ribonucleic acid (RNA) virus** that belongs to the **alphavirus genus of the family Togaviridae**.
- **Symptoms:** Chikungunya causes **fever and severe joint pain**, which is often debilitating and varies in duration.
  - **Dengue and Zika have similar symptoms to chikungunya**, making chikungunya easy to misdiagnose.

**Note:** The term "**chikungunya**" originates from the **Kimakonde language** (spoken by the Makonde people, an ethnic group of Tanzania and Mozambique), translating to "**to become contorted**," illustrating the stooped posture of individuals experiencing severe joint pain.

- **Transmission:** Chikungunya is transmitted to humans by the **bites of infected female mosquitoes**.
  - Most commonly, the mosquitoes involved are ***Aedes aegypti* and *Aedes albopictus***.
  - These two species can also transmit other mosquito-borne viruses, including **dengue**.
    - They bite throughout **daylight hours**, although there may be peaks of activity in the early morning and late afternoon.
- **Prevalence:** According to WHO, It is prevalent in **Africa, Asia, and the Americas**; but sporadic outbreaks have been reported in other regions.
- **Treatment Options:** Presently, there is **no cure for chikungunya, with symptomatic relief** being the primary approach. Treatment involves the use of **analgesics, antipyretics, rest, and adequate fluid intake**.
- **Prevention Strategies:** Prevention primarily revolves around mosquito control activities, including public health outreach, civic maintenance, use of medicated mosquito nets, and eliminating water stagnation to prevent mosquito breeding.
- **Related Indian Government Initiatives:**
  - The **National Vector Borne Disease Control Programme (NVBDCP)** is an umbrella programme for prevention and control of vector borne diseases (VBDs), viz., Malaria, Lymphatic Filariasis, Kala-azar, **Dengue, Chikungunya** and **Japanese Encephalitis (JE)**.

Note:

## NASA's Psyche Spacecraft

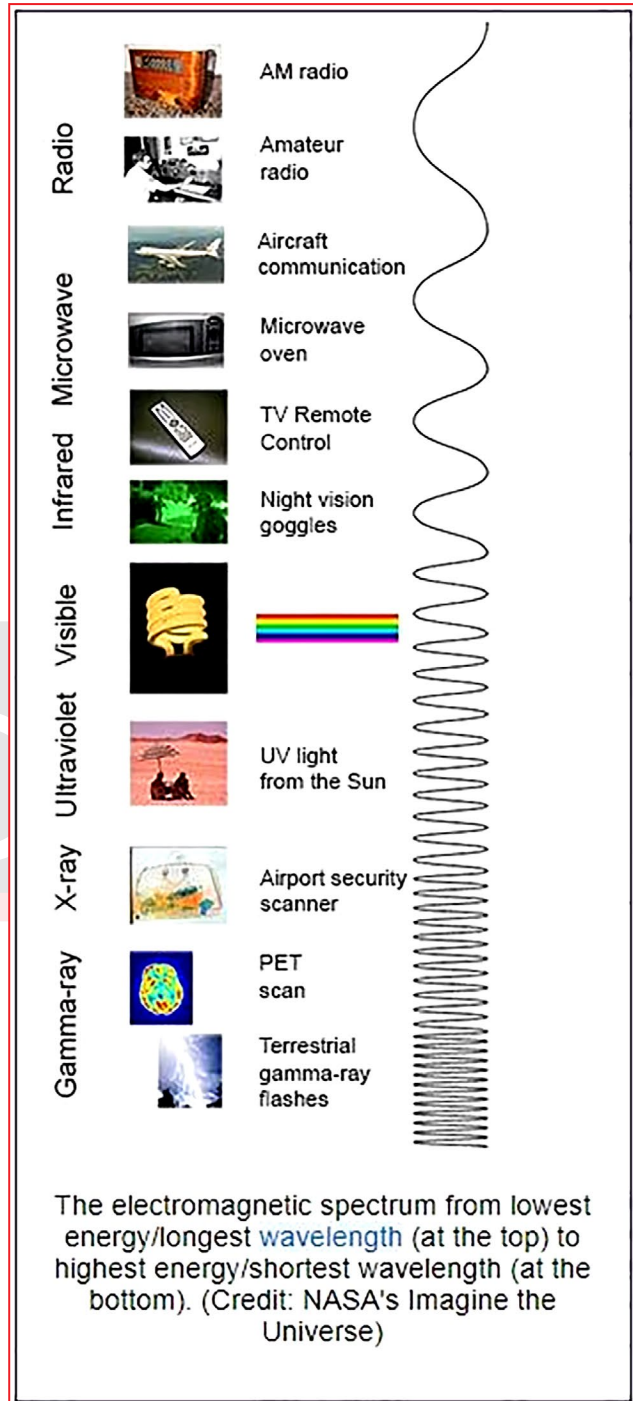
### Why in News?

NASA's Psyche spacecraft, currently journeying over 16 million kilometers away in space, recently achieved a groundbreaking feat by successfully firing a laser signal at Earth.

- It took off on 13<sup>th</sup> October, 2023, launching from the Kennedy Space Center via a SpaceX Falcon Heavy rocket.

### What is NASA's Psyche Mission?

- **About:** The Psyche mission aims to explore the **asteroid Psyche**, located between Mars and Jupiter.
  - Psyche is a **rare metallic asteroid** believed to be the exposed **nickel-iron core of an early planet**.
  - This mission offers a unique opportunity to **directly study a planetary core**, providing invaluable insights into the formation of terrestrial planets like Earth.
- **Objectives:**
  - **Core Identity:** Determine if Psyche is a core or unmelted material.
  - **Surface Age Assessment:** Analyze relative ages of different regions on Psyche's surface.
  - **Composition Comparison:** Compare elemental composition with Earth's core.
  - **Formation Conditions:** Determine if Psyche's formation conditions were more oxidizing or reducing than Earth's core.
  - **Topography Characterization:** Study Psyche's surface features.
- **Scientific Instruments:**
  - **Multispectral Imager:** Capture images across different wavelengths.
  - **Gamma Ray & Neutron Spectrometer:** Analyze elemental composition.
  - **Magnetometer:** Measure magnetic fields. Confirmation of a remanent magnetic field at Psyche would be strong evidence that the asteroid formed from the core of a planetary body.
  - **X-band Gravity Science Investigation:** Study gravitational effects of Asteroid on spacecraft.
  - **Deep Space Optical Communication (DSOC):** Test **laser-based communication technology** using near-infrared wavelengths for faster data transmission between the spacecraft and Earth.



### What is the Significance of Deep Space Optical Communications?

- Psyche is the inaugural spacecraft equipped with a **NASA's Deep Space Optical Communications (DSOC) transceiver**.
  - The **DSOC technology** encodes data in near-infrared light photons instead of radio waves.

Note:



- It is poised to enable **data rates at least ten times higher than current radio systems**, facilitating **enhanced imaging, extensive scientific data transmission**, and even video streaming.
- It will facilitate faster data transmission than current space communication tech which predominantly **relies on radio waves due to their propagation capabilities**, enabling them to **traverse through various mediums and obstacles**.
- Near-infrared waves, while useful for specific applications, lack radio waves' penetration and distance capabilities.
  - The distinction lies in the fact that **near-infrared waves have shorter wavelengths, as opposed to radio waves**, which feature the longest wavelength in the electromagnetic spectrum.
- However, limitations in **data transmission rates** prompt the quest for better technology.

## Decentralised Autonomous Organisations

### Why in News?

Decentralised Autonomous Organisations (DAOs) represent a groundbreaking innovation at the intersection of **Blockchain Technology** and governance.

### What are Decentralised Autonomous Organisations (DAOs)?

- **About:**
  - DAOs are the digital entities that operate without centralised control and are governed by smart contracts and the consensus of their members, often utilising **Cryptocurrencies** as a means of decision-making and resource allocation.
  - DAOs have garnered attention for their potential to change various industries, including finance, art, and governance, **by fostering transparent, democratic, and self-executing systems**.
  - These entities are not only reshaping traditional business structures but also challenging the way we perceive trust, governance, and collaboration in the digital world.
  - The idea behind DAOs is **to create self-sustaining, community-driven entities governed by smart contracts** on blockchain networks.

### Various Use Cases:

- **Global Financial Ecosystem:** In the realm of decentralized finance, platforms like Compound and Maker **DAOs have introduced lending and borrowing services**, enabling users to participate in the global financial ecosystem without relying on traditional banks.
- **In the Art World:** In the art world, **artists are tokenising their creations and utilising DAOs** to manage royalties and maintain control over their intellectual property.
- **Supply Chain Management:** Supply chain management is **another arena where DAOs are gaining traction**, as they offer transparency and traceability in global supply chains, ensuring the authenticity and quality of products.
- **Governance of Online Communities:** Even in the governance of online communities, DAOs have emerged as tools for decision-making, with platforms like DAOstack facilitating decentralised governance structures for internet communities.

### Significance:

- **Decentralization and Democratic Governance:** DAOs embody decentralization, shifting power away from central authorities.
  - They promote democratic decision-making, allowing token holders to propose and vote on decisions. This equitable distribution of influence ensures a more inclusive and fair governance structure.
- **Transparency and Trust:** Smart contracts underpinning DAOs **ensure transparency and immutability**. This fosters trust among participants by offering a clear view of operations and reducing the opacity often associated with centralized organizations.
  - However, vulnerabilities in these smart contracts can raise security concerns.
- **Inclusivity and Global Collaboration:** One of the most significant advantages of DAOs is their ability to **transcend geographical and socio-economic barriers**.
  - They enable global participation, fostering diversity and innovation by allowing individuals from various backgrounds to collaborate and contribute.

Note:

- **Facilitating New Forms of Collaboration:** DAOs facilitate direct cooperation among participants with shared objectives, eliminating the need for intermediaries.
  - This environment **encourages innovation, cooperation, and the free flow of ideas**, unrestricted by hierarchical structures.

### **What are the Challenges Related to DAOs?**

- **Security Vulnerabilities:**
  - Vulnerabilities in smart contracts have led to **notorious incidents like the DAO hack in 2016**, raising questions about the security and **immutability of blockchain systems**.
  - These incidents highlight the **need for rigorous security audits** and ongoing improvements in code reliability.
- **Legal and Regulatory Uncertainty:**
  - The decentralized nature of DAOs poses challenges in **legal classification, taxation, liability assignment**, and compliance with regulations across various jurisdictions.
  - Questions regarding governance, **Intellectual Property**, and cross-border operations remain **largely unanswered, requiring regulatory adaptation**.
- **Governance and Dispute Resolution:**
  - Decentralized decision-making makes it **challenging to resolve disputes** and assign responsibilities within DAOs.
  - The automated nature of smart contracts **raises questions about accountability and handling conflicts** without traditional legal mechanisms.

## **Collection of Farm Fire Data in India**

### **Why in News?**

As the **farm fire season** draws to a close, a total of **55,725** instances of such fires have been documented across six **North Indian States** from **September to November, 2023**.

- These figures have been attained **via satellite surveillance**, adhering to established and standardized monitoring protocols.

### **What are Farm Fires?**

- Farm fires usually refer to deliberate fires set on agricultural fields, primarily after the **harvest season to clear crop residue**, particularly in regions practicing stubble burning.
  - These fires often involve **burning leftover straw, stubble, or crop residues** to prepare fields for the next planting season quickly.
  - **However, farm fires can also occur accidentally due to machinery malfunctions** or other unintended causes.
- While it can be a cost-effective and time-saving method for farmers, **it contributes significantly to air pollution**, emitting large amounts of **smoke, particulate matter, and greenhouse gases into the atmosphere**.

### **What are the Major Aspects Related to Data Collection of Farm Fires?**

- **Data Collection Body:**
  - **Indian Agricultural Research Institute's (IARI) Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS)** Laboratory issues a daily report on **paddy residue fires**.
    - It was set up in **2013**, with the primary purpose of **monitoring crop conditions against extreme climatic events**.
  - This comprehensive bulletin details farm fire incidents in **Punjab, Haryana, Uttar Pradesh, Rajasthan, Madhya Pradesh, and Delhi**.
    - It includes a **district-wise breakdown** of recorded incidents from 2020 onwards, specifying fire location, satellite used, timestamp, and intensity.
    - The report is shared with central and state-level agencies, to guide actions and **identify hotspots needing focused interventions**.
- **Data Collection Through Satellites:**
  - Three sensors aboard three different NASA satellites: **one called Visible Infrared Imaging Radiometer Suite (VIIRS) aboard the Suomi NPP satellite**, and **two called Moderate Resolution Imaging Spectroradiometer (MODIS), aboard the Terra and Aqua satellites**, collect this data by recording land surface temperatures.

Note:



- Each satellite passes over the **Indian subcontinent twice every 24 hours**, at different times.
- In the past five years, the lab has used a different satellite set to map burned areas. **Sentinel-2 satellites, part of the European Space Agency**, serve this purpose.
- **Monitoring Protocol:**
  - IARI acquires satellite data from its ground station and the **National Remote Sensing Centre**, ensuring year-round monitoring of farm fires across the country.
  - Prior to **2021**, varied methodologies led to discrepancies in **recorded farm fire** events across different monitoring centers.
  - However, the **Commission for Air Quality Management** implemented a **standardized protocol in 2021**.
    - IARI reprocessed 2020 data using this protocol, enabling comparative analysis from 2020 onward.
- **Identifying Paddy Fires:**
  - Identifying paddy fires involves **distinguishing them from forest fires** or those originating from industries.
    - This process begins by **identifying paddy cultivation** areas and mapping farm fires accordingly.
    - Paddy cultivation exhibits a **distinct reflectance signature** over time due to its **typical background of water**, unlike other crops like sugarcane or maize. Overlaying this signature with fire events helps discern paddy fires.
  - Satellites determine **active paddy fires by detecting an increase in land surface temperature above specific thresholds**, distinguishing fire events from surroundings.

**Note:** Detecting a fire **relies more on the quantity of burnt residue** than the area affected. A higher amount of residue burnt results in a notable increase in temperature compared to the surroundings, **indicating greater fire intensity and the likelihood of detection**.

- **Fire intensity**, measured as energy emitted per unit area and time, offers insights into the quantity of residue burnt.

### ➤ Limitations and Challenges

- **Weather Influence:** Climatic conditions, particularly **cloud cover and water vapor**, can obstruct satellite sensors, hindering accurate readings and data acquisition.
- **Seasonal and Time-of-Day Variability:** Changes in seasons and **discrepancies between day and night conditions** affect the effectiveness of fire detection thresholds, creating hurdles for consistent monitoring.

### What are the Innovative Techniques for Crop-Residue Management?

- **Baler Machine**
- **Happy Seeder**
- **Bio-enzyme PUSA**

## HERVH's Role in Eliminating Unfit Cells

### Why in News?

Researchers have uncovered a previously unnoticed cellular mechanism within the **inner cell mass of the early embryo**, shedding light on a mechanism that silently eliminates unfit cells before birth.

- At the core of this finding is the **gene Human endogenous retrovirus subfamily H (HERVH)**, which plays a crucial role in determining the fate of cells in **embryonic development**.

### What Happens in the Inner Cell Mass?

#### ➤ Inner Cell Mass:

- In the early stages of embryonic development, cells organize themselves into a crucial structure called the inner cell mass.
  - This mass contains **pluripotent cells**, capable of forming any cell type in the human body.

#### ➤ HERVH:

- In 2016, researchers made a surprising discovery while analyzing gene expression data from early human embryos.
- Research identified a group of **non-committed cells** (they did not become a part of the later stages of the embryo) **within the inner cell mass** that undergo **early elimination**.

Note:

- Most inner cell mass cells express **HERVH**, a gene crucial for maintaining pluripotency.
  - However, the **non-committed cells, destined for elimination, do not express HERVH.**
- **The Role of HERVH in Cell Fate:**
- The absence of HERVH in non-committed cells revealed a startling connection to “jumping genes” or **transposons** (dangerous little pieces of **Deoxyribonucleic Acid (DNA)** that can insert themselves into different regions of the **genome**, damaging it and **leading to cell death**).
  - HERVH protects cells from transposons, preventing DNA damage and ensuring the survival of cells committed to forming the developing embryo.
- **Life and Death:**
- HERVH-expressing cells survive, forming the embryo, while non-committed cells face destruction through cell death.
- **Placenta:**
- Survived cells form the placenta also exhibit transposon activity, although without HERVH expression.
    - Despite this, these cells show greater tolerance to transposons, avoiding cell death.
  - The placenta, distinct from other fetal cells, **is discarded after childbirth.**
- **Implications for Medicine and Beyond:**
- HERVH’s role in pluripotency has implications for **regenerative medicine, offering potential avenues for stem cell research.**
  - The researcher speculates that reducing transposon activity in the early embryo could **impact fitness, influencing infertility treatment and in-vitro fertilization techniques.**

## NASA’s Atmospheric Waves Experiment

### Why in News?

**NASA’s** unveiling of the **Atmospheric Waves Experiment (AWE)** emerges amidst escalating disruptions in satellite communication and **GPS systems, spotlighting the critical need to comprehend space weather.**

- With Earth’s extreme weather events influencing space phenomena via **Atmospheric Gravity Waves (AGWs)**, AWE’s imminent launch promises groundbreaking insights into these interconnected dynamics.

### What is Space Weather?

- **Space weather** is the term used to describe the **dynamic conditions in the space environment** around the Earth and other planets, which are **influenced by the activity of the Sun** and the interactions between the solar wind and the planetary magnetic fields.
- Space weather can affect various aspects of human activities and technologies, such as **satellite-based communication, navigation, and power systems**, as well as astronaut health and safety, and aviation and space exploration.

### What are Atmospheric Gravity Waves (AGWs)?

- **Gravity Waves:** In a **stable atmosphere**, **gravity waves** are created when temperature contrasts between **rising air and the surrounding atmosphere** generate a force that pushes the air back to its initial location.
- **Atmospheric Gravity Waves:** **AGWs** are waves that travel within a stable atmospheric layer, particularly thriving in regions where air is moving upward, facilitating the creation of distinctive cloud formations.
- Remarkably, **these AGWs extend into space**, playing a role in shaping space weather.
  - They are mostly generated by **extreme weather events or disturbances** causing **vertical displacement** of stable air.
    - **Thunderstorms, hurricanes, and regional topography** contribute to the **generation of AGWs** in the lower atmosphere.

### What is NASA’s Atmospheric Waves Experiment?

- **About:** As a pioneering NASA experiment under the **Heliophysics Explorers Program**, AWE aims to study the connections between **lower atmospheric waves and space weather.**
- **Operational Mechanism:** Mounted on the **International Space Station (ISS)**, AWE will observe the **colorful air glows in the Earth’s atmosphere**, specifically at the **mesopause** (about 85 to 87 km above the Earth’s surface).
- Equipped with an **Advanced Mesospheric Temperature Mapper (ATMT)**, AWE will scan the mesopause using imaging radiometers to capture specific wavelengths’ brightness.

Note:

- **Mission Objective:** Understanding the **forces driving space weather** and investigating the potential impact of **terrestrial weather** on it.
  - Data obtained by AWE will **contribute as inputs for weather models**, improving weather forecasts.

## 2D Protein Monolayer Unravels Amyloidosis

### Why in News?

Recently, researchers have achieved a significant breakthrough in disease study through the creation of a **two-dimensional (2D) protein monolayer** using **lysozyme molecules**.

#### What are Lysozyme and Amyloidosis?

- **Lysozyme** is a **naturally occurring enzyme** found in various bodily secretions like **tears, saliva, mucus**. It plays a crucial role in the body's defense system against bacteria.
  - This **enzyme works by breaking down the cell walls of certain bacteria**, essentially disrupting their structure and leading to their destruction.
  - It is also the principal component of **airway fluid**, serving as a model protein in investigating diseases like **Amyloidosis**, which trigger **multi-organ dysfunction**.
- **Amyloidosis** refers to a group of **rare conditions characterized by the accumulation of abnormal protein clumps** called amyloids in various organs and tissues throughout the body.
  - These amyloid proteins, typically made up of **misfolded proteins**, can disrupt normal organ function such as the **heart, kidneys, liver, spleen** and cause damage over time.

## E Prime Layer

### Why in News?

According to a research conducted at the Advanced Photon Source of Argonne National Lab and PETRA III of Deutsches Elektronen-Synchrotron in Germany, a new mysterious layer called the **E prime layer** has formed on the outer part of the **Earth's core**.

- This happened because **surface water penetrated deep into the planet**, changing the composition of the outer region of the **liquid metal core**.

### How Did E Prime Layer Develop Over Time?

- Tectonic Plates Transporting Water to Earth's Core:
  - New research reveals a fascinating process where **tectonic plates**, carrying surface water, have been transporting it deep into the Earth's interior over billions of years.
  - As this water reaches the core-mantle boundary, located approximately 1,800 miles beneath the Earth's surface, **it instigates significant chemical changes that directly influence the structure of the Earth's core**.
- Chemical Reactions and Structural Impact on Earth's Core:
  - Observations by scientists highlight the chemical reactions occurring **when subducted water interacts with core materials** under high pressure.
  - This interaction results in the creation of a distinct layer in the outer core **characterized by high hydrogen content and low silicon levels**, forming a film-like structure.
  - Additionally, **the process generates silica crystals that ascend into the mantle**, causing compositional changes.
    - These alterations in the liquid metallic layer have potential implications, including reduced density and modified seismic characteristics.
- Significance of E Prime Layer in Understanding Earth More:
  - This finding suggests a more **intricate global water cycle than previously recognized**. The altered core layer carries significant implications, **shedding light on the interconnected geochemical processes** that link surface water cycles with the deep metallic core.

## Tantalum

### Why in News?

**Tantalum**, a rare metal with remarkable properties, has been discovered in the sands of the **Sutlej River in Punjab** by a team of researchers from the Indian Institute of Technology (IIT), Ropar.

Note:

### What are the Key Facts About Tantalum?

#### ➤ Discovery:

- Tantalum is a rare metal with the **atomic number 73**. It was first discovered in 1802 by Swedish chemist **Anders Gustaf Ekenberg**.



#### ➤ Properties:

- It is **grey, heavy, and highly corrosion-resistant**, forming an oxide layer when exposed to air.
- **Pure tantalum is ductile**, allowing it to be stretched into **thin wires without breaking**.
- Extremely **resistant to chemical attack** at temperatures below 150°C, it is affected only by hydrofluoric acid, acidic solutions with fluoride ions, and free sulphur trioxide.
- Tantalum also has an **extremely high melting point**.

#### ➤ Uses of Tantalum:

##### ○ Electronic Sector:

- **Capacitors** made from tantalum are vital for storing more electricity in smaller sizes, ideal for portable electronic devices.
- A committee of experts within the Ministry of Mines has recognized a collection of **30 critical minerals for India**, with **Tantalum** being among them.
- It is also used to make components for chemical plants, nuclear power plants, aeroplanes and missiles.

##### ○ Substitute for Platinum:

- It has a high melting point, and is frequently used as a **substitute for platinum**, which is more expensive.

##### ○ Medical Applications:

- Tantalum **does not react with bodily fluids** and is used to make surgical equipment and implants, like artificial joints, according to the US Department of Energy.

##### ○ Cutting-Edge Material:

- Composite with **tantalum carbide (TaC)** and **graphite** is one of the hardest materials, used in high-speed machine tool cutting edges.

### What is the Significance of the Discovery of Tantalum in Sulej?

- The discovery of tantalum in the Sulej River sand indicates that there may be a potential source of tantalum in India, which could **reduce the dependence on imports and increase the domestic supply**.
  - India imports most of its Tantalum metal from the United States, United Kingdom and Germany.
- The discovery of tantalum can help in enhancing **India's electronics and semiconductor Industry**.

## Distant Gamma-Ray Burst Disturbed Earth's Upper Atmosphere

### Why in News?

According to recent researchers, **gamma-ray burst (GRB)** triggered by a **supernova** explosion in a galaxy situated **nearly two billion light-years from earth**, induced a notable disruption in the **ionosphere** of Earth.

### What are the Major Takeaways from the Research?

#### ➤ Background:

- Approximately **two billion years ago**, in a distant galaxy outside our Milky Way, a large star met its end in a colossal explosion known as a supernova. This event released an **immense surge of gamma rays**.
- The journey of these waves spanned across the cosmos, reaching Earth in **2022**.

#### ➤ Takeaways from the Research:

- The effects of the gamma-ray burst were studied with the help of the **China Seismo-Electromagnetic Satellite (CSES)**, also called **Zhangheng**, a **Chinese-Italian mission launched in 2018**.
  - It housed the **Electric Field Detector (EFD) instrument**, providing unprecedented resolution for analysis.
- The GRB induced a remarkable disturbance in Earth's ionosphere, a zone extending 30-600 miles above the planet's surface, **detected in October, 2022**.
  - The European Space Agency's **Integral (International Gamma-Ray Astrophysics Laboratory)** and several satellites near Earth registered the impact, revealing a **strong variation in the ionosphere's electric field**.

Note:



- The gamma rays lingered for about 13 minutes, affecting the ionosphere for several hours, even **triggering lightning detectors in India**.
  - Scientists **identified this GRB as the most potent ever recorded**.

### What is a Gamma Ray Burst?

#### ➤ About:

- **Gamma-ray bursts** are **short-lived explosions of gamma rays**, the most energetic form of light.
- Lasting from a **few milliseconds to several hours**, they shine hundreds of times brighter than a typical supernova and about a million trillion times as bright as the Sun.
- Observed in distant galaxies, they are the **brightest electromagnetic events known to exist in the universe**.

#### ➤ Types:

- Astronomers classify gamma-ray bursts into **long- and short-duration events**. While the two types of events are likely created by different processes, both result in the **creation of a new black hole**.
  - **Long-duration bursts** last anywhere from **2 seconds to several hours**. Although they are associated with the deaths of massive stars in supernovas, **not every supernova results in a gamma-ray burst**.
  - **Short-duration bursts** last **less than 2 seconds**. They appear to result from the **merger of two neutron stars into a new black hole**, or the merger of a neutron star and a black hole to form a larger black hole.

### What is the Ionosphere?

#### ➤ About:

- The ionosphere is a region of **Earth's upper atmosphere**, spanning an altitude of approximately **30 to 600 miles (50 to 950 kilometers)** above the Earth's surface.
- The ionosphere is **ionized by solar radiation** that creates a layer of charged particles.
  - It is highly sensitive to changing magnetic and electrical conditions in space, usually connected to solar activity. It also **expands and contracts in response to solar radiation**.

#### ➤ Significance:

- **Radio Propagation:** The ionosphere affects the **propagation of radio waves by reflecting and refracting them back to Earth**.
  - This phenomenon enables long-distance communication via radio transmissions.
- **Protection from Solar Radiation:** It shields the Earth's surface from harmful solar radiation, particularly from the sun's extreme ultraviolet rays.
- **Auroras Formation:** Interactions between charged particles from the sun and the Earth's magnetic field in the ionosphere **create phenomena such as auroras**, which are luminous displays predominantly seen at high latitudes.

## Rashtriya Vigyan Puraskar Awards

### Why in News?

Recently, the Ministry of Science and Technology has announced '**Rashtriya Vigyan Puraskar**' (RVP) at par with the **Padma** and other national awards.

### What is Rashtriya Vigyan Puraskar (RVP)?

#### ➤ Included Awards:

- **Vigyan Ratna Awards:** These awards will recognise lifetime achievements & contributions made in any field of science and technology.
- **Vigyan Shri Awards:** These awards will recognise distinguished contributions to any field of science and technology.
- **Vigyan Team Awards:** These awards are to be given to a team comprising three or more scientists/researchers/innovators who have made an exceptional contribution working in a team in any field of science and technology.
- **Vigyan Yuva-Shanti Swarup Bhatnagar (VY-SSB):** These awards are the highest multidisciplinary science awards in India for the young scientists (maximum 45 years).
  - They are named after **Shanti Swarup Bhatnagar**, the founder and director of the **Council of Scientific & Industrial Research (CSIR)**, who was also a renowned chemist and visionary.

Note:

➤ **Criteria:**

- The awards encompass diverse criteria, incorporating technology-led innovations and collaborative team efforts.
- Unlike previous awards, the **RVP does not enforce age restrictions except for the Vigyan Yuva-SSB award**, aligning with calls to address ageism and gender biases.
- The nominations for this bouquet of awards will be invited every year on **14<sup>th</sup> January** which would remain open till **28<sup>th</sup> February (National Science Day)** every year.
  - These awards shall be announced on **11<sup>th</sup> May (National Technology Day)** every year. The Award Ceremony for all categories of awards will be held on **23<sup>rd</sup> August (National Space Day)**.

➤ **Significance:**

- It **acknowledges and encourages** participation from **Persons of Indian Origin abroad**, recognizing the global influence of Indian scientific talent.
- The new awards will be open to an expanded group of “scientists, technologists and innovators (or teams) working in government, private sector organisations or individuals **working outside any organisation**.”
- The new awards will also have expanded eligibility criteria, including technology-led innovations or products, in addition to discovery-based research. The RVP also includes a set of team awards (Vigyan Team), to acknowledge the increasingly collaborative, cross-disciplinary, translational and intersectional nature of scientific research.
- Importantly, **with the exception of the Vigyan Yuva-SSB award** – for scientists up to the age of 45 years – **the other RVP awards don’t have an age limit**, while explicitly committing to ensure equitable gender representation.

***How Can the RVP Enhance Inclusivity While Overcoming Past Limitations?***

➤ **Clear Criteria for Exceptional Contributions:**

- To ensure that the RVP system recognises only truly “**notable and inspiring contributions**”, the awards’ descriptions must include a statement that

the contributions are over and above the **standard job description of a scientist/technologist**, not merely incremental work or work integral to their appointment.

➤ **Incorporating Diverse Scientific Engagement:**

- The RVP awards should acknowledge **scientists’ contributions beyond research** by including categories or considering **teaching, mentoring, science communication, and leadership**.
- These efforts, often additional to primary roles, merit recognition **within the awards structure during selection**.

➤ **Revision of Age Limits and Gender Parity:**

- The age limit of **45 for the Vigyan Yuva-SSB** poses a gender parity challenge, hindering **women with family obligations**.
- To ensure fairness, redefining ‘young scientist’ based on career independence or offering eligibility extensions **considering personal circumstances is crucial to avoid erecting barriers** against gender parity.

➤ **Transparent Selection Procedures:**

- When the RVP award process is implemented, the selection process must adhere to the predetermined timelines, provide a public list of shortlisted applicants, and include gender-balanced and diverse selection committees, international jury members, and a non-partisan jury member – a non-scientist, preferably – to make sure the selection is fair.

➤ **Embracing Diversity and Socioeconomic Representation:**

- The new award system **must pledge to consciously seek to ensure, in addition to gender parity**, the proper socioeconomic and demographic representation among awardees, and account for contributions made in the face of serious systemic social challenges and/or constraints and considerations related to the workplace.

➤ **Continuous Evaluation for Improvement:**

- Despite debates on the necessity of scientist awards, India lacks sufficient data for a decision. However, ongoing assessment of the award system’s impact on scientific progress, field growth, role models, diversity, and the country’s scientific culture is crucial for informed decisions.

Note:



# Euclid Mission for Dark Matter and Dark Energy

## Why in News?

The Euclid mission by the **European Space Agency (ESA)** launched in July 2023, to study **dark matter** and **dark energy** has shared its initial five science images which include pictures of expansive **galaxy clusters**, detailed shots of two nearby galaxies, a **nebula**, and a gravitationally connected group of stars known as a **globular cluster**.

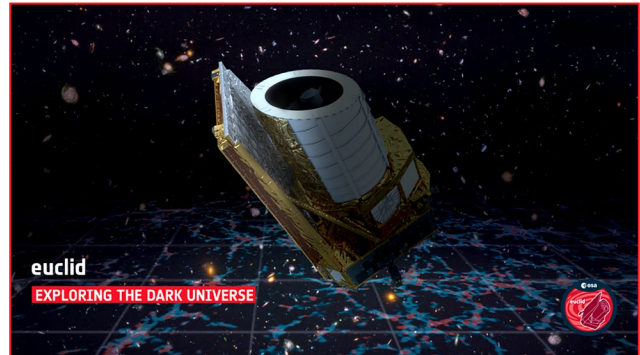
### Euclid Mission:

- ESA's Euclid mission is a **space telescope** designed to **explore the composition and evolution of the dark Universe**.
  - Euclid will **explore how the Universe has expanded** and how structure has formed over cosmic history, revealing more about the **role of gravity and the nature of dark energy and dark matter**.
- **Launch Vehicle:** SpaceX Falcon 9
- **Destination:** Sun-Earth Lagrange point 2

## What are the Different Findings by Euclid's Mission?

- **The Perseus Cluster: A Glimpse into Cosmic Depths:**
  - Euclid's lens focused on the **Perseus Cluster**, capturing 1,000 galaxies and over 100,000 more in the background, some situated **10 billion light-years** away.
  - The mapping of special attributes and characteristics of these galaxies will help **unravel the role of dark matter** in shaping the universe.
- **Spiral Galaxy IC 342: Euclid's Infrared Revelation:**
  - Euclid's infrared capabilities provided valuable insights into the stars of **IC 342**, a spiral galaxy akin to the **Milky Way** useful for understanding galaxies with structures similar to our own.
- **Irregular Dwarf Galaxy NGC 6822: Galactic Building Blocks:**
  - **Irregularly-shaped and small galaxies like NGC 6822** play a crucial role as the building blocks for larger galaxies.
  - Studying them sheds light on the formation of galactic structures.

- **Globular Cluster NGC 6397 and the Horsehead Nebula:**
  - NGC 6397 is a nearly globe-shaped globular cluster about 7,800 LYs away.
  - The mission showcased the **Horsehead Nebula**, aiming to uncover unseen Jupiter-mass planets in their early stages of development.



## What is Dark Matter?

- **About:**
  - Dark matter, though never detected, is **believed to be present in the entire universe**, its existence presumed because a number of observable celestial phenomena could not be possible if the universe did not have much more matter in it than is seen.
    - It is believed to make up **more than 95% of all the universe**.
- **Characteristics:**
  - The material is considered to be a 'matter' **since it has gravitational attraction and it is 'dark' because it does not seem to interact with light** (or any part of the electromagnetic spectrum).
    - Its gravitational force **prevents stars in our Milky Way from flying apart**.
  - However, attempts to detect such dark matter particles using underground experiments, or accelerator experiments including the world's largest accelerator, the **Large Hadron Collider (LHC)**, have failed so far.

### Dark Energy:

- **Dark energy is a hypothetical form of energy** that is thought to permeate all of space and drive the accelerated expansion of the universe.
- It's a term used in cosmology to explain the observed phenomenon that galaxies are moving away from each other at an accelerating rate.

Note:

# Environment & Ecology

## Highlights

- Global Marine Life and Oceans Warming
- NITI Ayog Releases CCUS Policy Framework
- Rat-Hole Mining
- Ghol Fish
- Balancing Sustainable Energy Goals with Coal Realities
- Antarctic Ozone Hole
- Climate Finance and the USD 100 Billion Goal: OECD
- Battery Waste Management Rules, 2022
- Emissions Gap Report 2023: UNEP
- Sand and Dust Storms
- Greenhouse Gas Concentrations Hit Record Highs: UN
- CITES Standing Committee Meeting
- Eliminating Plastic Pollution by 2040

# ACID RAIN

## ABOUT

- ↳ A broad term that includes any form of precipitation that contains acidic components i.e. sulfuric acid or nitric acid.

## CAUSES

- ↳ SO<sub>2</sub> and NO<sub>x</sub> emissions
- ↳ Industrial activities
- ↳ Burning of biomass and agricultural residues
- ↳ Volcanic eruptions
- ↳ Transportation emissions
- ↳ Formation of acid precursors in atmosphere

## FORMS OF ACID DEPOSITION

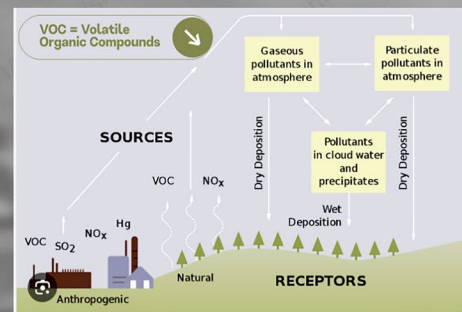
- ↳ **Wet Deposition:** When rain, sleet, snow, or fog become more acidic than normal
- ↳ **Dry Deposition:** When gases and dust particles become acidic

## MEASUREMENT OF ACID RAIN

- ↳ Normal Rain (pH=5.6); Acid Rain (generally below pH 4.5)

## EFFECTS

- ↳ Impacts on human health (skin and respiratory diseases)
- ↳ Soil degradation, water pollution and deforestation
- ↳ Aquatic ecosystem harm
- ↳ Corrosion
- ↳ Lower visibility



**Acid Fog:** When airborne pollutants, primarily acidic in nature, form a mist/fog that can have corrosive effects on surfaces and ecosystems.

## SOLUTIONS

- ↳ Reducing emissions from vehicles, industries, etc.
- ↳ Adopting alternative energy sources
- ↳ Restoring acid rain damage through liming process

## Convention on Long-Range Transboundary Air Pollution (LRTAP), 1979

A multinational accord to address transboundary air pollution, establishing a regional framework across Europe, North America, Russia, and former East Bloc nations.

◆ India is not a party.

### Gothenburg Protocol to LRTAP (2019):

- ◆ **1<sup>st</sup> binding agreement** to include emission reduction commitments for fine particulate matter
- ◆ It seeks to reduce harmful effects of air pollution such as **acid rain** by targeting emissions of SO<sub>2</sub>, NO<sub>x</sub>, and VOCs.



# GEO-ENGINEERING



Geoengineering means manipulating the earth's climate to lower its temperature to counter global warming

## TYPES OF GEO-ENGINEERING

### CARBON DIOXIDE REMOVAL

Technology/ Method Proposed	Proposed Effects/actions	Potential Side Effects	Feasibility/Cost Effectiveness
Land Use Management	Afforestation/ Reforestation	Minimum Side Effects	High feasibility, Low Cost
Bio-energy with carbon capture and storage (BECCS)	Biomass harvested and used as fuel	Potential land use conflict	Comparatively expensive
Direct CO <sub>2</sub> Capture	Industrial Process	Minimal	High technical feasibility
Fertilization of the ocean	Increased CO <sub>2</sub> absorption by promoting algae growth	High potential for adverse side effects	Feasible but not cost-effective
Accelerated Weathering	Pulverization of silicate rocks	Potential respiratory health impact	Could be combined with crop production, a feasible option at scale

### SOLAR RADIATION MANAGEMENT

Stratospheric aerosol Injection	For reflecting sunlight back into space	Likely impact on the hydrological cycle	Feasible and potentially highly effective
Marine cloud brightening	Seeding of marine clouds with seawater aerosol	Likely impact on precipitation pattern	Low to medium cost and feasible at scale
Giant deflectors in outer space	Mirror placed in near earth orbit	Regional climate effects	Capital-intensive and long gestation
Surface albedo approaches	Painting the roof of the building bright white, Installing desert reflector	Major Impact on Desert Ecosystem	High Labor and maintenance cost

### REGULATION

- ↘ No specific international or Indian regulations on geoengineering.

### INDIA'S EFFORTS

- ↘ **Department of Science and Technology:**
  - ◆ Geoengineering climate-modelling research programme (since 2013)

### ↘ IISc:

- ◆ Initiative to understand the implications of solar geoengineering for developing countries
- ◆ Scientists simulated injecting 20 million tonnes of sulphate aerosols into the Arctic stratosphere



Drishti IAS

Note:

# Global Marine Life and Oceans Warming

## Why in the News?

Recently, a study published in the journal 'Trends in Ecology and Evolution' highlighted that **climate change** is making the **oceans warmer**, and as a result, **tropical marine species** are shifting from the **equator towards the poles**.

- The **temperate species** are receding as it gets too warm, they face **increased competition** for **habitat**, and **new predators**.

## How Does Climate Change Cause Tropicalisation as per the Study?

- **Tropicalisation:**
  - **Climate change** is causing a **marine phenomenon** known as **tropicalisation**, where **tropical species** expand their range while **temperate species** retract.
    - **Temperate species** are receding as it gets too warm, they face **increased competition** for **habitat**, and **new predators** arrive on the scene.
  - This **global shift** is altering **ocean ecosystems**, **biodiversity**, and could **impact the global economy**.
  - The first instance of this process was identified in the **Mediterranean Sea**.
  - **The Mediterranean Sea** is considered as a "**tropicalisation hotspot**" due to an increase in tropical species.
- **Species Dispersal due to Climate change:**
  - **Climate change** has altered the **physical factors** that affect **species dispersal**, such as **ocean currents** in areas that **separate tropical/subtropical** and **temperate regions**.
  - These **warm-water boundary currents** are heating faster than the global seawater average, facilitating the **poleward movement of species**, and reinforcing the **retraction of temperate species**.
  - **Example: Range-expanding tropical damselfishes** and temperate reef fishes have been documented altering their **feeding** and **social behaviors** to allow for **coexistence**,
- **Evolution of New Traits:**
  - Changes in how species interact can result in the **evolution** of new traits or behaviors due to the close connection between **ecology** and **evolution**.

## What is Ocean Warming?

- **About:**
  - The **ocean absorbs** most of the **excess heat** from **greenhouse gas emissions**, leading to **rising ocean temperatures**.
- **Reason:**
  - **Greenhouse Gas Emissions:** The burning of **fossil fuels (coal, oil, and natural gas)** for **energy**, **deforestation**, and **industrial processes** releases significant amounts of **greenhouse gasses**, including **carbon dioxide (CO2)**, **methane (CH4)**, and **nitrous oxide (N2O)**, into the atmosphere. These gases trap **heat**, leading to a **warming effect** on both the **atmosphere** and the **oceans**.
  - **Carbon Dioxide Absorption:** Oceans act as a vast reservoir that absorbs a significant portion of the excess **carbon dioxide** from human activities. While this absorption helps mitigate climate change on land, it also results in the **warming of the ocean itself**.
  - **Solar Radiation:** Changes in **solar radiation**, though a **minor contributor** compared to **human-induced factors**, can influence **ocean temperatures** over long periods.
- **Impact:**
  - **Coral Bleaching:** **Elevated temperatures** can cause **corals** to expel the symbiotic algae living in their tissues, leading to **coral bleaching**. Prolonged bleaching weakens corals and makes them more susceptible to diseases, posing a significant threat to **coral reef ecosystems**.
  - **Sea Level Rise:** **Warmer ocean temperatures** contribute to the **thermal expansion of seawater**. This, along with the **melting of polar ice caps** and **glaciers**, leads to **rising sea levels**, which can result in **coastal erosion** and increased **vulnerability** of **coastal communities**.
  - **Disruption of Marine Food Webs:** Changes in **ocean temperatures** can alter the **distribution** and **abundance** of marine species, affecting the **structure of marine food webs**. This can have cascading effects on **fisheries** and the **livelihoods of communities** dependent on them.
  - **Ocean Acidification:** The absorption of **excess carbon dioxide** by the oceans leads to **ocean acidification**. Acidification can harm marine organisms with **calcium carbonate skeletons or shells**, including **corals**, **mollusks**, and some **plankton**, affecting the entire marine food chain.

Note:

## NITI Ayog Releases CCUS Policy Framework

### Why in News?

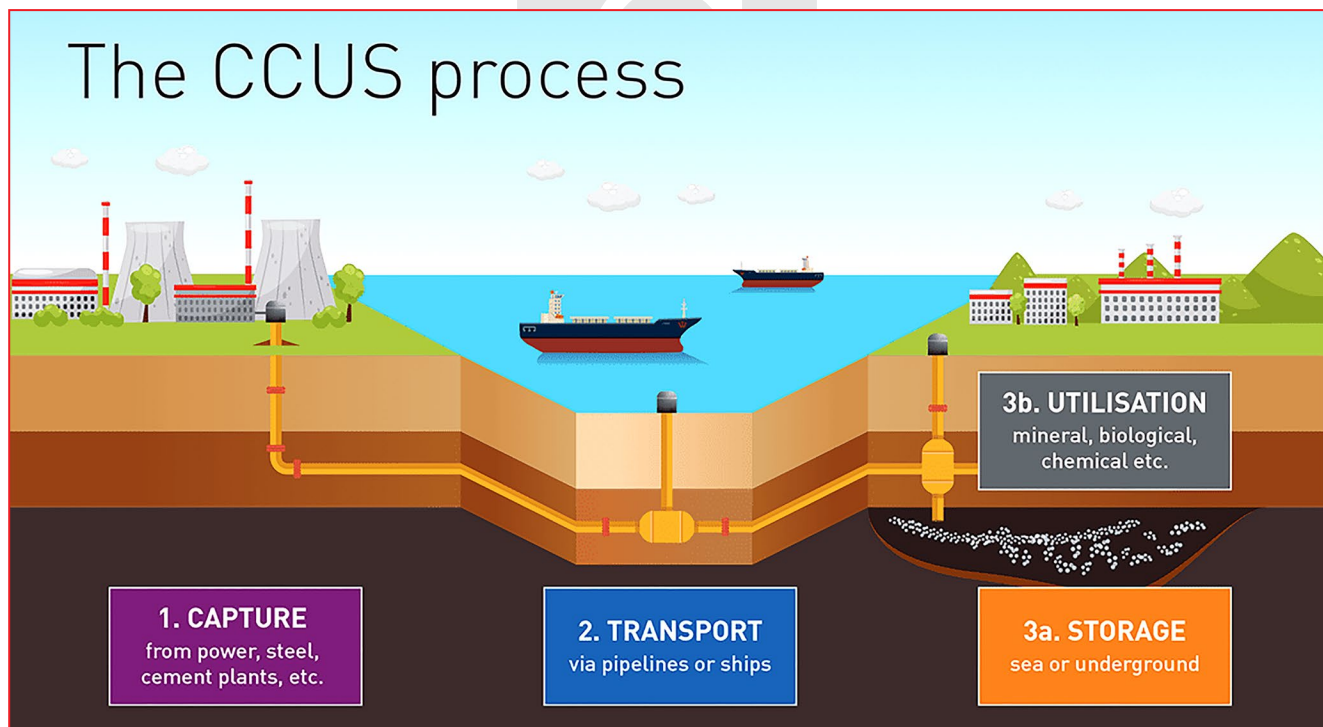
Recently, experts from research and academia highlighted the need for investment both from the government and industry in **Carbon Capture, Utilisation and Storage (CCUS)** and the importance of leading experts in the field to work collaboratively towards India's net zero targets through CCUS.

### What is Carbon Capture, Utilization, and Storage (CCUS)?

- **About:** **CCUS** is a set of technologies and processes aimed at mitigating **carbon dioxide (CO<sub>2</sub>) emissions** generated from large-scale point sources like power plants, industrial facilities, and refineries.
- **Objective:** The primary goal of CCUS is to prevent

CO<sub>2</sub> from being released into the atmosphere. It is considered a crucial strategy for the reduction of greenhouse gas emissions from industries.

- **Process:** The process involves three main steps:
  - **Capture:** This step involves capturing CO<sub>2</sub> emissions at their source before they are released into the air.
    - There are various capture technologies, including post-combustion capture, pre-combustion capture, and oxy-fuel combustion.
  - **Transport:** This step involves moving compressed CO<sub>2</sub> by ship or pipeline from the point of capture to the point of storage.
  - **Storage:** The transported CO<sub>2</sub> is stored in underground geological formations which include depleted oil and gas fields or deep saline aquifers.
  - **Utilization:** Once captured, the CO<sub>2</sub> can be utilized in various ways rather than being released. This may include using CO<sub>2</sub> in industrial processes, such as manufacturing chemicals or fuels.



### What is Significance of the CCUS?

- **Strategic Role in Decarbonization:**
  - In its report titled 'Policy Framework and Deployment Mechanism for Carbon Capture, Utilisation, and Storage in India,' **NITI Aayog** emphasizes the significance of CCUS as a strategy for reducing

emissions, particularly in **hard-to-abate** sectors.

- Hard-to-abate industries include categories like steel, cement, and petrochemicals.
- The **IPCC** emphasizes that the deployment of CCUS technologies is crucial for achieving net zero emissions globally.

Note:

- **Energy Security:**
  - The incorporation of CCUS into the energy mix provides flexibility to the energy grid.
  - CCUS facilitates **low-carbon electricity and hydrogen production**. Hydrogen produced through CCUS serves as a direct substitute for fossil fuels.
  - This diversity enhances energy security, aligning with the growing priorities of governments worldwide.
- **Industrial Applications of CCUS**
  - **Concrete and Cement Industrial Sectors:** In the concrete and cement industry, CCUS technology captures CO<sub>2</sub> emitted during the firing of limestone and clay. The recovered CO<sub>2</sub> is then injected into concrete mixtures can enhance its strength and durability, a process known as carbonation.
  - **Basic Chemicals and Fuel Industrial Sectors:** CCUS serves as a source of CO<sub>2</sub> for synthetic gas production, which is essential for the further production of bio-jet fuel, aligning with sustainable aviation fuel initiatives.
  - **Fine Chemicals Sector:** The fine chemicals industry employs CCUS by capturing carbon dioxide (CO<sub>2</sub>), blending it with biomass, and subsequently transforming it into oxygenated compounds like high-functional plastics.
- **Cost-Effective Solution:**
  - CCUS allows industries to continue using existing infrastructure, such as power plants and manufacturing facilities, reducing the need for significant capital investments in new, low-carbon alternatives.

### **What are the Challenges associated with CCUS?**

- **High Initial Costs:**
  - Implementing CCUS on a large scale **necessitates significant infrastructure development**, including pipelines for transporting captured CO<sub>2</sub> and suitable storage sites. This poses logistical challenges and requires substantial investments
- **Technological Maturity:**
  - CCUS technologies are in the initial phases of development and have not yet been widely deployed. Additionally, there are gaps in knowledge and experience when it comes to implementing and operating CCUS technologies.

- **Competition with Renewable Energy:**
  - CCUS competes for attention and resources with renewable energy technologies. Some argue that investments in renewables may offer a more direct and sustainable path to decarbonization
- **Absence of Regulatory Framework:**
  - The absence of clear and supportive regulatory frameworks can impede CCUS deployment. Ambiguities in regulations regarding liability, long-term responsibilities, and environmental standards may hinder investment.
  - The economic viability of CCUS projects depends on various factors, including the price of carbon, government incentives, and the availability of funding.

## **Rat-Hole Mining**

### **Why in News?**

Recently, **Rat Hole Mining** method has been used to evacuate 41 workers who were trapped inside **Uttarakhand's Silkyari tunnel**.

### **What is Rat-Hole Mining?**

- **About:**
  - Rat hole mining is a **method of extracting coal from narrow**, horizontal seams, prevalent in Meghalaya.
  - The term "rat hole" refers to the **narrow pits dug into the ground**, typically just large enough for one person to descend and extract coal.
  - Once the pits are dug, miners descend using ropes or bamboo ladders to reach the coal seams. The coal is then manually extracted using primitive tools such as pickaxes, shovels, and baskets.
- **Types:**
  - **Side-Cutting Procedure:** In the side-cutting procedure, narrow tunnels are dug on the hill slopes and workers go inside until they find the coal seam.
    - The coal seam in the hills of Meghalaya is very thin, less than 2 m in most cases.
  - **Box-Cutting:** In Box-cutting, a rectangular opening is made, varying from 10 to 100 sqm, and through that a vertical pit is dug, 100 to 400 feet deep.
    - Once the coal seam is found, rat-hole-sized tunnels are dug horizontally **through which workers can extract the coal**.

Note:

### ➤ Concerns:

- Rat hole mining poses significant safety and environmental hazards. The mines are typically **unregulated, lacking safety measures** such as proper ventilation, structural support, or safety gear for the workers.
- The process is not only perilous for the miners but also detrimental to the environment. Rat-hole mining has been linked to a **host of ecological issues, such as the acidification of rivers, Land Degradation, Deforestation, and Water Pollution.**
  - The acidic runoff from these mines, known as **Acid Mine Drainage (AMD)**, has been particularly harmful, degrading water quality and reducing biodiversity in affected water bodies.
- Despite attempts by authorities to regulate or ban such practices, they often persist **due to economic factors and the absence of viable alternative livelihoods for the local population.**

### Why was

#### Rat-Hole Mining Banned?

- The **National Green Tribunal (NGT)** banned rat-hole mining in 2014 for being unscientific, but the practice continues to be rampant.
- Several accidents have resulted in deaths of rat-hole miners in the Northeastern state.
- In 2018, 15 men involved in illegal mining were trapped inside a flooded mine. Only two bodies **could be recovered in the course of the rescue operation** that lasted for more than two months.
- Another such accident **took place in 2021** when five miners were trapped in a flooded mine. Three bodies were found before rescue teams called off the operation after a month. Add to this the **environmental pollution** caused by this method.
- Mining, however, is a key source of revenue for the state government. The **Manipur government has challenged the NGT ban**, arguing that there is no other feasible mining option for the region.
  - A panel appointed by Meghalaya High Court in 2022 found rat-hole mining continues unabated in Meghalaya.

## Ghol Fish

### Why in News?

Gujarat recently declared the **black-spotted croaker (*Protonibea Diacanthus*)**, locally known as the **Ghol fish**, as the **state fish**.

- The decision was based on various factors, emphasizing its uniqueness, economic value, and the need for conservation.



### What are the Key Facts About Ghol Fish?

#### ➤ Geographical Distribution:

- The ghol fish is primarily found in the **Indo-Pacific region.**
  - Its habitat spans from the **Persian Gulf** to the expansive waters of the **Pacific Ocean.**

#### ➤ Economic Significance:

- The ghol fish has a substantial market demand in **China and other Asian countries.**
  - Ghol fish is also known as '**Sea Gold**' for its high market value.
- Its meat is exported to **European and Middle-Eastern countries**, while the **dried air bladder** is in high demand, especially in China.
- A kilogram of ghol can fetch between Rs 5,000 to Rs 15,000 in Gujarat.
  - The dried air bladder, considered the costliest part, can reach amounts as high as Rs 25,000 a kilogram in the export market.

#### ➤ Benefits:

- Good for eye health and helps in maintaining eyesight.
- Prevent ageing and wrinkles, the collagen content in the ghol fish prevents wrinkles and also keeps the **elasticity of the skin intact.**

Note:

- Omega-3 content in ghol fish improves the Intelligence Quotient (IQ) of infants if fed on a regular basis – it stimulates the **growth of brain cells**.
- **Conservation:**
  - **International Union for Conservation of Nature (IUCN) Red List:** Near Threatened.

**Note:**

- Gujarat is one of the leading states in fisheries production in India, with a rich diversity of marine and inland fish species.
- In the year 2021-22, Gujarat recorded a **total fish production of 8.74 lakh tonnes**.

## Balancing Sustainable Energy Goals with Coal Realities

### Why in News?

In the evolving landscape of **renewable energy**, the clash between traditional and eco-friendly practices is evident.

- **Coal**, a widely used yet highly polluting energy source, stands as a major hurdle for global sustainability goals.
- Despite efforts to embrace cleaner alternatives, **coal remains a significant challenge** for achieving **sustainable development** worldwide.

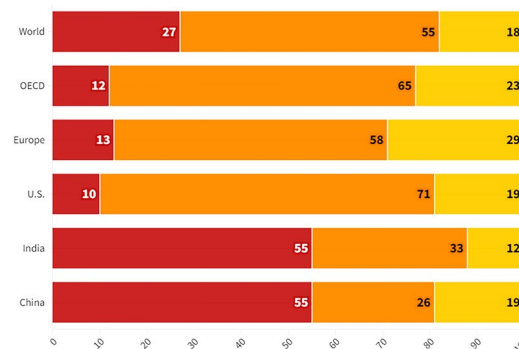
### What is the Role of Coal in the Energy Mix?

- **Coal in Global Energy Mix:**
  - In 2022, **oil, coal, and gas accounted for 30%, 27%, and 23%** of the world's total energy, while **solar and wind energy sources together contributed only 2.4%**.
    - Coal supplies just over a **third of global electricity generation** even though it is the most carbon-intensive fossil fuel.
- **Coal in India's Energy Context:**
  - Only **10.4% of India's primary energy consumption** is from **renewables**; coal and oil gas dominate at 55.1% and 33.3% in 2022.
  - Coal-fired thermal power plants (TPPs) generated **74.3% of India's electricity during FY 2022-2023**, and generation by TPPs continues to grow to meet demand.

- 96% of the coal used by TPPs in India comes from **domestic mines** and is key to why electricity is so affordable in India.
- India's National Electricity Plan projects that TPP capacity in India will **reach 259-262 GW by FY32**, from 212 GW in FY23.
- India's per capita energy supply stands at 37% of the global average, highlighting a **growing energy demand** that aligns with the **Human Development Index**.
  - To balance this with India's long-term goal of reaching **net zero by 2070**, the country must continue to implement **clean coal technologies** to reduce the power sector's emissions.
- The efficient operation of **TPPs (thermal power plants)** is **crucial for India** to ensure continuous and affordable supply to meet peak and off-peak demands.
- India's cumulative emissions from fossil fuels and industry between the start of the **industrial revolution** in 1750 and the end of 2021 are only **3.3% of the global total**, far behind those of Europe (31%), the U.S. (24.3%), and China (14.4%).

Primary energy consumption in 2022

■ Share of coal (%) ■ Share of oil/gas (%) ■ Rest (%)



Source: Energy Institute Statistical Review of World Energy 2023

### What are the Environmental and Social Impacts of Coal?

- **Coal Quality and Transportation:**
  - Indian coal contains **high levels of fly ash** compared to coal from other major coal-mining countries.
  - Burning coal with more ash leads to **erosion** and failure of boiler tubes, **affecting plant availability, efficiency, and performance leading to an increase in emissions**.

Note:

- Transporting **unwashed raw coal** to power plants located over 500 km away congests transportation systems and results in **carbon dioxide emissions** and environmental pollution.
- **Sulphur Dioxide Emissions:**
  - Indian coal other than that from Assam and Meghalaya has **lower sulphur content** compared to coal used in Chinese power plants.
    - Tall stacks and favourable weather conditions in India allow **sulphur dioxide emissions to disperse far and wide.**
  - According to the **United Nations Intergovernmental Panel on Climate Change**, historical **sulphur dioxide emissions have created a cooling effect**, masking global temperature rise.
- **Flue Gas Desulphurisers (FGDs):**
  - Retrofitting existing power plants with FGDs increases specific coal consumption, lowers energy efficiency, and leads to higher emission intensity and temporary plant shutdowns.
    - FGD is a process that removes sulfur dioxide (SO<sub>2</sub>) from exhaust gases.
  - Retrofitting FGDs has been delayed in India due to the **inability to shut down** operating power plants.
- **Employment and Industry:**
  - The coal sector plays a vital role in industries like power, steel, cement, and aluminium, employing millions.
    - Transition to cleaner energy could result in an **imbalance in the preservation of jobs and economic stability.**
- **Energy Access and Affordability:**
  - Coal contributes significantly to electricity generation, ensuring access and affordability for a large population.
    - Transitioning to renewables must consider **maintaining affordable and reliable energy access.**

### ***What are the Strategies to Reduce Coal's Impact on Sustainable Development?***

- **Efficiency Enhancement in Thermal Power Plants (TPPs):**
  - Invest in research and development to increase the efficiency of existing coal-fired TPPs.
- Implement advanced technologies and operational improvements to **reduce emissions** per unit of electricity generated.
- **Promotion of Clean Coal Technologies:**
  - Allocate resources and incentives for the development and implementation of **clean coal technologies.**
    - Prioritize technologies that significantly reduce carbon emissions and improve overall environmental performance.
- **Diversification of Energy Sources:**
  - Accelerate the deployment of **renewable energy sources**, such as solar and wind, to decrease dependence on coal.
    - Develop policies that encourage a **diverse energy mix**, ensuring a gradual transition towards cleaner alternatives.
- **Global Cooperation for Critical Minerals:**
  - Collaborate with international partners to secure a stable and diversified supply chain for **critical minerals** required for battery storage.
    - Most of the critical materials required for grid-scale battery storage are controlled by the top three producers – especially China.
  - Explore diplomatic avenues to mitigate risks associated with import dependencies on countries like China.
  - **Batteries might only become cost-effective after 2030**, necessitating a focus on other strategies in the interim.
- **Nuclear Energy Expansion:**
  - Increase investment and support for **nuclear energy** as a low-carbon alternative to coal.
    - Encourage research and development for small modular nuclear reactors for enhanced efficiency and safety.
- **Pumped Storage Projects and Grid Integration:**
  - Enhance pumped storage projects to efficiently integrate intermittent renewable energy sources like solar and wind into the power grid.
  - Develop **smart grid technologies** for better management of variable energy inputs.
- **Washed Coal Mandate:**
  - Enforce regulations mandating the use of **washed coal** in TPPs located more than 500 km from mines to **reduce environmental impact.**

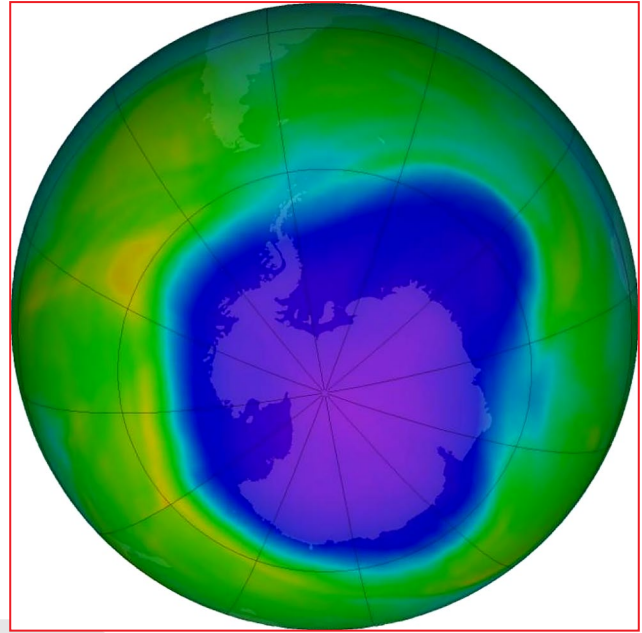
Note:

- Integrate coal-washing charges into the tariff determination process to ensure economic feasibility.
  - This reduces carbon dioxide emissions and environmental pollution.
- **Incentivizing Low-Carbon Technologies:**
  - Approximately 30% of current power plant capacity in India is based on **supercritical or ultra-supercritical technologies**.
    - **Advanced ultra-supercritical technology (AUSC)** reduces **carbon dioxide emissions by 15%** compared to supercritical technology.
    - Integrated gasification combined cycle (IGCC) power plants have efficiencies of 46-48% and can capture carbon dioxide.
  - Incentivize projects to prove IGCC or AUSC technologies at scale before 2030.
  - Encourage NTPC to repurpose some power plant sites for small modular nuclear reactors for zero-carbon electricity generation.
  - Low-carbon development is **not a choice but a necessity for India**, as reflected in its **'Long-term Low-Emissions Development Strategy'** submitted to the **United Nations Framework Convention on Climate Change** and **Paris Agreement**.
  - Encourage research initiatives to explore and develop **carbon capture technologies for existing TPPs**.
  - Transitioning to renewables must consider maintaining **affordable and reliable** energy access.
- **Particulate Emission Reduction:**
  - Implement a **'graded priority' approach** for power plant pollutants, prioritizing the reduction of **particulate matter**.
    - Deploy cost-effective electrostatic precipitators to achieve a 99.97% reduction in particulate emissions.

## Antarctic Ozone Hole

### **Why in News?**

According to a recent study, published in Nature Communications, stated that the **Antarctic Ozone Hole** has been massive in the last four years.



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

- **Ozone Depletion:**
  - The Antarctic ozone hole has been **consistently large and has shown thinning over recent years**, contrary to the expected recovery trend observed since the 2000s.
  - The concentration of ozone at the **center of the hole has notably reduced**, indicating significant thinning of the ozone layer.
    - The concentration of ozone at the core of the ozone hole has **decreased by 26% from 2004 to 2022**, despite the efforts outlined in the **Montreal Protocol**, which aimed to reduce human-generated chemicals that deplete the ozone layer.
- **Polar Vortex Influence:**
  - The Antarctic ozone hole exists within the polar vortex, a circular wind pattern in the stratosphere that forms during winter and is maintained until late spring.
  - Within this vortex, the Antarctic air from the mesosphere (the atmospheric layer above the stratosphere) falls into the stratosphere. This **intrusion of air brings natural chemicals (nitrogen dioxide, for example)** which impact ozone chemistry in October.
- **Factors Affecting Ozone Depletion:**

Note:



- The role of meteorological conditions, such as temperature, wind patterns, aerosols from wildfires and volcanic eruptions, and changes in the solar cycle, influenced the size and behavior of the Antarctic ozone hole.

#### ➤ Recommendations:

- There's a need for **further research to understand the descent of air from the mesosphere** and its specific impacts on ozone chemistry.
- Investigating these **mechanisms will likely shed light on the future behavior** of the Antarctic ozone hole.

### What is an Ozone Hole?

#### ➤ About:

- An Ozone Hole refers to a **severe depletion of the ozone layer**—a region in the Earth's stratosphere containing a **higher concentration of ozone molecules**.
- Ozone molecules (O<sub>3</sub>) in this layer play a crucial role in **shielding the Earth from harmful Ultraviolet (UV) radiation from the sun**.
- The ozone layer depletion leads to the **formation of an area with significantly reduced ozone concentrations**, often observed over Antarctica.
- This phenomenon occurs primarily during the **Southern Hemisphere's spring months (August to October)**, though it can also be influenced by global factors.

#### ➤ Reasons for Ozone Hole:

- The depletion is caused by human-generated chemicals known as **ozone-depleting substances (ODS)**, including **Chlorofluorocarbons (CFCs)**, halons, carbon tetrachloride, and methyl chloroform.
- These substances, once released into the atmosphere, rise to the stratosphere, where they break down due to the sun's ultraviolet radiation, releasing chlorine and bromine atoms that destroy ozone molecules.
  - The Antarctic ozone hole is the most famous and severe example of this phenomenon. It's characterized by a **drastic reduction in ozone levels, allowing increased amounts of harmful UV radiation** to reach the Earth's surface.

#### ➤ Impact:

- The increased UV radiation poses health risks to humans, including higher rates of skin cancers, cataracts, and compromised immune systems.

- UV radiation can harm various organisms and ecosystems. Ozone depletion can indirectly influence climate change. Changes in the stratosphere due to ozone depletion can **impact atmospheric circulation patterns**, potentially affecting weather and climate in certain regions.

### What are the Global Initiatives to Curb Ozone Depletion?

- The **1985 Vienna Convention for the Protection of the Ozone Layer** was an international agreement in which United Nations members recognized the fundamental importance of preventing damage to the stratospheric ozone layer.
- The **1987 Montreal Protocol on Substances that deplete the Ozone Layer** and its succeeding amendments were subsequently negotiated to control the consumption and production of anthropogenic (ODSs) and some hydrofluorocarbons (HFCs).
  - The Protocol **was signed by 197 parties in 1987 to control the use of ozone-depleting substances**, mainly chlorofluorocarbons (CFCs). Montreal Protocol deals with the development of replacement of substances, firstly hydrochlorofluorocarbons (HCFCs) and then HFCs, in a number of industrial sectors.
  - While HFCs have only a minor effect on stratospheric ozone, some HFCs are powerful greenhouse gases (GHGs).
- The adoption of the **2016 Kigali Amendment** to the Montreal Protocol will phase down the production and consumption of some HFCs and avoid much of the projected global increase and associated climate change.

## Climate Finance and the USD 100 Billion Goal: OECD

### Why in News?

Ahead of the **COP (Conference of Parties) 28** in Dubai, the **Organisation for Economic Cooperation and Development (OECD)** has released a Report titled- **Climate Finance and the USD 100 Billion Goal**, showing that Developed countries fell short of their promise to mobilize USD 100 billion a year, towards **Climate Mitigation**.

Note:

- The report presents **aggregate trends of annual climate finance** provided and mobilized by developed countries for developing countries for the **period 2013-21**.

### What is the Organization for Economic Co-operation and Development (OECD)?

#### ➤ About:

- The OECD is an intergovernmental economic organization, founded to stimulate economic progress and world trade.
- Most OECD members are high-income economies with a very high **Human Development Index (HDI)** and are regarded as developed countries.

#### ➤ Foundation:

- It was **founded in 1961 with its Headquarters at Paris, France** and total membership is 38 countries.
- The most recent countries to join the OECD were Colombia, in April 2020, and Costa Rica, in May 2021.
- India is **not a member**, but a key economic partner.

#### ➤ Reports and Indices by OECD:

- Government at a Glance.
- OECD Better Life Index.

### What is the Background?

- At the **15<sup>th</sup> Conference of Parties (COP15)** of the **UNFCCC (United Nations Framework Convention on Climate Change)** in Copenhagen in 2009, developed countries **committed to a collective goal of mobilising USD 100 billion per year by 2020** for **Climate Action** in developing countries, in the context of meaningful mitigation actions and transparency on implementation.
- The goal was formalised at **COP16 in Cancun**, and at **COP21 in Paris**, it was reiterated and **extended to 2025**.
- At the request of donor countries, the **OECD has been tracking progress towards this goal since 2015**. It produces regular analyses of progress made, based on a robust accounting framework that is consistent with the COP24 outcome agreed by all **Parties to the Paris Agreement** on funding sources and financial instruments.

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

#### ➤ Total Climate Finance:

- In 2021, total climate finance provided and mobilised by developed countries for developing

countries **amounted to USD 89.6 billion**, showing a significant 7.6% increase over the previous year.

- **Public Climate Finance (bilateral and multilateral)** almost doubled over the 2013-21 period, from USD 38 billion to USD 73.1 billion, accounting for the **vast majority of the total USD 89.6 billion in 2021**.
- Mobilized private climate finance, for which comparable data are only available from 2016, amounted to USD 14.4 billion in 2021, or 16% of the total.

#### ➤ Drop in Adaptation Finance:

- Adaptation finance dropped by USD 4 billion (-14%) in 2021, resulting in a decrease in its share of total climate **finance from 34% to 27%**.
- The decrease in finance for adaptation is raising concerns about the **capacity of developing nations to address both mitigation** and adaptation needs.

#### ➤ Loan Dominance in Climate Financing:

- USD 73.1 billion of Finance was mobilized in 2021 by the public sector via bilateral and multilateral channels and USD 49.6 billion was provided as loans.
- This reliance on loans, rather than grants, **can exacerbate debt stress in poorer countries**, impacting their ability to effectively address climate challenges.

#### ➤ Recommendations:

- **Need to Scale up Adaptation Finance:** There is a pressing need for **international providers to significantly scale up their efforts** in two essential areas: adaptation finance and the mobilisation of private finance.
- **Capacity Building:** There is a need to support building capacity in terms of project development, financial literacy, and operational efficiency, which can strengthen developing countries' abilities to access, absorb, and effectively utilise climate finance.
- **Adapt and Evolve the Financial Products:** There is a need for international providers to adapt and evolve the financial products and mechanisms they offer to enhance the reach and effectiveness of climate finance.

### What are the Issues with the OECD Report?

#### ➤ Ambiguity and Lack of Clarity in Definitions:

- There is a **lack of a universally agreed-upon definition** of 'climate finance', allowing developed

Note:



countries to **classify various types of funding**, including **Overseas Development Assistance (ODA)** and high-cost loans, as climate finance.

- This ambiguity can enable double-counting and evade scrutiny.
- **Challenges with Additionality:**
  - The principle of “new and additional finance” stipulated by the UNFCCC, meant to prevent **diverting existing aid for climate purposes**, has been questioned.
  - Some countries have **admitted to double-counting aid**, undermining the “new and additional” criterion.
- **Loan at Face Value not Grant equivalent:**
  - Loans are considered at face value, not the grant equivalent when arriving at total climate finance figures.
    - So while poorer countries shell out money towards repayment and interest, the loan is still counted as climate finance provided by the developed world.

## Battery Waste Management Rules, 2022

### Why in News?

The **Battery Waste Management Rules, 2022** is a step in the right direction, however the Rules suffer from a few critical gaps that unless **addressed can impede efficient and effective recycling**.

### What are the Gaps in Battery Waste Management Rules, 2022?

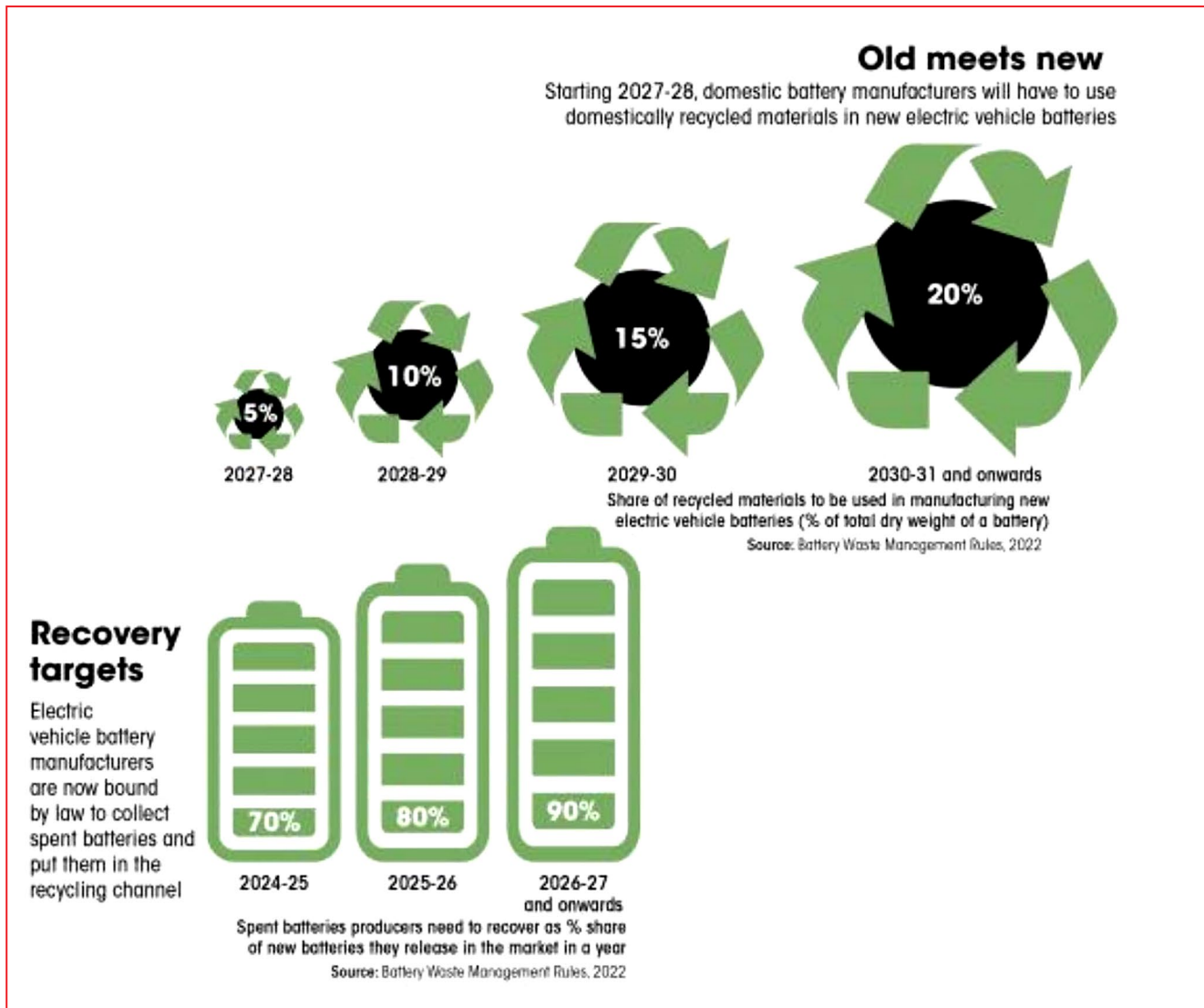
- **Coverage:**
  - The rules cover all types of batteries, including Electric Vehicle batteries, portable batteries, automotive batteries, and industrial batteries.
- **Extended Producer Responsibility (EPR):**
  - The producers of batteries are responsible for the collection and recycling/refurbishment of waste batteries and the use of recovered materials from waste into new batteries. Rules prohibit disposal in landfills and incineration.
    - To meet the EPR obligations, **producers may engage themselves or authorise any other entity** for the collection, recycling, or refurbishment of waste batteries.

- **Online Portal for exchange of EPR Certificates:**
  - It will enable the setting up of a mechanism and centralized online portal for the exchange of EPR certificates between producers and recyclers/refurbishers to fulfill the obligations of producers.
- **Online Registration:**
  - Online registration & reporting, auditing, and committee for monitoring the implementation of rules and taking measures **required for removal of difficulties**.
- **Principle of Polluter Pays:**
  - Environmental **compensation will be imposed for non-fulfilment of Extended Producer Responsibility** targets, responsibilities and obligations set out in the rules.
- **Recovery Target:**
  - There is a target for recovery of the battery material — 70% by 2024-25, then 80% by 2026, and 90% after 2026-27 onwards.
- **Environmental compensation Fund:**
  - The funds collected under environmental compensation shall be utilized in the collection and refurbishing or recycling of uncollected and non-recycled waste batteries.

### What are the Gaps in Battery Waste Management Rules, 2022?

- **Labeling and Information Deficiency:**
  - Current battery **labels lack comprehensive information about their chemical composition**, impeding effective recycling.
  - Lack of data on metals in lithium-ion batteries **hampers recyclers' ability to recover valuable materials efficiently**.
- **Design Complexity:**
  - Battery packs often **have intricate assembly methods** involving welding, adhesive, and screws, making disassembly challenging.
  - Standardizing **joining techniques could facilitate automated disassembly**.
- **EPR Implementation and Budgeting:**
  - The rules **lack a clear directive on the budget that manufacturers should allocate for collecting and recycling spent batteries**.

Note:



- This ambiguity may result in **low rates paid to recyclers, impacting the efficiency of waste collection** and processing.
- **Informal Sector Competition:**
  - As the volume of spent batteries increases, informal collectors might outprice formal collectors, potentially leading to **hazardous recycling practices** and safety concerns.
- **Chemical Composition Changes:**
  - The shift towards safer but less valuable lithium iron phosphate (LFP) batteries poses a challenge. Recyclers might struggle to recover value due to the minimal lithium content in LFP cells.
- **Safety Standards and Handling:**

- Absence of rules governing the storage, transport, and handling of electric vehicle batteries **could pose safety risks**, especially if the informal sector becomes more involved.

### **How can such Gaps be Addressed?**

- **Policy Refinement:**
  - Implement **regulations mandating detailed information on battery labels**, including chemical composition and recyclability.
  - There can be learnings from the **European Union's Battery Directive**, which empowers recyclers by providing essential data to efficiently separate and recover valuable materials from used batteries.

Note:



- This directive **requires battery manufacturers to label their products with information regarding chemical composition**, including the presence of hazardous substances, and clear indications of recyclability.
- **Incentivize Recycling-Friendly Design:**
  - There is a need to introduce **policies encouraging manufacturers to design batteries** with standardized joining methods and eco-friendly materials, facilitating easier disassembly and recycling.
- **Budget Allocation Guidelines:**
  - Define **clear guidelines mandating a budget allocation for battery collection** and recycling by manufacturers.
  - This **ensures fair compensation for recyclers** and strengthens the waste collection infrastructure.
- **Environmental Auditing and Standards:**
  - Strengthen rules requiring thorough audits for both formal and informal collectors, ensuring compliance with environmental safeguards and safety standards.
- **Technological Advancements:**
  - There is a **need to allocate resources for research and development** initiatives focusing on innovative technologies for battery recycling, such as efficient disassembly techniques and advanced material recovery processes.
  - Develop and implement **cutting-edge recycling processes**, like solvent-free separation methods and automation, to streamline the recycling of complex battery designs.

## Emissions Gap Report 2023: UNEP

### Why in News?

Recently, **United Nations Environment Programme (UNEP)** has released a report titled- *the Emissions Gap Report 2023: Broken Record – Temperatures hit new highs, yet world fails to cut emissions (again)*, stating that urgent Climate Action is crucial to avoid the alarming trajectory of Temperature Rise.

- The report is the 14<sup>th</sup> edition in a series that brings together many of the world's top climate scientists

to look at future trends in greenhouse gas emissions and provide potential solutions to the challenge of **Global Warming**.

### What Emissions Gap Report (EGR)?

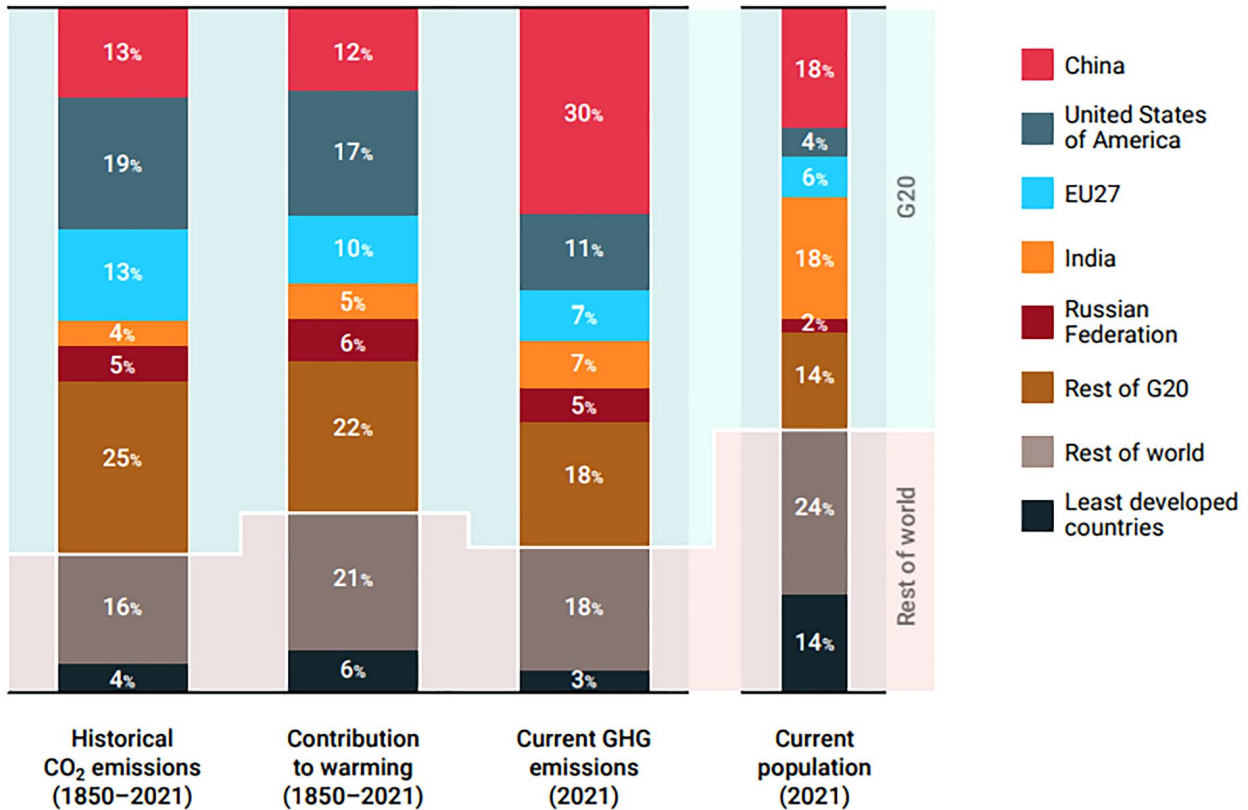
- The EGR is UNEP's spotlight report launched annually in advance of the Annual Climate negotiations.
- The EGR tracks the **gap between where global emissions are heading with current country commitments** and where they ought to be to limit warming to 1.5°C.

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

- **Temperature Rise Trajectory:**
  - Current pledges under the **Paris Agreement** set the world on a course for a **2.5-2.9°C temperature rise above pre-industrial levels** by the end of this century.
    - Paris Agreement (also known as the Conference of Parties 21 or COP 21) is a landmark environmental accord that was adopted in **2015 to address climate change and its negative impacts**.
  - To limit warming to 1.5-2°C, substantial emission cuts of **28-42% by 2030 are necessary**.
- **Global Emissions Trends:**
  - **Greenhouse Gas Emissions (GHG)** hit a new record of **57.4 Gigatonnes of Carbon Dioxide Equivalent (GtCO<sub>2</sub>e) in 2022**, with a 1.2% increase from the previous year.
    - Fossil CO<sub>2</sub> emissions account for approximately two thirds of current GHG emissions using 100-year global warming potentials.
    - According to multiple datasets, fossil CO<sub>2</sub> emissions grew between 0.8–1.5% in 2022 and were the main contributor to the overall increase in GHG emissions. In 2022, fluorinated gases emissions grew by 5.5%, followed by Methane at 1.8% and nitrous oxide (N<sub>2</sub>O) at 0.9%.
  - GHG emissions across the **G20 also increased by 1.2% in 2022**. However, members vary widely in their trends with increases in **China, India, Indonesia and the United States of America**, but decreases in Brazil, the European Union and the Russian Federation. Collectively, the **G20 currently accounts for 76% of global emissions**.

Note:

### Current and historic contributions to climate change (% share by countries or regions)



#### ➤ Emissions from Major Economic Sectors:

- Emissions can be split into five major economic sectors, Energy supply, industry, agriculture and Land use, land-use change and forestry (LULUCF), transport and buildings.
- In 2022, energy supply was the largest source of emissions at 20.9 GtCO<sub>2</sub>e (36% of the total), followed by Industry (25%), followed by agriculture and LULUCF CO<sub>2</sub> (18%), transport (14%) and buildings ( 6.7%).

#### ➤ Mitigation Efforts:

- If current policies and pledges continue, **global warming will likely reach 3°C above pre-industrial levels** by the end of the century.
- Implementing unconditional **Nationally Determined Contributions (NDCs)** could limit the rise to 2.9°C, while conditional NDCs might cap it at 2.5°C.

#### ➤ Net-Zero Pledges:

- Although countries have made **Net-Zero Pledges**, none of the **G20 Countries** are reducing emissions at a pace **consistent with their targets**.

- Even in the most optimistic scenario, the likelihood of limiting warming to 1.5°C is only 14%.

#### ➤ Progress and Challenges:

- Policy progress since the Paris Agreement has reduced the implementation gap but is not sufficient.
- Nine countries updated their NDCs, potentially reducing emissions by **about 9% annually by 2030**.
- However, further reductions are essential to establish least-cost pathways for limiting global warming to 1.5°C.

**Note:** According to the recent **Oxfam report**, the **richest 1% globally emitted a volume of carbon equal to the emissions of the poorest 5 billion**, who form **66% of the population**.

- The report highlighted that these emissions are responsible for an **estimated 1.3 million deaths due to heat-related issues**.
- It added that taxes on the wealth and income of the rich could cut carbon pollution and raise over **USD 9 trillion a year to invest in a green, equal future for all**.

Note:



### What are the Recommendations to Bridge the Emissions Gap?

- **Low-Carbon Development:**
  - There is a need for **global, low-carbon development transformations**, especially focusing on the energy transition.
  - The extraction and **planned use of fossil fuels far exceed** the carbon budget for meeting temperature goals.
- **Support and Financing:**
  - Countries with greater capacity and responsibility for generating emissions will **need to take more ambitious action** and provide financial and technical support to developing nations.
  - Low- and middle-income countries, which already account for more than two-thirds of global emissions, **must meet their legitimate development needs and aspirations** with low-emission growth trajectories.
- **Carbon Dioxide Removal:**
  - Carbon dioxide removal will be needed more in the future. However, there are many risks with new methods of carbon dioxide removal, one of the main ones being that the technology isn't in place yet.
  - Essentially, the longer we wait, the harder it's going to be. The world needs to lift the needle out of the groove of insufficient action and begin setting new records on cutting emissions, green and just transitions and climate finance – starting now.

#### What are the Initiatives to Reduce Emissions in India?

- **Bharat Stage-IV (BS-IV) to Bharat Stage-VI (BS-VI) emission norms.**
- **UJALA scheme.**
- **International Solar Alliance.**
- **National Action Plan on Climate Change (NAPCC).**
- **Ethanol Blending in India by 2025.**
- **India Updated its NDC.**

#### What is the United Nations Environment Programme?

- **About:**
  - It is a leading global environmental authority established on 5th June 1972.

- It sets the global environmental agenda, promotes sustainable development within the United Nations system, and serves as an authoritative advocate for global environment protection.

#### ➤ **Headquarters:**

- Nairobi, Kenya.

#### ➤ **Major Reports:**

- Emission Gap Report, **Adaptation Gap Report**, **Global Environment Outlook**, Frontiers, Invest into Healthy Planet.

#### ➤ **Major Campaigns:**

- Beat Pollution, UN75, **World Environment Day**, Wild for Life.

## Sand and Dust Storms

### Why in News?

The recent meeting of the **United Nations Convention to Combat Desertification (UNCCD)** shed light on the **far-reaching consequences of sand and dust storms** and proposed crucial policy recommendations to mitigate their effects.

### What are Sand and Dust Storms?

#### ➤ **About:**

- **Sand and dust storms** are meteorological events that occur when **strong winds lift large amounts of sand and dust particles** from the ground and transport them over long distances.
  - They mainly **affect arid and semi-arid regions**, but can also impact areas far from their source.
- Annually, over **two billion tonnes of sand and dust** traverse extensive distances across the Earth's atmosphere, creating a global phenomenon with profound implications.

#### ➤ **Sources of Sand and Dust Storms:**

- According to the **UNCCD**, sand and dust storms are caused by **both natural and human factors**.
  - About **75% of global dust emissions originate from natural sources** in the world's drylands, such as **hyper-arid regions**, topographic depressions, and dry ancient lake beds.
  - The remaining **25% are attributed to human activities**, mainly agriculture.

Note:

○ Some of the **Anthropogenic** Causes of Sand and Dust Storms are:

- **Unsustainable Agricultural Practices:** **Agriculture** stands as a primary anthropogenic source, with activities like **tillage, land clearing, and abandoned croplands** contributing to dust emissions.
- **Land Use Changes:** Alterations in land use patterns, including **deforestation and urbanization**, contribute to the destabilization of surfaces, enhancing dust emissions.
- **Water Diversion:** Excessive diversion of water from rivers for agricultural purposes can lead to the shrinkage of water bodies, creating new sources of sand and dust storms.
  - For example, **the excessive diversion of water from rivers in Central Asia** over several decades towards agriculture has shrunk the **Aral Sea**, a pre-existing lake between Kazakhstan to its north and Uzbekistan to its south.
  - It has now become the **Aralkum Desert**, a significant new source of sand and dust storms.

○ **Climate-Related Amplifiers:**

- **Aridity and Minimal Precipitation:** High air temperatures, minimal precipitation, and arid conditions act as drivers, amplifying the likelihood and intensity of these storms.
- **Extreme Weather Events:** Intensified wind patterns and **prolonged droughts due to climate change** exacerbate the severity and frequency of sand and dust storms.

➤ **Impacts:**

○ **Environmental Impacts:**

- **Soil Degradation:** Sand and dust storms **strip away fertile topsoil, affecting soil quality and fertility.**
  - This degradation reduces the land's ability to support vegetation, impacting agriculture and leading to desertification.
  - The loss of fertile soil also **affects water retention and nutrient availability.**
- **Ecosystem Disruption:** These storms can alter ecosystems by burying vegetation, disrupting natural habitats, and affecting wildlife.

- **Invasive species** carried by the storms might outcompete native species, leading to biodiversity loss and ecological imbalance.

○ **Socioeconomic Impacts:**

- **Health Effects:** Health impacts are wide-ranging, **affecting respiratory health, causing allergies,** and exacerbating existing conditions like asthma.
  - Recent incidents, such as a **two-day storm in Mongolia in 2021**, illustrate the devastating impact on human lives, displacing thousands and causing casualties alongside substantial livestock losses.
- **Economic Losses:** Sand and dust storms cause substantial economic losses by **damaging infrastructure, reducing agricultural productivity, disrupting transportation,** and increasing healthcare costs.
  - These events can also **impact tourism and trade**, affecting local and regional economies.
- **Social Disruption:** Disrupted daily life due to these storms can lead to social unrest, migration, and displacement.

○ **Global Implications:**

- **Transboundary Impact:** Sand and dust storms do not adhere to **geopolitical boundaries**; they can cross borders, affecting multiple countries.
- **Climate Feedback:** The transportation of dust particles globally due to these storms can **influence climate feedback loops**, impacting weather patterns and potentially contributing to climate change.

**Note:** Sand and dust storms also present a formidable challenge to **achieving 11 of the 17 Sustainable Development Goals**, according to the **United Nations Food and Agriculture Organization (FAO)** report *Sand and dust storms: A Guide to Mitigation, Adaptation, Policy, and Risk Management Measures in Agriculture*.

### ***What are Effective Ways to Minimize the Impacts of Sand and Dust Storms?***

➤ **Preventive Measures:**

- **Soil Moisture Management:** Implement effective water conservation methods to retain soil moisture and prevent desertification.

Note:



- **Regulatory Framework:** Enforce strict land-use regulations to **curb activities leading to soil degradation and dust emissions**, such as overgrazing or improper land development.
- **Eco-friendly Practices:** Promote sustainable **agricultural techniques like agroforestry and contour plowing** to preserve soil structure and reduce wind erosion.
- **Preparedness:**
  - **Early Warning Systems:** Developing and implementing **effective early warning systems to forecast sand and dust storms**. This allows communities to prepare and take necessary precautions.
  - **Education and Awareness:** Educating communities about the **risks, impacts, and protective measures** against sand and dust storms can help reduce vulnerability.
  - **Emergency Response Plans:** Establishing plans to respond effectively during and after sand and dust storms, including **providing shelter, medical care, and support for affected communities**.
- **Mitigation Strategies:**
  - **Infrastructure Development:** Building infrastructure like **windbreaks, barriers, or green belts** to reduce the speed and impact of wind carrying dust and sand.
  - **Technological Solutions:** Researching and investing in innovative technologies for **dust suppression and soil stabilization**.

#### What is the United Nations Convention to Combat Desertification?

- The **UNCCD is the only legally binding framework** set up to address **desertification and the effects of drought**.
  - There are currently **197 Parties** to the Convention, including **196 country Parties and the European Union**.
- The Convention based on the principles of **participation, partnership and decentralization**, is a multilateral commitment to mitigate the impact of land degradation, and protect our land so we can provide **food, water, shelter and economic opportunity to all people**.
- The Convention addresses specifically the **arid, semi-arid, and dry sub-humid areas**, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found.

## Greenhouse Gas Concentrations Hit Record Highs: UN

### Why in News?

Recently, the **United Nations** issued a warning highlighting the **unprecedented surge in greenhouse gas concentrations in the atmosphere**, setting new records in 2022.

- **UN's World Meteorological Organization (WMO)'s 19th Annual Greenhouse Gas Bulletin** outlines the concerning implications, foreseeing heightened temperatures, intensified extreme weather events, and elevated sea levels as a consequence.

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

- **Unprecedented Greenhouse Gas Levels:** WMO in its **19th annual Greenhouse Gas Bulletin** stated that levels of the three main greenhouse gases: **carbon dioxide, methane, and nitrous oxide**, all surpassed previous records, marking an escalation in their atmospheric presence.
  - In 2022, **carbon dioxide concentrations reached 418 parts per million, methane at 1,923 parts per billion, and nitrous oxide at 336 parts per billion**, significantly surpassing pre-industrial levels by 150%, 264%, and 124%, respectively.
    - Of the three major greenhouse gases, carbon dioxide (CO<sub>2</sub>) accounts for about **64% of the warming effect on the climate**.
    - Methane ranks as the second-largest contributor to climate change, causing about **16% of warming**.
      - Nitrous oxide contributes around **7% to the warming effect**.
- **Challenges to Paris Agreement Goals:** The **2015 Paris Agreement** aimed to limit global warming to below two degrees Celsius above pre-industrial levels and preferably 1.5C. Unfortunately, the **global mean temperature in 2022 already exceeded the 1.5C mark**, reaching **1.15C above pre-industrial levels**.
  - The current trajectory indicates a grim reality, a temperature rise significantly surpassing the Paris Agreement's targets by the end of the century, leading to catastrophic consequences like extreme weather, ice melt, and ocean acidification.

Note:

- **Projected Climate Disruptions:** The continuous rise in these heat-trapping gases forecasts a future plagued by intensified climate disruptions.
  - The bulletin underscores the **imperative need to swiftly reduce fossil fuel consumption** to mitigate these escalating risks.
  - The climate system could be **nearing critical “tipping points,”** where certain changes lead to irreversible cascades, like the **rapid die-back of the Amazon, North Atlantic circulation slowdown, and destabilization of major ice sheets.**

#### What are Greenhouse Gases?

- **Greenhouse gases (GHGs) are a group of naturally occurring and human-generated gases** present in the Earth’s atmosphere.
  - These gases have the unique property of absorbing and emitting heat, trapping thermal energy within the atmosphere.
- They act as a **thermal blanket, allowing sunlight to enter the atmosphere** while preventing a significant portion of the absorbed heat from escaping back into space.
  - This phenomenon, known as the greenhouse effect, helps regulate the Earth’s temperature, making it habitable for life.
- However, human activities, such as burning fossil fuels, deforestation and industrial processes, have significantly increased the concentration of these gases, **amplifying the greenhouse effect and leading to global warming and subsequent climate change.**
- Some major greenhouse gases include: **Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous Oxide (N<sub>2</sub>O) and water vapour.**

#### What are the Major Factors Responsible for Rising Greenhouse Gases Concentration?

- **Fossil Fuel Combustion:** The predominant contributor to **carbon dioxide (CO<sub>2</sub>) emissions is the burning of fossil fuels for energy.**
  - Industrial activities, transportation, and power generation heavily rely on coal releasing CO<sub>2</sub> into the atmosphere.
- **Deforestation and Land Use Changes:** Forests act as **carbon sinks, absorbing CO<sub>2</sub>.** Deforestation and land-use changes, primarily for agriculture or urbanization, reduce these sinks, **releasing stored carbon and reducing the Earth’s capacity to absorb CO<sub>2</sub>.**

- Deforestation has **transformed sections of the Amazon rainforest,** previously a carbon sink, into a significant emitter of carbon.
- **Agricultural Practices:** Agriculture contributes significantly to **methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) emissions.** Livestock farming generates methane, while the use of nitrogen-based fertilizers releases nitrous oxide.
- **Improper Waste Management:** Improper waste management, **especially in landfills,** leads to the generation of methane as organic waste decomposes in anaerobic conditions.
- **Natural Processes: Volcanic eruptions, wildfires, and natural decay** processes also release GHGs. While these events have occurred historically, **human activities have exacerbated their frequency and impact.**
- **Urbanization and Population Growth:** Rapid **urban expansion and population growth** increase energy demand, vehicular emissions, and the need for infrastructure, leading to higher GHG emissions.
- **Permafrost Thaw and Methane Release:** As permafrost thaws due to rising temperatures, **it releases methane, a potent greenhouse gas trapped within the frozen soil.**
  - This creates a feedback loop, where **more methane released exacerbates global warming,** further accelerating permafrost thaw.

#### What can be the Major Implications of Rising Greenhouse Gas Concentrations?

- **Induced Climate Change:** Increased greenhouse gases intensify the greenhouse effect, **trapping more heat in the atmosphere.**
  - This results in **global warming, leading to altered weather patterns,** rising temperatures, and shifts in precipitation, which can cause **droughts, heatwaves, floods, and more severe storms.**
- **Melting Ice and Rising Sea Levels:** Warming temperatures **cause glaciers and polar ice caps to melt,** contributing to rising sea levels.
  - This phenomenon **poses threats to coastal communities, biodiversity, and infrastructure,** leading to coastal erosion and increased risks of flooding.
- **Food and Water Security:** Changes in temperature and precipitation patterns can **affect agricultural productivity,** leading to crop failures and reduced food security.

Note:

- **Water scarcity or excessive rainfall** can impact water availability for drinking, agriculture, and industry.
- **Ocean Acidification:** Excess CO<sub>2</sub> absorbed by oceans leads to **acidification**, impacting marine life.
  - **Acidic waters hinder the ability of certain marine organisms to build shells and skeletons**, affecting coral reefs, shellfish, and plankton—the foundation of marine food chains.
- **Geopolitical Tensions:** **Climate-induced displacement**, resource scarcity, and competition for habitable areas could lead to **geopolitical tensions and conflicts over land, water, and resources**, particularly in regions already facing socio-political instability.

#### What are the Key Initiatives to Curb Greenhouse Gas Emission?

- **Global:**
  - **Kyoto Protocol**
  - **Paris Agreement**
  - **International Solar Alliance**
  - **Global Biofuel Alliance**
- **India:**
  - **Bharat Stage-IV (BS-IV) to Bharat Stage-VI (BS-VI) emission norms**
  - **National Action Plan on Climate Change (NAPCC)**
  - **Energy Conservation (Amendment) Act 2022**
  - **India's Intended Nationally Determined Contributions (INDCs)**
  - **Panchamrit Goal**

## CITES Standing Committee Meeting

### Why in News?

The recently concluded **77th meeting of the Standing Committee of the Convention on International Trade in Endangered Species of wild fauna and flora (CITES)** in Geneva, Switzerland, brought promising developments for India's wildlife conservation efforts.

### What are the Major Outcomes of the Meeting from India's Point of View?

- **Removal from Review of Significant Trade (RST) for Red Sanders:** India had been under the **Review**

### of Significant Trade (RST) process for Red Sanders since 2004.

- This is a process through which the **CITES Standing Committee places increased scrutiny** on the exports of a species from a country to determine if the Convention is being properly implemented.
- Owing to compliance and robust reporting, **India has been removed from this process**, marking a significant achievement for the country's Red Sanders growers.
- The **Red Sanders** (*Pterocarpus santalinus*), a **tree species endemic to specific districts in Andhra Pradesh**, holds high market value and has faced threats due to illegal harvesting and smuggling.
- **India's Category in CITES National Legislation Program:** The recent meeting decided to **place India in Category 1 as it had fully complied with the requirements of CITES National Legislation programme**.
  - The CITES provides that every Party align its national legislation to accommodate CITES provisions. Previously, India was listed in **Category 2 for CITES National Legislation programme**.
  - The **Wild Life (Protection) Act, 1972** was, therefore, amended in the year 2022, wherein the provisions of CITES were incorporated in the Act.
- **Call for Big Cat Conservation:** India advocated for stringent conservation measures for Big Cats, especially **Asian Big Cats**, urging other range countries and stakeholders to join the **International Big Cat Alliance** for their conservation, launched by the **Indian Prime Minister in April 2023**.

### What is CITES?

- **About:**
  - **CITES** is an international agreement aimed to ensure that **international trade in specimens of wild animals and plants** does not threaten the survival of the species.
    - Currently there are **184 Parties** to CITES.
  - It entered into force in **1975** and **India became the 25th party**, a state that voluntarily agrees to be bound by the Convention, in 1976.
- **Enforceability:**
  - Although **CITES is legally binding on States** it is **generally not self-executing**.

Note:

- This means that it cannot be fully implemented until specific domestic measures have been adopted for that purpose.
  - It is therefore essential that **CITES Parties have legislation in place** allowing them to implement and enforce all aspects of the Convention.
- **CITES National Legislation Programme:**
  - National laws must fulfill all these minimum requirements under **CITES National Legislation programme:**
    - Designate a Management Authority and a Scientific Authority.
    - Prohibit trade violating the Convention.
    - Penalize such illicit trade.
    - Confiscate illegally traded or possessed specimens.
  - After consulting the concerned Party, the CITES Secretariat assesses the national legislation concerning these criteria and categorizes it into one of three categories:
    - **Category 1:** Legislation generally meeting CITES implementation requirements.
    - **Category 2:** Legislation generally not meeting all CITES implementation requirements.
    - **Category 3:** Legislation generally not meeting CITES implementation requirements.

## Eliminating Plastic Pollution by 2040

### Why in News

Recently, **Organisation for Economic Co-operation and Development (OECD)** has released the interim report titled-*Towards Eliminating Plastic Pollution by 2040: A Policy Scenario Analysis*, ahead of the **Intergovernmental Negotiating Committee on Plastic Pollution (INC3)**.

- The INC3 will be held in Nairobi, Kenya in November 2023 for an international binding agreement on plastic pollution. Earlier **INC 2** was held in Paris, France in June 2023.

**Note:** An interim report refers to a **preliminary or partial report** that is issued before the completion of a full or final report. It's a document that **presents initial findings, analyses, or progress on a particular subject or project.**

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

- **Current Situation:**
  - In 2022, **21 million tonnes (MT) of plastics** leaked into the environment globally.
  - Under a **business-as-usual scenario**, where no significant changes are made, plastic **usage would increase, resulting in a 50% rise in macroplastic leakage** by 2040.
    - This would mean **approximately 30 MT of plastic leaking into the environment**, with 9 MT entering aquatic environments.
- **Scenario Projections:**
  - Stabilizing primary plastic use at 2020 levels by 2040 would still result in **significant plastic leakage (12 MT) by 2040**.
  - However, a scenario of ambitious global action could drastically reduce waste generation, almost eliminating mismanaged waste and nearly eliminating plastic leakage by 2040.
- **Impact of Burgeoning Plastic Use:**
  - The escalating use and disposal of plastics would have adverse effects on the environment (habitat destruction, soil contamination), climate (contributing to greenhouse gas emissions), and human health, **exacerbating the already significant consequences of plastic pollution**.
  - Plastics generate a **variety of life cycle impacts**, including contributing **3.8% of total global greenhouse gas emissions** (1.9 GtCO<sub>2</sub>e in 2022).
- **Cost of Action:**
  - Global ambition with early, stringent and co-ordinated policy action could cut plastic waste generation in **2040 by a quarter below baseline**.
  - It could **virtually eliminate mismanaged waste by 2040** (from 119 to 4 MT), as a result, plastic leakage would also be nearly eliminated (1.2 MT in 2040).
    - Stocks of plastics in rivers and oceans, however, **would still rise from 152 MT in 2020 to 226 MT in 2040** (74 MT less than in the baseline).
  - These ambitious global actions to tackle plastic pollution by 2040 **would incur costs amounting to 0.5% of global GDP in 2040**.
  - However, these costs exclude the avoided costs of inaction and must be viewed in the context of vastly improved environmental outcomes.

Note:

➤ **Financial Needs:**

- Fast-growing countries **with less advanced waste management systems** will require significant investments (over USD 1 trillion between 2020 and 2040) for waste collection, sorting, and treatment.
- International cooperation is deemed crucial due to uneven distribution of costs

➤ **Recommendations:**

- There is a need for **various policy scenarios, emphasizing the necessity of a comprehensive approach** to address plastic pollution throughout its lifecycle.
- Overcoming technical and economic barriers is essential to eliminate plastic leakage by 2040.
- Recycling **breakthroughs and scaling up well-functioning international markets** for scrap and secondary plastics are crucial strategies.

### What is the Intergovernmental Negotiation Committee (INC)?

➤ **About:**

- The INC was established in February 2022, at the **5<sup>th</sup> session** of the **United Nations Environment Assembly (UNEA-5.2)**.
  - UNEA is the governing body of the **UN Environment Programme**.
- A historic resolution (5/14) was adopted to develop an international legally binding instrument on plastic pollution, including in the marine environment with the ambition to complete the negotiations by the end of 2024.
  - The first session of the INC-1 was held in **Uruguay in 2022**.

➤ **Need:**

- The **rapidly increasing levels of plastic pollution** represent a serious global environmental issue that negatively impacts the environmental, social, economic and health dimensions of sustainable development.
- In the absence of necessary interventions, the amount of plastic waste entering aquatic ecosystems could nearly triple from some 9–14 million tonnes per year in 2016 to a projected 23–37 million tons per year by 2040.

➤ **Objective:**

- Under the **legally binding agreement**, countries will be expected to develop, implement and update national action plans reflecting country-driven approaches to contribute to the objectives of the instrument.
- They will be expected to promote national action plans to work towards the prevention, reduction and elimination of plastic pollution and to support regional and international cooperation.

### What are the Initiatives to Tackle Plastic Pollution?

➤ **Indian:**

- **Plastic Waste Management (Amendment) Rules, 2022**
- **Extended Producer Responsibility (EPR)**
- **National Dashboard on Elimination of Single Use Plastic and Plastic Waste Management**
- **India Plastics Pact**
- **Project REPLAN**

➤ **Global:**

- **European Union' Directive on Single-Use Plastics**
- **Closing the loop.**
- **The Global Tourism Plastics initiative**



Note:

# Security

## Highlights

- NIA and Civil Aviation Security
- Crowdfunding for Terrorism Financing: FATF

## NIA and Civil Aviation Security

### Why in News?

Recently, the **National Investigation Agency (NIA)** has registered a case against a **Khalistani Terrorist** and Sikhs for Justice (SFJ) founder over the Air India threat.

- India banned the SFJ as an “unlawful association” in 2019, citing that it was involved in “anti-national and subversive” activities.
- The NIA invoked provisions of the **Indian Penal Code (IPC)** and the **Unlawful Activities (Prevention) Act** against SFJ.

### What is the National Investigation Agency (NIA)?

- **About:**
  - The NIA is a federal agency of the Indian government responsible for investigating and prosecuting crimes **related to Terrorism, Insurgency**, and other national security matters.
    - Federal agencies in a country typically have jurisdiction over matters that affect the country as a whole, rather than just individual states or provinces.
  - It was established in 2009 following the **Mumbai terrorist attacks in 2008, under the National Investigation Agency (NIA) Act, 2008**, operates under the Ministry of Home Affairs.
    - The National Investigation Agency (Amendment) Act, 2019 was passed in July 2019, amending the NIA Act, 2008.
- **Function:**
  - The NIA has the power **to take over investigations of terrorism-related cases from state police forces and other agencies**. It also has the authority to investigate cases across state boundaries without obtaining prior permission from state governments.

- It coordinates with other law enforcement agencies, both within India and internationally, in matters related to terrorism and national security.

### ➤ Probe:

- The State government can refer cases related to scheduled offences to the Central government for NIA investigation under Section 6 of the NIA Act 2008.
- The Central government can also direct the NIA to investigate a scheduled offence, either within or outside India, on its own accord.
- For prosecuting the accused under the UAPA and certain other scheduled offences, the NIA seeks the sanction of the Central government.
- There is a special cell to deal with **LWE (Left Wing Extremism)** cases related to terror financing. During the investigation of a scheduled offence, the NIA can also investigate any other offence connected to it. Finally, after investigation, the cases are presented before the NIA Special Court.

### What is Aviation Security and How is it Regulated in India?

#### ➤ About:

- Civil aviation security **refers to the measures and protocols implemented to safeguard civil aviation** against unlawful interference, such as terrorist attacks, hijackings, sabotage, and other threats.
- These security measures aim to ensure the safety of passengers, crew, aircraft, and airport facilities.

#### ➤ Regulating Bodies:

- The **Bureau of Civil Aviation Security (BCAS)** is the **national regulator for civil aviation security in India**.
  - The **BCAS** was initially set up as a Cell in the DGCA in January 1978 on the recommendation of the Pande Committee. The BCAS was reorganized into an independent department under the **Ministry of Civil Aviation** in 1987.

Note:

- The **Directorate General of Civil Aviation (DGCA)** regulates air transport services to, from, and within India. It also enforces civil air regulations, air safety, and airworthiness standards.
- **Rules:**
  - The Ministry of Civil Aviation has introduced **the Aircraft (Security) Rules, 2023** to enhance civil aviation security in line with international conventions.
- **Convention on International Civil Aviation:**
  - It is commonly known as the **Chicago Convention**, established in 1944 under the auspices of the **International Civil Aviation Organization (ICAO)**, a specialized agency of the United Nations.
  - The Chicago Convention serves as the foundational treaty for international civil aviation. It outlines principles and standards for the **safe and orderly development of international civil aviation** and includes provisions related to aviation security.

## Crowdfunding for Terrorism Financing: FATF

### Why in News?

Recently, **FATF (Financial Action Task Force)** has released a report titled-"**Crowdfunding for Terrorism Financing**", highlighting that violent extremist organizations have employed well-structured networks for fundraising purposes.

- The report makes a reference to the **Popular Front of India (PFI)** as having resorted to solicitation for **funds at mosques and public places**, which were ultimately used to **procure arms and ammunition** and for training the cadres.

### What is Crowdfunding?

- **About:**
  - Crowdfunding is a **dynamic fundraising method** that leverages online platforms to gather **small contributions from a large pool of individuals** for various purposes such as supporting charitable causes, funding startup ventures, or financing creative projects.
  - While crowdfunding is predominantly used for legitimate purposes, recent events have exposed its potential exploitation for illegal activities, notably **by terrorists and terrorist groups**.

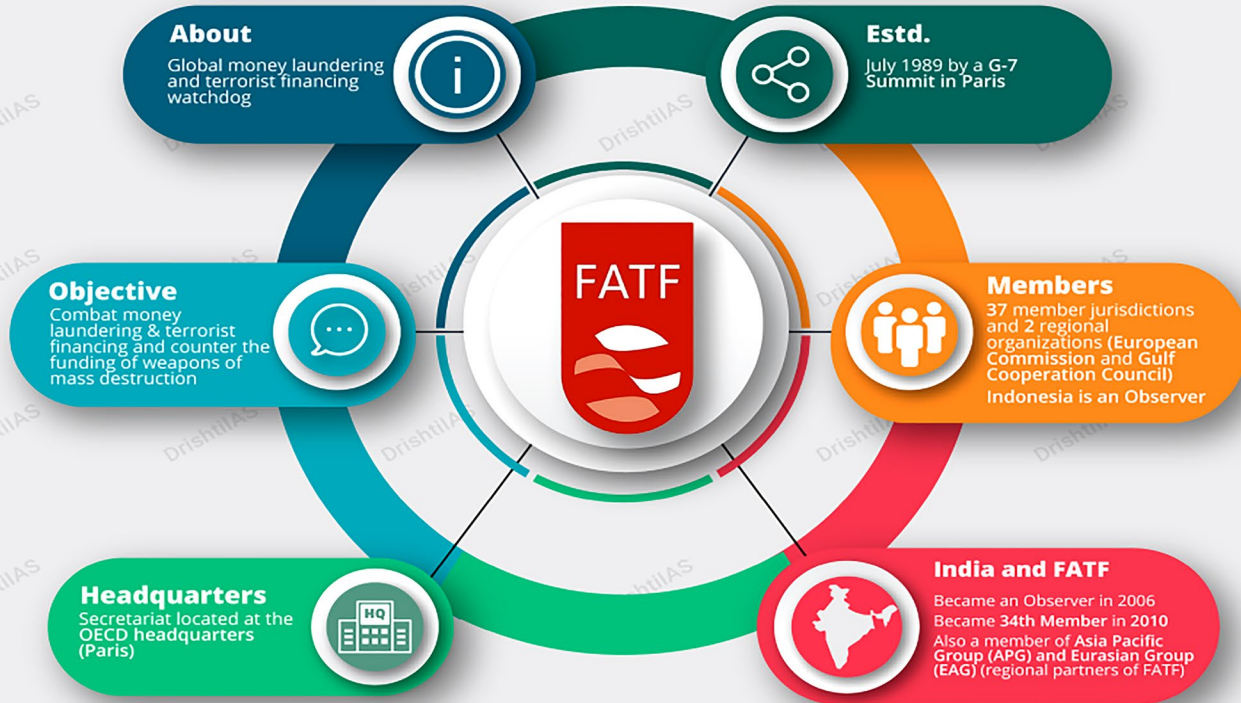
- These entities utilize fundraising platforms and social media to **solicit financial support globally for their extremist causes**.
- **Methods of Misuse for Terror Financing:**
  - Abuse of humanitarian, charitable and **non-profit causes which can act as a front to raise funds for terrorism**.
  - Dedicated **crowdfunding platforms or websites** which, given the volume and variety of activity, makes it difficult to detect illicit activity.
  - Social media **platforms and messaging apps** to allow extremists to amplify their messages and lead users to specific fundraising causes.
  - Interaction of **crowdfunding with virtual assets**, including the use of privacy coins and anonymity enhancing services such as tumblers and mixers.

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

- **Mixed Fundraising Strategies:**
  - The PFI collected funds through solicitation at religious places, such as mosques, and public spaces.
  - Additionally, the group used modern digital methods, including the circulation of QR codes and **bank account details to encourage donations**.
  - Funds collected by the organization **involved both domestic and foreign transactions**, making the investigation challenging due to the **multi-dimensional nature of the financial flows**.
- **Diverse Use of Funds:**
  - Funds raised through crowdfunding **were not limited to a single purpose**. A portion of the **collected funds was invested in businesses and real estate projects, aiming to generate a regular income for the organization's terrorist activities**.
- **Global Context:**
  - The report places the issue of crowdfunding for terrorism financing in a global context. It highlights that while most crowdfunding activities are legitimate, terrorist organizations like ISIL (Islamic State of Iraq and the Levant) and Al-Qaeda have exploited these platforms to raise money for their activities.
- **Recommendations:**
  - The FATF report emphasizes the need for **consistent Anti-Money Laundering and Counter-Terrorist Financing (AML/CFT) regulations** on a global scale.

Note:

# Financial Action Task Force



## FATF Lists

### • Grey List:

- Aka "Increased Monitoring List"
- Includes countries considered safe haven for supporting terror funding and money laundering
- Serves as a warning that the country may enter the blacklist

### • Black List:

- Includes **Non-Cooperative Countries or Territories (NCCTs)** that support terror funding and money laundering activities
- Countries - **Iran, North Korea and Myanmar**

### • Consequences of being Greylisted:

- **Economic sanctions** from financial institutions affiliated with FATF (IMF, World Bank, ADB)
- **Problem in getting loans** from such financial institutions and countries
- **Reduction in international trade**
- **International boycott**

Note:



- It points out that many countries do not systematically assess the risks associated with crowdfunding activities, leading to a lack of comprehensive data about its misuse.
- FATF highlights the **cross-border nature of crowdfunding campaigns and the associated financial transfers**.
- Countries are urged to **recognize that even if their jurisdiction does not have significant domestic terrorism activity**, it can still be used as a pass-through for financial flows.

### **What is PFI?**

- The Popular Front of India formed in 2007 through the merger of three Muslim organizations in southern India in Tamil Nadu, emerged in the aftermath of the ban on the Students Islamic Movement of India (SIMI) and has been involved in various social and Islamic religious activities among Muslims.
- The PFI has presented itself as an organization advocating for the rights of minorities, Dalits, and **marginalized communities but has faced allegations of involvement in extremist activities**.
- In 2022, the Ministry of Home Affairs had declared the PFI along with its associates or affiliates or fronts as an **“unlawful association”**.

### **How to Deal with Such Organisations while Preserving Civil Liberties and Ensuring National Security?**

- **Clear Legal Framework:**
  - Establish a **clear and comprehensive legal framework** that outlines the conditions under

which an **organization can be designated as a threat to national security**.

- This framework should be **based on constitutional principles**, international **Human Rights** standards, and due process.
- **Judicial Oversight:**
  - The **judiciary can assess whether the government’s actions are** in accordance with the law and protect individuals’ rights.
- **Transparency and Accountability:**
  - Maintain transparency in the **process of designating organizations as unlawful and disclose** the reasons for such actions.
  - Establish mechanisms for **accountability and oversight to prevent misuse** of the legal framework.
- **Targeted Actions:**
  - Focus on targeting individuals or entities directly **involved in criminal or terrorist activities** rather than broadly targeting an entire organization. This approach minimizes the impact on innocent members and supporters.
- **Intelligence and Surveillance:**
  - Enhance **intelligence gathering and surveillance capabilities** to monitor the activities of potential threats. Ensure that these actions are in accordance with the law and subject to oversight.
- **Public Awareness:**
  - Promote public **awareness about the dangers of extremist ideologies** and the importance of reporting suspicious activities. Encourage the public to be proactive in safeguarding national security.



Note:

# Art and Culture

## Highlights

- Parthenon Sculptures

## Parthenon Sculptures

### Why in News?

Greece and the UK had a diplomatic dispute regarding the Parthenon Sculptures at the British Museum **when Athens accused London of avoiding discussion on the contested sculptures, also known as the Elgin Marbles.**

- Despite **Greece's repeated requests** for their permanent return, Britain and the British Museum have consistently refused.

### What are the Parthenon Sculptures?

#### ➤ About

- The Parthenon Sculptures housed at the British Museum are a **collection of over 30 ancient stone sculptures from Greece**, dating back more than 2,000 years.
- Originally adorning the walls and grounds of the Parthenon temple on the Acropolis hill in Athens, these artifacts are **significant remnants of Athens' Golden Age**, with the temple's construction completed in 432 BC.
- Dedicated to the **goddess Athena**, the Parthenon is a symbol of cultural and historical importance.

#### ➤ Artistic Depictions and Cultural Significance:

- Among the sculptures, a notable piece **spanning 75 meters** portrays a procession celebrating the **birthday of Athena**. Additionally, other sculptures **within the collection depict various gods, heroes, and mythical creatures.**
- The intricate craftsmanship and historical context make these sculptures not only artistic treasures but **also integral pieces of Greece's cultural heritage.**

#### ➤ Arrival to Britain:

- They were removed from the Parthenon in the

early 19th century by **Thomas Bruce, the 7th Earl of Elgin** and then-British ambassador to the **Ottoman Empire**. The marbles were taken to Britain and purchased by the British Museum in 1816.

#### ➤ Controversies Regarding the Sculptures:

- The British Museum, **servicing as the custodian of the sculptures**, asserts that Elgin legally acquired them through a contract with the Ottoman Empire.
- While **Athens accuses Elgin of theft**, he claimed to have had permission. Unfortunately, **the original permission letter is lost**, leaving the authenticity of his claim in dispute.



### Ottoman Empire

#### ➤ Historical Overview, Rise and Expansion:

- The Ottoman Empire, founded in the **late 13th century by Osman I**, began as a small Anatolian state and gradually expanded its territory through military conquests.
- Under the leadership of Mehmed II, the Ottomans captured Constantinople in 1453, marking the end of the Byzantine Empire. The empire reached its peak during the **16th and 17th centuries** under Suleiman the Magnificent, controlling a vast territory spanning three continents: Europe, Asia, and Africa.

Note:



drishti

➤ **Administrative Structure and Cultural Legacy:**

- The Ottoman Empire was known for its sophisticated administrative system, with a centralized government **headed by the Sultan**.
- The Ottoman legal system, **known as the “kanun,”** and the use of the Turkish language further contributed to the empire’s cultural influence.

➤ **Decline and Dissolution:**

- The Ottoman Empire faced a gradual decline starting in the **late 17th century**, marked by military defeats, internal strife, and economic challenges.
- The 19th century saw a series of reforms **known as the Tanzimat** aimed at modernizing the empire, but it struggled to keep pace with the rapidly changing global landscape.
- The empire’s **involvement in World War I** on the side of the Central Powers led to its defeat and subsequent partitioning by the victorious Allies. The Republic of Turkey, **led by Mustafa Kemal**, emerged from the ashes of the Ottoman Empire in 1923, marking the end of its six-century-long existence.



Note:

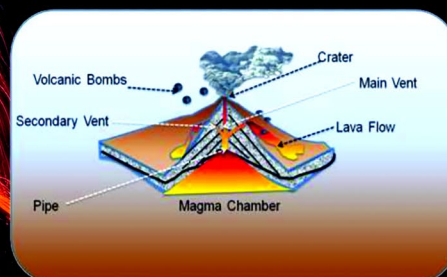
# Geography

## Highlights

- Global Energy Monitor's Global Coal Plant Tracker
- Survival of Rainforests Around 50 Million Years Ago
- Flood in Somalia
- Mount Etna
- Thousands of Earthquakes Rock Iceland

# VOLCANOES

A volcano is a vent or a fissure in the crust from which lava (molten rock), ash, gases, rock fragments erupt from a magma chamber below the surface



### Types: On basis of-

#### Periodicity of Eruption:

- Active volcano: Recently Erupted
- Dormant Volcano: Potential for eruption, no imminent signs
- Extinct: No recent eruptions, low possibility in future

#### Nature of Eruption:

- Hawaiian: Calmest types (low gaseous content)
- Strombolian: Formation of large gas bubbles in magma
- Vulcanian: More explosive
- Plinian eruptions: Magma's volatile gases rise via a narrow conduit
- Icelandic: Often build lava plateaus

#### Shape of Volcanoes:

- Shield volcanoes: Composed of basaltic lava, low slope
- Cone volcanoes (Cinder Cones): Most abundant
- Composite cones (stratovolcanoes): Formed by layers of diverse materials.

### Volcanic Features:

#### Extrusive :

- Crater: Cone-shaped vent for magma
- Caldera: Large, crater-like depression
- Volcanic Plateaus: Levelled areas from fissure eruptions

#### Intrusive:

- Batholiths: Central core of a volcanic mountain.
- Dyke: Vertical intrusion cutting across country rock bedding.
- Sills: Tabular intrusions along sedimentary bedding.
- Laccoliths: Magma injection along horizontal sedimentary bedding.
- Minor:
  - Geysers: Underground water above 100°C, powered by magma, results in powerful eruptions with steam and diluted minerals.
  - Hot Springs: Heated water flows quietly along fault zones.

### Distribution of Volcanoes:

- Subduction zones (Circum Pacific Belt)
- Divergence zones (Mid Atlantic Ridge)
- Intra-plate oceanic volcanism (Hawaiian chain)
- Mid-continental belt and volcanoes in Mediterranean region

### Volcanoes in India:

- No volcanoes in Himalayas
- Barren Island (Only active volcano)

### Products of Volcanic Eruption:

- Gases: H, C, O, S, N, CH<sub>4</sub>, NH<sub>3</sub>
- Solid: Pyroclastic materials
- Liquid: Lava



## Global Energy Monitor's Global Coal Plant Tracker

### Why in News?

Recently, **Global Energy Monitor (GEM)**, a not-for-profit cataloging coal projects worldwide, has released its quarterly update of **GEM's Global Coal Plant Tracker**, highlighting several key findings regarding the **status of coal power projects worldwide**.

### What are the Key Findings of the GEM Report?

- **Global Trends in Coal Construction:**
  - More than 95% of coal plant capacity beginning construction in 2023 is in China, showcasing a dominance in new coal projects.
  - A decline is observed in new coal power capacity construction for the **second consecutive year**, signaling a shift away from coal in many regions.
- **Coal Capacity Under Consideration:**
  - 110 GW of coal power capacity is under consideration

Note:

in 32 countries, indicating a significant amount of **Coal** projects are still being deliberated.

- India, Bangladesh, and Indonesia lead, **comprising 83% of the proposed coal capacity outside China.**

➤ **Trends in Project Status:**

- 18.3 GW of coal capacity **moved from proposed to shelved or canceled status** in the first nine months of 2023 across several countries.
- Despite cancellations, 15.3 GW of entirely new **proposals emerged in India**, Indonesia, Kazakhstan, and Mongolia.
- India, Indonesia, Bangladesh, and Vietnam represent 84% of the 67 GW of coal power capacity under construction outside China as of July 2023.

➤ **Indian Scenario:**

- India plans to increase coal-fired power plant capacity significantly by 2032, aiming for **80 GW compared to the previously stated 27 GW in the National Electricity Plan 2022-32 (NEP).**
- Specific states in India have seen advancements in coal plant projects, with permits granted and progress reported in states like Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Odisha, and Uttar Pradesh.

**What is Global Energy Monitor (GEM)?**

➤ **About:**

- GEM develops and shares **information in support of the worldwide movement for clean energy.**
- By studying the evolving international energy landscape and creating databases, reports, and interactive tools that enhance understanding, **GEM seeks to build an open guide to the world's energy system.**
- Users of GEM's data and reports include the **International Energy Agency, United Nations Environment Programme, the World Bank**, and the Bloomberg Global Coal Countdown.

➤ **Global Coal Plant Tracker:**

- It is an online database that identifies and **maps every known coal-fired generating unit** and every new unit proposed since 2010 (30 megawatts and larger).
- Developed by GEM the tracker uses footnoted wiki pages to document each plant and is updated biannually, around January and July.

➤ **Recommendations:**

- Amidst global efforts to combat climate change, the report emphasizes the urgent need to cease the construction of new unabated coal power plants to limit global warming effectively.

**What is Coal?**

➤ **About:**

- It is a type of fossil fuel found in a form of **sedimentary rocks and is often known as 'Black Gold'.**
- It is a conventional source of energy and is widely available. **It is used as a domestic fuel**, in industries such as iron and steel, steam engines and to generate electricity. Electricity from coal is called thermal power.
- The leading coal producers of the world include China, US, Australia, Indonesia, India.

➤ **Distribution of Coal in India:**

- **Gondwana Coal Fields (250 million years old):**
  - Gondwana coal makes **up to 98 % of the total reserves and 99 %** of the production of coal in India.
  - Gondwana coal forms India's metallurgical grade as well as superior quality coal.
  - It is found in Damodar (Jharkhand-West Bengal), Mahanadi (Chhattisgarh-Odisha), Godavari (Maharashtra), and Narmada valleys.
- **Tertiary Coal Fields (15 – 60 million years old):**
  - Carbon content is very low but is rich in moisture and sulphur.
  - Tertiary coalfields are **mainly confined to extra-peninsular regions**
  - Important areas include Assam, Meghalaya, Nagaland, Arunachal Pradesh, Jammu and Kashmir, Himalayan foothills of Darjeeling in West Bengal, Rajasthan, Uttar Pradesh, and Kerala.

➤ **Classification:**

- **Anthracite** (80 - 95% carbon content, found in small quantities in J&K).
- **Bituminous** (60 - 80% of carbon content and is found in Jharkhand, West Bengal, Odisha, Chhattisgarh and Madhya Pradesh).
- **Lignite** (40 to 55% carbon content, high moisture content and is found in Rajasthan, Lakhimpur (Assam) and Tamil Nadu).

Note:

- **Peat** (less than 40% carbon content and it is in the first stage of transformation from organic matter (wood) to coal).

## Survival of Rainforests Around 50 Million Years Ago

### Why in News?

Recently, a team of Scientists of **Birbal Sahni Institute of Palaeosciences (BSIP)** has revealed the **Equatorial (Tropical) Rainforests'** climate of around 50 million years ago (during the Early Eocene Climate Optimum (EECO)), which survived when the earth was globally warm.

- The research **utilized innovative techniques**, employing **Plant Proxies** to quantify **terrestrial equatorial climate data** from the past. These methods helped uncover mechanisms that enabled ancient rainforests to withstand adverse conditions.

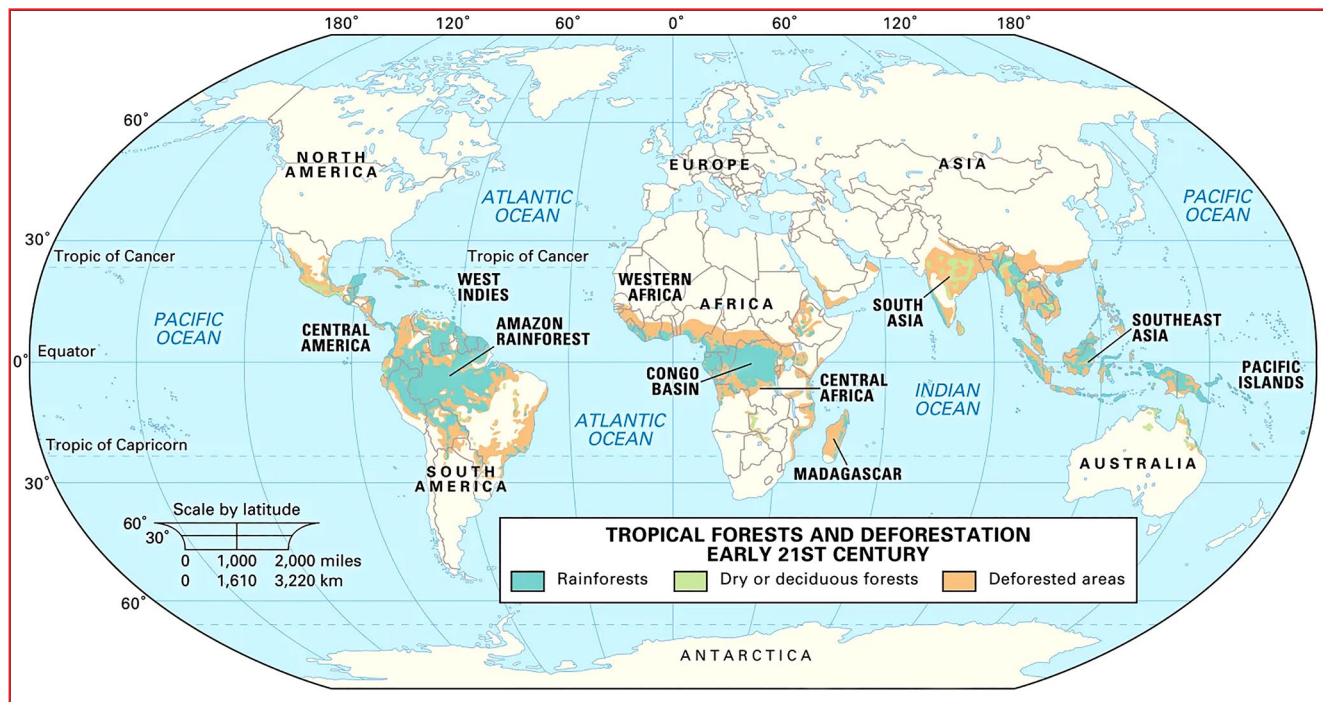
### What are Plant Proxies?

- In the context of **environmental science or Paleontology (the study of the history of life on Earth as based on fossils)**, "plant proxies" refer to indirect evidence or **indicators that scientists use to understand past environmental conditions**, particularly related to plant life.

- These proxies serve as substitutes or stand-ins for direct evidence that might not be **available or easily accessible**.
- **For Example**, Pollen grains are highly resistant and can be preserved in sediments for thousands or even millions of years. By studying the types and abundance of pollen in sediment cores or layers, **scientists can infer the types of plants that existed in a particular region during a specific period**.
- These plant proxies help scientists reconstruct ancient ecosystems, understand long-term environmental changes, and track shifts in climate and vegetation over geological timescales.

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

- **Equatorial Rainforest Resilience:**
  - Despite global warmth and soaring atmospheric carbon dioxide levels approximately 50 million years ago, equatorial rainforests not only survived but thrived.
  - It was earlier known that the **Earth was around 13°C warmer** than present and carbon dioxide concentration was **more than 1000 ppmv during this time**.
  - This drastically affected the survival of mid- and high latitude forests due to changes in the hydrological cycle, but the **equatorial forests survived successfully**.



Note:

- **High Rainfall's Role:**
  - The study highlights significantly **high rainfall as a crucial factor enabling the survival and thriving** of equatorial rainforests.
  - This elevated rainfall likely **enhanced plant water use efficiency**, allowing the flora to function in extreme warmth and high carbon dioxide levels.
- **Implications of This Study:**
  - Understanding the climate dynamics and resilience of equatorial rainforests during warm periods like the EECO holds significance for future climate predictions and provides insights into the survival strategies of tropical ecosystems under extreme climatic conditions.

### What are Equatorial Rainforests?

- **About:**
  - Equatorial rainforests are lush, biodiverse forests found near the **equator in tropical regions**.
  - These forests typically lie **within 10 degrees latitude north or south of the equator** and are characterized by **high temperatures and heavy rainfall** throughout the year.
- **Key Features:**
  - **Climate:** They experience a **hot and humid climate** with temperatures consistently high year-round, usually averaging **around 25-27°C (77-81°F)**. **Rainfall is abundant**, often exceeding 2,000 millimeters (80 inches) annually, leading to the term "rainforest."
  - **Biodiversity:** Equatorial rainforests are **among the most diverse ecosystems** on Earth, housing an incredibly rich variety of plant and animal species.
    - These forests contain a myriad of **species of trees, plants, insects, birds**, mammals, and other organisms, many of which are endemic to these regions.
  - **Flora and Fauna:** The vegetation in equatorial rainforests is **characterized by tall trees forming a dense canopy** that shades the forest floor, creating a multi-layered ecosystem.
    - A variety of plant species, including epiphytes (plants growing on other plants), lianas (climbing vines), and numerous species of trees, contribute to the rich biodiversity.

- **Importance:** Equatorial rainforests play a **crucial role in regulating the Earth's climate** and carbon cycle. They absorb carbon **dioxide through photosynthesis and act as carbon sinks**, helping mitigate climate change. Additionally, they provide habitat for countless species, support indigenous communities, and are centers of medicinal plant resources.
- **Threats:** Unfortunately, these rainforests face significant threats from deforestation, **logging, agriculture, mining**, and other human activities.
  - The loss of equatorial rainforests not only endangers the vast array of species that **call these forests home but also contributes to climate change** and the disruption of global ecosystems.

## Flood in Somalia

### Why in News?

Recently, the **U.N. Office for the Coordination of Humanitarian Affairs (OCHA)**, has described **Floods** that uprooted hundreds of thousands of people in Somalia and neighbouring countries in East Africa following a historic drought as a **Once-in-a-Century event**.

- The primary cause of the floods in Somalia has been attributed to torrential rainfall, exacerbated by **climatic phenomena like El Niño and the Indian Ocean Dipole**.
- The impact isn't confined to Somalia alone; neighbouring Kenya has also been affected, with the death toll reaching 15 and regions like Mombasa, Mandera, and Wajir experiencing significant challenges due to the floods.

### What is the Office for the Coordination of Humanitarian Affairs (OCHA)?

- OCHA is the part of the United Nations Secretariat **responsible for bringing together humanitarian actors** to ensure a coherent response to emergencies.
- OCHA also ensures there is a framework within which each actor can contribute to the overall response effort.

Note:



**What is El Nino?**

## El Nino Southern Oscillation (ENSO)

Describes the fluctuations in temperature between the ocean and atmosphere **in the east-central Equatorial Pacific**

**Significance:**

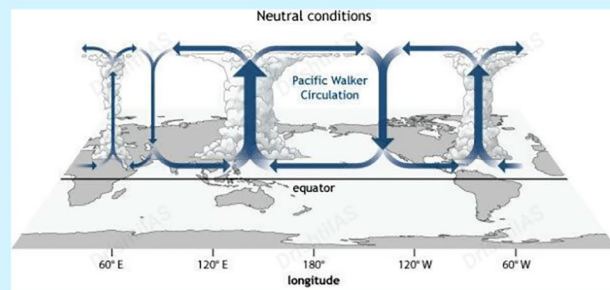
- Ability to change the global atmospheric circulation, influencing temperature and precipitation worldwide

**States of ENSO:**

- The two opposite phases - **El Niño** and **La Niña**
- The middle of the continuum - **Neutral**

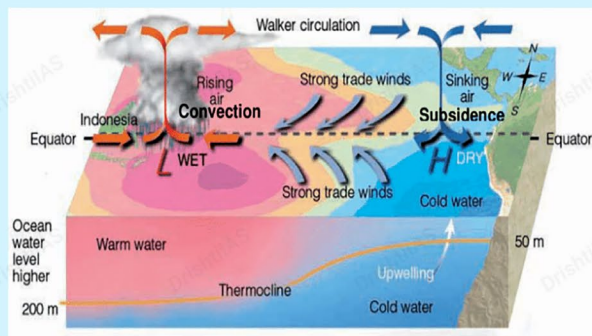
### Walker Circulation (WC)

- An **atmospheric system of air flow** in the equatorial Pacific Ocean
  - The trade winds across the tropical Pacific flow from east to west: air rises above the warm waters of the western Pacific, flows eastward at high altitudes, and descends over the eastern Pacific
- WC and ENSO:
  - A weak/reverse WC produces **El Niño**
  - Stronger WC results in **La Niña**



### Normal (non ENSO) Conditions in the Pacific Ocean

#### NEUTRAL ENSO



- **Trade winds (easterlies) blow west** along the equator, taking warm water from S. America towards Asia
- To replace that warm water, **cold water rises from the depths** — a process called **upwelling**
  - **El Niño and La Niña** are two climate patterns that **break these normal conditions**
- During an El Niño, sea level pressure tends to be lower in the eastern Pacific and higher in the western Pacific while the opposite tends to occur during a La Niña
  - This see-saw in atmospheric pressure between the eastern and western tropical Pacific is called the **Southern Oscillation (SO)**



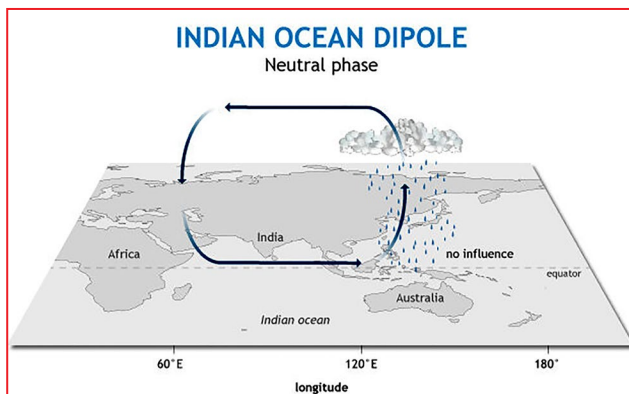
## What is the Indian Ocean Dipole (IOD)?

### ➤ IOD or Indian Nino:

- IOD, sometimes referred to as the **Indian Nino**, is similar to the **El Nino phenomenon**, occurring in the relatively smaller area of the Indian Ocean between the Indonesian and Malaysian coastline in the east and the African coastline near Somalia in the west.
  - The El Nino is the warmer-than-normal phase of the **El Nino Southern Oscillation (ENSO) phenomenon**, during which there are generally warmer temperatures and less rainfall than normal in many regions of the world, including India.
- One side of the ocean, along the equator, gets warmer than the other.
- IOD is said to be positive when the western side of the Indian Ocean, near the **Somalia coast**, becomes warmer than the eastern Indian Ocean.
- It is negative when the western Indian Ocean is cooler.

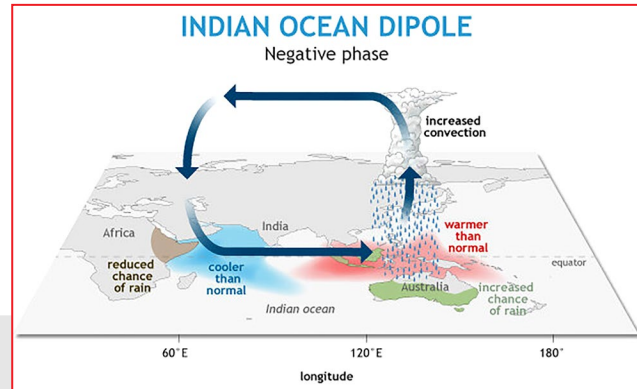
### ➤ Mechanism:

- **Neutral Phase:**
  - The air circulation in the Indian Ocean basin moves from **west to east**, that is from the African coast towards the Indonesian islands, near the surface, and in the opposite direction at the upper levels. That means the surface waters in the Indian Ocean get pushed from west to east.
  - In a normal year, warmer waters in the western Pacific near Indonesia cross over into the Indian Ocean and make **that part of the Indian Ocean slightly warmer**. That causes the air to rise and helps the prevailing air circulation.



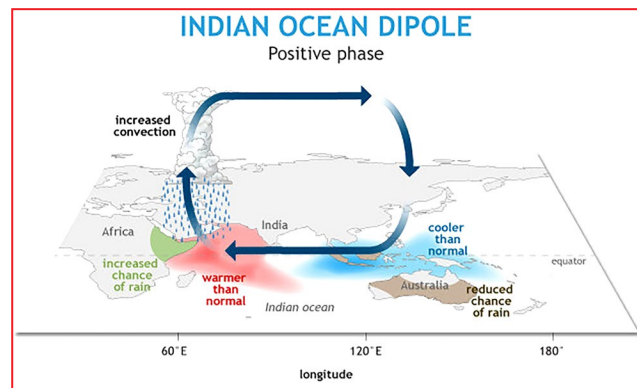
### ○ Negative IOD:

- In the years when the air circulation becomes stronger, more warm surface waters from the African coast are pushed towards the Indonesian islands, making that region warmer than usual. This causes hotter air to rise, and the cycle reinforces itself.
- This is the state of negative IOD.



➤ **Positive IOD:** Air circulation becomes slightly weaker than normal. In some rare cases, the air circulation even reverses direction. The consequence is that the African coast becomes warmer while the Indonesian coastline gets cooler.

- A positive IOD event is often seen developing at times of an El Nino, while a negative IOD is sometimes associated with La Nina.
- During El Nino, the Pacific side of Indonesia is cooler than normal because of which the Indian Ocean side also gets cooler. That helps the development of a positive IOD.



### ➤ Impact of IOD:

- In the Indian Ocean, IOD exhibits an ocean-atmosphere interaction that closely resembles the fluctuations observed during El Niño events in the

Note:

**Pacific Ocean.** However, the IOD is considerably less powerful compared to El Niño, resulting in relatively minimal impacts.

- A positive IOD helps rainfall along the African

coastline and also over the Indian sub-continent while suppressing rainfall over Indonesia, southeast Asia and Australia. The impacts are opposite during a negative IOD event.



#### What are the Key Facts About Somalia?

- **Location:**
  - Somalia is situated in the **Horn of Africa**, bordered by the **Gulf of Aden** to the north, the Indian Ocean to the east, Kenya and Ethiopia to the west, and Djibouti to the northwest.
- **Capital:**
  - Mogadishu is the capital and largest city in Somalia.
- **Terrain:**
  - The country features **diverse landscapes including arid plains**, plateaus, highlands, and mountain ranges.
  - The northern part of Somalia includes the Golis Mountains, while the southern region is characterized by savannas and grasslands.

Note:



➤ **Climate:**

- Somalia experiences a **predominantly arid to semi-arid climate with hot temperatures** and limited rainfall. The coastal areas have a more moderate climate due to the influence of the Indian Ocean.

➤ **Islands:**

- Somalia has several islands off its coast, including the Bajuni Islands and the Socotra Archipelago, which includes islands like Socotra, Abd al Kuri, and Samha. However, the Socotra Archipelago is administered by Yemen.

## Mount Etna

### Why in News?

**Mount Etna**, Europe's most **active volcano** and one of the largest in the world, has been **erupting frequently** since February 2023, sending plumes of ash and fountains of lava into the sky.



Note:

### What are the Key Facts About Mount Etna?

- Mount Etna is a **stratovolcano**, which means it is composed of layers of lava, ash, and rocks that have accumulated over thousands of years of eruptions.
- It is located on the **east coast of Sicily**, an island in the **Mediterranean Sea** that belongs to Italy.
- It stands about 3,300 metres above sea level and covers an area of about 1,200 square kilometres.
- Mount Etna has four summit craters and hundreds of lateral vents that can produce different types of eruptions, such as explosive, effusive, or mixed.
- Mount Etna **has been erupting almost continuously since 1500 BC**, making it one of the most active volcanoes in the world.

### What is a Volcano?

#### ➤ About:

- **Volcanoes** are openings or vents where lava, rocks, and steam erupt onto the Earth's surface.
- They result from both their own eruptions and the general formation of the planet through the movement and collision of tectonic plates.

#### ➤ Types of Volcanoes:

##### ○ Based on Frequency of Eruption:

###### ● Active Volcanoes:

- They **erupt frequently** and are mostly located in the **Pacific Ring of Fire**, which includes New Zealand, Southeast Asia, Japan and the western coast of the Americas.
  - About **90% of all earthquakes worldwide strike within this region**.
- Volcanic activity is linked to the movement and collision of **tectonic plates**.
- Examples include **Kilauea in Hawaii** and **Santa Maria in Guatemala**.

#### ➤ Dormant Volcano:

- These are **not extinct but have not erupted in recent history**. The dormant volcanoes may erupt in future.
- Example: **Mount Kilimanjaro**, located in Tanzania, also the highest mountain in Africa, is known to be a dormant Volcano.

#### ➤ Extinct or Inactive Volcanoes:

- These have **not worked in the distant geological past**.

#### ➤ Example: **Dhinodhar hill, Gujarat**.

- Based on Geological Formations:

Characteristic	Cinder Cones	Composite or Stratovolcanoes	Shield Volcanoes	Lava Domes
Formation	Small, steep-sided structures	Large, conical structures	Broad, gently sloping structures	Volcanic mountains formed by slow extrusion
Composition	Formed from ejected volcanic particles	Layers of lava, ash, and rocks	Created by low-viscosity lava flows	Formed by the slow extrusion of highly viscous lava
Lava Characteristics	Dark-colored basaltic lava	Viscous lava	Fluid lava	Highly viscous lava
Geological Location	Commonly found near other types of volcanoes	Associated with subduction zones	Divergent plate boundaries and hot spots	Typically found at subduction zones

Note:

- **Based on the Type of Eruption:**

- **Basic:**

- The basic magma is **dark-coloured like basalt**, rich in iron and magnesium but poor in silica. They travel far and generate broad shield volcanoes.

- **Acidic:**

- These are **light-coloured, of low density**, and have a high percentage of silica therefore they make a familiar cone volcano shape.

- **Tools and Methods to Predict Volcanic Eruptions:**

- **Seismic Data:**

- Monitoring earthquakes and tremors as potential precursors to volcanic eruptions.

- **Ground Deformation:**

- Observing changes in the ground, indicating magma movement.

- **Gas Emissions and Gravity Changes:**

- Analyzing volcanic gas emissions, gravity, and magnetic field alterations.

## Thousands of Earthquakes Rock Iceland

### Why in News?

Iceland has declared a **state of emergency** following a series of **800 earthquakes** that struck the **southwestern Reykjanes peninsula** in less than 14 hours.

- Approximately 1,400 **earthquakes** were detected in a day, and the peninsula has experienced over **24,000 seismic events** since late October. The strongest of these earthquakes, with a magnitude of 5.2, occurred approximately 40 km from Reykjavík, Iceland's capital.



### What is Happening in Iceland?

- **About Iceland:**

- Iceland is located on the **Mid-Atlantic Ridge**, technically the longest mountain range in the world, but on the floor of the Atlantic Ocean. The ridge separates the Eurasian and North American tectonic plates — making it a hotbed of seismic activity.

- The **Mid-Atlantic Ridge is a divergent or constructive plate boundary** where tectonic plates move away from each other, leading to the **creation of new oceanic crust**

- This geological setting makes the region prone to frequent earthquakes, with an annual average of approximately 26,000, as reported by Perlan, a natural history museum based in Reykjavik.

- While most of these tremors go unnoticed, the occurrence of **earthquake swarms**, characterized by **numerous small earthquakes** without a discernible mainshock, raises concerns about the **possibility of an impending volcanic eruption**.

- These earthquake swarms indicate heightened tectonic stress in specific areas.

- **Notable Icelandic Volcanoes:**

- Iceland boasts a total of 33 active volcanoes.
- Eyjafjallajökull, one of Iceland's most famous volcanoes, erupted in 2010, causing a widespread ash cloud.
- Other notable volcanoes include Hekla, Grímsvötn, Hóluhraun, and Litli-Hrútur, part of the Fagradalsfjall system.

Note:

## How are Earthquake

### Swarms a Sign of Volcanic Activity?

#### ➤ Magma Formation and Movement:

- Intense heat beneath the Earth's surface melts rocks, giving rise to magma, a flowing substance lighter than solid rock.
- The **buoyancy of magma propels it upwards**, with most of it being **confined to magma chambers deep underground**.

#### ➤ Volcanic Eruptions:

- While the **majority of magma cools and solidifies** over time, a **fraction erupts through vents** and fissures on the Earth's surface.

- These eruptions are the visible outcomes of the geological processes occurring beneath the surface.

#### ➤ Earthquake Swarms as Indicators:

- The **movement of magma near the Earth's surface exerts force** on surrounding rock layers.
- This force often leads to the occurrence of earthquake swarms, clusters of seismic activity in a particular region.

#### ➤ Proximity to Eruption:

- Magma movement underground doesn't always culminate in a volcanic eruption.
- The **closer magma gets to the Earth's surface**, the **higher the likelihood of an eruption**, accompanied by more frequent and symptomatic earthquake swarms.



Note:



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# Ethics

## Highlights

- *Materialism*

# SYMPATHY/EMPATHY/COMPASSION

## SYMPATHY

- **Meaning:** Feeling pity or sorrow for someone's misfortune
- **Model:** Structure of Sympathy Model by Elizabeth C. Arnold

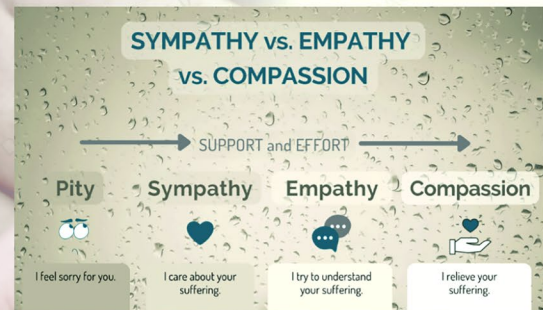
## EMPATHY

- **Meaning:** Stepping into someone else's shoes and experiencing their emotions.
- **Model:** Dual Route Model of Empathy by Jean Decety

## COMPASSION

- **Meaning:** Desire to alleviate one's suffering and actively taking steps to help
- **Model:** Halifax Model of Enactive Compassion by Joan Halifax

Values	Sympathy	Empathy	Compassion
<b>Emotional Connection and Involvement</b>	Not as intense as empathy rather just an external acknowledgment	Deep emotional connection and personal involvement	More active engagement with strong commitment to take positive action
<b>Actions</b>	Expressions of concern/verbal support	More about understanding and sharing emotions	Accompanied by tangible actions
<b>Emotional Boundaries</b>	More distinct emotional boundaries	Temporarily blurring emotional boundaries	Supportive and caring response without complete emotional fusion
<b>Type of Emotions Responded</b>	Negative emotions	Both positive and negative emotions	Negative emotions
<b>Components (Cognitive or Affective)</b>	A stronger cognitive component	Involves both	Cognitive + Affective + Behavioral
<b>Relationship with Personal Experience</b>	More generalised	Drawing on personal experiences to relate	Nature of helping
<b>Consistency</b>	More consistent but not as intense as empathy	Vary in consistency	More enduring commitment



## DEVELOPING SYMPATHY, EMPATHY AND COMPASSION

- **Sympathy**
  - Active listening
  - Paying attention to others' emotions
- **Empathy:**
  - Develop radical listening
  - Look for the human behind everything
- **Compassion:**
  - Speaking with kindness
  - Accepting people for who they are



## Materialism

### Why in News?

Materialism, traced back to ancient origins, provides a coherent framework that **centers on matter** as the basis of existence.

### What is Materialism?

- **About:**
  - Materialism asserts that all **existence originates from and is fundamentally composed of matter.**

- It **refutes the existence of non-material entities**, considering all other phenomena, even intelligence, as transformations or products of matter following inherent natural laws.
- **Historical Context:**
  - Materialism has roots in ancient philosophies worldwide. In India, it found expression in **Lokāyata, Chārvāka, Bhautikvad, and Jadavāda**, among other names.
    - Lokāyata, meaning the philosophy of the people, emphasizes worldliness and instinctive materialism. Lokāyata was **pioneered by**

Note:

philosophers like Brhaspati, Ajita, and Jābāli.

- **Chārvāka highlights hedonism**, the belief that pleasure is the most important thing in life.
- Bhautikvad focuses on the **physical or material nature of existence**.
- Jadavāda reflects the materialists' inclination to seek the material roots of existence.
- Early Greek philosophers also **pursued materialistic explanations for the cosmos**, notably through the **atomism of Democritus and Epicurus**.
- Various names in different cultures signify materialist philosophies.
- **Evolution of Thought:**
  - Ancient materialists pondered the four classical elements (Mahābhūtas) and explained reality's diversity through 'svabhāva' or self-becoming.
    - The four fundamental elements were considered to be agni (fire), apa (water), vāyu (wind) and pṛthvī (earth).
  - They rejected divine providence and **denied the existence of any world beyond the singular**, observable reality, meaning they didn't believe in a higher power guiding events or the universe's destiny.
  - They also denied the **existence of any world beyond what could be directly observed** or experienced, emphasizing the importance of empirical reality as the sole reality.
- **Ethics of Materialism:**
  - The ethics of materialism did face criticism for allegedly **promoting a hedonistic lifestyle**, as

reflected in the Sanskrit dictum "**yāvat jīvēt sukham jīvēt,**" which means "**as long as you live, live happily**".

- Materialism **did not accept any moral or ethical principles** that were derived from religious or metaphysical doctrines.
- Materialism did not deny the existence of ethics, but rather argued that **ethics should be based on human reason and experience**, and that the goal of ethics should be the maximization of pleasure and the minimization of pain for oneself and others.

### **What is the Philosophical Significance of Materialism?**

- Materialism offers a comprehensive worldview that emphasizes empirical observation and **natural laws governing existence**.
- It **challenges religious dogma** and encourages a critical examination of reality based on tangible, observable phenomena.
- It advocated for **freedom of thought, challenging societal norms and conventions**.
- Despite shifts in dominant philosophies over time, materialist ideas persist and continue to shape contemporary scientific inquiry, particularly in understanding the fundamental nature of reality.
- Its influence spans cultures and epochs, encouraging a rational exploration of the **universe and rejecting supernatural explanations** in favor of empirical observation and understanding.



Note:



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# Miscellaneous

## Highlights

- 59th Session of the International Tropical Timber Council
- AI and World Without Work
- Emmy Awards
- ICC Introduces Stop-Clock System and Revises Transgender Policy
- Ladakh Sea Buckthorn and Kerala Onattukara Sesame
- Soy Production in Brazil and Child Cancer Deaths

## 59<sup>th</sup> Session of the International Tropical Timber Council

### Why in News?

The 59<sup>th</sup> session of the **International Tropical Timber Council (ITTC)**, the governing body of the **International Tropical Timber Organization (ITTO)**, recently concluded with significant decisions shaping the future of **sustainable tropical forest management** and the trade of sustainably produced **tropical timber**.

### What are the Key

#### Outcomes of the 59<sup>th</sup> session of the ITTC?

- The countries agreed to endorse **eight projects** related to **sustainable forest management** and related objectives.
- The session also approved and adopted a budget of USD 7.1 million for the coming financial year 2024-25.
- The council also approved a trial measure that will allow **ineligible members to submit project proposals and concept notes**.
  - Members who have **fallen behind on their financial contributions** and are thus ineligible will be allowed to submit one project and concept note for every two years of arrears paid.
- The Council also adopted the **work programme for 2024-25**, which emphasizes collaboration with the members of Collaborative Partnership on Forests and other partners for effective implementation.

### What is the International Tropical Timber Organization (ITTO)?

- **About:**
  - The ITTO is an **intergovernmental organization** promoting the sustainable management and conservation of tropical forests and the expansion

and diversification of international trade in tropical timber from sustainably managed and legally harvested forests.

- ITTO was established under the **International Tropical Timber Agreement 1983 (ITTA 1983)**, negotiated under the auspices of the **United Nations Conference on Trade and Development**.
- It is governed by ITTC, a group that meets at least **once a year** to discuss a wide-ranging agenda aimed at promoting **sustainable tropical forest management (SFM)** and the trade of sustainably produced tropical timber

#### Members:

- It has 75 countries, including India.
- Its members manage about **80% of the world's tropical forests** and are responsible for **90% of the global tropical timber trade**.

#### Functions:

- ITTO develops internationally agreed policy guidelines and norms to encourage SFM and sustainable tropical timber industries and trade.
- Assists tropical member countries to adapt such guidelines and norms to local circumstances and to implement them in the field through projects and other activities.
- Collects, analyzes and disseminates data on the production and trade of tropical timber. Promotes sustainable tropical timber supply chains.

- **Headquarters:** Yokohama, Japan.

## AI and World Without Work

### Why in News?

During the **Bletchley Park AI Summit**, Elon Musk envisioned **Artificial Intelligence** replacing all human labor:

Note:

both **physical and cognitive**, resulting in people seeking work solely for personal fulfillment rather than out of necessity. However, this vision prompts debates about the **desirability and feasibility of a world without work**.

#### What are the Major Theories on Work?

- **John Maynard Keynes:** Advocated for **reducing work hours under capitalism**, viewing work as drudgery.
  - He foresaw **technological advancements leading to increased welfare by diminishing work hours**.
- **Karl Marx:** Saw work as the **essence of humanity**, providing meaning by allowing the manipulation of nature.
  - Marx envisioned a world **where AI enhances human work rather than replaces it**, enabling self-enjoyment without external appropriation.

#### What are the Arguments in Favour and Against of AI Replacing Human Labor?

- **Arguments in Favor of AI Replacing Human Labor:**
  - **Efficiency and Cost Reduction:** AI offers **unparalleled efficiency in performing repetitive tasks**, reducing operational costs for businesses by **replacing labor-intensive processes**.
  - **Improved Accuracy and Consistency:** AI systems can **execute tasks with a higher degree of accuracy and consistency** compared to humans, especially in fields requiring precise calculations or data analysis.
  - **24/7 Availability and Speed:** AI operates **non-stop, enabling continuous work without fatigue**, leading to faster outcomes and service delivery.
  - **Safety in Hazardous Environments:** In **environments hazardous to humans**, such as deep-sea exploration, space missions, or dangerous manufacturing, AI-driven automation ensures safety and efficiency.
- **Arguments Against AI Replacing Human Labor:**
  - **Complex Decision-making and Creativity:** AI struggles with **nuanced decision-making, absolute creativity, and intuition**, domains where human cognition and emotional intelligence excel.
  - **Ethical and Moral Decision-Making:** AI lacks **ethical judgment and moral reasoning**, making it unsuitable for roles involving moral dilemmas or subjective judgment.
  - **Human Interaction and Empathy:** Jobs requiring **human interaction, empathy, and emotional**

**connection**, like caregiving or counseling, are challenging for AI to replicate authentically.

- **Regulatory and Trust Concerns:** Concerns about **AI's reliability, bias, and accountability** raise regulatory and trust issues, impacting its widespread adoption and acceptance.

#### What are the Potential Implications of AI across Different Domains?

- **Positive Impact:**
  - **Increased Efficiency and Productivity:** AI streamlines processes, automates tasks, and **enhances efficiency**, leading to increased productivity across industries.
    - Optimizes **resource allocation, reducing wastage and operational costs**.
  - **Innovation and New Job Creation:** AI fosters **innovation**, leading to the **creation of new industries, products, and services**.
    - Generates **jobs in AI development, programming, data analysis, and maintenance**, catering to evolving technological needs.
  - **Improved Decision-Making:** AI's data-driven insights enable **better decision-making for businesses and policymakers**.
    - Enhances accuracy and speed in forecasting trends, optimizing strategies for growth and development.
  - **Enhanced Customer Experience:** Personalized experiences driven by AI **improve customer satisfaction and engagement**.
    - Chatbots, recommendation systems, and AI-driven customer service elevate user experiences.
  - **Healthcare and Research Advancements:** AI aids in **medical diagnostics, drug discovery, and treatment personalization**, improving healthcare outcomes.
    - Accelerates scientific research by analyzing vast datasets and identifying patterns.
- **Negative Impact:**
  - **Job Displacement and Skills Gap:** Automation and AI can **replace certain job roles**. Displaced workers might struggle to transition to new roles due to lack of **relevant skills**.
  - **Privacy and Ethical Concerns:** AI's reliance on data raises **concerns about privacy infringement and data misuse**.

Note:

- Ethical dilemmas arise in AI decision-making, especially in areas like facial recognition and algorithmic bias.
- **Economic Inequality: AI's benefits might not be equally distributed**, widening the gap between skilled and unskilled workers.
  - Concentration of AI benefits within certain industries or geographic regions could **exacerbate economic disparities**.
- **Dependency and Vulnerability:** Over reliance on AI systems **without sufficient human oversight can lead to vulnerabilities**, such as system errors or cyber threats.
  - Lack of understanding or control over AI systems can make societies more vulnerable to technological failures.
- **Social Impact and Job Quality:** Jobs created by AI might lack the same quality, stability, or fulfillment as traditional roles, impacting individuals' satisfaction and sense of purpose.
  - Changes in work patterns and job nature might **affect mental health and societal well-being**.

## Emmy Awards

### Why in News?

Recently, Comedian **Vir Das** made history as the **first Indian to win an International Emmy Award in the comedy category** for his Netflix show, "Vir Das: Landing on Monday."

- Producer and filmmaker **Ekta Kapoor** became the **first Indian woman filmmaker to win the International Emmy Directorate Award**, which is given to individuals or organizations for outstanding contributions to international television.

### What are the Emmy Awards?

- **About:**
  - The Emmy Awards stand as prestigious accolades for excellence in television and emerging media performances.
    - Unlike the **Oscars** and **Golden Globe Awards**, the Emmys specifically recognize achievements in television.
  - The term "Emmy" has no specific meaning; it serves as the name for the award.

- Originally intended as "Immy," derived from the image-orthicon camera tube crucial in television's technical development.



- Modified to "Emmy" for a more "feminine" touch, symbolizing the **"muse of art uplifting the electron of science."**

### ➤ Inception of the Emmy Awards:

- Conceived in 1948, the inaugural Emmy Awards ceremony took place on January 25, 1949.
  - Six awards were presented, including recognitions for the Most Outstanding Television Personality and Most Popular Television Program.

### ➤ Different Types of Emmy Awards:

- In addition to the International Emmy Awards, which are specifically for international shows, there are additional categories of Emmys that are commonly recognized as "the Emmys."
  - **Primetime Emmy Awards:**
    - Honour television shows produced only in America and aired during primetime.
  - **Daytime Emmy Awards:**
    - Recognizing outstanding American shows aired during late morning and afternoon.
  - **Sports Emmy Awards:**
    - Honoring achievements in sports programming.
  - **News and Documentary Emmy Awards:**
    - Acknowledging excellence in news, documentary, and public affairs programming.
  - **Technology and Engineering Emmy Awards:**
    - Celebrating advancements in broadcast technology.
  - **Regional Emmy Awards:**
    - Focusing on regional television markets, covering state-to-state programming, local news, and locally produced shows.

### ➤ Awarding Organizations

- Emmy Awards are presented by three sister organizations, each overseeing specific categories:
  - **Television Academy:** Administers the Primetime Emmy Awards.

Note:

- **National Academy of Television Arts & Sciences:** Oversees daytime, sports, news, and documentary categories.
- **International Academy of Television Arts & Sciences:** Responsible for International Emmy Awards.

## ICC Introduces Stop-Clock System and Revises Transgender Policy

### Why in News?

Recently, the **International Cricket Council (ICC)** has unveiled groundbreaking measures aimed at revolutionizing the sport's regulations.

- Addressing persistent challenges in cricket, the **ICC's introduction of a stop-clock system and a revised transgender policy** has captured global attention and sparked discussions within the cricketing community.

### What Major Actions have been Recently Initiated by the ICC?

- **Stop-Clock System:**
  - **About:** The introduction of a stop-clock system aims to **address the persistent issue of time wastage between overs**, enhancing the efficiency of gameplay.
    - This initiative is set to be implemented from **1st December 2023 and will persist until April 2024**.
    - As per the existing rule, if the fielding side is behind the clock by the time the innings is supposed to be finished, **they have to bring in an additional fielder inside the 30-yard circle** for those many overs.
      - But despite this, there were numerous instances **where teams still lagged behind**.
  - **Mechanism:** Once an over concludes, the **fielding team is allotted a strict duration of 60 seconds** to prepare for the subsequent over.
    - Match officials will **activate the stop-clock upon the completion of an over**.
    - Failure to comply within the **stipulated time will result in a five-run penalty**, imposed upon the third violation in a single innings.

### ➤ Revamped Transgender Policy:

- **About:** Players transitioning from **male to female**, having **undergone any form of male puberty**, are now **ineligible to participate in women's international cricket**, irrespective of surgical or gender reassignment treatments.
  - Previously, **transgender women were required to maintain testosterone serum levels below 5 nanomoles for 12 months**, in accordance with the **International Olympic Committee's guidelines**.
  - However, the ICC's revised stance now excludes individuals who have experienced male puberty from competing in women's international cricket.
- **Comparative Analysis with Other Sports Bodies:** The ICC's revised policy echoes similar stances adopted by other sporting bodies:
  - **World Athletics:** Restricts **transgender athletes** who have experienced male puberty from competing in female world ranking competitions.
  - **FINA (Swimming):** Prevents transgender athletes who underwent any part of male puberty from participating in **elite women's races**.
  - **World Rugby:** Prohibited transgender women from competing at the elite and international levels of the women's game, pioneering this stance among international sports federations.

### ➤ Other Notable ICC Updates:

- **Under-19 World Cup:** In response to Sri Lanka Cricket's suspension due to government interference, the **ICC relocated the Men's Under-19 World Cup to South Africa** from Sri Lanka.
  - This decision significantly impacts Sri Lanka's economy, traditionally reliant on tourism and hospitality.
- **Pay Parity:** The **Chief Executives' Committee (CEC)** endorsed a plan to expedite the development of **female match officials**, ensuring **equal match day pay for ICC umpires across men's and women's cricket from January 2024 onwards**.

#### What is the International Cricket Council?

- The **ICC is the global governing body for cricket**. Representing **108 members**, the ICC governs and administrates the game and works with our members to grow the sport.

Note:

- The formation of the **Imperial Cricket Conference** (as the ICC was originally called) in 1909 marked the beginning of a structured international cricketing body, initially comprising **England, Australia, and South Africa**.
  - However, the West Indies (1928), New Zealand (1930) and India (1932) became Test nations before the **Second World War** and Pakistan (1952) soon afterwards.

## Ladakh Sea Buckthorn and Kerala Onattukara Sesame

### Why in News?

Recently, the **Geographical Indication (GI) Registry**, operating under the Ministry of Commerce & Industry, Government of India, has awarded the GI tag to the Department of Industries & Commerce, Ladakh, for 'Ladakh Sea Buckthorn'.



- This recognition follows the previously granted GI tags for **Ladakh Apricot (Raktsey Karpo)**, **Ladakh Pashmina**, and **Ladakhi Wood Carving**.
- In another region, the Onattukara Vikasana Agency (OVA), the registered owner of the **GI-tagged Onattukara sesame in Kerala**, is actively working to expand the cultivation of this unique sesame variety.

### What are the Key Facts About the Sea Buckthorn?

- Sea Buckthorn (*Hippophae L*) a shrub which produces an **orange-yellow coloured edible berry** is sour in taste but rich in vitamins, especially **Vitamin C**.
  - Ladakh Sea Buckthorn is a vital crop in Union Territory Ladakh, with 90% of its production originating from the region.
  - It is also popularly known as 'Wonder Plant', "Ladakh Gold", "Golden Bush" or "Gold Mine".
- In India, it is found above the tree line in the Himalayan region, generally in dry areas such as the **cold deserts of Ladakh and Spiti**.
- It is a **soil-binding plant** which prevents **soil-erosion**, checks siltation in rivers and helps preserve floral biodiversity.

### What are the Key

### Facts About the Onattukara Sesame?

- Onattukara sesame is a type of **sesame grown in Kerala, India**.
- The OVA plans to increase the area under sesame cultivation from 600 hectares to 2,000 hectares.
- Onattukara sesame and its **oil are famous for its unique health benefits**.
  - Relatively **higher antioxidant** content in Onattukara sesame helps in fighting the free radicals, which destroy the body cells.
  - Also, the high content of unsaturated fat makes it beneficial for **heart patients**.
- Traditional ayurvedic doctors in the region have used Onattukara sesame oil for treating **rheumatism** (umbrella term that refers to arthritis and several other conditions that affect the joints, tendons, and muscle) and **skin protection** since the 18<sup>th</sup> century.

## Soy Production in Brazil and Child Cancer Deaths

### Why in News?

A recent study has identified a connection between the significant increase in soy/soyabean production in **Brazil's Amazon and Cerrado regions** over the past two decades and a rise in pediatric cancer-related deaths. The expansion of soy farming in these areas has been accompanied by a substantial increase in pesticide usage.

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

- **Correlation Between Soy Production and Pediatric Cancer Deaths:**
  - The study conducted revealed a statistically significant correlation between the increase in soy production and deaths from **Acute Lymphoblastic Leukaemia (ALL) in children** from 2008 to 2019.
- **Pesticide Exposure through Water Supply:**
  - The study suggested that pesticide exposure likely occurred through water supply penetration. In essence, a 10% increase in the municipal area dedicated to soy farming raised the likelihood of a child under five dying from ALL by 1.3% and by 1.6% for children under ten.

Note:

➤ **Policy Recommendations:**

- The research highlighted a strong and persistent relationship between the expansion of **high-intensity agriculture in the region and adverse human health outcomes.**
  - However, access to high-quality healthcare systems could mitigate these links, especially for treatable conditions like ALL.



**What is ALL?**

- ALL, also known as **acute lymphocytic leukemia**, is a type of cancer that affects the blood and bone marrow.

It is characterized by the rapid and uncontrolled growth of immature white blood cells called **lymphoblasts**. These **abnormal cells crowd out normal white blood cells, red blood cells, and platelets, leading to various health problems.**

- This type of leukemia is most commonly diagnosed in children, but it can affect adults as well.
- ALL is a highly treatable cancer conditional on timely and high-quality care.

**Soyabean Crop**

- Soyabean is a Kharif crop in India.
- Soybean (Glycine max) is the world's most important seed legumes which contributes **25% to the global edible oil**, about two third of the world protein concentrate for livestock feeding and is a **valuable ingredient in formulated feeds for poultry and fish.**
- It is predominantly grown as rainfed crop in Vertisols and associated soils with an average crop season rainfall of 900 mm.
- **Major Producing States in India:** Madhya Pradesh, Maharashtra, Rajasthan, Chhattisgarh, Andhra Pradesh and Karnataka.

Note:

# Rapid Fire

## Highlights

- *Lantana Camara*
- *PM-JANMAN: Empowering India's Tribal Communities*
- *Langlands Program, the World's Biggest Math's Project*
- *High Court Nullifies a Decade-old Forced Marriage*
- *Michael Douglas honored with the Satyajit Ray Lifetime Achievement Award*
- *4th Edition of ASEAN India Grassroots Innovation Forum (AIGIF)*
- *Aadhaar Privacy and Marital Rights*
- *Ayushman Arogya Mandir: Transforming Healthcare*
- *Warm Temperatures Led to Massive Pest Attack in Assam*
- *Humanitarian Pause in Gaza*
- *Girish Chandra Murmu Elected Vice-Chair of UN Panel of External Auditors*
- *Zero Draft Text to Mitigate Plastic Pollution*
- *Guru Nanak Jayanti*
- *Lachit Diwas*
- *Kambala Buffalo Race*
- *Justice M. Fathima Beevi*
- *Guru Tegh Bahadur Martyrdom Day*
- *16th World Wushu Championship*
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- *ICMR Debunks Link Between Covid-19 Vaccines and Sudden Deaths*
- *Eclipses*
- *VAJRA PRAHAR 2023: Indo-US Special Forces Unite*
- *Thailand's Cabinet Approves Marriage Equality Bill*
- *Uttar Pradesh Imposes Ban on Halal Certification*
- *Javier Milei Wins Argentina Presidential Election*
- *Santhali Language and Literature*
- *World Fisheries Day*
- *Cyclone Midhili*
- *Indira Gandhi Birth Anniversary*
- *Birth Anniversary of Rani Lakshmibai*
- *AI-Driven Martian Oxygen: Revolutionizing Mars Missions*
- *Australia Wins ICC Men's Cricket World Cup 2023*
- *Cambridge's Word of the Year 'Hallucinate'*
- *MITRA SHAKTI 2023*
- *National Epilepsy Day*
- *National Press Day*
- *Madiga Sub-Categorization*
- *Enhancing Antifungal Treatment*
- *P. salinarum: Unveiling Adaptation in Extreme Environments 137*
- *Widening Trade Deficit*
- *Jharkhand Foundation Day*

## Lantana Camara

Recently, **fifteen elephant** figurines created from a **toxic and invasive plant species**, **Lantana camara**, are currently on display outside the Vidhana Soudha (Vidhan Sabha) in **Bengaluru, Karnataka**.

- Lantana camara is a perennial shrub native to the **American tropics** and belongs to the **Verbenaceae family**.
  - With the **ability to adapt to the changing climate**, lantana can tolerate high temperature and moisture.

- However, it is one of the **world's ten worst invasive species** and a species of high concern for **India**.

- Lantanas arrived in India as a decorative shrub in the British colonial period but **quickly took over several ecosystems as an invasive plant**.
- **Nilgiri Biosphere Reserve in Western Ghats** is one of the largest impacted hotspot areas due to invasion dominated by Lantana camara.

Read more: **Lantana Camara**



Note:

## PM-JANMAN: Empowering India's Tribal Communities

Recently, the Union Cabinet has approved the **Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN)**, a monumental **Rs 24,104-crore** tribal welfare initiative.

- It marks a significant stride towards uplifting **Particularly Vulnerable Tribal Groups (PVTGs)**. It is set to revolutionize the lives of over 40 lakh individuals across **75 tribal communities in 18 states and the Union Territory of Andaman and Nicobar Islands**.
  - In India, a **PVTG** is a sub-classification of a Scheduled Tribe that is considered more vulnerable than a regular Scheduled Tribe.
    - PVTGs were **previously known as Primitive Tribal Groups**.
  - The population of PVTGs in Odisha ranks highest based on data from the Ministry of Tribal Affairs and the 2011 Census.
- With a focus on pivotal elements such as **housing, education, healthcare, connectivity, and livelihood opportunities**, PM-JANMAN encompasses a broad spectrum of initiatives.

Read more: [Key Initiatives for Tribal Groups](#)

## Langlands Program, the World's Biggest Math's Project

- **Dr. Langlands** won the **Abel Prize** in **2018**, a top honor in **mathematics**, for his groundbreaking work connecting representation theory to number theory.
  - The Program aims to link two distant areas of mathematics: **number theory** and **harmonic analysis**.
    - **Number theory** studies **numbers** and their **relationships, focusing on arithmetic**.
  - **Harmonic analysis** explores **periodic phenomena**, dealing with **continuous mathematical objects** such as **waves**, in contrast to the **discrete arithmetic of number theorists** who work with **integers**.

## High Court Nullifies a Decade-old Forced Marriage

- The **Patna High Court** has nullified a **forced marriage**, commonly referred to as **"pakadwa vivah,"** which occurred a **decade ago**.
  - The court decided that the marriage was invalid because the crucial **"Saptapadi"** ritual, involving **seven vows** around the **sacred fire** as required by the **Hindu Marriage Act, 1955**, was not performed.
- The **'Pakadwa Vivah,'** is a kind of **'Forced marriages'**.
  - It is prevalent in **Bihar**, often involving the **kidnapping** of young male individuals for the purpose of **marriage**.
- These marriages are typically solemnized under threats, sometimes at putting the lives of the individuals and their families at risk.
- The court based its decision on the grounds that the essential ritual of **"Saptapadi"** or the **seven vows** around the **sacred fire**, as mandated by the **Hindu Marriage Act, 1955**, was not completed.

Read More: [Hindu Marriage Act](#)

## Michael Douglas honored with the Satyajit Ray Lifetime Achievement Award

Recently, Hollywood actor and producer **Michael Douglas** was honored with the prestigious **Satyajit Ray Lifetime Achievement Award** for Excellence in Cinema at the **54th International Film Festival of India (IFFI)** in Goa.

- His profound impact on cinema resonates through iconic roles, from his Academy Award-winning portrayal as **Gordon Gekko** in **Wall Street** to gripping performances in films like **Fatal Attraction**, **The American President**, **Basic Instinct**, **Traffic**, and **Romancing the Stone**, among many others.
- As a **UN Messenger of Peace**, his commitment to global issues includes advocacy for disarmament, **nuclear non-proliferation**, and halting illicit arms trade.

Note:





Read More: [54<sup>th</sup> International Film Festival of India](#)

## 4<sup>th</sup> Edition of ASEAN India Grassroots Innovation Forum (AIGIF)

India along with 10 ASEAN Member States (AMS) were represented by 200 participants, at the 4<sup>th</sup> edition of the annual ASEAN India Grassroots Innovation Forum (AIGIF) that was launched in Langkawi, Malaysia on 28th November 2023.

- The AIGIF is an annual programme focused on fostering a strengthened relationship between India and AMS on the premise of cooperation in Science, Technology and Innovation (STI).
- While on one side it aims to give exposure to social innovations in different countries, it also strengthens governance in the grassroots innovation ecosystem.

Read More: [ASEAN](#)

## Aadhaar Privacy and Marital Rights

The High Court of Karnataka recently highlighted that **marriage does not give one spouse the right to access the other's Aadhaar data** without a fair hearing.

- The court dismissed the notion that marriage merges the identities of spouses, firmly stating that **each individual's right to privacy remains paramount**.
- Emphasizing the necessity of following **due procedure under Section 33 of the Aadhaar (Targeted Delivery**

**of Financial and Other Subsidies, Benefits & Services Act, 2016**, the court dismissed the notion that marriage merges the identities of spouses, firmly stating that **each individual's right to privacy remains paramount**.

Read more: [Right to Privacy](#)

## Ayushman Arogya Mandir: Transforming Healthcare

The Union Government has decided to rename the existing **Ayushman Bharat Health and Wellness Centres (AB-HWCs)** as 'Ayushman Arogya Mandir' with the tag-line 'Arogyam Parmam Dhanam'.

- Ayushman Bharat aims to shift from **selective healthcare to offering a full spectrum of services**, covering preventive, promotive, curative, rehabilitative, and palliative care. It comprises two components:
  - **First:** The creation of 1,50,000 **Health & Wellness Centres (HWCs)** for free Comprehensive Primary Health Care, emphasizing wellness and a wider array of services at the community level.
  - **Second: Pradhan Mantri Jan Arogya Yojana (PM-JAY)**, extends health insurance of Rs. 5 lakhs per year to over 10 crore impoverished families for secondary and tertiary care.
- The HWCs aim to provide an extensive range of services encompassing **non-communicable diseases, palliative and rehabilitative care, oral, eye, and ENT care, mental health support, and initial care** for emergencies and trauma, along with free essential drugs and diagnostics.

Read more: [Ayushman Bharat](#)

## Warm Temperatures Led to Massive Pest Attack in Assam

Continuous warm temperatures for prolonged periods may have led to the serious pest (**Namely Mythimna separata**) infestation in Assam that damaged **around 28,000 hectares of paddy crop in at least 15 districts**.

- The pest (Mythimna separata) is known as the ear head cutting caterpillar, rice ear-cutting caterpillar, or armyworm. It feeds on leaves and can cut off panicles from the base of a crop plant, frequently leaving the field looking like it has been grazed by cattle.

Note:

- In a warming world, **changes in both temperature and rainfall are the two big drivers of shifts** in how and where pests and diseases spread.
- Every small rise in global temperatures will **reduce the lifecycle of insects, resulting in a higher population of pests, increasing generations, an extension of geographical range and development season**, high risks of invasion by migrant pests and overwintering.

Read More: [Armyworm Attack, White Fly](#)

## Humanitarian Pause in Gaza

Qatar successfully mediated between **Israel and Hamas**, leading to a four-day humanitarian pause, facilitated by Qatar, Egypt, and the United States. Although not a **ceasefire**, the agreement aims to bring relief to **Gaza**, subject to possible extension.

- The **United Nations (UN)** defines a “humanitarian pause” as a “**temporary cessation of hostilities purely for humanitarian purposes**”. Such pauses are usually limited to a defined period, and to a specific area where the humanitarian activities are to be carried out.
- A ceasefire, on the other hand, goes much further. The UN defines it as a “**suspension of fighting agreed upon by the parties to a conflict, typically as part of a political process**”, with the goal being to “**allow parties to engage in dialogue, including the possibility of reaching a permanent political settlement**”.

Read More: [Israel-Palestine Conflict, UNSC Resolution on Gaza Strip](#)

## Girish Chandra Murmu Elected Vice-Chair of UN Panel of External Auditors

Girish Chandra Murmu, the current **Comptroller and Auditor General (CAG)** of India, has been appointed as the **Vice-Chair of the United Nations Panel of External Auditors** for the year 2024, marking a significant milestone in India’s involvement in global audit governance.

- This position was conferred during the **sixty-third session of the Panel of External Auditors held at the United Nations headquarters in New York**.
- The **Panel of External Auditors**, composed of Heads of **12 Supreme Audit Institutions (SAIs)** globally, oversees the external audit of the **UN Secretariat, Funds and Programmes, and Specialized Agencies**.

- Their responsibilities encompass a wide spectrum, ranging from financial and performance audits to ensuring compliance within UN entities.
- It includes representatives from Canada, Chile, China, France, Germany, **India**, Indonesia, Italy, Philippines, Russia, Switzerland, and the United Kingdom.

Read more: [Comptroller and Auditor-General of India \(CAG\)](#)

## Zero Draft Text to Mitigate Plastic Pollution

Recently, the **3rd session of the Intergovernmental Negotiating Committee (INC-3)** concluded at the **United Nations Environment Programme (UNEP)** Headquarters in Nairobi, Kenya.

- This session focused on the development of an **international legally binding instrument on plastic pollution**, encompassing concerns related to the **marine environment**.
- However, amidst the progress, challenges emerged as INC-3 encountered difficulties in reaching a consensus on the **zero draft text** of the international legally binding instrument on plastic pollution.
- The zero draft of INC 3 outlines proposed elements for the international legally binding instrument on plastic pollution, emphasizing the marine environment.
  - It aims to address prevention, regulation, and mitigation, encompassing technical, regulatory, institutional, and procedural elements crucial for effective implementation.
  - India actively supports this development and actively participates in the INC process.
- **INC-4 and INC-5 are scheduled to be hosted by Ottawa, Canada** a few months from now and by **Busan, South Korea** in November 2024, respectively.

Read more: [Eliminating Plastic Pollution by 2040, Intergovernmental Negotiating Committee](#)

## Guru Nanak Jayanti

Recently, the President of India greeted the citizens on the occasion of **Guru Nanak Jayanti**.

- Guru Nanak Jayanti, also known as **Gurpurab**, is celebrated to mark the birth anniversary of **Guru Nanak Dev**, the **first guru and the founder of the Sikh religion**.

Note:

- The festival is celebrated on the **fifteenth lunar day** of the Hindu month of Kartik, typically falling in November.



- Guru Nanak Dev (1469-1539) was born in a village, Talwandi Rai Bhoi, near Lahore (it was renamed later as Nankana Sahib).
- Guru Nanak Dev initiated **inter-faith dialogue** way back in the 16<sup>th</sup> century and had conversations with most of the religious denominations of his times.
- Compositions penned by Guru Nanak Dev were integrated into the **Adi Granth by Guru Arjan (1563-1606), the fifth Sikh guru.**
  - Later enhanced by the **10<sup>th</sup> Sikh guru, Guru Gobind Singh (1666-1708)**, it evolved into **Guru Granth Sahib.**
- Guru Nanak Dev's commitment to equality is evident in the social institutions he advocated: **Langar** (collective cooking and sharing of food), **Pangat** (partaking in food without distinctions of high and low caste), and **Sangat** (collective decision-making).
  - Advocated equality without distinctions of caste, creed, and gender.

**Read more: [Guru Nanak Dev Jayanti, Guru Nanak Dev](#)**

## Lachit Diwas

Recently, the Prime Minister of India has paid tributes to **Lachit Borphukan on Lachit Diwas (24<sup>th</sup> November annually).**

- Lachit Borphukan was a commander and Borphukan (viceroys) in the **Ahom kingdom**, located in present-day Assam, India
- He is known for his leadership in the **1671 Battle of Saraighat**, where he defeated the Mughal army sent by **Emperor Aurangzeb** to conquer Assam.
- He was born on 24<sup>th</sup> November 1622 to Momai Tamuli Borbarua, a high-ranking official in the Ahom administration.
- He is celebrated as a symbol of Assam's historical autonomy and cultural identity.
- His birth anniversary is observed as Lachit Divas on 24<sup>th</sup> November every year across the state.

- The **Lachit Borphukan Gold Medal** instituted in 1999, is awarded to the best cadet from the **National Defence Academy.**

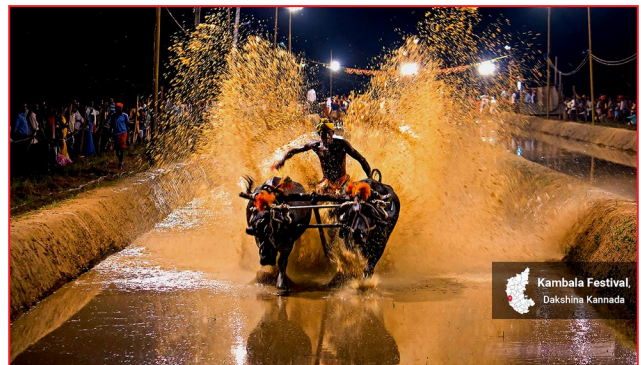


**Read more: [General Lachit Borphukan of Ahom Kingdom](#)**

## Kambala Buffalo Race

The traditional **buffalo race, Kambala**, is set to take place for the first time in Bengaluru, Karnataka.

- Kambala is a buffalo race held in **Coastal Karnataka districts (Udupi and Dakshina Kannada)** during the winter months when farmers harvest their paddy crops.
  - The race is held on two parallel tracks filled with mud and water. Each pair of buffaloes will also have a jockey, or '**Kambala runner**' to control and command the animals on the track.
  - The team that wins qualifies for higher rounds till a champion emerges.
- Apart from winning the race, targets also include splashing water; in fact, some winners are even declared on the **amount of water splashed**; this is called '**kolu**'.



**Read more: [Kambala](#)**

Note:

## Justice M. Fathima Beevi

Justice M. Fathima Beevi, the **first female Judge** to be appointed to the **Supreme Court of India**, passed away.

- She was also the **first Muslim woman to be appointed to the higher judiciary** in the country.
- She served as a member of the **National Human Rights Commission** and then as **Governor of Tamil Nadu**.



## Guru Tegh Bahadur Martyrdom Day

**Guru Tegh Bahadur Martyrdom Day** is observed every year on **24<sup>th</sup> November**. He is the ninth guru in the lineage of Sikh saints.

- He was born as **Tyag Mal in 1621 in Amritsar**. His teachings against **divisive practices and emphasis on unity in faith** garnered widespread resonance across North India.
- His travels, including visits to far-reaching places like Dhaka and Puri, showcased his commitment to spreading his message of fearlessness and unity.
  - However, **his confrontation with Aurangzeb's regime**, culminating in his martyrdom on **24<sup>th</sup> November, 1675**, symbolized unyielding resilience and refusal to compromise on principles.

Read more: [Guru Tegh Bahadur](#)

## 16<sup>th</sup> World Wushu Championship

The **16<sup>th</sup> World Wushu Championships** recently concluded in Fort Worth, Texas, USA.

- It was organized by the **United States of America Wushu-Kungfu Federation (USAWKF)** under the auspices of the **International Wushu Federation (IWUF)**.
  - **Wushu** is a **martial art** that **originated in China** and encompasses various forms and styles. It's a disciplined and highly stylized form of combat and self-defense.
- Among the standout performers from India, **Roshibina Devi (silver)**, **Kushal Kumar (bronze)** and **Chavi (bronze)** demonstrated remarkable skill and resilience in their respective weight categories.

Read more: [Martial Art forms in India](#)

## Jammu and Kashmir Government Terminates Employees Citing Article 311(2)(C)

Recently, the Jammu & Kashmir government has terminated four employees, on grounds of being deemed a **"threat to the security of the state."**

- The terminations were executed under **Article 311(2) (C) of the Constitution**.
- Article 311 (2) says that no person who is a **member of a civil service of the Union** or an **all-India service** or a **civil service** of a State or holds a **civil post under the Union or a State** shall be **dismissed or removed** or reduced in rank **except after an inquiry** in which he has been informed of the charges against him and given a reasonable opportunity of being heard in respect of those charges.
  - Exceptions to Article 311 (2):
    - 2(a) where a person is dismissed or removed or reduced in rank on the ground of conduct which has led to his **conviction on a criminal charge**.
    - 2(b) The authority empowered to dismiss or remove a person or to reduce him in rank is satisfied that, for some reason, which must be recorded in writing by that authority, it is not reasonably practicable to hold such an inquiry; or
    - 2(c) In cases where the President or the Governor, as applicable, is convinced that, in the **interest of the security of the State**, it is not expedient to conduct an inquiry, such an inquiry may be deemed unnecessary.

Read more: [Article 311 of the Constitution](#)

## Digital Mapping of Cities

In a move towards transforming India's mapping ecosystem, Genesys International, a leading **3D mapping company**, signed a strategic tie-up with **Survey of India (SOI)**, the country's national surveying and mapping authority.

- This collaboration is set to revolutionize India's map content through the implementation of the **'3D Digital Twin Mapping Program.'**
- This is In line with **India's National Geospatial Policy 2022**, emphasizing **self-reliance in geospatial data**.

Note:



- This initiative will provide previously unavailable data layers, including high-precision **3D data**, digital terrain models (DTMs), digital surface models (DSMs), and ortho imagery (image corrected by removing distortion).
- The project will leverage **Genesys' navigable maps of India** and its constellation of sensors. The company will access datasets from the **SOI's CORS (Continuously Operating Reference Stations)** network of 902 stations across all states, which provides for real-time, high-precision positioning data

Read more: [National Geospatial Policy 2022](#)

## Advancing Ayurveda: AGNI Initiative & Mainstreaming Research

The **Central Council for Research in Ayurveda Sciences (CCRAS)**, under the Ministry of Ayush, launched the "**Ayurveda Gyan Naipunya Initiative**" (**AGNI**) to promote **evidence-based practices** and scientific validation within Ayurveda.

- AGNI serves as a platform for Ayurveda practitioners to **report innovative treatments and experiences in various diseases**.
- Additionally, CCRAS has previously initiated programs like **SPARK, PG-STAR, and SMART** to foster research in Ayurveda colleges and hospitals, recognizing the need for evidence-based research in managing contemporary health challenges through Ayurveda interventions.

Read more: [Ayurveda, SMART](#)

## BDS Movement

The ongoing **Israel-Hamas conflict** has once again brought the **Boycott, Divestment, and Sanctions (BDS) movement** into the spotlight, as it urges the boycott of major multinational companies.

- The **Boycott, Divestment, and Sanctions (BDS) movement**, born in 2005 from the collaboration of over 170 Palestinian groups, aims to rally global support for the rights of Palestinian people.
  - Drawing inspiration from the successful **South African anti-apartheid movement**, it seeks **nonviolent means to pressure Israel into complying with international law**.

- It utilizes **nonviolent methods** to pressure Israel into adhering to international law, focusing on ending occupation and colonization, equality for Palestinian citizens, and the rights of Palestinian refugees as stipulated in **UN Resolution 194**.
  - The resolution stated that refugees wishing to return to their homes should be permitted, and that compensation should be paid for the property of those choosing not to return.

Read more: [Israel-Hamas Conflict and its Global Impact](#)

## 43% Increase in Measles Deaths From 2021-2022

According to a new assessment by the **World Health Organization (WHO)** and the **United States' Centers for Disease Control and Prevention (CDC)**, the number of **measles** deaths worldwide increased by **43 % from 2021-2022**, due to falling vaccination rates.

- Low-income countries — where the risk of measles-related deaths is highest — have the **lowest vaccination rate of 66%**, indicating no recovery at all from the backslide during the pandemic.
- Measles, a highly contagious viral disease, spreads through respiratory droplets transmitted by the breath, sneeze or cough of an infected person.
- Measles is caused by a single-stranded, enveloped **RNA virus** with 1 serotype. It is classified as a member of the genus **Morbillivirus** in the Paramyxoviridae family. **Humans are the only natural hosts of measles virus**.

Read More: [Universal Immunization Programme, Mission Indradhanush](#)

## Governor Can't Withhold Re-passed Bills

Government of Tamil Nadu complained to the **Supreme Court (SC)** that **Governor** is holding back Bills indefinitely, defeating the rights of the people of Tamil Nadu to the benefits of crucial laws passed by the House.

- The SC took note of the Tamil Nadu government's argument that the Constitution does not provide Governor "discretion" to withhold the Bills "re-passed" by the **State Legislative Assembly**.

Note:

- SC held that the first provision of **Article 200** states: “if the Bill is passed again by the House or Houses with or without amendment and presented to the Governor for assent, **the Governor shall not withhold assent therefrom**”.
- The court also acknowledged the State’s submission that the Governor, having withheld assent and sent back the Bills once, **cannot refer the reiterated Bills to the President**.
- It was also observed by SC that **withholding the Bill also implies sending it back to the Legislature for reconsideration** as returning the Bills back to the House was a necessary corollary to the withdrawal of assent.

Read More: **Article 356, Rajmannar Committee**

## Israel Declares Lashkar-e-Taiba as Terror Organisation

Ahead of the 15th anniversary of the **26/11 Mumbai attacks**, Israel declared the Pakistan-based terror outfit **Lashkar-e-Taiba (LeT)** as a terror outfit, the move is in sync with Israel’s attempts to support a global war on terror.

- The announcement has come in the backdrop of Israel’s continued military operation in **Gaza Strip** that was launched immediately after the attack by **Hamas** on Israeli targets.
- Israel’s move comes at a time when it has **asked India to proscribe Hamas as a terrorist outfit**.
- Israel usually lists terrorist organizations that operate against it within or around its borders, similar to India’s practice of listing groups recognized globally by the **UNSC** or the US State Department.
- USA, UK, **European Union**, Canada, Australia, Japan are among the countries and groupings that have designated Hamas as a terror outfit.

Read More: **Six-Day War of 1967, UNSC 1267 Committee**

## Kolkali Art of Kerala

Kolkali, a folk art of **Malabar region of Kerala**, is being performed in remembrance of **St. Thomas’** (one of the disciples of **Jesus Christ**) arrival in India who landed in **Muziris (Cranganore)** on the Kerala coast in **52 AD**.

- With a history of about 200 years, Kolkali art is said to have drawn elements from **Kalaripayattu**, a martial art practised in **Kerala and Tamil Nadu**.
- In Kolkali, each of the performers **holds a stick and moves in circle, striking the sticks and keeping rhythm to the accompanying music**.
- As the music gradually rises in pitch, **the pace increases till the performance reaches its climax**. The circle expands and contracts as the dance progresses.
- Kolkali is widespread among the **Dravidians**. It has exerted a great influence in the folk dance forms of Bengal, Gujarat, Punjab, and Maharashtra. **In Tamil Nadu, this art form is referred to as Kolattam and in Andhra Pradesh, as Kolamu**.



Read More: **Martial Art Forms in India**

## Online Coaching Platform: SATHEE

The **Ministry of Education (MoE)** and IIT-Kanpur have launched **SATHEE**, an **innovative online platform** aimed at transforming **entrance exam preparation in India**.

- This collaborative initiative breaks the mold of traditional coaching centers by offering **free, accessible coaching, leveling the playing field for aspirants** from all backgrounds.
- Aligned with **National Education Policy**, SATHEE leverages **AI to personalize learning experiences** and provides a 45-day comprehensive crash course, preparing students for exams like JEE and NEET.

Read more: **National Education Policy**

## ICMR Debunks Link Between Covid-19 Vaccines and Sudden Deaths

A recent study by the **Indian Council of Medical Research (ICMR)** dispels concerns about **Covid-19 vaccines causing sudden deaths**.

- The study suggests that **vaccination lowers the risk of sudden deaths**, especially in seemingly healthy individuals discharged within 24 hours.

Note:

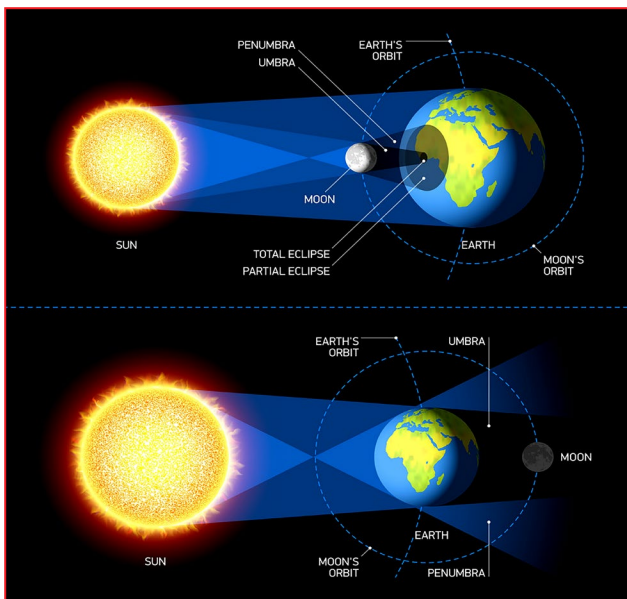
- Most sudden deaths are **attributed to heart conditions**, including irregular heartbeat, obstructed blood flow, and reduced heart muscle functionality.
- Family history of sudden death, smoking, binge drinking, and vigorous exercise are identified as other risk factors for sudden deaths.
- The study highlights potential mechanisms through which **Covid-19 might impact heart health**, including damage to heart muscles and blood vessels.
- **Severe Covid-19 cases** requiring hospitalization are **linked to an increased risk of sudden deaths**, with those experiencing severe illness four times more likely to face such outcomes.

Read more: **Post-Hospitalization Mortality in Covid-19 Patients**

## Eclipses

**Eclipses** are astronomical phenomena that occur when **the sun, the moon, and the earth lie in a straight line**. However, eclipses **do not happen on every new moon and full moon day**.

- The moon's orbit around the earth is **tilted by about 5 degrees** to the earth's orbit around the sun.
- This means that the moon is usually too high or too low to **cast a shadow on the Earth (solar eclipse)** or to **enter the Earth's shadow (lunar eclipse)**.
- Eclipses only occur when the **moon crosses the ecliptic plane**, which is the plane of the earth's orbit around the sun, **at the same time as it is new or full**.



- The line of intersection of the planes is called the **line of nodes**. For an eclipse to occur, the moon has to be near one of the nodes.
- This does not happen on all new moon and full moon days.
- Eclipses happen in pairs, with one solar and one lunar eclipse occurring in two weeks, which is called an **eclipse season**.
- There are usually two eclipse seasons in a year, at varying times, depending on the alignment of the nodes and the sun.

Read more: **Types of Eclipses**

## VAJRA PRAHAR 2023: Indo-US Special Forces Unite

The **14<sup>th</sup> edition of the Indo-US Joint Special Forces exercise, "VAJRA PRAHAR 2023,"** kicked off at Umroi Cantonment, Meghalaya. The first edition was conducted in the year **2010 in India**.

- The US contingent, comprising personnel from the **1st Special Forces Group**, joins forces with **India's Eastern Command-led Special Forces contingent**.
- This exercise, fostering collaboration between the Indian and US armies, focuses on sharing **tactical strategies, mission planning, and operational tactics**.

Read more: **Exercise VAJRA PRAHAR**

## Thailand's Cabinet Approves Marriage Equality Bill

Recently, **Thailand's Cabinet** greenlit an **amendment to the Civil and Commercial Code**, paving the way for **same-sex marriage** rights in the country.

- The change in language within the code, replacing **"men and women"** with **"individuals"** and **"husband and wife"** with **"marriage partners,"** aims to grant equal rights to same-sex couples.
- It would guarantee the right to form a family in a relationship between same-sex couples, adding that the next step will be an amendment to the pension fund law to recognize same-sex couples as well.

Read more: **Same Sex Marriage: Struggle for Equality**

Note:

## Uttar Pradesh Imposes Ban on Halal Certification

The recent ban imposed by **Uttar Pradesh Food Safety and Drug Administration Commission** on the **production, storage, distribution, and sale of Halal certified food products** within the state under **Section 30 (2) (d) of the Food Safety and Standards Act, 2006** and powers under the **Section 30 (2) (a) of the same Act**.

- The order contends that **halal certification creates confusion regarding the quality of food items**, labeling various products such as dairy goods, bakery items, edible oils, and more.
- Section 30 (2) of the Food Safety and Standards Act, 2006:
  - Restricting for the sake of public health, the **production, storage, circulation, or vending of any food item**, within the entire State or specific regions thereof, for a duration not surpassing one year, as delineated in the order announced and published in the Official Gazette.
  - Ensure an **efficient and uniform implementation of the standards and other requirements** as specified and also ensure a high standard of objectivity, accountability, practicability, transparency and credibility.

## Javier Milei Wins Argentina Presidential Election

The Prime Minister of India congratulated **Javier Milei for winning Argentina's presidential election** and emphasized diversifying and expanding



**India-Argentina's strategic partnership.**

- India-Argentina relations were elevated to the level of **Strategic Partnership in February 2019**.
- India is the **4<sup>th</sup> largest trading partner of Argentina**, with bilateral trade touching a historic peak of USD 6.4 billion in 2022, recording a growth rate of 12% over 2021.

**Read more: India and Argentina Sign Social Security Agreement**

## Santhali Language and Literature

Recently, the **President of India** graced the inaugural session of the **36<sup>th</sup> Annual Conference and Literary Festival** of All India Santali Writers' Association at Baripada, Odisha.

- President appreciated writers and researchers who are contributing to the **Santhali language and literature**.
- Santhali language is a **Munda language** spoken primarily in the **east-central Indian states of West Bengal, Jharkhand, and Orissa**.
- The Santhali language was included in the **Eighth Schedule of the Constitution** in 2003.
  - Santhali literature, historically oral, saw notable contributions from **Pandit Raghunath Murmu**, who created the **OI Chiki script**, also known as **OI Cemet**.

**Read more: Translation of India's Constitution into OI Chiki Script**

## World Fisheries Day

**World Fisheries Day** is celebrated across the world on **21<sup>st</sup> November** annually.

- The main purpose behind this day is to **highlight the importance of sustainable stocks of fisheries in the world**, to strengthen human rights for the small-scale fishing communities, to make a true difference in the working conditions of fishing communities and to **eliminate illegal, unreported and unregulated fishing**.
- The **Government of India** is organizing the **Global Fisheries Conference India 2023**, on occasion of World Fisheries Day at the **Gujarat Science City in Ahmedabad** with the theme '**Celebrate the Fisheries and Aquaculture Wealth**'.

**Read more: World Fisheries Day**

## Cyclone Midhili

Recently, **Cyclone Midhili**, which stemmed from a **deep depression in the Bay of Bengal** and was named by **Maldives**, underwent a downgrade from a "**deep depression**" to a "**depression**" as confirmed by the **India Meteorological Department (IMD)** after its landfall on the Bangladesh coast.

Note:



- A **cyclonic storm** is characterized by a maximum sustained **wind speed of 62-88 kmph**, while it is termed a severe cyclonic storm if the maximum sustained wind speed reaches **89-117 kmph**.

## Indira Gandhi Birth Anniversary

Recently, the Prime Minister has paid tributes to former **Prime Minister Indira Gandhi** on her birth anniversary (19<sup>th</sup> November 1917 in Allahabad, Uttar Pradesh).



- Indira Gandhi, also known as the **Iron Lady of India**, was the **third and the only female Prime Minister of India**, who served from 1966 to 1977 and from 1980 to 1984.
  - She was the daughter of **Jawaharlal Nehru**, the first Prime Minister of India.
- She led India to victory in the **1971 war against Pakistan**, which resulted in the **creation of Bangladesh**.
- She imposed a state of **emergency in 1975**, suspending civil liberties and democratic rights.
- She was assassinated in retaliation for the **Operation Blue Star**, a military action against the Sikh militants in the Golden Temple.
- She was awarded the **Bharat Ratna**, India's highest civilian honour, posthumously in 1984.

Read more: **Indo-Pak War: 1971, Operation Blue Star**

## Birth Anniversary of Rani Lakshmibai

The Prime Minister has paid tributes to the symbol of the bravery of Indian women power, **Rani Lakshmibai** on her birth anniversary (19<sup>th</sup> November 1828 in Varanasi, Uttar Pradesh).

- Rani Lakshmibai, originally named Manikarnika was **one of the brave warriors of India's struggle for Independence** and the Queen of the **Maratha-ruled princely state of Jhansi**.
- She married **Maharaja Gangadhar Rao** at the age of 14, adopting the name Laxmibai. Her son died, and she later adopted **Damodar Rao**.

- In 1853, when the Maharaja of Jhansi died, Lord Dalhousie refused to acknowledge the child and **applied the Doctrine of Lapse**, and **annexed the state**.



- According to this, any princely state that was under the **direct or indirect control of the East India Company** where the ruler did not have a **legal male heir** would be annexed by the company.
- She was one of the **leading figures of the Indian Revolt of 1857**.
- Rani Lakshmibai **fought bravely against the British** to save her empire from annexation. She died fighting on the battlefield on **17<sup>th</sup> June 1858**.
- When the **Indian National Army** started its first female unit (in 1943), it was named after the **valiant queen of Jhansi**.

Read more: **Rani Lakshmibai**

## AI-Driven Martian Oxygen: Revolutionizing Mars Missions

Researchers have devised a groundbreaking method using **AI-driven chemistry to produce oxygen from Martian meteorites**.

- By converting **meteorites into compounds and creating catalysts**, this AI-chemist demonstrated a capacity to produce oxygen under simulated Martian conditions, marking a **crucial leap towards self-sustaining Martian exploration**.
- This innovative approach unlocks the potential for utilizing indigenous resources, steering future missions toward cost-effectiveness and reduced complexity.

## Australia Wins ICC Men's Cricket World Cup 2023

In the final showdown of the Cricket World Cup 2023, **Australia clinched victory against India** by a **margin of six wickets** at the **Narendra Modi Stadium** situated in Ahmedabad.

Note:

- The match witnessed a remarkable performance by **Australia's Travis Head**, who secured a century.
- This triumph marked Australia's **sixth World Cup title**, establishing a new record as they had previously secured victories in **1987, 1999, 2003, 2007, and 2015** editions of the tournament.
  - India secured triumph in the World Cup twice, in **1983 and 2011**.

## Cambridge's Word of the Year 'Hallucinate'

The word of the year, 'hallucinate', chosen by the **Cambridge Dictionary**, sheds light on the complexities of **Artificial Intelligence (AI) and its potential dangers**.

- The original definition of "hallucinate" is to seem to **sense something that doesn't exist**, usually because of a health condition or drugs. Cambridge Dictionary's expanded definition of "hallucinate" includes the **production of false information by AI**.
  - The intelligentization of AI poses real dangers, particularly in politics and public life, where **disinformation and misinformation** can have far-reaching consequences.
  - The expanding reach of Open AI and its tools like **Chat GPT, Google Bard, and Microsoft's Copilot** have been widely discussed throughout the year.

**Read more: Artificial Intelligence and Ethics, Negative Impacts of Artificial Intelligence**

## MITRA SHAKTI 2023

**Exercise MITRA SHAKTI-2023**, being held in **Aundh (Pune) in November 2023**, marks the joint effort between **Indian and Sri Lankan contingents** comprising troops mainly from the **Maratha Light Infantry Regiment and the 53 Infantry Division**, respectively.

- This exercise focuses on rehearsing **sub-conventional operations under the UN Charter's Chapter VII**, emphasizing counter-terrorism tactics like **raids, heliborne missions, and search-and-destroy operations**. Exercise will also involve the employment of **Drones** and Counter Unmanned Aerial Systems
- Its objectives are to improve interoperability, reduce risks during **peacekeeping** operations, and exchange combat skill insights for mutual learning.

**Read more: Exercise MITRA SHAKTI**

## National Epilepsy Day

National Epilepsy Day is celebrated every year in India on **17<sup>th</sup> November** to raise awareness about the **brain disorder and bust myths surrounding the disease**.

- Epilepsy is a brain disorder that can cause **seizures due to abnormal brain activity** or temporary changes in the brain's electrical functioning.
  - The brain produces **orderly electrical impulses** along nerve cell networks, but in epilepsy, this balance is disrupted thus it impacts consciousness, movements, or sensations.
- According to the **World Health Organization (WHO)**, around 50 million people worldwide are affected by epilepsy and **India accounts for nearly 10-20%** of the global burden of epilepsy.
- Epileptic seizures are broadly categorized into **focal and generalized seizures** based on the location of abnormal brain activity.
  - Focal seizures may cause brief emotional changes, involuntary movements, and symptoms like dizziness.
  - Generalized seizures present varied symptoms including staring, muscle jerking, loss of control, twitches, and sudden loss of consciousness.
- Every year the second Monday of February is observed as **International Epilepsy Day**.

**Read more: International Epilepsy Day**

## National Press Day

**National Press Day**, marked on 16th November, holds immense significance in India as it marks the **establishment of the Press Council of India**, functioning as a guardian of journalistic ethics and freedom.

- Unlike other global Press or Media Councils, the **unique authority of the Press Council of India extends even over state instruments**, ensuring the independence of the press.
- The Council, **initiated in 1966**, was recommended by the first **Press Commission in 1956** to uphold professional standards and ethics in journalism through a **statutory body** comprising industry stakeholders.

**Read more: National Press Day**

Note:



## Madiga Sub-Categorization

The Prime Minister of India made a recent announcement in Hyderabad (Telangana), expressing the commitment to form a committee for the **sub-categorization of the Madiga community** within the **Scheduled Castes (SC)**.

- The Madiga community constitutes approximately **50% of the total SC population in Telangana**, as per the 2011 census.
  - Since 1994, the Madiga community has been advocating for the sub-categorization of the SC category, emphasizing the need for **equitable distribution of reservation benefits**.
- Madigas argue that the benefits of SC category reservations have primarily favoured the **Mala community (Dalit community in the states of Andhra Pradesh and Telangana)**, leaving the Madigas with a sense of exclusion.
  - Sub-categorization aims for the **equitable distribution of reservation benefits** among all the SC sub-castes.
- Madigas are historically associated with the work of tannery, leatherwork and small handicrafts. Most today are agricultural labourers.

Read more: [Criterion for SC Status](#)

## Enhancing Antifungal Treatment

Recently, a study published in *Nature* revealed the successful modification of an **antifungal agent Amphotericin B (AmB)**, resulting in **reduced toxicity in mice and human kidney cells**.

- AmB, a vital safeguard against serious **fungal infections for decades**.
  - It operates by forming aggregates that bind to **ergosterol**, a molecule found in bacterial and fungal cells.
  - Despite its efficacy, AmB is known for its high toxicity in humans, particularly in **renal cells (cells in the kidney)**.
- Researchers aimed to enhance AmB's biological activity by **modifying** specific parts of its molecule responsible for binding sterols and designed a **variant AM-2-19**.

- AM-2-19, demonstrated **reduced toxicity** by selectively binding to and **extracting fungal ergosterol**, but not mammalian cholesterol, in human renal cells and mice while maintaining **high efficacy as an antifungal treatment**. It is also comparatively resilient to **antimicrobial resistance**.

Read more: [First-Ever List of Fungal Infections](#)

## P. salinarum: Unveiling Adaptation in Extreme Environments

Recent research has delved into the mysteries of *P. salinarum*, a **tiny green algae** surviving **harsh saline-alkaline conditions**.

- Studying the organism's molecular mechanisms, the research revealed its unique adaptations, **boosting photosynthesis and ATP (adenosine triphosphate) synthesis**, unlike most photosynthetic life in **hyperosmotic conditions**.
  - Hyperosmotic conditions refer to a situation where the surrounding environment has a higher concentration of solutes compared to the internal environment of a cell or organism
- Beyond its resilience, this **microalga showcases potential for carbon capture** and biomass production, paving the way for sustainable **biotechnological advancements**.

## Widening Trade Deficit

India's trade in October 2023 depicted a **widening trade deficit**, reaching a record **USD 31.46 billion**.

- Trade deficit represents a situation where the **value of a nation's imports exceeds the value of its exports** during a certain period
- The surge in imports, rising by 12.3% to USD 65.03 billion, was particularly **notable in gold and oil**, doubling gold imports to USD 7.23 billion and escalating oil imports to USD 17.66 billion.
  - Such deficits significantly influence the **current account and subsequently impact currency values**.

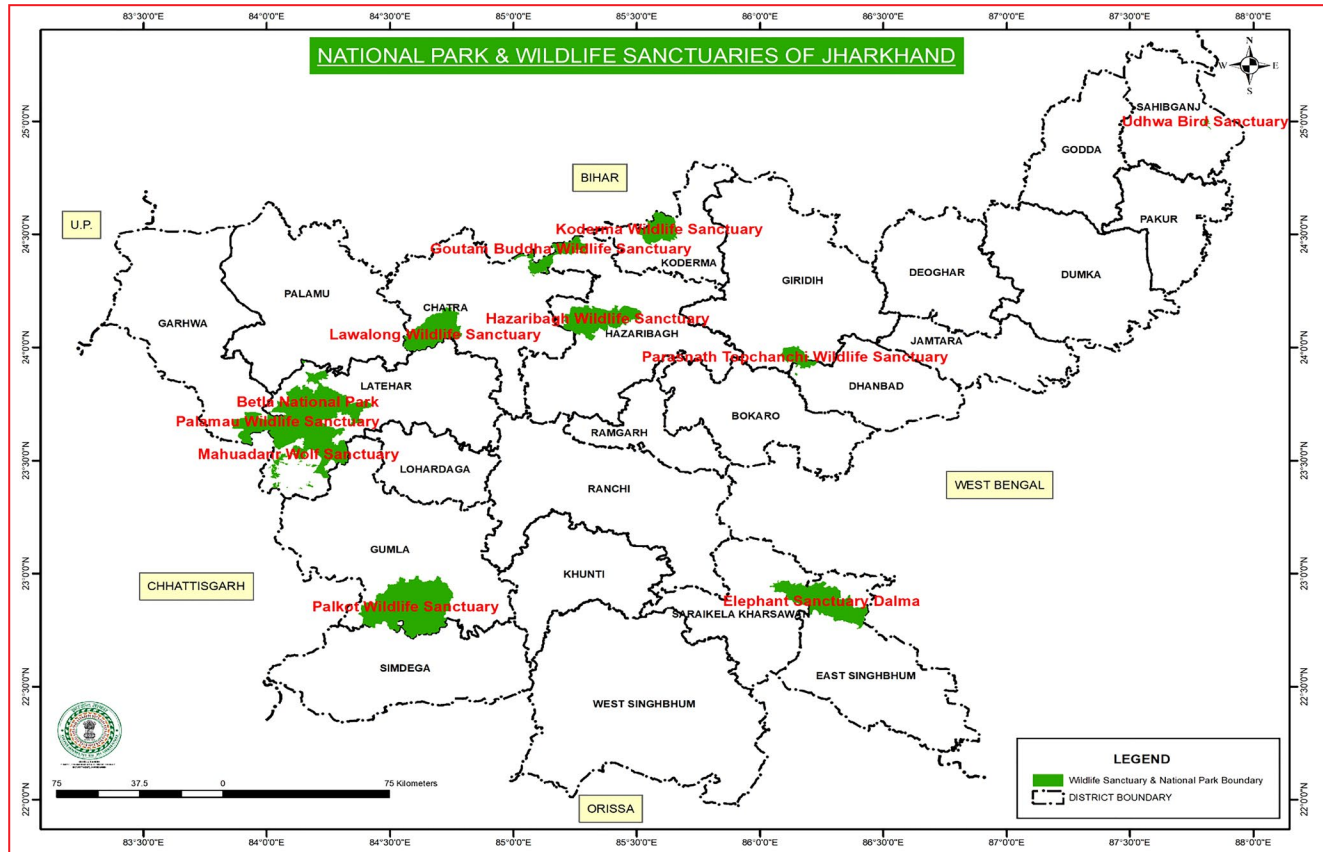
Read more: [Current Account Deficit](#)

Note:

## Jharkhand Foundation Day

Jharkhand became the **28th state of India on 15th November 2000** after the **Chota Nagpur area** was segregated from the southern half of Bihar to become a new Indian state, a division enabled by the **Bihar Reorganization Act, 2000**.

- **Notably**, the day also coincides with the birth anniversary of tribal leader **Birsa Munda**.
- Jharkhand is famous for its rich mineral resources like Uranium, Mica, Bauxite, Granite, Gold, Silver, Graphite, Magnetite, Dolomite, Fireclay, Quartz, Feldspar, Coal (32% of India), Iron, Copper (25% of India) etc.



Read more: [Birsa Munda](#)



Note:

**Key Points**

**Details**

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