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Current Affairs (CONSOLIDATION)

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Polity and Governance

Highlights

- Electoral Bonds
- SC on Tenure Extensions of Enforcement Directorate Chief
- Anti-Defection Law
- Government Brings GSTN under PMLA Ambit
- Protecting the Honour of National Anthem
- Annulment of Member of Parliament
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- PM-PRANAM Scheme and Increased FRP

Electoral Bonds

Why in News?

A recent report by the **Association of Democratic Reforms (ADR)** an Indian **Non-governmental Organization (NGO)** established in 1999 situated in New Delhi sheds light on the significant role played by **Electoral Bonds** as the primary source of donations for **political parties in India**.

- Between **2016-17 and 2021-22**, the **seven national parties** and **24 regional parties** received a **total donation of ₹9,188.35 crore** from Electoral Bonds.
 - The report analyzed donations received from **anonymous Electoral Bonds**, **direct corporate donations**, **contributions from MPs/MLAs**, **meetings, morchas**, and **collection by party units**.

What are the Key Highlights of the ADR Report?

- **Analysis of Donations and Funding Sources:**
 - The highest donations from Electoral Bonds, totaling **₹3,438.8237 crore**, were received in **2019-20**, the year of the general elections.
 - The year **2021-22**, which witnessed **11 Assembly elections**, saw donations worth **₹2,664.2725 crore** through Electoral Bonds.

- Out of the total donations of **₹16,437.635 crore** received by the 31 political parties analyzed, **55.90% came from Electoral Bonds**, **28.07% from the corporate sector**, and **16.03% from other sources**.

➤ National Parties:

- National parties experienced a **significant surge in Electoral Bond donations**, witnessing a **743% increase between FY 2017-18 and FY 2021-22**.
- In contrast, **corporate donations** to national parties **increased by only 48%** during the same period.

➤ Regional Parties and Electoral Bond Contributions:

- Regional parties also witnessed a substantial proportion of their donations coming from Electoral Bonds.

➤ Power-Biased Donations of Electoral Bond:

- BJP, as the party in power, secures the **highest donation among national political parties**. More than **52% of the BJP's total donations** were sourced from Electoral Bonds, amounting to **₹5,271.9751 crore**.
- The Congress secured the second-highest Electoral Bond donations, with **₹952.2955 crore** (61.54% of its total donations), followed by the Trinamool Congress with **₹767.8876 crore** (93.27%).

What are Electoral Bonds?

➤ About:

Note:



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- The electoral bonds system was introduced in 2017 by way of a Finance bill and it was implemented in 2018.
- They serve as a means for individuals and entities to **make donations to registered political parties** while maintaining donor anonymity.
- **Features:**
 - **State Bank of India (SBI)** issues the bonds in denominations of **Rs 1,000, Rs 10,000, Rs 1 lakh, Rs 10 lakh, and Rs 1 crore.**
 - **Payable to the bearer on demand and interest-free.**
 - Purchased by **Indian citizens or entities established in India.**
 - Can be bought **individually or jointly with other individuals.**
 - **Valid for 15 calendar days from the date of issue.**
- **Authorized Issuer:**
 - **State Bank of India (SBI)** is the authorized issuer.
 - Electoral Bonds are issued through **designated SBI branches.**
- **Eligibility of Political Parties:**
 - Only the political parties registered under Section 29A of the **Representation of the People Act, 1951** and have **secured not less than 1% of the votes polled** in the last general election to the **House of the People** or the **Legislative Assembly**, are eligible to receive electoral bonds.
- **Purchase and Encashment:**
 - **Electoral Bonds can be purchased digitally or through cheques.**
 - Encashment only through an authorized bank account of the political party.
- **Transparency and Accountability:**
 - Parties must disclose their **bank account with the Election Commission of India (ECI).**
 - Donations are made through banking channels, ensuring transparency.
 - Political parties are **obligated to explain the utilization of the funds received.**
- **Benefits:**
 - Enhanced **transparency in political party funding.**
 - **Accountability** in disclosing donation utilization.
 - **Discouragement of cash transactions.**

- Preservation of **donor anonymity.**
- **Challenges:**
 - Electoral bonds are donations to political parties that hide the identity of the donors and recipients. They may compromise the **right to know**, which is part of the **right to freedom of expression under Article 19** of the **Constitution.**
 - Anonymity may be compromised by government access to donor data. This implies that the **government in power can leverage this information and disrupt free and fair elections.**
 - Potential for unauthorized donations violating regulations.
 - Risk of crony capitalism and infusion of black money.
 - Crony Capitalism is an economic system characterized by close, mutually advantageous relationships between business leaders and government officials.
 - Loopholes regarding transparency for corporate entities and donation limits.
 - As per **Companies Act 2013**, a company can make a political contribution only if its **net average profit of three preceding financial years is at 7.5%.** The removal of this clause has **raised concerns of black money in political funding through shell companies.**

SC on Tenure Extensions of Enforcement Directorate Chief

Why in News?

The **Supreme Court of India** has declared the **two tenure extensions granted to the Director of the Enforcement Directorate (ED)**, beyond the fixed cut-off date as **"not valid in law."**

- While the court allowed the director to continue on the post until July 31, it cut short his overall tenure.

What is the Background and Current Status of the Issue?

- The current director was appointed in **November 2018**, for a period of **two years**. In November 2020, **his tenure was extended to three years**, which was subsequently challenged through petition.

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- On September 8, 2021, the Supreme Court dismissed the petition but issued a specific **mandamus prohibiting further extensions**.
- The government later amended the **Central Vigilance Commission Act, 2003**, and the **Delhi Special Police Establishment Act, 1946**, to grant itself powers for three tenure extensions.
- The amendments were challenged, arguing that

they contradicted a previous directive from the Supreme Court that **advocated for fixed tenures for top officials like the CBI chief (Vineet Narayan Case)**.

- The court ruled that the **amendments themselves were constitutional but declared the specific extensions given to the director of ED as invalid**, as they violated the earlier **mandamus**.

Note: The **ED Director is appointed under Section 25 of the CVC Act, 2003**. The Central Government appoints a Director of ED on the recommendation of a selection committee. The committee consists of the **CVC Chairperson, Vigilance Commissioners, Secretaries to the Ministry of Home Affairs, the Ministry of Personnel and the Ministry of Finance in the Central Government**.

What is Mandamus?

- Mandamus refers to a writ or order issued by a court to a **public body, tribunal, corporation or lower court**, directing them to perform a specific legal duty that they are obligated to carry out.
 - It is derived from the Latin word meaning **"we command"**.
- In India, it is used to **enforce the fundamental rights of citizens** when they are violated by the state or its agencies. It is also used to **prevent the abuse of power or discretion by the authorities**.
 - It is only issued by the **Supreme Court or the High Courts in India** under **Article 32 and Article 226** of the Constitution respectively

What is Enforcement Directorate (ED)?

- **About:**
 - ED is a multi-disciplinary organization mandated with **investigation of offences of money laundering and violations of foreign exchange laws**.
 - It operates under the jurisdiction of the **Department of Revenue, Ministry of Finance, Government of India**.
- **Establishment:**
 - In 1956, an 'Enforcement Unit' was formed, in the Department of Economic Affairs, for handling Exchange Control Laws violations under,
 - In 1957, this Unit was renamed as '**Enforcement Directorate**'.
 - In 1960, the administrative control of the Directorate was **transferred from the Department of Economic Affairs to the Department of Revenue, Ministry of Finance, Government of India**.
- **Enforcement:**
 - ED enforces the following laws:
 - **Foreign Exchange Management Act, 1999 (FEMA)**
 - **Prevention of Money Laundering Act, 2002 (PMLA)**
 - **The Fugitive Economic Offenders Act, 2018 (FEOA)**: This law was enacted to deter economic offenders from evading the process of Indian law by remaining outside the jurisdiction of Indian courts.
- **Structure:**
 - The **Directorate of Enforcement, with its headquarters at New Delhi**, is headed by the Director of Enforcement.
 - There are **five regional offices at Mumbai, Chennai, Chandigarh, Kolkata and Delhi** headed by Special Directors of Enforcement.

Note:



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Anti-Defection Law

ANTI-DEFECTION LAW



ADL was enacted to prevent individual MPs/MLAs from leaving one party for another

CAUSE

- After the 1967 general elections, party-hopping MLAs led to the downfall of several state governments

CONSTITUTIONAL PROVISIONS

- Anti-Defection law under **10th Schedule**; inserted via **52nd Amendment** (1985)

GROUND FORS FOR DEFECTION

- Voluntary membership resignation
- Disobedience of directions of the political party
- Change of party after the election
- A nominated member joins the political party after the expiry of 6 months

EXCEPTIONS

- Presiding officer of LS/RS
- A member who leaves party due to a merger (agreed by 2/3rd members)

91st Amendment (2003) made it 2/3rd of the members to defect to declare a merger (earlier it was 1/3rd)

DECISION MAKING AUTHORITY

- Referred to the Speaker/Chairman of House
- Kihoto Hollohan vs. Zachillu and Ors (1992)** - SC said that such decisions are left to the discretion of presiding officer of LS/RS but subjected to judicial review

ADVANTAGES

- Greater stability by restricting the shift of party relations
- Ensures loyalty of the candidates to the party
- Facilitates democratic realignment of parties by merger
- Helps reducing corruption at political level

ISSUES

- Irrational distinction** between individual v/s group defection
- No provision for expulsion** of MPs/MLAs for their activities outside legislature
- Ambiguous timeframe** for decision-making by presiding officer of LS/RS
- 91st Amendment **doesn't recognise a 'split'** in the party but only a 'merger'

SUGGESTIONS

- SC suggested setting up an **independent tribunal** to decide defection cases
- 2nd ARC Report** recommended transferring decision making power to higher judiciary or EC
- Former VP Hamid Ansari suggested **scope of ADL to be restricted** to conditions that may lead to loss of confidence in govt



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Government Brings GSTN under PMLA Ambit

Why in News?

Recently, the government has issued a notification, bringing the **Goods and Services Tax Network (GSTN)** under the ambit of the **Prevention of Money Laundering**

Act, 2002 (PMLA).

- These changes have been made under **Section 66** of the PMLA, which provides for disclosure of information.

Why has GSTN been Brought Under the PMLA Ambit?

- This move aims to enhance the **fight against money laundering** and strengthen efforts to combat **Goods and Services Tax (GST)** fraud.

Note:



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- The notification amends a previous 2006 notification, allowing for **improved information sharing between the GSTN, Enforcement Directorate (ED), and Financial Intelligence Unit (FIU)** under the provisions of the PMLA Act, 2002.
- Recently, over **69,600 suspected GST identification numbers** were identified for physical verification by field tax officials in a two-month-long drive against fake registrations.
 - Of these, over 59,000 were verified, and **25% were found to be non-existent**.

What is Goods and Services Tax Network?

- GSTN has developed an **Indirect Taxation platform for GST in India**.
- The platform helps **taxpayers in preparing, filing returns, making payments, and complying with indirect tax regulations**.
- It provides **IT infrastructure and services** to the Central and State Governments, taxpayers, and other stakeholders.
- GSTN is a not for profit, limited by shares, Government Company. It was incorporated in 2013 under Section 25 of the Companies Act, 1956 (Now Section 8 of the Companies Act, 2013).
 - The company is **headed by a chairman** who is appointed by the Government.
- The Board of GSTN in its 49th Board Meeting held in June 2022 has approved the **conversion of GSTN into Government Company** and hence **100% of the shareholding being held by Government (50% with Union Government and 50% jointly with State Governments & UTs)** in GSTN.

What is the Prevention of Money Laundering Act (PMLA), 2002?

- **Background:**
 - The PMLA was enacted in response to India's global commitment (Vienna Convention) to combat the menace of **money laundering**. These include:
 - **United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances 1988**
 - **Basle Statement of Principles, 1989**

- **Forty Recommendations of the Financial Action Task Force on Money Laundering, 1990**
- **Political Declaration and Global Program of Action adopted by the United Nations General Assembly in 1990.**

➤ **About:**

- It is a criminal law enacted **to prevent money laundering and to provide for the confiscation of property derived from**, or involved in, money-laundering and related matters.
- It forms the core of the legal framework put in place by India to **combat Money Laundering**.
- The provisions of this act are applicable to all financial institutions, banks (**Including RBI**), **mutual funds, insurance companies**, and their financial intermediaries.

➤ **Objectives:**

- Confiscate and seize proceeds of crime that are laundered, generated, or acquired through criminal activities.
- Establish a legal framework for the prevention of money laundering and terrorist financing.
- Strengthen and improve the mechanism for investigation and prosecution of money laundering offenses.
- Enhance international cooperation in the fight against money laundering and related crimes.

➤ **Regulating Authorities:**

- **Directorate of Enforcement (ED):**
 - The ED is responsible for enforcing the provisions of the PMLA and investigating money laundering cases.
- **Financial Intelligence Unit – India (FIU-IND):**
 - Unit of the Indian Government's Department of Revenue.
 - Gathers financial intelligence on money laundering offenses.
 - Operates under the PMLA, 2002.
 - Sections 12 of PMLA require reporting entities to maintain transaction records, furnish information on prescribed transactions to the Director of FIU-IND, and verify the identity of clients and beneficial owners.
 - Collaborates with enforcement agencies and foreign FIUs.

Note:



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Protecting the Honour of National Anthem

Why in News?

Recently the **Executive Magistrate** in Srinagar sent 11 men to jail after detaining them for **allegedly not rising for the National Anthem** at an event where J&K Lt Governor was present.

- The order noted that “there is every likelihood that they may **commit breach of peace and disturb public tranquility** if released”.
- They were “bound down” for good behaviour under sections **107/151 of CrPC**.

Note:

- In legal terms, to be “bound down” means to be **required to appear before the investigating officer or the court** on a given date.
- The **accused is bound by surety or personal guarantee** to appear before the court.

Who is an Executive Magistrate?

- The CrPC classifies magistrates into 2 types - Executive Magistrates and Judicial Magistrates. Section 3(4) of the CrPC enforces on good relations between the two.
- An Executive Magistrate (EM) is an **officer (or officers) of the Executive branch** who has powers under both **Indian Penal Code (IPC)** and Criminal Procedure Code (CrPC).
- The EMs are **appointed by state governments**, and they focus mainly on **maintaining law & order and performing police and administrative functions**.
 - On the other hand, **Judicial Magistrates give verdicts pronouncing punishments/ penalty/ detention and go through the evidence** in the process of investigation.
 - Also, the Judicial Magistrates are **under direct control of High Courts**.
- EMs **sometimes act as courts** when they take up functions that are judicial in nature while conducting an inquiry (**CrPC Sec.116**) in connection with maintaining peace and order (**CrPC Sec.107**).

What are Section 107 and Section 151 of CrPC?

- **Section 107:** When an EM receives information that any person has disturbed (or is likely to disturb) the peace or public tranquility, s/he may ask such person to **show cause why they should not be ordered to execute a bond for keeping the peace** (maximum period one year).
 - Any EM can take such an action provided either one (if not both) falls in his/her jurisdiction:
 - The place where such breach of peace is likely to occur
 - The person who is likely to disturb the peace
- **Section 151:** It provides for the **arrest to prevent the commission of cognisable offences**.
 - It authorises a police officer who comes to know of some persons planning to commit any such offences, to arrest them without a warrant or Magistrate orders.
 - However, they **cannot be held in custody for more than 24 hours** unless further orders (or any other law) provide so.

What is the National Anthem of India?

- **About:**
 - It is one of the **national symbols** of India, composed by **Rabindranath Tagore**. The anthem **highlights India's national heritage** and demonstrates patriotism and loyalty to the country.
- **Origin:**
 - On December 27, **1911**, Tagore performed the anthem for the **first time in an INC session in Calcutta**.
 - It was again performed in **1941 by Subhash Chandra Bose** but he adopted a slightly different version from the original song, called ‘**Shubh Sukh Chain**’.
- **Evolution and Adoption:**
 - Tagore wrote the first anthem in Bengali ‘**Bharoto Bhagyo Bidhata**’ which later was edited and translated as ‘**Jana Gana Mana**’.
 - It was adopted as the national anthem on January 24, 1950, announced by the then President **Dr Rajendra Prasad**.

Note:

What are the Safeguards to Protect the Honour of the National Anthem?

- **Article 51 (A):**
 - It is part of the **Fundamental duties** of the citizens of India.
 - **Every Indian citizen has a responsibility** to uphold the Constitution's values and institutions, as well as the National Flag and the **National Anthem**.
- **Prevention of Insults to National Honour (PINH) Act, 1971:**
 - The Act stated that **strict punishment** will be meted out for **disrespecting the national anthem and breaking its restrictions**.
 - The accused shall be punished with **imprisonment for up to 3 years or a fine** or both.
- **National Anthem Code of Conduct:**
 - It provides that whenever the Anthem is sung or played, the **audience shall stand to attention**.
 - However, when in the course of a newsreel or documentary the Anthem is played as a part of the film, it is **not expected of the audience to stand**.
 - It also lists the occasions where the short or full versions of the National Anthem will be played.

What are the SC's Views Regarding Honour of the National Anthem?

- **Bijoe Emmanuel & Ors vs State of Kerala & Ors. (1986):**
 - The law around alleged disrespect to the National Anthem was laid down by the **Supreme Court (SC)** in this case.
 - The SC granted protection to 3 children belonging a Christian sect, iterating that forcing them to sing the national anthem was **violative of their fundamental right to freedom of religion (Article 25)**.
 - Their parents pleaded before Kerala HC that the Jehovah's Witnesses sect of Christianity permitted worship of only Jehovah (Hebrew name for God). **Since the anthem is a prayer, they could stand up in respect, but could not sing.**
 - The SC held that standing up respectfully but not singing oneself **neither prevents the singing of the National Anthem nor causes disturbance** to people assembled to sing. Hence, it **does not constitute an offence under PINH Act 1971**.

➤ **Shyam Narayan Chouksey vs Union of India (2018):**

- While hearing the same case in 2016, the SC had passed an interim order **mandating all the Indian cinema halls to play the National Anthem** before the beginning of the film and **all those present in the hall are obliged to stand up**.
- However, in its final judgement on the case in **Jan 2018, the SC modified its order** - "Playing of the National Anthem prior to the screening of feature films in cinema halls is **not mandatory, but optional or directory**".

Annulment of Member of Parliament

Why in News?

The Madras High Court declared the election of a **Member of Parliament (MP)** from the Theni Parliamentary constituency in 2019 as null and void.

- The court, however, kept the order in abeyance for a month to enable appeal against the order.

What is the Background?

- **Allegations:**
 - The petitioner alleged that he failed to disclose his true assets and liabilities in **Form 26 of his election affidavit**, which is filed under **Rule 4A of Conduct of Election Rules, 1961**.
 - Additionally, it was claimed that he resorted to **corrupt practices**, including the distribution of cash in exchange for votes, violating section 123 of the **RP (Representation of the People) Act, 1951**.
- **Court's Observation:**
 - The High Court found that the returning officer responsible for scrutinizing the nominations did not adhere to **Section 36 of the RP Act** and the instructions outlined in the Handbook.

What is the Conduct of Elections Rules, 1961?

- **About:**
 - The Conduct of Elections Rules, 1961 is a set of rules established under the **Representation of the People Act, 1951** in India. These rules govern the conduct of elections in the country and provide

Note:



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guidelines and procedures to be followed by candidates, political parties, election officials, and voters.

- The rules cover various aspects of the electoral process, including the filing of nomination papers, scrutiny of nominations, election campaign regulations, polling procedures, counting of votes, and election dispute resolution.

➤ **Rule 4A:**

- Candidates, while submitting their nomination papers to the returning officer, are **required to include an affidavit (Form 26)** to provide a legal statement regarding the candidate's assets and liabilities.

What are 'Corrupt Practices' under the RPA, 1951?

➤ **Section 123 of the Act:**

- It defines 'corrupt practices' to include bribery, undue influence, **false information, and promotion or attempted promotion** of "feelings of enmity or hatred between different classes of the citizens of India on grounds of religion, race, caste, community, or language" by a candidate for the furtherance of his prospects in the election.

➤ **Section 123 (2):**

- It deals with '**undue influence**' which it defines as "**any direct or indirect interference** or attempt to interfere on the part of the candidate or his agent, or of any other person, with the consent of the candidate or his election agent, with the free exercise of any electoral right."
- This could also include threats of injury, social ostracism and expulsion from any caste or community.

➤ **Section 123 (4):**

- It extends the ambit of "**corrupt practices**" to the **intentional publication** of false statements which can prejudice the outcome of the candidate's election.
- Under the provisions of the **Act, an elected representative can be disqualified if convicted** of certain offences; on grounds of corrupt practices; for failing to declare election expenses; and for interests in government contracts or works.

What are the Other Provisions of Disqualification of MP under RPA, 1951?

- He must not have been **convicted for any offence resulting in Imprisonment for two or more years**. But the detention of a person under a preventive detention law is not a disqualification.
- He must not have any **interest in government contracts, work or services**.
- He must not be a **director or managing agent nor hold an office** of profit in a corporation in which the government has **at least 25 % share**.
- He must not have been **dismissed from government service for corruption** or disloyalty to the State.
- He must not have been **convicted for promoting enmity between different groups** or for the offence of bribery.
- He must not have been punished for **preaching and practising social crimes** such as untouchability, **Dowry** and sati.

What are the Judicial Observations related to Corrupt Practices in the Past?

➤ **Abhiram Singh v C.D. Commachen Case (2017):**

- The SC held that an **election will be annulled if votes are sought in the name of a candidate's religion, race, caste, community, or language**, as per Section 123 (3) of the RPA1951 which prohibits the same.

➤ **SR Bommai v. Union of India (1994):**

- The SC ruled that the **encroachment of religion into secular activities** is strictly prohibited, citing **subsection (3) of Section 123** of the RPA, 1951.

➤ **S. Subramaniam Balaji vs State of Tamil Nadu (2022):**

- The SC held that promises of **freebies cannot be termed a corrupt practice**.
- However, the matter is still yet to be decided.

What is the Representation of the People Act 1951?

➤ **Provisions:**

- It regulates the conduct of elections.
- It specifies the **qualifications and disqualifications for membership** of the houses,
- It provides provisions to curb corrupt practices and other offences.
- It lays down the procedure for settling doubts and disputes arising out of elections.

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➤ Significance:

- The act is significant for the **smooth functioning of the Indian democracy** as it bars the entry of persons with criminal background into representative bodies, thus decriminalizing Indian politics.
- The act requires **every candidate to declare his assets and liabilities**, and maintain an account of election expenses. This provision ensures the accountability and transparency of the candidate in the use of public funds or misuse of power for personal benefits.
- It **prohibits corrupt practices** like booth capturing, bribery or promoting enmity, etc., which ensures the legitimacy and free & fair conduct of elections which is essential for the success of any democratic setup.
- The act provides that only those political parties which are registered under **section 29A of the RPA Act, 1951** are eligible to receive electoral bonds, thus providing a mechanism to track the source of political funding and ensuring transparency in electoral funding.

Governor's Powers in Dismissing a Minister

Why in News?

The recent decision of dismissal and suspension of a Minister in Tamil Nadu by the **Governor** has sparked a **Constitutional Controversy**. The Governor reversed his decision later and suspended the dismissal order.

What are the Governor's Powers to Dismiss Ministers?

➤ Article 164:

- Under Article 164 of the Constitution, the Chief Minister is **appointed by the Governor without any advice** from anyone. But he appoints the individual Ministers only **on the advice of the Chief Minister**.
- The Article implies that the Governor **cannot appoint an individual Minister according to his discretion**. Therefore, the Governor can dismiss a Minister **only on the advice of the Chief Minister**.

➤ Reference to the Government of India Act, 1935:

- From **Section 51(1) and 51(5) of the Government of India Act, 1935**, which governed the colonial rule, the Governor had absolute discretion to choose and dismiss Ministers.
- However, after India gained independence, the Governor's role transformed into that of a constitutional head, **acting solely on the aid and advice of the Council** of Ministers headed by the Chief Minister.

➤ Constitutional Limitations on Governor's Discretion:

- The power to choose or dismiss a **Minister lies with the Chief Minister**, who represents the will of the people.
 - B.R. Ambedkar, during the Constituent Assembly debates, unequivocally stated that the Governor has no independent executive functions under the Constitution.
- The inclusion of the **"pleasure of the Governor" in Article 164** of the Constitution refers only to the **formal act of issuing dismissal orders** upon the advice of the Chief Minister.

Note:

- The pleasure doctrine has been brought into the Constitution of India from the **Government of India Act, 1935**.
 - Section 51 of the Government of India Act, 1935 confers on the Governor the discretion to choose as well as dismiss the Ministers.
 - However, when Article 164 of the Constitution was drafted, the **words "chosen", "dismissal" and "discretion" were omitted**.
- It was a significant omission which makes it abundantly clear that the **Constitution did not confer any discretion on the Governor** to either choose or dismiss an individual Minister.

What are the Judicial Clarifications on Governors Powers?

➤ In *Shamsher Singh and Anr vs State Of Punjab (1974)*:

- The SC declared that the President and Governor, who hold executive powers under the Constitution, **should exercise their formal constitutional powers only with the advice of their Ministers**, except in a few exceptional situations.

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➤ **Nabam Rebia vs Deputy Speaker (2015):**

- The SC has ruled that **Governors cannot cause the downfall** of elected governments. It reaffirmed the previous ruling in Shamsher Singh and emphasized that the Governor's **discretionary powers are limited to the provisions of Article 163(1)**.
- Article 163(1) states that there shall be a **council of Ministers with the Chief Minister at the head to aid and advise the Governor** in the exercise of his functions, except in so far as he is by or under this constitution required to exercise his functions or any of them in his discretion.

What are the Concerns**Related to the Issue of Dismissal of Minister?**➤ **Constitutional Misadventure:**

- Removing a Minister is a **matter of moral judgment, not a legal requirement**. The Governor's decision to dismiss a Minister without the Chief Minister's recommendation is a **constitutional misadventure**.

➤ **Sets Wrong Precedent:**

- This unprecedented and deliberately provocative act of dismissing a Minister of a government without the recommendation of the Chief Minister of the State, may set a precedent and has the **potential to destabilise State governments** putting the **federal system in Jeopardy**.

➤ **Collapse of Constitutional System:**

- If Governors are allowed to exercise the power of dismissal of individual Ministers **without the knowledge and recommendation of the Chief Minister**, the whole constitutional system will collapse.

Data Governance in India

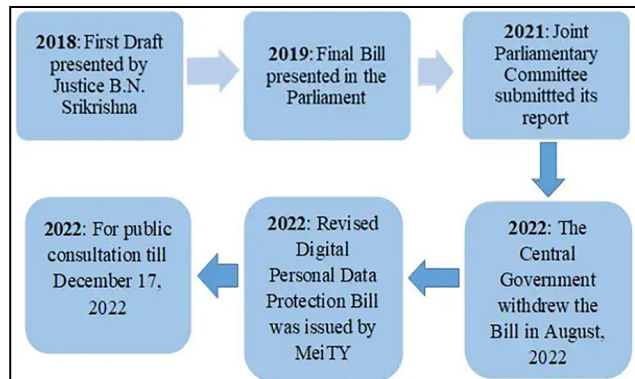
Why in News?

Recently, the Union Cabinet has approved the **Draft Digital Personal Data Protection Bill (DPDP), 2022**, to introduce in the Monsoon session of Parliament with some significant changes.

- If passed, the law will become **India's core data governance framework**, six years after the Supreme Court declared privacy as a fundamental right.

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- The Bill is one of the four proposed legislations in the IT and telecom sectors; the other three bills are: **Digital India Bill, Indian Telecommunication Bill, 2022** and **Non-Personal Data Governance Policy**.

**What are the Expected Changes?**➤ **Lowering Age of Consent:**

- The Bill had fixed the age of consent at 18 years, requiring **parental consent for processing data of individuals below 18**.
- The upcoming Bill will adopt a **graded approach, allowing a case-by-case determination** of the age of consent.
 - The change addresses concerns raised by social media companies, who argued that a fixed age of consent **would disrupt their operations and hinder services targeted at users under 18**.
- This aligns with data protection regulations in the **European Union and the United States**, where a lower age of consent is prescribed.

➤ **Definition of a Child and Exemptions:**

- The definition of child may include **individuals below 18 or a lower age** as determined by the Central Government.
 - In the 2022 draft, the definition of a child was an **"individual who has not completed eighteen years of age"**.
- Certain entities dealing with children's data **may be exempted from obtaining parental consent** if they can demonstrate verifiably safe data processing practices.
 - The **Ministry of Women and Child Development**, in collaboration with the **Ministry of IT**, will evaluate **platforms' privacy standards for children to grant exemptions**.

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➤ Relaxations on Cross-Border Data Flows:

- The upcoming Bill introduces further relaxations on cross-border data flows, shifting from a **whitelisting approach to a blacklisting mechanism**.
 - The bill **allows global data to flow by default** to all jurisdictions other than a specified negative list of countries where such transfers would be restricted.
- This change aims to facilitate **data transfers to international jurisdictions**, streamlining the process for businesses.

What are the Global Regulations Regarding Data Governance?

➤ **General Data Protection Regulations (GDPR) of EU:**

- The GDPR focuses on a comprehensive data protection law for processing of personal data.
- In the EU, the right to privacy is **enshrined as a fundamental right that seeks to protect an individual's dignity** and her right over the data she generates.
- The fines imposed by the GDPR have prompted organizations worldwide to prioritize compliance. Notable companies, including Google, WhatsApp, British Airways, and Marriott, have faced substantial fines.
- Moreover, the GDPR's **strict norms regarding data transfers to third countries have had a profound influence on data protection** frameworks beyond the EU.

➤ **Data Governance in US:**

- There is **no comprehensive set of privacy rights** or principles in the US that, like the EU's GDPR, addresses the use, collection, and disclosure of data.
 - Instead, there is **limited sector-specific regulation**. The approach towards data protection is different for the public and private sectors.
- The activities and powers of the government vis-a-vis personal information are well-defined and addressed by broad legislation such as the Privacy Act, the Electronic Communications Privacy Act, etc.
 - For the private sector, there are some sector-specific norms.

➤ **Data Governance in China:**

- The **Personal Information Protection Law (PIPL)** grants Chinese individuals new rights to protect personal data.

- The Data Security Law (DSL) categorizes **business data by importance and imposes restrictions on cross-border transfers**. These laws aim to prevent misuse of personal data.

What are the Challenges with Data Governance in India?

➤ **Insufficient Awareness:**

- The **limited understanding among individuals** and organizations regarding the significance of data protection and the potential risks linked to data breaches.

➤ **Weak Enforcement Mechanisms:**

- The existing legal framework concerning **data protection in India lacks robust mechanisms** for enforcing compliance. This deficiency makes it difficult to hold organizations accountable for data breaches and non-compliance with data protection regulations.

➤ **Lack of Standardization:**

- A significant hurdle in implementing and enforcing data protection regulations in India is the **absence of standardized practices among organizations**. The lack of uniformity in data protection protocols poses challenges when attempting to establish and adhere to consistent data protection practices.

➤ **Inadequate Safeguards for Sensitive Data:**

- The current data protection framework in **India fails to offer sufficient safeguards for sensitive data**, such as health data and biometric data.
- As organizations increasingly collect these types of data, the lack of adequate protection measures becomes a concern.

How is Data Governed in India??

- IT amendment Act, 2008.
- **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules 2021**
- **Proposal of 'Digital India Act', 2023 to replace IT act, 2000**

The Places of Worship Act, 1991

Why in News?

The **Supreme Court of India** has adjourned the case regarding the **validity of the Places of Worship Act of**

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1991, allowing the Centre until **October 31, 2023**, to clarify its stand on the matter.

What is the Places of Worship Act?

➤ **About:**

- It was enacted to **freeze the status of religious places of worship** as they **existed on August 15, 1947**, and prohibits the conversion of any place of worship and ensures the maintenance of their **religious character**.

➤ **Major Provisions of the Act:**

- **Prohibition of Conversion (Section 3):**
 - Prevents the **conversion of a place of worship**, whether in full or part, from one religious' denomination to another or within the same denomination.
- **Maintenance of Religious Character (Section 4(1)):**
 - Ensures that the religious identity of a **place of worship remains the same as it was on August 15, 1947**.
- **Abatement of Pending Cases (Section 4(2)):**
 - Declares that any ongoing legal proceedings concerning the conversion of a place of worship's religious character before August 15, 1947, **will be terminated, and no new cases can be initiated**.
- **Exceptions to the Act (Section 5):**
 - The Act does not apply to ancient and historical monuments, archaeological sites, and remains covered by the **Ancient Monuments and Archaeological Sites and Remains Act, 1958**.
 - It also excludes cases that have **already been settled or resolved and disputes** that have been resolved by **mutual agreement or conversions** that occurred **before the Act came into effect**.
 - The Act does not extend to the specific **place of worship known as Ram Janmabhoomi-Babri Masjid in Ayodhya**, including any legal proceedings associated with it.
- **Penalties (Section 6):**
 - Specifies penalties, including a maximum **imprisonment term of three years and fines, for violating the Act**.

➤ **Criticism:**

○ **Bar on Judicial Review:**

- Critics argue that the Act prevents **judicial review**, which is a **fundamental aspect of the Constitution**.
- They believe this restriction undermines the checks and balances system and limits the judiciary's role in protecting constitutional rights.

○ **Arbitrary Retrospective Cutoff Date:**

- The Act is criticized for using an **arbitrary date (Independence Day, 1947)** to determine the status of religious places.
- Opponents argue that this **cutoff date disregards historical injustices and denies redressal for encroachments before that date**.

○ **Violation of the Right to Religion:**

- Critics claim that the Act infringes upon the religious rights of Hindus, Jains, Buddhists, and Sikhs.
- They argue that it **restricts their ability to reclaim and restore their places of worship**, impeding their freedom to practice their religion.

○ **Violation of Secularism:**

- Opponents argue that the **Act violates the principle of secularism**, which is a core component of the Constitution, and favours one community over others
 - They contend that this undermines the **equal treatment of religions under the law**.

○ **Exclusion of Ayodhya Dispute:**

- The Act is specifically criticized for excluding the land involved in the Ayodhya dispute.
- Opponents question its consistency and raise concerns about the differential treatment of religious sites.

➤ **Supreme Court's Stance on the Act:**

- The Supreme Court views the Places of Worship Act as a legislative intervention that **upholds the commitment to secularism, a fundamental aspect of the Indian Constitution**.
- The Act enforces the constitutional obligation of the State to **ensure equality among all religions**. It guarantees the preservation of places of worship for every religious community.

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India Mobile Congress 2023

Why in News?

Recently, the 7th edition of India Mobile Congress (IMC) 2023 was inaugurated by the Ministry for Communications and Cellular Operators Association of India (COAI).

- The theme of IMC 2023 is “Global Digital Innovation,” seeks to establish India as a leading **technology developer, telecom manufacturer** and **exporter**.

What is India Mobile Congress (IMC) 2023?

- **India Mobile Congress (IMC) 2023** is a prominent **annual event** that showcases the latest advancements and innovations in the mobile and digital technology sector.
- It serves as a platform for **industry leaders, policymakers, technology enthusiasts, and stakeholders** to come together and discuss the future of the **digital landscape**.

How IMC is Promoting Technology and Societal Welfare?

- **Fostering Innovation and Indigenous Technology:**
 - IMC 2023 focuses on **nurturing an innovative ecosystem** by facilitating collaborations between **industry leaders, startups, and academia**.
 - The involvement of at least **100 universities** and the inclusion of students in the event provide a platform for **knowledge-sharing** and encourages **young minds** to contribute to **digital transformation**.
 - The event emphasizes the development of **indigenous technologies, including telecom and semiconductor manufacturing**, to support the vision of an **Atmanirbhar Bharat (Self-Reliant India)**.
- **IMC's Impact on India's Technological Advancement:**
 - IMC has played a pivotal role in India's **technological transformation**, contributing to the country's **rapid 5G rollout, Atmanirbhar Bharat initiative, and the roadmap for 6G technology**.
- **Expanding Horizons:**
 - IMC has evolved beyond its initial focus on **telecom**, encompassing various industries such as **drone technology, power electronics, AI innovations, deep tech, satcom, mobile manufacturing, cybersecurity, data center innovation**, and more.

- By broadening its scope, IMC fosters collaboration across sectors, facilitating technological advancements that benefit **agriculture, education, logistics, transportation, and animal husbandry**.
- **Ensuring Cybersecurity:**
 - Recognizing the importance of cybersecurity, IMC 2023 dedicates a section to address **consumer-facing cyber threats**, aiming to enhance **organizational and public safety** from **cyber frauds**.
 - By creating **awareness** and **discussing effective cybersecurity measures**, the event contributes to **safeguarding digital infrastructure and privacy**.
- **Virtual Exhibition and Outreach:**
 - To ensure broader accessibility and participation, IMC 2023 introduces the **concept of a virtual exhibition, enabling individuals** from different parts of the country to engage with the event remotely.
 - This expansion reflects the event's commitment to reaching diverse audiences and **promoting digital innovation** on a national scale.
- **Aspire: Igniting Future Entrepreneurship:**
 - It introduces **Aspire**, a dedicated **start-up event** aimed at fostering entrepreneurship among young innovators in the **telecom and digital domains**.
 - With sections like an **Investor zone, pitching zone, workshop zone, and networking zone**, Aspire aims to create an **unparalleled experience** and accelerate the growth of aspiring entrepreneurs.

PepsiCo Patents Revocation for Potato Variety

Why in News?

The Delhi High Court recently upheld the decision made by **Protection of Plant Varieties and Farmers' Rights Authority (PPVFR)** regarding the revocation of PepsiCo India's **intellectual property protection** for a **potato variety (FL 2027)**.

What is the FL 2027

Potato Variety Case About?

- **About FL 2027 Variety:**
 - FL 2027 is a potato variety developed by **Robert W Hoopes** at Frito-Lay Agricultural Research. It is specifically bred for chip production by PepsiCo's Lay's brand.

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- FL 2027 is an ideal potato variety for chip manufacturing due to its **high dry matter, low sugar content, and lower moisture content**.
 - These qualities **minimize dehydration and energy costs** during processing while reducing the risk of blackening when fried.

➤ **Case:**

- PepsiCo India Holdings was granted a **certificate of registration for FL 2027 as an “extant variety” on February 1, 2016** by PPVFRA.
 - It implied that during the **validity period, nobody else could commercially produce, sell, market, distribute, import or export** it without the breeder’s authorization.
 - This period was **6 years from the date of registration and extendable up to 15 years**.
- However, PepsiCo in its 2012 application had sought the registration of FL 2027 as a **“new variety”** which due to failing to meet certain criteria was rejected.

➤ **Note:**

○ **Criteria for a “new variety” of Plant:**

- A **“new variety”** has to conform to the criterion of **novelty** - the propagated or harvested material from it should not have been sold in India earlier than one year before the date of filing the application for registration.
- FL 2027 variety could satisfy only the criteria of distinctiveness, uniformity and stability, **but not novelty**.

➤ **Reasons for the Registration Revocation:**

- PepsiCo had also provided an **incorrect first date of commercialization of the variety (17 Dec 2009)**, when it was already **commercialized in 2002 in Chile**.
- Hence, PPVFRA revoked the protection in December 2021 and rejected PepsiCo’s application for renewal in February 2022. **It also made it clear that India’s rules do not allow a patent on seed varieties**.
 - PepsiCo challenged PPVFRA’s decision in the Delhi HC.

➤ **Ruling by the Delhi HC:**

- The Delhi HC upheld the revocation of intellectual property protection faulting PepsiCo’s application, stating that the company **wrongly applied for registration of FL 2027 as a “new variety” and provided incorrect information** regarding its first commercialisation date.

What is PPVFRA?

- The PPVFRA is an organization responsible for **safeguarding the rights of plant breeders and farmers in India**.
- It is an authority established under the **Protection of Plant Varieties and Farmers’ Rights (PPVFR) Act, 2001**.
- The PPVFRA plays a crucial role in **granting intellectual property protection** to plant varieties and ensuring the rights of breeders and farmers are upheld.
- It reviews applications for plant variety registration, conducts examinations, and grants certificates of registration to eligible applicants.
- The authority also has the power to revoke or cancel the registration of plant varieties if deemed necessary.

What Other Foreign Companies in India have been Involved in Patent Infringement Issue?

- **Monsanto vs. Nuziveedu Seeds:** This case involved a patent infringement suit by Monsanto against Nuziveedu Seeds, an Indian seed company, for using its patented **Bt cotton technology without paying royalties**.
 - The Delhi HC granted an interim injunction in favour of Monsanto in 2016, directing Nuziveedu Seeds to pay royalties based on the percentage of the net selling price of its seeds.
 - The parties later settled the dispute through arbitration in 2017.
- **Novartis vs. Union of India:** This case involved a patent application by Novartis for its **anti-cancer drug Glivec**, which was rejected by the Indian Patent Office and the Intellectual Property Appellate Board on the grounds that it was **not a new invention, but only a modified form of an existing compound**.
 - The **Supreme Court of India** upheld the rejection in 2013, ruling that the **drug did not satisfy the criteria of novelty**.
- **Ericsson vs. Micromax:** This case involved a patent infringement suit by Ericsson against Micromax, an Indian mobile phone manufacturer, for using its standard essential patents (SEPs) related to 2G, 3G and 4G technologies without obtaining a license.
 - The Delhi HC granted an interim injunction in favour of Ericsson in 2013, directing Micromax to

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pay royalties based on the percentage of the net selling price of its devices.

- The parties later settled the dispute through mediation in 2014.

OTT Communication Services

Why in News?

The **Telecom Regulatory Authority of India (TRAI)** is revisiting its stance on regulating **over-the-top (OTT) communication services**, such as **WhatsApp, Zoom, and Google Meet**.

What are OTT Services?

- An “**over-the-top**” media service is **online content provider that offers streaming media as a standalone product**.
 - The term is commonly applied to **video-on-demand platforms**, but also refers to **audio streaming, messaging services, or internet-based voice calling solutions**.
- These services that rely in data usage have become increasingly popular and widely used in India, especially during the **Covid-19 pandemic**.
 - Monthly wireless data usage in India grew approximately **156 times from 2014 to 2022**. Revenue generation has **shifted from traditional voice and SMS services to data usage**.

What is the Current Regulatory Status of OTT Communication Services in India?

- As of now, there is **no specific regulatory framework for OTT communication services in India**. TRAI has issued several consultation papers on this issue since 2015, but has **not made any final recommendations or regulations**.
- In September 2020, **TRAI recommended against regulatory intervention for OTT platforms, saying that it should be left to market forces**.
 - However, it also said that the sector should be monitored and intervention should be done at an “**appropriate time**”.
- In 2022, the **Department of Telecommunication (DoT)** suggested TRAI to bring a suitable regulatory mechanism and “**selective banning of OTT services**”.

Why is Regulation of

OTT Communication Services Important?

- **Leveling the Playing Field Between TSPs and OTT Platforms:** It is important to create a **fair competition between telecom service providers (TSPs) and OTT platforms**.
 - TSP in India are regulated by several laws, including the **Indian Telegraph Act, 1885, the Wireless Telegraphy Act, 1933 and the Telecom Regulatory Authority of India Act, 1997**.
 - TSPs have to follow certain rules and pay fees to the government for **providing voice and SMS services**.
 - They also need to **meet quality standards, ensure security, and protect consumers**.
 - However, **OTT platforms offer similar services without facing these requirements**, which gives them an advantage.
 - Also, they do not contribute to the **Universal Service Obligation Fund (USOF)**.
 - This unfair competition **affects the revenue and profitability of TSPs and also impacts the government's revenue** from the telecom sector.
- **Lawful Interception and National Security:** Regulating OTT communication services is essential for national security and public order.
 - OTT platforms should be **subject to lawful interception and monitoring by security agencies** to prevent the **spread of misinformation, incitement of violence, or facilitation of criminal activities**.
 - Making OTT platforms responsible for any illegal content or activity on their platforms helps maintain a safe and secure online environment.

What does the Draft Telecommunications Bill, 2022 Focus on Regarding OTT Services?

- The **Draft Telecommunication Bill, 2022** is a proposed legislation that aims to replace three existing laws governing the telecom sector in India: the **Indian Telegraph Act, 1885, the Indian Wireless Telegraphy Act, 1933, and the Telegraph Wires (Unlawful Possession) Act, 1950**.
- The draft law proposes including OTT communication services, such as **WhatsApp, Signal, and Telegram, within the definition of telecommunication services**.
 - It **proposes that OTT communication services in India should acquire a license and comply with the same set of rules governing telecom players**.

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- These rules encompass various aspects such as **quality of service and security measures**.

What is Telecom Regulatory Authority of India?

➤ Legal Backing:

- The **TRAI** was established on **20th February 1997** by the **Telecom Regulatory Authority of India Act, 1997**.

➤ Objectives of TRAI:

- TRAI's mission is to create and nurture conditions for growth of telecommunications in the country.
- TRAI regulates **telecom services including fixation/revision of tariffs** for telecom services which were earlier vested in the Central Government.
- It also aims to **provide a fair and transparent policy environment** which promotes a level playing field and facilitates fair competition.

➤ Headquarters:

- The head office of the TRAI is located at **New Delhi**.

➤ Composition of TRAI:

- **Members:** The TRAI consists of a **Chairperson, two whole-time members and two part-time members**, all of which are appointed by the Government of India.
- The recommendations of the TRAI are **not binding** upon the Central Government.
- **Tenure of Members:** The Chairperson and other members shall hold their office for a term of **three years or till the age of 65 years**, whichever is earlier.

Concerns About National Exit Test

Why in News?

The **Indian Medical Association (IMA)** has urged the **National Medical Commission (NMC)** to reconsider its proposed **National Exit Test (NeXT)** for all **MBBS students in India**, which will now be the licentiate exam and post graduate selection exam.

What is the National Exit Test?

- The NeXT is a medical licensing exam that is **designed to assess the competency of medical graduates**.

- Students who received their **medical degrees (who have completed the final MBBS course)** from **NMC approved medical institutions** and overseas students also will have to qualify for the National Exit Test.

- To register for medical practice in India, they must pass the NeXT test.

- This centralized common **exam will be conducted by a body formed by the commission for this purpose**.

- **National Medical Commission (Amendment) Bill, 2022**, proposes an autonomous board, 'Board of Examinations in Medical Sciences', which, when comes to effect, will be responsible for holding the NeXT exam.

- NeXT will take the place of **tests like FMGE and NEET PG** and will comprise two separate exams called 'Steps'.

- There is no restriction in the number of attempts provided that the candidate passes both the steps within 10 years of joining MBBS.

What are the IMA's Concerns?

- Nearly 50% of India's medical colleges have been established in the last 10-15 years and may not have the same level of well-trained teachers and systems as older institutions. Therefore, comparing the standards of these newer colleges with more established ones may not be appropriate.

- The IMA asserts that conducting the **NeXT** through the All-India Institute of Medical Sciences (AIIMS) could disadvantage **students from recently established medical colleges**.

- They advocate for a minimum passing mark of no more than 30% and suggest that **the focus of the licensing exam should be on assessing the minimum standard** rather than including challenging questions.

- Additionally, the IMA emphasizes that the **post-graduate medical entrance exam should be separate from the NeXT** to evaluate the most meritorious students.

What is the Standard of Medical Education India?

➤ Admission Process:

- In India, admission to undergraduate medical courses, including MBBS, in all medical institutions **goes forward only after the student has cleared the NEET** conducted by the National Testing Agency.
- The National Board of Examinations in Medical Sciences (NBEMS) is responsible for holding exams for Post Graduation (NEET PG).

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➤ Accreditation:

- The Medical Council of India (MCI), replaced by the **National Medical Commission (NMC)**, is responsible for accrediting and recognizing medical colleges in India.
 - Accreditation ensures that colleges meet the prescribed standards of infrastructure, faculty, facilities, and curriculum.
 - However, there have been instances where colleges fail to meet these standards, leading to concerns about the quality of education.

➤ Seats:

- In recent years, there has been a significant rise in the number of available medical seats (MBBS) in colleges, increasing from 60,000 to 1,04,333 as of 2023.
- Among these seats, 54,278 are allocated to Government Medical Colleges, while the remaining 50,315 are designated for Private Medical Colleges.

What are the Problems Plaguing Medical Education in India?

➤ Demand-Supply Mismatch:

- There is a serious **demand-supply mismatch** as well as inadequate seats in terms of population norms. In private colleges, these seats are priced between Rs **15-30 lakh per year** (not including hostel expenses and study material).
- This is way more than what most Indians can afford. It is difficult to comment on quality as nobody measures it. However, it is highly variable and poor in most medical colleges, irrespective of the private-public divide.

➤ Issues of Skilled Faculty:

- The government's initiative to open new medical colleges has run into a serious faculty crunch. Except at the lowest level, **where new entrants come, all that the new colleges have done is poach faculty** from a current medical college. Academic quality continues to be a serious concern.
- The MCI did try to address many of the earlier loopholes of ghost faculty and corruption. It introduced the **requirement of publications for promotions to improve the academic rigor** of faculty. But this has resulted in the mushrooming of journals of dubious quality.

➤ Problems with Private Medical Colleges:

- A change in the **law in the 1990s made it easy to open private schools** and so many such medical institutes cropped up in the country, funded by businessmen and politicians, who had **no experience of running medical schools**. It commercialized medical education to a great extent.

➤ Corruption in Medical Education:

- Fraudulent practices and rampant corruption such as fake degrees, bribes and donations, proxy faculties, etc. in the medical education system is a major problem.

Performance Grading Index for Districts and PGI 2.0

Why in News?

Recently, the Ministry of Education (MoE), Government of India has released the **Performance Grading Index for Districts (PGI-D)** combined report for **2020-21 & 2021-22**, assessing the performance of the school education system at the District level.

- The MoE has also released a report on **Performance Grading Index (PGI) 2.0** for States/UTs for the year 2021-22.

What is the Performance Grading Index for Districts (PGI-D)?

➤ About:

- PGI-D assesses the **performance of the school education system at the district level** by creating an index for comprehensive analysis.
- The PGI-D assessed district-level performance in school education based on the data collected from various sources, including **Unified District Information System for Education Plus (UDISE +)**, **National Achievement Survey (NAS)**, 2017 and data provided by respective districts.
 - Since 2017-18, MoE has released five annual reports that provide insights on status of school education in States and UTs.

➤ Grades:

- The report has 10 grades under which districts are categorized,
 - **Daksh**: Highest grade (above 90%)

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- **Utkarsh:** 81%-90%
- **Ati-Uttam:** 71%-80%
- **Uttam:** 61%-70%
- **Prachesta-1:** 51%-60%
- **Prachesta-2:** 41%-50%
- **Prachesta-3:** 31%-40%
- **Akanshi-1:** 21% to 30%
- **Akanshi-2:** 11% to 20%
- **Akanshi-3:** Lowest (less than 10%)

➤ **Indicators:**

- The PGI-D structure comprises total weight age of **600 points across 83 indicators**, which are grouped under **6 categories viz.**, Outcomes, Effective Classroom Transaction, Infrastructure Facilities & Student's Entitlements, School Safety & Child Protection, Digital Learning and Governance Process.

➤ **Significance:**

- The PGI-D report is expected to assist state education departments in **identifying gaps at the district level** and improving performance in a decentralized manner.
- By prioritizing areas for intervention, districts can work towards reaching the highest grade and enhancing overall education quality.

What are the Key Highlights of the Report?

➤ **Impact of the Pandemic on District Performance:**

- None of the districts were able to achieve the top two grades (**Daksh and Utkarsh**).
- The number of districts categorized as **Ati-Uttam decreased significantly from 121 in 2020-21 to 51 in 2021-22**, indicating the impact of the pandemic on educational performance.
 - Several districts across different states were categorized as **Ati-Uttam in both 2020-21 and 2021-22**, including Krishna and Guntur in Andhra Pradesh, Chandigarh, Dadra Nagar Haveli, districts in Delhi, Karnataka, Kerala, Odisha etc.

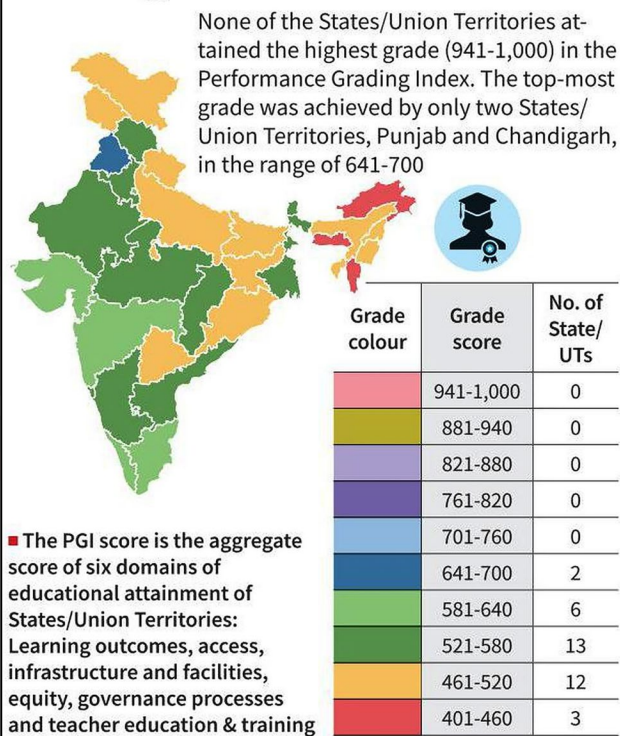
➤ **Changes in Grades:**

- In 2021-22, the number of districts categorized as Prachesta-2 (sixth-highest grade) increased from 86 in 2020-21 to 117.
- It suggests that **more districts faced challenges in maintaining their performance** due to the disruptions caused by the pandemic.

What is PGI 2.0?

- **About PGI:** The PGI is a comprehensive assessment tool devised by the MoE for evaluating the performance of the school education system at the State/UT level.
 - It assesses the performance based on **various indicators and creates an index for comprehensive analysis**.
 - The PGI was first released for the year 2017-18 and has been updated up to the year 2020-21.

Grading education



- **Revised Structure:** The PGI was revised for the year 2021-22 and renamed as PGI 2.0. The new structure includes **73 indicators grouped into two categories**:
 - Outcomes and Governance Management (GM). Emphasis is given to qualitative assessment, digital initiatives, and teacher education.
- **Categories and Domains:** The PGI 2.0 is divided into **six domains**:
 - Learning Outcomes (LO), Access (A), Infrastructure and Facilities (IF), Equity (E), Governance Process (GP), and Teachers' Education and Training (TE&T). These domains cover various aspects of the education system.

Note:

- **Grading System:** States and Union Territories are assigned grades based on their points scored across the indicators.
 - The grades **range from Daksh (941-1000) as the highest to Akankshi-3 (401-460) as the lowest.**
- **Findings:**
 - None of the States/UTs achieved the top grades in the latest edition.
 - Only two states/UTs, namely Punjab and Chandigarh have attained Grade Prachesta -2 (score 641-700).
 - Andhra Pradesh has secured **Grade 8 (Category: Akankshi-1) in PGI 2.0.**
 - Andhra Pradesh has made significant progress in its grades over the years, starting from no grade in 2017-18 to attaining Level II with a score of 901.

What are the Government Initiatives Related to School Education?

- **National Education Policy, 2020**
- **Samagra Shiksha**
- **Mid Day Meal Scheme**
- **Eklavya Model School and Rajiv Gandhi National Fellowship Scheme**
- **National Programme on Technology Enhanced Learning.**
- **Sarva Shiksha Abhiyan**
- **PRAGYATA**
- **Mid Day Meal Scheme**
- **Beti Bachao Beti Padhao**
- **PM SHRI Schools**

Scheme for Expansion and Modernization of Fire Services in States

Why in News?

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

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

- **About:**
 - The Scheme finds its origin from the recommendation of the **Fifteenth Finance Commission (XV-FC)** which allows an allocation of 12.5 % of each of the **NDRF** and **State Disaster Response Fund (SDRF)** for the Funding Window of Preparedness and Capacity Building.
- **Objective:**
 - The objective of the scheme is to **expand and modernize Fire Services in the States** with a view that activities for strengthening of fire services at the State-level through preparedness and capacity-building components of the NDRF will be ensured.
- **Fund Allocation:**
 - Out of the total NDRF corpus, an amount of Rs. 5,000 Crore was earmarked for priority “Expanding and Modernization of Fire Services”.
 - The amount of Rs. 500 crores, out of the total outlay, has been kept for incentivizing the States on the basis of their **legal and infrastructure-based reforms.**
- **Funding Pattern:**
 - For seeking funds for the projects/proposals under the Scheme, the concerned **State Governments shall have to contribute 25%** (except for the North-Eastern and Himalayan (NEH) States which shall contribute 10%) of total cost of such projects / proposals from their budgetary resources.

What is the National Disaster Response Fund (NDRF)?

- **Formation:**
 - **National Calamity Contingency Fund (NCCF)** was renamed as National Disaster Response Fund (NDRF) with the enactment of the **Disaster Management Act in 2005.**
 - It is defined in **Section 46 of the Disaster Management Act, 2005 (DM Act).**
 - It is placed in the “**Public Account**” of Government of India under “reserve funds not bearing interest”.
 - **Public Accounts:** It was constituted under Article 266 (2) of the Constitution. It accounts for flows for those transactions where the government is merely acting as a banker eg. provident funds, small savings etc.

Note:



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➤ **Role:**

- It is managed by the **Central Government for meeting the expenses for emergency response**, relief and rehabilitation due to any threatening disaster situation or disaster.
- It supplements the **SDRF** in case of a disaster of severe nature, provided adequate funds are not available in the SDRF.
 - SDRF is the primary fund available with the State governments for responses to notified disasters to meet expenditure for providing immediate relief.

➤ **Financing:**

- Financed through the levy of a cess on certain items, chargeable to excise and customs duty, and approved annually through the **Finance Bill**.

Scheme to Support Pregnant Minor Victims of Sexual Assault

Why in News?

The **Ministry of Women and Child Development**, Government of India has unveiled a new scheme aimed at **providing critical care and support to pregnant minor victims of sexual assault** who lack family support.

- The scheme, with an **outlay of Rs 74.10 crore**, will offer shelter, food, legal aid, and other necessary assistance to these victims across the country.

What are the Major Provisions of the Scheme?

➤ **About:**

- The scheme seeks to **assist minor girls who have been abandoned by their families due to forced pregnancies** resulting from rape or gang rape.
- It acknowledges the **physical and emotional trauma experienced by minor victims of rape and aggravated assault**, especially in cases where they become pregnant.

➤ **Eligibility Criteria and Documentation:**

- **Victims below the age of 18, who become pregnant due to rape or assault as per the provisions of**

the Protection of Children from Sexual Offences (POCSO) Act, 2012, and are either orphans or abandoned by their families, will be covered under the scheme.

- It is **not mandatory for victims to possess a copy of the First Information Report (FIR)** to avail the benefits provided by the scheme.

➤ **Provisions:**

- It aims to provide **medical, financial, and infrastructural support** to such victims under the **Nirbhaya Fund**.
- The funds will be **utilized to set up shelters dedicated to these victims**, either as standalone shelters or designated wards within existing **child care institutions (CCIs)**.
 - In the case of wards within CCIs, **separate safe spaces** will be provided for minor rape victims to cater to their specific needs.
- The integrated support under the scheme aims to provide **immediate and non-emergency access to various services**, including **education, police assistance, healthcare, and legal support**.
- **Insurance coverage will also be provided for the minor victim** and her newborn, ensuring access to justice and rehabilitation.

➤ **Implementation:**

- The scheme will leverage the **administrative structure of Mission Vatsalya** in collaboration with **State governments and CCIs** to actualise this support to minor victims.
- Also, **415 POCSO fast-track courts** are already established across India to **expedite justice for minor victims of rape**.

➤ **Need:**

- According to the **National Crime Records Bureau (NCRB)** data from 2021, 51,863 cases were reported under the **POCSO Act**.
- Out of these cases, **64% were reported under sections 3 and 5 of the Act**, which pertain to **penetrative sexual assault and aggravated penetrative sexual assault**, respectively.
 - The **majority of the victims were girls, and many of them became pregnant**, exacerbating their physical and mental health concerns when disowned or abandoned by their families.

Note:

Note:➤ **Nirbhaya Fund:**

- The Nirbhaya Fund, established in 2013, provides for a **non-lapsable corpus fund for safety and security of women**.
- It is administered by the **Department of Economic Affairs (DEA)**.

➤ **Mission Vatsalya:**

- It is a **Centrally Sponsored Scheme** launched by the Ministry of Women and Child Development to provide a roadmap to achieve development and child protection priorities **aligned with the Sustainable Development Goals (SDGs)**.

➤ **Child Care Institutions:**

- They are defined under the **Juvenile Justice (Care and Protection of Children) Act 2015** for providing care and protection to children who are in need of such services.

➤ **National Crime Records Bureau:**

- NCRB was set-up in 1986 under the **Ministry of Home Affairs** to function as a **repository of information on crime and criminals** so as to assist the investigators in linking crime to the perpetrators.

What are Some Other Schemes or Initiatives for Supporting Victims of Sexual Assault?

- **Central Victim Compensation Fund (CVCF):** It provides financial assistance to victims of various crimes including rape/gang rape under **Section 357A of CrPC**.
- **One Stop Centers (OSCs):** It provide integrated services such as **medical aid, police assistance, legal aid/counselling, psycho-social counselling** and temporary shelter to women affected by violence under any circumstances.
 - **Usha Mehra Commission** recommended the establishment of a one-stop centre.
- **Mahila Police Volunteer (MPV):** It facilitates **public-police interface** at the grassroots level through women volunteers who act as a link between police and community and help women in distress.

Report on Panchayat Development Index

Why in News?

Recently, the Union Minister of State for Panchayati Raj released the Report on **Panchayat Development Index**

(PDI) at the National Workshop on Panchayat Development Index in New Delhi.

What is the Panchayat Development Index?

➤ **About:**

- The PDI is a composite index that measures the **performance of panchayats** in achieving the **Localization of Sustainable Development Goals (SDGs)**.
- It provides a holistic and **evidence-based assessment** of the development status of panchayats, highlighting their strengths and weaknesses.

➤ **Objective:**

- The PDI aims to promote the Localization of SDGs by creating awareness among panchayats and stakeholders about their importance.
- It encourages panchayats to adopt **best practices and innovations** to improve their performance in achieving **SDGs**.

➤ **Ranking and Categorization:**

- The PDI provides rankings for panchayats at different levels, including district, block, and village, based on their overall scores.
- Panchayats are categorized into **four grades: D (scores under 40%), C (40-60%), B (60-75%), A (75-90%), and A+ (above 90%)**.

➤ **Themes and Focus Areas:**

- The PDI considers **nine themes**, including **poverty-free and enhanced livelihood, healthy village, child-friendly village**, water-sufficient village, clean and green village, self-sufficient infrastructure, socially just and secured villages, good governance, and women-friendly village.

➤ **Applications and Benefits of the PDI:**

- The PDI can be used by states/union territories for Panchayati Raj Awards and to emphasize a data-driven and evidence-based approach to development.
- It serves as a tool for **planning, monitoring, and evaluating schemes implemented** by panchayats and other agencies aligned with the SDGs.
- The PDI facilitates the **sharing of knowledge and experiences among panchayats and stakeholders** for learning and replication of successful models and interventions.

Note:



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What are the Key**Highlights of the Report on the PDI?**

- The pilot project was carried out in **four districts of Maharashtra, namely Pune, Sangli, Satara, and Solapur.**
- The data collected from the pilot project was used to compile the report of the Panchayat Development Index Committee.
- The pilot study showed that **70% of the panchayats in the four districts of Maharashtra fall in Category C**, while 27% are in Category B.
- The report highlights the need for **evidence-based planning**, resources must be deployed where required for overall development.

What is Panchayati Raj Institution (PRI)?

- **PRI** is a system of **rural local self-government** in India.
- Local Self Government is the management of local affairs by such local bodies who have been **elected by the local people.**
- PRI was constitutionalized through the **73rd Constitutional Amendment Act, 1992** to build democracy at the grass roots level and was entrusted with the task of rural development in the country.

National Research Foundation

Why in News?

Recently, the Ministry of Science and Technology, Government of India, has approved the introduction of the **National Research Foundation (NRF) Bill, 2023** in Parliament.

What are the Features of the NRF Bill 2023?

- **Establishment of NRF:**
 - The bill, after approval in the Parliament, will establish NRF, an apex body to provide high-level strategic direction of scientific research in India as per recommendations of the **National Education Policy (NEP)**, at a total estimated cost of Rs. 50,000 crores during five years (2023-28).
- **Subsumption of SERB:**
 - The bill will repeal the **Science and Engineering Research Board (SERB)** established by an act of

Parliament in 2008 and subsume it into NRF which has an expanded mandate and covers activities over and above the activities of SERB.

- **Administration and Governance:**

- The Department of Science and Technology (DST) will be the administrative Department of NRF which will be governed by a **Governing Board consisting of eminent researchers and professionals** across disciplines.
- The Prime Minister will be the **ex-officio President of the Board** and the Union Minister of Science & Technology & Union Minister of Education will be the **ex-officio Vice-Presidents.**
- NRF's functioning will be governed by an **Executive Council chaired by the Principal Scientific Adviser** to the Government of India.

What is the National Research Foundation?

- **Objective:**

- To ensure that scientific research was conducted and funded equitably and greater participation from the private sector was forthcoming.
- It will focus on creating a **policy framework and putting in place regulatory processes** that can encourage collaboration and increased spending by the industry on R&D.
- The NRF aims to involve **colleges and universities in scientific research**, as currently, less than 1% of the nearly 40,000 higher learning institutions in India **are engaged in research.**
- The NRF plans to build research capacities in universities by encouraging active researchers to **take up NRF professorships, regardless of age**, and collaborate with existing faculty.

- **Significance:**

- **Promoting Research other than Natural Science:**
 - The NRF will fund and promote research not only in natural sciences but also in **humanities, social sciences, and art.**
 - This integration is crucial for **fostering creativity, critical thinking**, and communication skills.
 - Currently, research in these areas has **limited funding sources.** Establishing directorates for social sciences, Indian languages and knowledge systems, arts, and humanities is **among the NRF's goals.**

Note:

○ National Priorities:

- It seeks to identify priority areas where science and technology interventions can **contribute to national objectives** such as clean energy, climate change, sustainable infrastructure, improved transportation, and accessible and affordable healthcare.

○ Enhanced Funding:

- It seeks to increase **funding for scientific research** in India, both from government and private sources.
 - Currently, India's spending on research and development is below **0.7 % of its GDP**, when even countries like Egypt or Brazil spend more.
 - US, China, Israel, Japan, and South Korea spend anywhere between **2 to 5% of their respective GDPs on scientific research**.
- Insufficient funding has directly affected the quality and quantity of research output in India. The initial allocation of Rs 50,000 crore over five years for the NRF does not represent a substantial increase but is **expected to grow as the NRF gains recognition** and demonstrates progress.

What are the Initiatives to Foster R&D and Innovation in India?

- **Sign Language AstroLab**
- **Council of Scientific and Industrial Research (CSIR)-National Physical Laboratory**
- **One Week - One Lab**
- **Science and Heritage Research Initiative**
- **Institute of Advanced Study in Science and Technology (IASST)**
- **National Initiative for Developing and Harnessing Innovations**
- **Mission on Advanced and High-Impact Research**

Gramodyog Vikas Yojana and Village Industries

Why in News?

Recently, the **Lieutenant Governor of Delhi** distributed **Honeybee-Boxes** and **Toolkits** to 130

recipients as part of the **Gramodyog Vikas Yojana (GVY) program**.

- The initiative was **organised by the Khadi and Village Industries Commission (KVIC)**.

What is Gramodyog Vikas Yojana (GVY)?

➤ About:

- It was **launched in March 2020**.
- It is **one of the two components of the Khadi Gramodyog Vikas Yojana** which is a **Central Sector Scheme (CSS)**.
 - The **other component of Khadi Gramodyog Vikas Yojana is the Khadi Vikas Yojana (KVVY)** which includes **two new components** such as **Rozgar Yukt Gaon, Design House (DH)**

○ Aim:

- **GVY aims to promote and develop the village industries through common facilities, technological modernization, training etc.**

➤ Included Activities:

- **Agro-Based & Food Processing Industry (ABFPI)**
- **Mineral-Based Industry (MBI)**
- **Wellness & Cosmetics Industry (WCI)**
- **Handmade Paper, Leather & Plastic Industry (HPLPI)**
- **Rural Engineering & New Technology Industry (RENTI)**
- **Service Industry**

➤ Components:

- **R & D and Product Innovation:** R&D support is given to institutions that intend to carry out product development, new innovations, design development, product diversification processes etc.
- **Capacity Building:** The existing MDTCs (Master Development Training Centers) and institutions of excellence address the capacity building of staff and artisans as part of the Human Resource Development and Skill Training components.
- **Marketing & Publicity:** The village institutions provide market support by way of preparation of a product catalogue, industry directory, market research, new marketing techniques, buyer-seller meetings, arranging exhibitions etc.

Note:



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What is KVIC?

- KVIC is a **statutory body established under the Khadi and Village Industries Commission Act, 1956.**
- The KVIC is **charged with the planning, promotion, organisation and implementation of programmes for the development of Khadi and other village industries** in the rural areas in coordination with other agencies engaged in rural development wherever necessary.
- It **functions under the Ministry of MSMEs.**

What is the Significance of Village Industries in the Indian Economy?

- **Employment Generation:** Village industries are labor-intensive, providing ample employment opportunities in rural areas. They contribute to reducing unemployment and underemployment, particularly among the rural population.
 - These industries **absorb a substantial workforce, including skilled, semi-skilled, and unskilled workers.**
- **Rural Development:** Village industries contribute to the overall development of rural areas. By establishing small-scale enterprises in villages, they help in creating local economic activities, **reducing migration to urban areas**, and preventing the concentration of population in cities.
- **Poverty Alleviation:** Village industries contribute to poverty alleviation by generating income for rural communities. They provide livelihood options for people who have limited access to formal employment opportunities, particularly in agriculture.
 - By **promoting entrepreneurship and self-employment**, these industries empower **individuals to improve their socio-economic conditions.**
- **Utilisation of Local Resources:** Village industries typically utilize local resources and raw materials available in rural areas. This helps in promoting sustainable development and reducing dependence on external resources.
 - It **encourages the utilisation of locally available skills, traditional knowledge, and natural materials**, thus preserving local heritage and culture.
- **Export Potential:** Many village industries produce traditional crafts, handlooms, handicrafts, and other unique products that have high demand in domestic as well as international markets.

- The **export of these products generates foreign exchange earnings and enhances the country's global trade competitiveness.**

Farmers Distress Index**Why in News?**

The Central Research Institute for Dryland Agriculture (CRIDA), an institution under the **Indian Council of Agricultural Research (ICAR)**, is developing an Early Warning System called "**Farmers' Distress Index**", a first of its kind for India.

What is the Farmers' Distress Index?➤ **About:**

- The index tries to anticipate the Agrarian distress and prevent its **spread from a few farmers to the village or block level.**
- It will enable various entities such as the central government, state governments, local bodies, and non-governmental agencies **to receive early warnings about impending farmers' distress**, thus facilitating proactive interventions.

➤ **Objective:**

- The index aims to minimize the agrarian distress in the form of **crop loss / failure and income shock.**
 - Farmers' exposure to shocks have increased in the recent years, with an increase in extreme climate events as well as market and price fluctuations, many times driving them to death by suicides.

➤ **Methodology for Monitoring Distress:** The development of the index **involves multiple steps.**

- Local newspapers, news platforms, and social media are scoured to identify instances of farmers' distress, including debt repayment issues, suicides, pest attacks, droughts, floods, and migration.
- This information is **then supplemented by telephonic interviews** with small, marginal, and tenant farmers in the area.
- These interviews incorporate **21 standardized questions designed to detect early signs** of distress.
- The responses are then **mapped against seven indicators**,
 - Exposure to risks

Note:



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- Debt
- Adaptive capacity
- Landholding
- Irrigation facilities
- Mitigation strategies
- Immediate triggers
- Socio-psychological factors.

➤ **Interpretation of the Index:**

- Based on the collected data and responses, the index will assign a value between **0 and 1** to indicate the level of distress.
 - **0 to 0.5: Low distress,**
 - **0.5 to 0.7: Moderate” distress**
 - **Above 0.7: Severe” distress.**
- If the distress level is severe, the index **identifies the specific component contributing the most to farmers’ distress** among the seven indicators.

➤ **Significance:**

- Different agencies can then **carry out interventions to prevent income shocks to farmers** depending on the severity of distress.
- The current solutions that are being thought upon are direct money transfer, mid-term release of claims under the government’s crop insurance scheme in case of crop failures etc.
- For instance, the insurance claims under **PMFBY (Pradhan Mantri Fasal Bima Yojana)** are only given **when a full survey is completed but**, in this case, if the index suggests severe distress in the coming few weeks, then the **government can provide interim relief under the scheme.**

What are the Government Initiatives to Mitigate Farmers’ Distress?

- **PM Fasal Bima Yojana (PMFBY)**
- **PM Krishi Sinchai Yojana (PMKSY)**
- **electronic National Agricultural market (e-NAM)**
- **Soil health card**
- **Neem-coated urea**
- **In the 2022 budget, various steps were taken to support the farm sector.**
- **Rythu Bandhu Scheme (Telangana)**
- **Krushak Assistance for Livelihood and Income Augmentation (KALIA) scheme (Odisha)**

PM-PRANAM Scheme and Increased FRP

Why in News?

Cabinet Committee on Economic Affairs (CCEA), approved the **PM-PRANAM scheme**, aimed at **restoring and nurturing** Mother Earth through the use of **biofertilizers**.

- Furthermore, the **Fair and Remunerative Price (FRP)** for **sugarcane** has been increased by Rs 10 to Rs 315 per quintal for the 2023-24 season starting from October.
- Additionally, the government has extended the **urea subsidy scheme** until March 2025 with an allocation of ₹3.68 lakh crore. Alongside, a nutrient-based subsidy of ₹38,000 crore has been sanctioned for the Kharif season of 2023-24.

What is PM-PRANAM Scheme?

➤ **About:**

- PM-PRANAM stands for **PM Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth.**
- PM-PRANAM was first announced in the **2023-24 Budget by the Union government.**
- The scheme aims to **reduce the use of chemical fertilizers** by incentivizing states to adopt alternative fertilizers.

➤ **Objective:**

- Encourage the balanced use of fertilizers in **conjunction with biofertilizers and organic fertilizers.**
- Reduce the **subsidy burden on chemical fertilizers**, which was around Rs 2.25 lakh crores in 2022-2023.

➤ **Key Features of the Scheme:**

○ **Financing:**

- The scheme will be financed by the **savings of existing fertilizer subsidies** under schemes run by the Department of Fertilizers, Ministry of Chemicals & Fertilizers.

- There will be **no separate budget for the PM-PRANAM scheme.**

○ **Subsidy Savings and Grants:**

- The Centre will provide **50% of the subsidy savings** to the states as a grant.

Note:



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- Out of the grant, **70% can be used to create assets** related to the **technological adoption of alternative fertilizers** and production units at various levels.
- The remaining **30% can be used to reward** and encourage farmers, panchayats, and other stakeholders involved in fertilizer reduction and awareness generation.
- **Calculation of Fertilizer Reduction:**
 - The reduction in urea consumption by a state will be compared to its **average consumption of urea over the previous three years**.
 - This calculation will determine the eligibility for subsidy savings and grants.
- **Promotion of Sustainable Agriculture:**
 - Encouraging the use of biofertilizers and organic fertilizers will promote sustainable agricultural practices.
 - This will enhance **soil fertility**, reduce environmental pollution, and support long-term agricultural productivity.

- It consists of a carrier **medium rich in live microorganisms**. When applied to seed, soil or living plants, it **increases soil nutrients** or makes them biologically available.
- Biofertilizers contain different types of fungi, root bacteria or other microorganisms. They form a **mutually beneficial or symbiotic relationship** with host plants as they grow in the soil.
- **Classification of Biofertilizers Based on Microorganism:**
 - **Bacterial Biofertilizers:** Rhizobium, Azospirillum, Azotobacter, Phosphobacteria, Nostoc, etc.
 - **Fungal Biofertilizers:** Mycorrhiza.
 - **Algal Biofertilizers:** Blue Green Algae (BGA) and Azolla.
 - **Actinomycetes Biofertilizer:** Frankia.

What are the Recent Changes Made in FRP for Sugarcane?

- The Cabinet has also decided that there shall **not be any deduction in the case of sugar mills where recovery is below 9.5%**. Such farmers will get Rs 291.975 per quintal for sugarcane in the ensuing sugar season instead of Rs 282.125 per quintal in the current sugar season.

What is Biofertilizer?

- **About:**

What is the FRP?

- **About:**

- FRP is the **price set by the government** that sugar mills are obligated to **pay to farmers for the sugarcane procured** from them.

- **Payment and Agreement:**

- Mills are legally required to pay the FRP to farmers for their cane.
- Mills can choose to sign agreements with farmers, allowing them to pay the FRP in installments.
- **Delayed payments can attract interest charges of up to 15% per annum**, and the **sugar commissioner can recover unpaid FRP by attaching properties of the mills**.

- **Governing Regulations:**

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

- **Determination and Announcement:**

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

- **Factors Considered:**

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

Note:

What is Sugarcane?

- **Temperature:** Between 21-27°C with hot and humid climate.
- **Rainfall:** Around 75-100 cm.
- **Soil Type:** Deep rich loamy soil.
- **Top Sugarcane Producing States:** Uttar Pradesh, Maharashtra, Karnataka, Tamil Nadu, Bihar.
- India is the **second largest producer** of sugarcane after Brazil.
- It can be grown on all varieties of soils ranging from **sandy loam to clay loam** given these soils should be well drained.
- It needs manual labour from sowing to harvesting.
- It is the main source of **sugar**, gur (jaggery), khandsari and molasses.
- Scheme for Extending Financial Assistance to Sugar Undertakings (SEFASU) and **National Policy on Biofuels** are two of the government initiatives to support sugarcane production and the sugar industry.



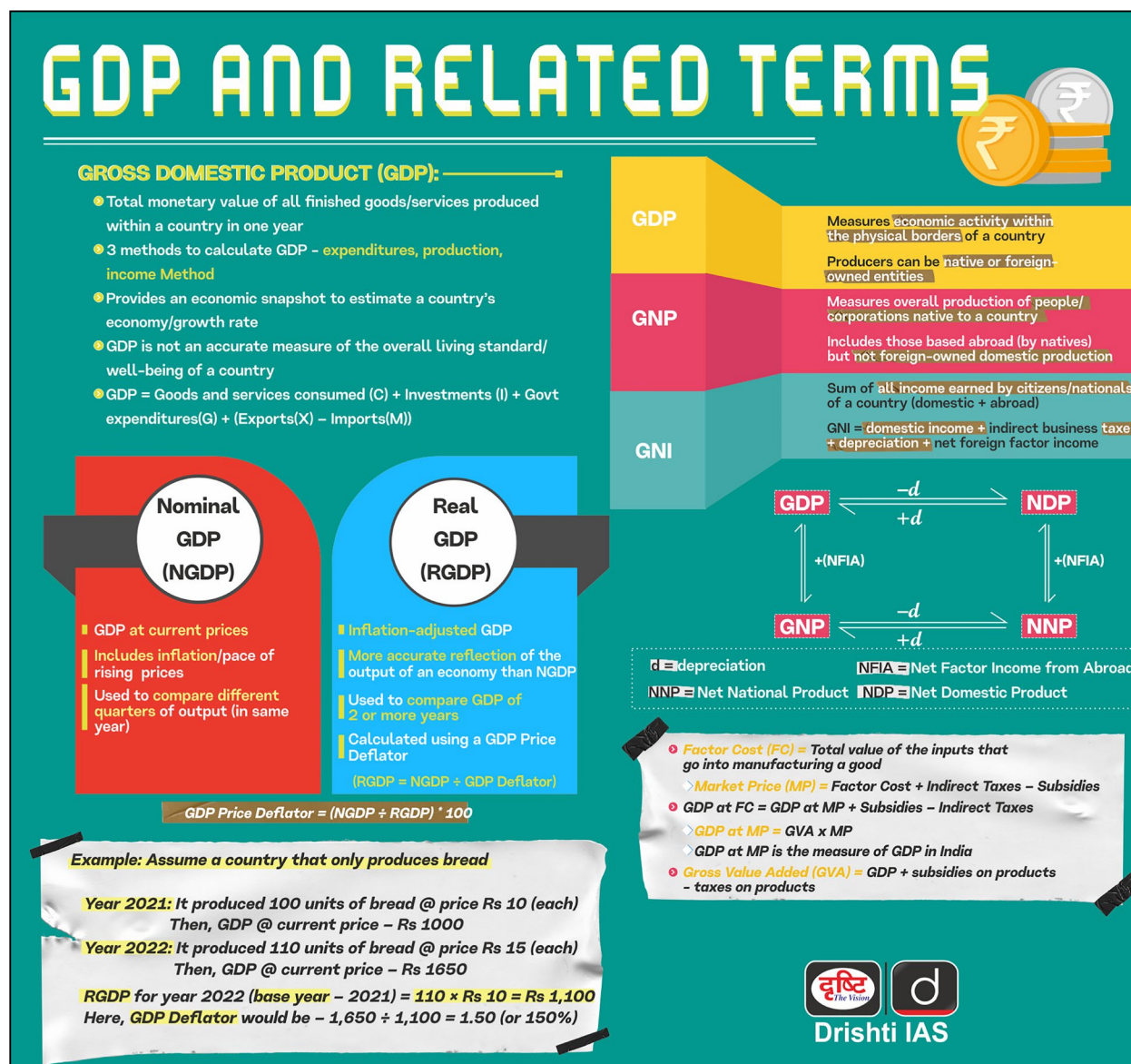
Note:

Economic Scenario

Highlights

- GDP and Related Terms
- Quality Control Orders
- India Emerges as Most Attractive Emerging Market for Investment
- 50th Meeting of GST Council
- Social Entrepreneurship
- Internationalisation of Indian Rupee
- Small Finance Banks
- Open Market Sale Scheme for Wheat and Rice

GDP and Related Terms



Note:

Quality Control Orders

Why in News?

The **Department for Promotion of Industry and Internal Trade (DPIIT)**, Ministry of Commerce & Industry has recently notified two new **Quality Control Orders (QCOs)** on 'Potable Water Bottles' and 'Flame-Producing Lighters'.

- These QCOs aim to strengthen the quality ecosystem in India and ensure the public health and safety of consumers.

What are the Key Points Related to the QCOs?

- The QCO for 'Potable water bottles' mandates compulsory certification under the appropriate **IS Standard for the production and import of potable water bottles** made of copper, stainless steel, or aluminum.
- The QCO for 'Flame-Producing Lighter' mandates compulsory certification under IS Standards for 'Safety Specification for Lighters', and 'Safety Specifications for Utility Lighters', for the Flame lighters manufactured for domestic market or imported into India.

What are Quality Control Orders?

- QCOs are **regulatory measures introduced by the government** to establish quality standards for **specific products or product categories**. These orders are designed to ensure that **products meet certain prescribed quality, safety, and performance requirements** before they can be manufactured, imported, stored, or sold in the country.
- The main objective of QCOs is to **control the import of sub-standard and cheaper items into** the domestic market and ensure that customers have access to quality products that meet the necessary standards.
- QCOs cannot be challenged at the **World Trade Organization (WTO)** if they are imposed on **the grounds of health, safety, environment and deceptive trade practices**, or national security.
- To ensure compliance with the quality standards set forth in the QCOs, the **Bureau of Indian Standards (BIS)** play a crucial role.
 - BIS is responsible for certifying products that **meet the prescribed standards, both for domestic and international manufacturers**.

- With the QCOs, manufacturing, storing and sale of non-BIS certified products are prohibited as per the BIS Act, 2016."

India Emerges as Most Attractive Emerging Market for Investment

Why in News?

According to **Invesco Global Sovereign Asset Management Study** by Invesco (an independent global investment management firm), India **has surpassed China** to become the **most attractive emerging market for investment in 2023**.

- The report emphasizes **India's attractiveness to sovereign wealth funds** due to its strong demographics, political stability, and proactive regulation.

What are the Key Highlights of the Report?

- India is ranked as the most attractive emerging market for investing in emerging market debt.
- India offers **attractive yields, a favorable currency outlook, and strong macroeconomic fundamentals** for debt investors.
- India is ranked among the **top destinations for increasing exposure in both public and private markets**.
- **India and South Korea** are the most preferred markets for increasing exposure in **public equities**.
- **India and Brazil** are the most favored markets for increasing exposure in **private equity**.
- India, along with Mexico and Brazil, is benefiting from increased **foreign direct investment**, supporting currencies, and domestic assets while funding **current account deficits**.
- The report acknowledged the **challenges and risks of investing in emerging markets** and advised sovereign investors to carefully assess and manage them.

What Makes India Attractive to Investors?

- **Business and Political Stability:** India is considered a **stable destination for sovereign investors** due to improved business and political stability.
- **Ease of Doing Business:** India has implemented reforms to **enhance the ease of doing business**, including lowering **corporate tax rates** and **liberalizing foreign direct investment norms**.

Note:



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- **Production-Linked Incentive Schemes:** India has introduced **production-linked incentive schemes** to attract foreign investment in various sectors.
- **Fast-growing Demographics:** India's large and young consumer market, skilled labor force, and potential for innovation and entrepreneurship make it an attractive destination for investors.
- **Proactive Regulation:** India has taken steps to address challenges faced by sovereign investors, such as taxation, currency volatility, and legal disputes.
- **Friendly Investment Environment:** India is known for its openness and willingness to engage with sovereign investors, offering various opportunities for collaboration and investment.

What are the Challenges and Risks of Investing in India?

- **Inflation:** Rising inflationary pressures pose a short-term risk, leading to tighter monetary policy, higher interest rates, lower asset prices, and currency depreciation in emerging markets like India.
- **Geopolitical Risk:** Increasing geopolitical tensions can result in trade wars, sanctions, conflicts, or cyberattacks, affecting trade flows, supply chains, energy security, and market sentiment.
- **Supply Chain Disruptions:** The **Covid-19 pandemic** has highlighted the vulnerabilities of global supply chains, impacting the availability and cost of raw materials, intermediate goods, and final products, which can affect economic activity and inflation.
- **Climate Change:** Climate change presents physical risks to infrastructure, agriculture, health, and biodiversity, as well as transition risks to energy sources, industries, regulations, and policies. These risks can have implications for investments in India.

50th Meeting of GST Council

Why in News?

At its 50th meeting, the **Goods and Services Tax (GST) Council** made changes to tax rates on various items and resolved the tax treatment for online gaming, casinos, and horse racing.

- The Council decided to levy a **uniform 28% tax on the full face value of bets placed for online gaming, casinos and horse-racing.**

What are the Major Highlights of the Meet?

- **Changes in Tax Rates:** The GST Council made the following revisions to the tax rates:
 - **Uncooked or Unfried Snack pellets and Fish Soluble Paste:** The tax rate was reduced from **18% to 5%.**
 - **Imitation Zari Threads or Yarn:** The tax rate was reduced from **12% to 5%.**
 - **Food and Beverages Consumed Inside Cinema Halls:** The tax rate was set at **5% without input tax credits**, as opposed to the previous **18% on cinema services.**
- **Tax Treatment of Online Gaming, Casinos, and Horse Racing:**
 - Regardless of whether they involve skill, chance, or a combination thereof (or neither), bets and wagers made on online gaming, casinos, and horse racing activities **will now attract a 28% GST levy.**
 - The GST laws will be amended to explicitly include online gaming within the tax framework.
- **Exemption from GST:**
 - GST Council exempts **cancer-related drugs, medicines for rare diseases**, and food products for special medical purposes from **GST**
- **Establishment of GST Appellate Tribunals:**
 - The Council examined proposals from states to establish **50 Benches of the GST Appellate Tribunals in the country.**
 - The initial Benches will be set up in state capitals and locations where High Courts have Benches.
- **Concerns Raised on GST Network and PMLA:**
 - Some states expressed criticism regarding the recent decision to bring the **GST Network (GSTN) under the purview of the Prevention of Money Laundering Act (PMLA)**, administered by the **Enforcement Directorate (ED).**
 - Tamil Nadu, in particular, argued that this inclusion contradicts the interests of taxpayers and the objective of decriminalizing GST offenses.
 - The Revenue Secretary assured the Council that it was in line with the requirements of the **Financial Action Task Force.**
 - It was clarified that the **ED will neither receive nor provide information from the GSTN**, and the notification is aimed at **empowering tax authorities to combat tax evasion and money laundering.**

Note:



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What is the GST Council?

➤ About:

- The GST Council is a **constitutional body** responsible for making recommendations on issues related to the **implementation of the Goods and Services Tax (GST) in India**.
- As per **Article 279A (1)** of the amended Constitution, the GST Council was constituted by the **President**.

Note:

- GST is a **value-added tax system** that is levied on the **supply of goods and services in India**. It is a comprehensive indirect tax that was introduced in India on 1st July 2017, through the **101st Constitution Amendment Act, 2016**, with the slogan of '**One Nation One Tax**'.

➤ Members:

- The members of the Council include the **Union Finance Minister (chairperson)**, the **Union Minister of State (Finance)** from the Centre.
- Each state can nominate a **minister in-charge of finance or taxation or any other minister** as a member.

➤ Functions:

- Under **Article 279A (4)**, the Council makes recommendations to the Union and the States on important issues related to GST, like the **goods and services that may be subjected or exempted from GST**, model GST Laws, principles that govern place of supply, **threshold limits**, **GST rates including the floor rates with bands**, special rates for raising additional resources during natural calamities/disasters, **special provisions for certain States**, etc.

Social Entrepreneurship

Why in News?

The Union Minister of Skill Development & Entrepreneurship, while addressing a Social Enterprise Conclave organized by **Institute of Rural Management, Anand (IRMA)** in partnership with LIC Housing Finance Limited has launched the **2nd edition of the Social Trailblazer Program**, aiming to boost the **Social Entrepreneurship Ecosystem** in India.

What is the Social Trailblazer Programme?

➤ About:

- It is a programme for **Social Enterprises and Entrepreneurs Development**, which nurtures early-stage rural, social, and collective enterprises.
- The program aims to nurture the **evolving ecosystem of Indian Social Enterprises**.

➤ Objective:

- The goal is to promote the **Social Enterprise programme** so as to promote the development of social enterprise and social investment to help address entrenched social and environmental problems.

➤ Focus Areas:

- Agriculture
- Green Technology
- Finance Technology
- Education
- Renewable Energy
- Healthcare & Life sciences
- Human Resources
- Marketing
- Social Impact
- Waste Management

➤ Key Incentives: A financial award Upto **INR 25,00,000 in the form of Equity Funding** and upto **INR 5,00,000 in the form of Grant Funding** top 10-12 selected startups

- 1 year of personalized incubation and acceleration support at IRMA ISEED Foundation
- **Top-up Incentives:** Upto INR 50,00,000 follow-on investment from IRMA ISEED'S Networks.
 - Upto USD 1000 worth of AWS (Amazon Web Services) credits and technology support.

What is Social Entrepreneurship?

➤ About:

- **Social Entrepreneurship** is the **practice** of using business models **to address social and environmental problems**.
- Social entrepreneurs, also known as **social innovators**, **bring about positive change** through innovative ideas. They aim to **create social impact while also generating revenue and profits**.

Note:



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- They identify **problems and create solutions to make a difference**. Social entrepreneurship aligns with trends like **Socially Responsible Investment** and **Environment, Social and Governance (ESG)** investing.

- **Examples:** Educational programs or providing banking services in underserved areas and helping children orphaned by **epidemic** disease.

➤ **Types:**

○ **Community Initiative:**

- A community initiative is a **small-scale project** aimed at addressing a specific issue within a community. It is particularly beneficial for **marginalized and underprivileged communities** that are disconnected from the larger economy.

○ **Non-Profit Organization:**

- A non-profit organization is a group that is established with the **intention of not making a profit**, and in which no part of the organization's revenue is given to its **directors, officials, or members**.

○ **Social Enterprise:**

- An organization that uses **commercial tactics to optimize advances in monetary, social, and environmental** well-being is referred to as a social enterprise. This can entail increasing both social impact and profits for co-owners.

○ **Co-Operative:**

- A co-operative is a free-standing group of people who come together voluntarily to work for the same economic, social, and cultural goals through a democratically run, collectively owned business.

○ **Social Conscious Business:**

- Social consciousness is **regarded as having a sensitivity to and sense of responsibility for injustice** and social issues. The awareness of individuals within society is related to consciousness.

○ **Achievements:**

- According to the **Impact Investors Council (IIC) report**, over **USD 9 billion** has been invested in over **600 impact firms in India** that have a positive impact on 500 million lives.
- Besides improving education for more than 226 million children and teenagers, **these social**

entrepreneurs have helped reduce more than 192 million tonnes of CO₂.

- They have promoted **social inclusion for over 25 million individuals** and assisted more than 100 million people gain access to electricity.

What is the Need for More Social Entrepreneurs?

➤ **Tackling Social Problems:**

- Social impact entrepreneurs have the **ability to drive significant social change** on a large scale. Unlike traditional approaches, they are **open to taking risks**.
- They utilize their business expertise and innovative thinking to develop sustainable solutions that benefit society.

➤ **Promoting Inclusive Growth:**

- India's economic growth has been **impressive in recent years**, but it has not been inclusive. There is a **significant gap between the rich and poor**, and many marginalized communities are left behind.
- Social Entrepreneurs can **play a vital role in promoting inclusive growth** by creating opportunities for marginalized communities.

➤ **Tackling Environmental Challenges:**

- India faces **significant environmental challenges**, including air and water pollution, deforestation, and climate change. Social entrepreneurs can create **sustainable solutions to address these challenges**.
- For example, they can create **ventures that promote renewable energy, reduce waste**, or promote sustainable agriculture. By doing so, they can help protect the environment and promote sustainable development.

➤ **Bridging the Gap between Public and Private Sectors:**

- Social Entrepreneurs can work with the **government to create sustainable solutions** to social and environmental problems.
 - By doing so, they can leverage **public resources and policies to create a more significant** social impact.
- They can also work with the private sector to access capital, technology, and expertise, leading to more innovative and effective solutions.

Note:

What are the Challenges of Social Entrepreneurship in India?

- **Future Issues and Hypothetical Concerns:**
 - Social entrepreneurs tackle possible future issues such as overpopulation and sustainable energy sources, which makes it **harder to attract investors who are more inclined towards safer, profit-driven projects.**
- **Business Strategy:**
 - Social entrepreneurs also face the challenge of developing a strong business strategy. They need support from professionals like attorneys, accountants, and experienced entrepreneurs to create a solid business plan that aligns with market realities and customer needs.
- **Lack of Funding:**
 - Unlike traditional businesses, social enterprises often have to balance financial returns with social outcomes, which can make **them less attractive to investors or donors.** Moreover, they may face higher costs, risks, and uncertainties due to the complex and dynamic nature of the social problems they address.
- **Lack of Balance:**
 - Social entrepreneurship can be very demanding and stressful, as it involves **dealing with complex and urgent issues**, facing multiple pressures and expectations, and **making sacrifices and trade-offs.**
 - This can lead to burnout, exhaustion, or loss of motivation, which can affect their well-being and effectiveness.

Internationalisation of Indian Rupee

Why in News?

A **Reserve Bank of India**-appointed working group recommended **inclusion of the rupee in the Special Drawing Rights (SDR) basket and recalibration of the foreign portfolio investor (FPI) regime** to accelerate the pace of **internationalisation of the rupee.**

What is Internationalisation of Rupees?

- **About:**

- Internationalisation of rupees is a **process that involves increasing use of the local currency in cross-border transactions.**
- It involves **promoting the rupee for import and export trade** and then other current account transactions followed by its use in **capital account transactions.**
- **Historical Context:**
 - In the 1950s, the Indian rupee was widely used as **legal tender** in the **United Arab Emirates, Kuwait, Bahrain, Oman, and Qatar.**
 - However, the devaluation of India's currency by 1966 led to the introduction of sovereign currencies in these countries to reliance on the Indian rupee.
- **Benefits of Internationalisation of Rupee:**
 - **Appreciate Currency Value:** It will improve the demand for the rupee in international trade.
 - This can lead to **increased convenience and reduced transaction costs** for businesses and individuals dealing with India.
 - **Reduced Exchange Rate Volatility:** When a currency is internationalized, its exchange rate tends to stabilize.
 - The **increased demand for the currency in global markets can help reduce volatility**, making it more **predictable and reliable for international transactions.**
 - **Geopolitical Advantages:** Internationalizing the Rupee can enhance India's geopolitical influence.
 - It **can strengthen economic ties with other countries**, facilitate bilateral trade agreements, and promote diplomatic relations.
- **Challenges:**
 - **Limited International Demand:**
 - The daily average share for the rupee in the **global forex market is only around 1.6%, while India's share of global goods trade is ~2%.**
 - **Convertibility Concern:**
 - The **INR is not fully convertible**, meaning there are restrictions on its convertibility for certain purposes such as capital transactions. This **restricts its widespread use in international trade and finance.**

Note:



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○ **Demonetization Impact:**

- The **demonetization** exercise in 2016, along with the recent withdrawal of the ₹2,000 note, **has affected confidence in the rupee**, particularly in neighboring countries like Bhutan and Nepal.

○ **Challenges in Trade Settlement:**

- While efforts have been made to trade with around 18 countries in rupees, transactions have remained limited.
- **Also, negotiations with Russia to settle trade in rupees have been slow**, hampered by currency depreciation concerns and inadequate awareness among traders.

○ **Steps Towards Internationalization:**

- 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.
- In July 2022, the RBI issued a circular on **“International Trade Settlement in Indian Rupees”**.
- RBI enabled **external commercial borrowings** in Rupees (especially **Masala Bonds**)

➤ **Currency Swap Agreements:** Increasing currency swap agreements, **as seen with Sri Lanka**, would facilitate trade and investment transactions in rupees.

- Consistent and predictable currency issuance and retrieval, along with a stable exchange rate regime, are essential for maintaining confidence.

➤ **Inclusion in the SDR basket:** Rupee should be pitched to get included in **Special Drawing Rights (SDR)**, which is an international reserve asset created by the **International Monetary Fund (IMF)** based on a basket of major currencies.

- Also, Indian Government Bonds (IGBs) can be **included in global indices**, attracting foreign investments into Indian debt markets.

➤ **Lessons from China's Experience:** China's approach to internationalizing the Renminbi provides valuable insights for India:

- **Phased Approach:** China gradually enabled the use of the **Renminbi** for current account transactions and select investment transactions before progressing towards its use as a reserve currency.
- **Offshore Markets:** The establishment of offshore markets, such as the **Dim Sum bond** and **offshore RMBD bond market**, facilitated the internationalization process.

What can be Done to

Pace-up Internationalization of Rupee?

- **Full Convertibility and Trade Settlement:** The Rupee should aim for full Convertibility, allowing **free movement of financial investments** between India and other countries.
 - Encouraging **Indian exporters and importers to invoice transactions in rupees** would optimize trade settlement formalities.
- **Liquid Bond Market:** RBI should focus on developing a more liquid rupee bond market, providing investment options for foreign investors and trade partners.
 - Also, **there is a need to recalibrate the foreign portfolio investor (FPI) regime** in order to enhance the speed at which the rupee is internationalized.
- **Expansion of RTGS system:** The **Real-Time Gross Settlement (RTGS) system** should be **expanded to settle international transactions**.
 - Also, providing tax incentives to foreign businesses utilizing the rupee in India would promote its use.

Note:

- **Foreign Portfolio Investment (FPI):** It consists of securities and other financial assets passively held by foreign investors.
 - It is part of a **country's capital account** and is shown on its **BOP**.
 - It does not provide the investor with direct ownership of financial assets.
 - FPI is **more liquid, volatile and therefore riskier** than FDI.
 - It is often **referred to as “hot money”**.
 - Examples - Stocks, **bonds, mutual funds, exchange traded funds**.
- **Special Drawing Rights:**
 - SDR serves as the unit of account of the IMF, but it is neither a currency nor a claim on the IMF.
 - The SDR basket of currencies includes the US dollar, Euro, Japanese yen, pound sterling and the Chinese renminbi (included in 2016).

Note:

INTERNATIONALISATION OF RUPEE

MEANING

- Increasing the use of Indian rupee in **cross-border transactions**

INVOLVES

- Rupee for **import and export**
- Rupee for **current and capital account transactions**

Indian Rupee is fully convertible in current account, but partially in capital account (BoP)

NEED

- Weaponisation of USD by US (for **sanctions**)
- Wave of **de-dollarisation**
- Increasing **internationalisation of Chinese Renminbi**
- India's **minimal share in global forex market turnover (1.7%)**

RBI'S EFFORTS

- Indian currency in cross-border trade – key component in **Foreign Trade Policy 2023**
- Mechanism introduced for **rupee trade settlement with 18 countries**
 - Banks from these countries allowed to open **Special Vostro Rupee Accounts (SVRAs)**
- Circular on "International Trade Settlement in Indian Rupees" (2022)
- External **commercial borrowings in INR** enabled

SIGNIFICANCE

- Reduced dependency** on USD
- Lesser need** for holding forex reserves
- Better bargaining power** of Indian business
- Less exposure** to currency volatility

CHALLENGES

- Rupee not fully convertible
- Less need for other countries to hold INR; **India's low share in global exports**
- Rupee may become **more vulnerable to external shocks**
- India's **lesser control on Rupee supply**

STEPS THAT CAN BE TAKEN

- More **liberalised settlements in INR** (in India and overseas)
- India to **expand its reach** in the global financial market
- Transition to an **export-oriented economy** to **reduce trade deficit**



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Small Finance Banks

Why in News?

The **Reserve Bank of India (RBI)** has recently announced its decision to **reject three applications for setting up Small Finance Banks** as these applications were found not suitable for granting of in-principle approval to set up SFBs.

- RBI received approximately a dozen applications under the guidelines for **'on-tap' Licensing of Universal Banks and SFBs**.

What are Small Finance Banks?

- About:

- SFBs in India are a category of banks **established to provide basic banking services and credit facilities** to underserved sections of the population, including **small business owners, micro and small industries, farmers, and the unorganized sector**.
 - They are regulated by the RBI.
 - Example: **Capital Small Finance Bank, Ujjivan, Utkarsh** etc.
- All prudential norms and regulations of the RBI as applicable to **existing commercial banks**, including the requirement of maintenance of **CRR and SLR** are also applicable to SFBs.
- Also, according to RBI, if an **SFB aspires to transit into a universal bank**, it has to have a **satisfactory track record of performance for a minimum period of 5 years**.

Note:



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Note:

- **On-Tap Licencing:** It means that the window for obtaining a bank licence from the RBI is open all year, or that the RBI will accept applications and issue licences to banks at any time.
- **CRR and SLR:** CRR stands for **Cash Reserve Ratio**, and SLR stands for **Statutory Liquidity Ratio**.
 - Both CRR and SLR are **monetary policy tools** used by central banks to regulate and control the availability of credit in the economy.
 - Under CRR, the **commercial banks have to hold a certain minimum amount of deposit (NDTL)** as reserves with the central bank.
 - SLR is the minimum percentage of deposits that **a commercial bank has to maintain in the form of cash, gold or other securities.**
- **Eligibility:**
 - **Resident individuals/ professionals (Indian citizens)**, singly or jointly, each having at least **10 years of experience in banking and finance at a senior level.**
 - **Companies and societies** owned and controlled by residents.
 - Entities such as **microfinance institutions, non-banking financial companies (NBFCs), local area banks and payment banks** that are controlled by residents can also convert into Small Finance Banks.
 - Also, **Urban Cooperative Banks (UCBs)** desirous of converting to SFB may convert to SFB after ensuring compliance with the guidelines.
- **Paid Up Capital Requirement:**
 - The **minimum paid-up voting equity capital for small finance banks shall be Rs.200 crore**, except for such small finance banks which are converted from UCBs.
- **Mandate:**
 - **Priority Sector Lending:** Small Finance Banks have to allocate **75% of their total net credit to priority sector lending**, as per the RBI guidelines.
 - They will also have to ensure that **50% of their loan portfolio constitutes advances up to Rs 25 lakh.**
 - The maximum loan size and investment limit exposure to single/ group obligor will be restricted to **10% and 15% of its capita funds**, respectively.

- **Branch Network:** SFBs are required to set up a network of branches in unbanked and underbanked areas, with a particular emphasis on rural and semi-urban regions.

- Initially, they need to have at least **25% of their branches in unbanked rural areas.**

➤ **Regulation:**

- Small Finance Banks are registered as **public limited company** under **Companies Act 2013**, and are licensed under **section 22 of the Banking Regulation, 1949.**
- They are primarily governed by **Banking Regulation Act, 1949** and **RBI Act, 1934** and other relevant statutes.

Open Market Sale Scheme for Wheat and Rice

Why in News?

Recently, in response to the **Food Corporation of India's (FCI)** imposition of quantity restrictions and denial of states' participation in the **Open Market Sale Scheme (OMSS)**, states have been exploring alternative methods to procure **wheat** and **rice**.

What is the Open Market Sale Scheme?

➤ **About:**

- The OMSS is a program implemented by the FCI to facilitate the **sale of surplus food grains, primarily wheat, and rice, from the central pool** in the open market.

➤ **Purpose and Objectives:**

- Enhance **food grain supply during lean seasons.**
- **Moderate open market prices** and control inflation.
- Ensure **food security** and availability of grains in deficit regions.
- Facilitate the **sale of surplus food grains** from the central pool.

➤ **Implementation and Process:**

- Conduct e-auctions by the FCI for traders, bulk consumers, and retail chains to purchase specified quantities of food grains at pre-determined prices.
- Allow states to procure additional food grains through OMSS for distribution under the **National Food Security Act, 2013 (NFSA).**

Note:



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- FCI conducts weekly auctions for the **OMSS** for wheat on the platform of the **National Commodity and Derivatives Exchange Limited (NCDEX)**.
- NCDEX is a **commodity exchange platform in India** that provides a platform for trading in various agricultural and other commodities.

What are the Recent Revised OMSS Restrictions?

- **Revised OMSS Restrictions:**
 - The OMSS underwent a recent revision with a focus on **limiting the quantity** that a single bidder can purchase in a single bid.
 - Previously, the **maximum allowed quantity per bid was 3,000 metric tonnes**. However, it has now been **reduced to a range of 10-100 metric tonnes**.
 - The aim of this change is to **promote wider participation by accommodating small and marginal buyers**.
 - By encouraging competitive bids from smaller buyers, the revised OMSS seeks to **curb retail prices and create a more level playing field**.
- **Discontinuation of OMSS Sales to States:**
 - The Centre decided to discontinue the sale of rice and wheat from the central pool to state governments under the OMSS.
 - Additionally, private bidders are **no longer allowed to sell their OMSS supplies to states**.
 - The rationale behind this decision is to **control inflationary trends and maintain adequate stock levels** in the central pool.

- By ensuring that food security obligations are met, the discontinuation of OMSS sales to states aims to streamline the distribution and allocation of food grains.

How have the States Reacted?

- Karnataka and Tamil Nadu have criticized the Centre's decision.
- Karnataka has temporarily replaced its free grain distribution scheme for below-poverty-line (BPL) families, known as the **Anna Bhagya Scheme**, with cash transfers to beneficiaries due to **being unable to procure enough rice in the market** at a reasonable cost in time to meet the requirements of the scheme.

What is the Food Corporation of India?

- FCI is a **statutory body** set up in 1965 under the **Food Corporations Act of 1964**. It was established against the backdrop of a major shortage of grains, especially wheat.
- The FCI manages the **food security system in India**.
- The **FCI also maintains buffer stocks** of food grains to ensure food security during times of scarcity or crisis.
- The FCI is also responsible for distributing foodgrains throughout the country for **the public distribution system**.
- **FCI also conducts e-auction** as one of the methods to **dispose of its surplus food grains**.

■■■

Note:

International Relations

Highlights

- PCA Asserts Competence in India-Pakistan Hydroelectric Projects Dispute
- Taiwan Expands Presence in India with TECC in Mumbai
- India-Africa Partnership: Achievements, Challenges, and Roadmap 2030
- India-Philippines Ties
- Global South
- China's Export Controls on Gallium and Germanium
- SCO Summit 2023
- Israeli Military Operation in Jenin Refugee Camp
- Feminist Approach to International Relations

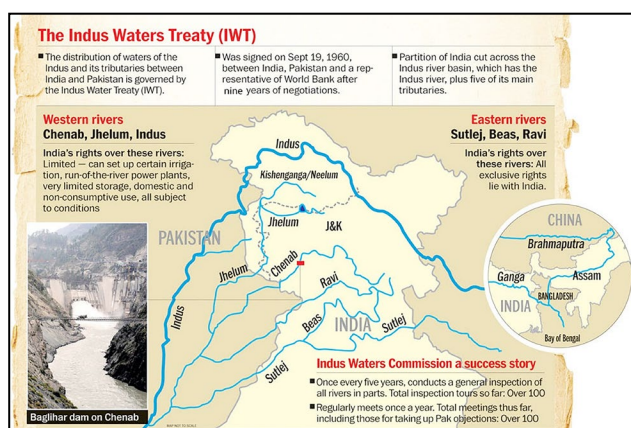
PCA Asserts Competence in India-Pakistan Hydroelectric Projects Dispute

Why in News?

The Hague-based **Permanent Court of Arbitration (PCA)** recently ruled that it has the **competence to hear Pakistan's objections to India's Kishenganga and Ratle hydroelectric projects** in Jammu and Kashmir.

- India, however, rejects the constitution of the **"Court of Arbitration,"** asserting that it goes against the provisions of the **Indus Waters Treaty (IWT).**

What is Indus Waters Treaty?



About:

- The Indus Waters Treaty is a **water-sharing agreement** between **India and Pakistan**.
- The treaty was brokered by the **World Bank** and signed on September 19, 1960.

- It governs the **distribution and utilization** of the waters of the **Indus River system**, which includes six rivers: **Indus, Jhelum, Chenab, Ravi, Beas, and Sutlej**.

- The treaty aims to promote **cooperation and peaceful** management of transboundary water resources between India and Pakistan.

➤ Allocation of Rivers:

- Under the treaty, **three eastern rivers (Ravi, Beas, and Sutlej)** are allocated to **India** for unrestricted use.
- The **three western rivers (Indus, Jhelum, and Chenab)** are allocated to **Pakistan** for unrestricted use.
- India is allowed **limited use of the western rivers** for domestic, non-consumptive, and agricultural purposes.

➤ Key Provisions:

- **Construction of Projects:**
 - The treaty permits **India to construct run-of-the-river hydroelectric projects** on the western rivers, subject to certain conditions.
- **Dispute Resolution:**
 - **Communication via Permanent Indus Commission (PIC):**
 - PIC has a commissioner from each country.
 - Parties inform each other about planned projects on the Indus River.
 - PIC facilitates the exchange of necessary information.
 - Aimed at **resolving differences and avoiding escalation**.

Note:

- **Neutral Expert:**
 - If the PIC fails to resolve the issue, it advances to the next level.
 - **The World Bank appoints a neutral expert.**
 - Expert attempts to **resolve differences.**
- **Court of Arbitration (CoA):**
 - If a neutral expert fails, the dispute goes to CoA.
 - CoA resolves the dispute through **arbitration.**
 - The IWT states that **Neutral Expert and CoA steps are mutually exclusive**, meaning that **only one of them can be used at a time** for a given dispute.

What is the Hydroelectric Project Dispute Between India and Pakistan?

- **Hydroelectric Projects:**
 - The case involves a dispute between India and Pakistan over the **Kishenganga hydroelectric project** (on the **Kishenganga River**, a tributary of the **Jhelum River**), and the **Ratle hydroelectric project** (on the **Chenab River**) in Jammu and Kashmir.
 - The two countries disagree over **whether the technical design features of these two hydroelectric plants** contravene the IWT.
- **Pakistan's Objections:**
 - Pakistan objects to the hydroelectric projects, **citing violations of the IWT**, concerns about **reduced water flow, environmental impact, and differing treaty interpretations.**
 - In 2016, Pakistan **retracted its request for a Neutral Expert** and proposed a **CoA** instead.
 - India requested the **appointment of a Neutral Expert in 2016**, emphasizing its importance in the process, which Pakistan sought to bypass.
- **World Bank Intervention:**
 - World Bank **paused the process due to separate requests** from India and Pakistan, urging resolution through the **PIC.**
 - Pakistan refused to discuss the issue during PIC meetings, leading the World Bank to initiate actions on Neutral Expert and Court of Arbitration.
 - The Treaty does not empower the World Bank to decide **whether one procedure should take precedence over the other.**

- The World Bank sought to fulfill its procedural obligations with respect to both the CoA and the Neutral Expert.
- **India's Opposition:**
 - **India opposes the constitution of the CoA**, citing contravention of Indus Waters Treaty provisions.
 - India also **questioned the jurisdiction and competence of the CoA**, stating that it was not properly constituted as per the treaty.
 - India has **not appointed arbitrators or attended the court's proceedings**, emphasizing the **need for a single dispute resolution process.**

What is the Ruling of the Permanent Court of Arbitration?

- **Ruling:**
 - The PCA ruled that the Court of Arbitration (CoA) has the **competence to consider Pakistan's objections** to India's hydroelectric projects in Jammu and Kashmir.
 - The ruling was based on a unanimous decision, binding on both parties and without any possibility of appeal.
 - The PCA rejected **India's objections to the competence of the CoA**, as raised through its communications with the World Bank.
- **India's Response:**
 - India has been maintaining that **it will not join the Pakistan-initiated proceedings at the PCA** as the dispute is being already examined by a neutral expert under the framework of the IWT.
- **Implications:**
 - The PCA's ruling adds **complexity and uncertainty to the ongoing dispute** between India and Pakistan regarding the hydroelectric projects.
 - The ruling challenges India's position and raises questions about the **effectiveness and interpretation** of the IWT.
 - The implications of the ruling extend beyond the specific dispute, potentially impacting **bilateral relations between India and Pakistan**, particularly concerning **water-sharing and cooperation.**

Note:



What is Permanent Court of Arbitration?

- It was **established in 1899** and is **headquartered in The Hague, Netherlands**.
- **Purpose:** It is an **intergovernmental organization** dedicated to serve the international community in the field of dispute resolution and to facilitate arbitration and other forms of dispute resolution between States.
- It has a **three-part organizational structure** consisting of:
 - **Administrative Council** - to oversee its policies and budgets,
 - **Members of the Court** - a panel of independent potential arbitrators, and
 - **International Bureau** - its Secretariat, headed by the Secretary-General.
- **Funds:** It has a **Financial Assistance Fund** which aims at helping developing countries meet part of the costs involved in international arbitration or other means of dispute settlement offered by the PCA.

Taiwan Expands Presence in India with TECC in Mumbai

Why in News?

Recently, Taiwan has announced plans to open its third representative **Taipei Economic and Cultural Centre (TECC)**, in India, specifically in Mumbai.

- The move, which involves establishing a TECC, is aimed at enhancing **economic linkages and strengthening bilateral cooperation** between Taiwan and India.
- The TECC was established in New Delhi, India, in 1995 as the first TECC in South Asia. Taiwan later opened another TECC in Chennai in 2012.

What are China's**Reaction and Geopolitical Implications?**

- China opposes any official contact or recognition of Taiwan by other countries, stating that it violates the **One China policy**.
- China may respond to the opening of the new office by **expressing objections and employing diplomatic or economic measures**.



- The evolving relationship between India and Taiwan has been a sensitive issue for China, given its efforts to **isolate Taiwan diplomatically**.
- However, given the current tensions between China and India along the **Line of Actual Control**, China may exercise restraint to avoid further escalation.

How have India's Relations with Taiwan been?

- **Diplomatic Relations:**
 - India and Taiwan **do not have formal diplomatic relations** but since 1995, both sides have maintained representative offices in each other's capitals that function as de facto embassies. India has **backed the "one-China policy"**.
- **Economic Relations:**
 - **Trade ties** amounted to **USD 7.5 billion in 2019**, up from USD 1 billion in 2000.
 - India and Taiwan **in 2018 signed a bilateral investment agreement**.
 - There are **around 200 Taiwanese companies** in the field of electronics, construction, petrochemicals, machine, Information and Communications Technology, and auto parts operating in India.
 - Collaboration on creating a **semiconductor manufacturing hub in India**.
- **Cultural Relations:**
 - Both sides have also expanded **educational exchanges** after a mutual degree recognition agreement in higher education was signed in 2010.

Note:

- **Opportunities in the Relations:**
 - **Technology and innovation collaboration:**
 - Taiwan's expertise in R&D and entrepreneurship can complement India's talent pool and **digital economy**, fostering collaboration in **emerging technologies**.
 - Taiwan produces over **60% of the world's semiconductors** and over 90% of the most advanced ones.
 - **Regional stability and security:**
 - Taiwan and India share a vision of a **free, open, and inclusive Indo-Pacific region**, providing avenues for cooperation on maritime security, counter terrorism, and disaster management.
- **Challenge in the Relations:**
 - **One China Policy:**
 - India finds it difficult to realize the full potential of its bilateral relationship with Taiwan, as India is adhered to One China policy.
 - **Hurdles in Economic Cooperation:**
 - Taiwan's increased investments have occurred in the face of **cultural challenges, bureaucratic hurdles, and pressure on India from domestic producers**.

India-Africa Partnership: Achievements, Challenges, and Roadmap 2030

Why in News?

Recently, the 20-member **Africa Expert Group (AEG)**, established by the Vivekananda International Foundation, presented a Report titled '**India-Africa Partnership: Achievements, Challenges and Roadmap 2030**'.

- The report highlights **India's significant partnership with Africa and emphasizes the importance** of regular policy review and implementation to strengthen the relationship.
- With Africa accounting for around 17% of the global population and projected to reach 25% by 2050, India **recognizes its crucial role in the partnership** as a rising global power.

What are the

Key Highlights of the Report?

- **Changes in Africa:**
 - Africa is undergoing significant changes in its **demographics, economy, politics, and society**. It is gradually moving towards regional integration and is committed to promoting **democracy, peace, and progress**.
 - However, some countries like Ethiopia, Sudan, and the Central African Republic are still grappling with challenges posed by insurgency, ethnic violence, and terrorism.
- **Competition and External Players:**
 - Several external partners, including **China, Russia, the United States, the European Union**, Japan, Turkey, and the United Arab Emirates, are actively **competing to strengthen their relations with different parts of Africa**.
 - They aim to secure market access, energy and mineral resources, and enhance their political and economic influence in the region.
- **China's Involvement:**
 - China has stood out as **Africa's largest economic partner** since 2000. It plays a significant role as an infrastructure developer, resource provider, and financier in Africa.
 - China has made substantial investments in terms of **finances, materials, and diplomatic efforts**.

What are the Recommendations to Strengthen India- Africa Ties?

- **Strengthen Political and Diplomatic Cooperation:**
 - Restore periodic leaders' summits through the **India-Africa Forum Summit**.
 - Indo Africa Forum Summit is a programme fully sponsored by the Ministry of External Affairs (MEA) with a view to develop **Indo-Africa cooperation by helping African countries to develop their own potential** for development in human resource and agriculture etc.
 - Seek consensus among **G-20 members on the AU's (African Union) full membership**.
 - Establish a dedicated secretary in the Ministry of External Affairs (MEA) for African affairs.

Note:



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➤ **Enhance Defence and Security Cooperation:**

- Increase the number of defence attachés in Africa and **expand dialogue on defence issues**.
- Strengthen maritime **collaboration and extend Lines of Credit** to facilitate defence exports.

- Expand cooperation in counterterrorism, cyber security, and emerging technologies.

➤ **Deepen Economic and Development Cooperation:**

- Promote **India-Africa trade** through the creation of an **Africa Growth Fund (AGF)** to enhance access to finance.

Note:



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- Implement measures to improve project exports and enhance cooperation in the shipping domain.
- Focus on trilateral cooperation and deepen science and technology collaboration.
- **Increase Socio-Cultural Cooperation:**
 - Facilitate greater interaction between **Indian and African universities**, think tanks, civil society, and media organizations.
 - Establish a National Centre for African Studies.
 - Rename **Indian Technical and Economic Cooperation (ITEC)** and **Indian Council for Cultural Relations (ICCR)** scholarships after famous African figures.
 - Liberalize visa measures for African students pursuing higher education in India and provide short-term work visas.
- **Implementing the 'Roadmap 2030':**
 - Establish a special mechanism for implementing the 'Roadmap 2030' through collaboration between the **MEA and the National Security Council Secretariat**.
 - Create a team of officials led jointly by the Secretary, Africa in the MEA, and a designated Deputy National Security Adviser.
 - By following this roadmap and implementing the recommended measures, **India can further strengthen its partnership with Africa, leveraging the continent's potential** and contributing to its own global stature.

What are the Achievements of India-Africa Relations?

- **Economic Cooperation:**
 - For Indian businesses, Africa presents a massive **untapped market for manufacturing goods such as textiles, pharmaceuticals, automobiles and light machinery**.
 - From 2011–2022, shows an increase in India's total goods trade with Africa from USD 68.54 billion to USD 90.52 billion. Also, **in 2022, for the first time, India reached a positive trade balance**.
- **Development Assistance:**
 - The ITEC program offers training and capacity building programs to African professionals. India has **also extended lines of credit and grants for infrastructure projects**, agricultural development, and capacity building.

- **Health Collaboration:**
 - Indian pharmaceutical companies have **provided affordable generic medicines to African countries**, contributing to improved healthcare access. India has also deployed medical teams and offered technical assistance to combat diseases like HIV/AIDS, malaria, and Ebola.
- **Defence Cooperation:**
 - India has signed MoUs with **all African nations on the Indian Ocean Rim (IOR)** is evidence of increased defence engagement with African countries.
 - The hosting of **two India-Africa Defence Dialogue (IADD)** at the defense ministers' level, on the sidelines of the Defence Expo at Lucknow (2020) and Gandhinagar (2022), also underlines the growing importance of the defence domain in India-Africa engagement.
 - In 2022, India started the **first edition of the Trilateral Maritime Exercise with Tanzania and Mozambique** to enhance maritime cooperation in the region
- **Technology and Digital Cooperation:**
 - Under the Pan African e-Network Project (initiated in 2009), India has set up a **fibre-optic network to provide satellite connectivity, tele-medicine and tele-education to countries of Africa**.
 - The subsequent phase, **e-VidyaBharti and e-ArogyaBharti (e-VBAB)**, introduced in 2019, focused on providing free **tele-education to African students** and continuing medical education for healthcare professionals.

What is the Importance of Africa for India?

- Africa is home to over half a dozen of the **fastest growing countries of this decade** such as Rwanda, Senegal, Tanzania, etc. making it one of the growth poles of the world.
- Real GDP in Africa and Sub-Saharan Africa in the **past decade has grown by more than twice the rate in the 1980s and 90's**.
- The African continent has a population of over one billion with a combined **GDP of 2.5 trillion dollars making it a huge potential market**.
- Africa is a resource **rich nation dominated by commodities like crude oil, gas, pulses and lentils, leather, gold and other metals**, all of which India lacks in sufficient quantities.

Note:

- Namibia and Niger are among the top ten global producers of uranium.
- South Africa is the world's largest producer of platinum and chromium.
- India is seeking diversification of its oil supplies away from the Middle East and Africa can play an important role in India's energy matrix.

India- Philippines Ties

Why in News?

Recently, 5th meeting of the Joint Commission on Bilateral Cooperation was convened, between Indian External Affairs Minister and his Philippines counterpart.

- India and the Philippines are exploring various avenues to enhance their defence cooperation, with a particular emphasis on maritime security.

What are the Major Highlights of the Meet?

- **Defense Cooperation:** Both Ministers expressed keen interest to continue to work together on defense

cooperation, including through the regular or upgraded official-level interaction among defense agencies, opening of a resident Defense Attache office in Manila, consideration of India's offer for concessional Line of Credit to meet Philippines' defense requirements.

- **Maritime Security:** Both countries aim to cooperate on maritime domain awareness (MDA), joint patrols, and information exchange to enhance MDA capabilities.
 - Emphasizing the utility of MDA, the Ministers called for the early operationalization of the standard operating procedure for the White Shipping Agreement between the Indian Navy and the Philippines Coast Guard.
- **Cyber Security Cooperation:** Discussions focused on expanding cooperation in existing domains, including anti-terrorism measures and intelligence exchange. Both countries explored avenues for collaboration in cyber security, artificial intelligence, and space cooperation.
- **Regional and International Issues:** The Ministers engaged in wide-ranging discussions on regional and international issues of mutual interest for e.g.,



Note:

China's growing assertiveness and territorial claims in the **South China Sea**.

- Emphasizing the need for a peaceful settlement of disputes and adherence to international law, including the **United Nations Convention on the Law of the Sea (UNCLOS)** and the **2016 Arbitral Award on the South China Sea**.

How is India's Relations with Philippines?

- **About:** India and the Philippines are **two democratic countries in the Indo-Pacific region** that share **common approach towards the Indo-Pacific**, emphasizing the **importance of a free, open, and stable region**.
- **Political Relations:** India and the Philippines formally established diplomatic relations on **26 November 1949**, shortly after both countries gained independence. (**Philippines in 1946 and India in 1947**).
- When India launched **Look East Policy** and intensified partnership with **Association of Southeast Asian Nations (ASEAN)** in 1992, it also resulted in intensified relations with the Philippines both bilaterally and in the regional context.
- With the **Act East Policy (2014)**, the relationship with the Philippines has diversified further into **political-security; trade and industry, etc.**
- **Economic Relations:** India is currently the **Philippines' fifteenth largest trading partner**, with trade worth approximately **USD 3 billion in the 2022**.
- **Also, Philippines** has been a net importer in goods trade with India.
- **Defence Cooperation:** India and the Philippines have a growing defense and security partnership. One of the most significant developments in defence cooperation between India and the Philippines is the **BrahMos missile deal**, which is expected to be finalised soon.
- The **BrahMos is a supersonic cruise missile co-developed by India and Russia**, which can be launched from land, sea or air platforms.

What are the Key Facts About Philippines?

- The **Philippines** is an **archipelago located in Southeast Asia**, bordered by the **Philippine Sea to the east, the South China Sea to the west, and the Celebes Sea to the south**.
- It consists of **7,641 islands**, with **Luzon and Mindanao being the largest**.

- The capital city is **Manila**, situated on **Luzon Island**.

- **Mount Apo (2,954 meters) on Mindanao Island is the highest peak, and it is an active volcano.**
- The Philippines has a **tropical climate with high temperatures and humidity year-round**, experiencing wet and dry seasons.
- The Philippines is considered one of the **world's biodiversity hotspots**.
- The Philippines is also a **part of the Pacific Ring of Fire**, which makes it geologically active. It has more than 20 active volcanoes, including **Mayon (recently erupted in 2023)**, **Taal**, and **Mount Pinatubo (erupted in 1991)**.

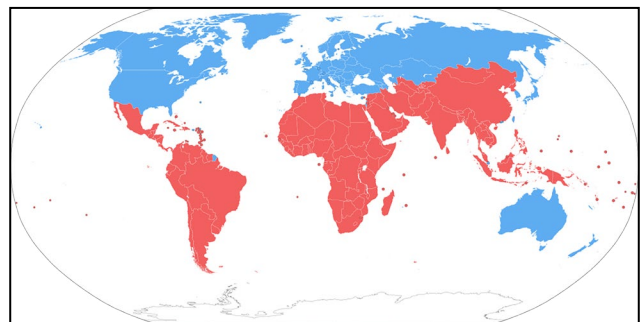
Global South

Why in News?

The reluctance of many nations in **Africa, Asia, and Latin America** to support **NATO (North Atlantic Treaty Organization)** in the **Ukraine conflict** has brought the term **"Global South"** into focus.

What is Global South?

- **About:**
 - The Global South refers to countries often characterized as **developing, less developed, or underdeveloped**, primarily located in **Africa, Asia, and Latin America**.
 - These nations typically experience **higher levels of poverty, income inequality, and challenging living conditions** compared to the wealthier nations of the **Global North**.
 - The "Global North" is richer nations that are located mostly in **North America and Europe**, with some additions in **Oceania and elsewhere**.



Note:



➤ From “Third World” to “Global South”:

- The term Global South was first coined in 1969 by political activist Carl Oglesby.
- It gained momentum after the **dissolution of the Soviet Union in 1991**, which marked the end of the “**Second World**.”
- Previously, developing nations were **commonly referred to as the “Third World,”** a term coined by **Alfred Sauvy in 1952**.
- However, this term became associated with **poverty, instability, and negative stereotypes** propagated by **Western media**.
- As a result, the term “**Global South**” emerged as a **more neutral alternative**.

➤ Geopolitical and Economic Commonalities:

- The term Global South does not have a **strict geographical definition**. It signifies a **combination of political, geopolitical, and economic similarities** among nations.
- Many countries in the Global South have a **history of Imperialism and Colonial Rule**, particularly evident in African countries.
- This history has shaped their perspectives on the relationship between the global **center (Global North)** and **periphery (Global South)** within the world political economy.

What is the Significance of Global South Today?

➤ Shifting Economic and Political Power:

- The Global South has experienced a significant shift in wealth and political visibility in recent decades. The **World Bank (WB)** has acknowledged a “**shift in wealth**” from the **North Atlantic to the Asia-Pacific region**, challenging conventional notions of economic power distribution.

- Projections indicate that by 2030, **three of the four largest economies will belong to Global South countries**, with China and India leading the way.
 - The combined **GDP (Gross Domestic Product)** of the **BRICS nations (Brazil, Russia, India, China, and South Africa)** already **surpasses that of the G-7 nations**. Moreover, political actors from the Global South, such as **China, Saudi Arabia, and Brazil**, are **increasingly playing influential roles** in global affairs.

➤ Impact on Geopolitics:

- The growing economic and political power of the Global South has important implications for global geopolitics.
- Asian nations are **predicted to play a significant role in what experts call the “Asian Century.”**
- Additionally, there is talk of a “**post-Western world**” as the influence of the Global South challenges the **historical dominance of the Global North**.
- These shifts signify the **increasing assertiveness and influence of the Global South** on the world stage.

What are the Challenges to the Development of the Global South?

➤ Issue of Green Energy Fund:

- Despite Global North countries’ higher contribution towards global emissions, they are neglecting to pay for **funding green energy**, for which the ultimate sufferers are the least emitters – the lesser developed countries.

➤ Impact of Russia-Ukraine War:

- The **Russia-Ukraine war** severely affected the **least developed countries (LDCs)** aggravating the concerns related to food, energy and finance, thereby, threatening the development prospects of LDCs.

➤ China’s Interference:

- China is increasingly making inroads in the **Global South through the Belt and Road Initiative (BRI)** for developing infrastructure.
- However, it is still questionable whether BRI will be a win-win situation for both parties or **it will focus only on China’s Profit**.

➤ US Hegemony:

- The world is now **considered to be multipolar by many but still**, it is the **US alone who dominates international affairs**.

Note:

- The US possesses the **largest economy in the world**, with substantial **influence over global financial markets**. The U.S. dollar remains the dominant currency for international trade and is used as a **reserve currency by many countries**.

➤ **Inadequate Access to Resources:**

- Global North-South divergences have been **historically characterised by major gaps** in the access to resources required for crucial developmental outcomes.
- Industrialisation, for example, has been skewed in the favour of advanced economies since the early 1960s, and no major evidence of global convergence was found in this regard.

➤ **Impact of Covid-19:**

- Covid-19 pandemic has **exacerbated the already existing divides**.
- Not only have the countries faced different challenges in dealing with the initial phases of the pandemic, but the social and macroeconomic implications being faced today have been far worse for the global South.
- The vulnerability of the domestic economies is far more apparent now in countries ranging from Argentina and Egypt to Pakistan and Sri Lanka.

What are the Initiatives of India for the Global South?

- Indian Prime Minister announced five initiatives to support the development of other developing countries in **"Voice of Global South Summit"** hosted by India in January 2023.
- The **"Global South Centre of Excellence"** will research development solutions and best practices which can be implemented in other developing countries.
- The **"Global South Science and Technology Initiative"** aims to share Indian expertise in areas such as space technology and nuclear energy.
- The **"Aarogya Maitri"** project will provide essential medical supplies to any developing country affected by natural disasters or humanitarian crises.
- The **"Global South Young Diplomats Forum"** will connect young officers of foreign ministries,
- The **"Global South Scholarships"** will provide higher education opportunities in India for students from developing countries.

China's Export Controls on Gallium and Germanium

Why in News?

China has recently announced that it will **impose export controls on gallium and germanium, which are essential for semiconductor manufacturing, starting from August 1, 2023.**

- This action is seen as a response to **export controls implemented by the United States, Japan, and the Netherlands**, who express national security concerns and accuse China of military use and human rights violations.
- China denies these allegations, asserting that its export controls aim to **safeguard global industrial and supply chain stability**, without singling out any country.

What are Gallium and Germanium?

➤ **Gallium:**

- It is a **soft, silvery-white metal** that is liquid near room temperature.
- It is not found as a free element and is only present in small quantities in certain minerals, such as **zinc ores and bauxite**.



- Gallium is used to make **gallium arsenide**, which is a **core substrate for semiconductors**.
- It is utilized in the production of **semiconductor wafers, integrated circuits, mobile and satellite communications (in chipsets), and LEDs (in displays)**.
- Gallium also finds applications in automotive and lighting industries, as well as in **sensors for avionic, space, and defense systems**.

➤ **Germanium:**

- It is a **lustrous, hard, silvery-white semi-metal** with a **crystal structure similar to a diamond**.
- Germanium is used in **various electronic and optical applications**.
- It is commonly used in **fiber-optic cables and infrared imaging devices**.
- Germanium enhances the ability to **operate weapon systems in harsh conditions**.
- It is also used in **solar cells due to its heat resistance and higher energy conversion efficiency**.

Note:



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**Note:**

- Gallium and germanium, both listed on **India's recently released critical mineral list** by the Ministry of Mines, are also included in the **European Union's list of critical raw materials**, which are recognized as crucial to Europe's economy.
 - Additionally, these elements are considered strategic resources by the United States and Japan.

How does China Dominate the Global Supply of these Raw Materials?

- China is the **world's largest producer and exporter of gallium and germanium**.
- According to the European industry body, Critical Raw Materials Alliance (CRMA), China accounted for **80% of global gallium production and 60% of global germanium production**.
- Abundant reserves of gallium and germanium in China contribute to its dominant position in the market.
- China imports gallium and germanium from countries like **Kazakhstan, Russia, and Canada to supplement its domestic supply**.
- China has a strong **industrial base for processing and refining** gallium and germanium into high-purity products.
- The country benefits from **low labor costs, favorable policies, and a large domestic market**, giving it a competitive advantage in the global supply chain.

How will China's Export Controls Affect the Market?

- **India:**
 - The Chinese export controls on gallium and germanium are expected to have a short-term impact on India and its industries.

- India currently imports all chips, and the market is estimated to touch USD100 billion by 2025 from USD 24 billion now. Disruption in immediate supply chains may result in **increased prices and limited availability of these raw materials** in India.
- India's chip-making plans could be affected due to the dependence on imports of gallium and germanium.
- Long-term consequences for **India's semiconductor industry** depend on alternative supply sources and domestic production capabilities.
- Strategic partnerships like the **India-U.S. Initiative on Critical and Emerging Technology (iCET)** may play a role in ensuring a reliable supply chain.
- Deloitte India suggests **exploring waste recovery from zinc and alumina production as a potential source of gallium and germanium**.
- India has an opportunity to develop domestic capabilities and diversify its supply chain by focusing on **substitutes such as indium and silicon**.

➤ **Global:**

- The restrictions may lead to an increase in **prices of gallium and germanium in the global market** as supply becomes limited.
- Countries and companies heavily dependent on Chinese supply may seek to **diversify their sources of gallium and germanium to reduce their vulnerability** to such export controls.
- Export controls by China could **present opportunities for other countries or regions to increase their production** and supply of gallium and germanium, potentially creating a more diversified market.

SCO Summit 2023

Why in News?

Recently, India has chaired the **Shanghai Cooperation Organization (SCO)** virtual Summit, leaders called for the formation of a "more representative" and multipolar world order in the global interest.

- During this 23rd Summit, **Iran** officially joined the SCO as the **Ninth Member Country**.
- The **theme of India's chairpersonship of SCO is 'Towards a SECURE SCO'**, which is derived from the acronym coined by the Indian PM at the 2018 SCO Qingdao Summit.

Note:



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- It stands for: S: Security, E: Economic development, C: Connectivity, U: Unity, R: Respect for sovereignty and territorial integrity, E: Environmental protection.

Note: India, which was admitted as a full member of the SCO at the Astana Summit in 2017, holds the rotating presidency of the grouping for the first time in 2023. The SCO grouping now comprises China, India, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan and Uzbekistan.

What are the Key

Highlights of the 23rd SCO Summit?

➤ New Delhi Declaration:

- The **New Delhi Declaration** was signed by the member nations, which states that the international community must come together to “**counter the activities of terrorist, separatist and extremist groups**, paying special attention to preventing the spread of religious intolerance, aggressive nationalism, ethnic and racial discrimination, xenophobia, ideas of fascism and chauvinism.”

➤ Joint Statements:

- The leaders adopted **two thematic joint statements** - one on cooperation in countering the radicalisation leading to separatism, extremism, and terrorism & the second one cooperation in the field of digital transformation.

➤ New Pillars of Cooperation:

- India has created five new pillars and focus area for cooperation in the SCO, which include,
 - Startups and Innovation
 - Traditional Medicine
 - Youth Empowerment
 - Digital Inclusion
 - Shared Buddhist Heritage

➤ India's Reservations on BRI:

- India refused to be part of the **BRI (Belt and Road Initiative)** of the SCO members' economic strategy statement, mentioning “**interested member states**”.
- India's opposition to the BRI stems from its **inclusion of projects in Pakistan-occupied Kashmir (POK)**, which India considers a violation of its sovereignty.

➤ Indian Prime Minister's Address:

- The Indian PM highlighted the **significance of connectivity for enhancing mutual trade** and trust among SCO member states.

- However, he stressed the **need to uphold the fundamental principles of the SCO charter**, specifically respecting member **states' sovereignty and regional integrity**.

➤ Other Perspectives:

- The Indian PM criticized countries that employ **Cross-Border Terrorism** as an instrument of their policies and provide shelter to terrorists, urging the SCO not to hesitate in **condemning such nations and emphasized** the importance of consistency in addressing these critical issues.
- The **Chinese President**, while celebrating the **ten-year anniversary of the BRI**, mentioned his new **Global Security Initiative (GSI)**, calling for **political resolutions** to international and regional conflicts to establish a solid security shield in the region.
 - He urged SCO members to **formulate foreign policies independently** and remain vigilant against external attempts to instigate a new **Cold War or camp-based confrontation**.
- The **Russian President**, attending his first multilateral gathering since the failed rebellion by the **Wagner Group**, indirectly attributed **Ukraine's anti-Russian sentiment to external forces** supplying weapons to the country.
 - He emphasized **Russia's resilience against external pressures**, sanctions, and provocations, citing the unity of Russian political circles and society against attempted armed rebellions.

What is Shanghai Cooperation Organization?

➤ About:

- SCO is a permanent **intergovernmental international organization**.
- It's a political, economic and military organization aiming to maintain peace, security and stability in the region.
- It was **created in 2001**.
- The SCO Charter was signed in 2002 and entered into force in 2003.

➤ Objectives:

- Strengthening **mutual trust and neighborliness** among the member states.
- Promoting effective cooperation in -politics, trade & economy, research & technology and culture.
- Enhancing ties in **education, energy, transport, tourism, environmental protection**, etc.

Note:



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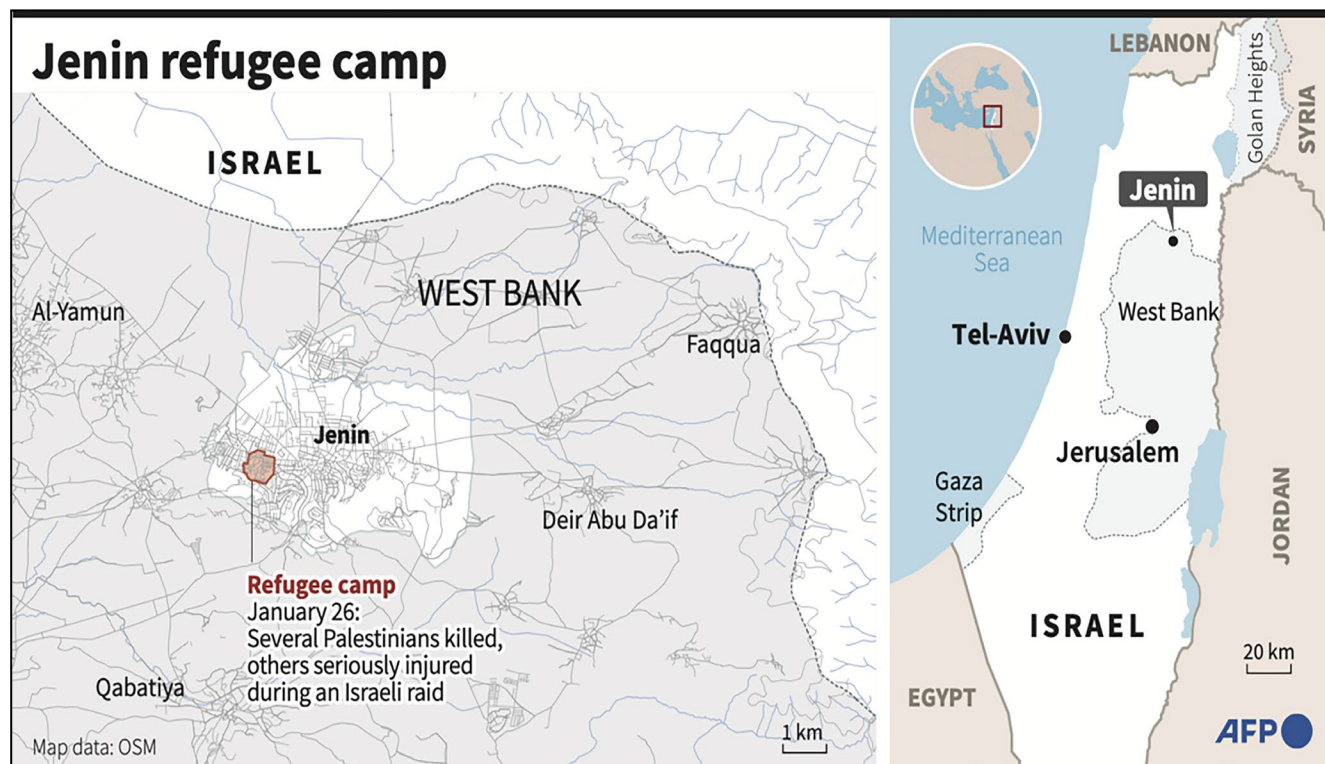
- Maintain and ensure **peace, security and stability** in the region.
- Establishment of a democratic, fair and rational new international political & economic order.
- **Structure:**
 - **Heads of State Council:** The supreme SCO body which decides its internal functioning and its interaction with other States & international organisations, and considers international issues.
 - **Heads of Government Council:** Approves the budget, considers and decides upon issues related to economic spheres of interaction within SCO.
 - **Council of Ministers of Foreign Affairs:** Considers issues related to day-to-day activities.
 - **Regional Anti-Terrorist Structure (RATS):** Established to combat terrorism, separatism and extremism.
- **SCO Secretariat:**
 - Based in Beijing to provide informational, analytical & organizational support.
- **Official language:**
 - The official working language of the SCO Secretariat is Russian and Chinese.

Israeli Military Operation in Jenin Refugee Camp

Why In News?

Recently, Israel launched a military operation in the **Jenin Refugee Camp** in the occupied West Bank, resembling **wide-scale operations carried out during the second** Palestinian uprising (2000-2005).

- The operation aimed to **destroy and confiscate weapons** and targeted specific militant groups. It involved around 2,000 soldiers and utilized military drones for strikes.
- The **Jenin camp** has historically been a **stronghold for armed struggle** against Israeli occupation and a focal point for violence.



Note:

What are the Key**Points related to Jenin Refugee Camp?**

- Jenin Refugee Camp is a **Palestinian refugee camp** located in the northern West Bank, specifically in the city of Jenin.
- Established in 1953, the camp was created to accommodate **Palestinian refugees who were displaced during the 1948 Arab Israeli war**, also known as the Nakba ("catastrophe" in Arabic).
- The camp has also been a **site of frequent clashes between Palestinian militants and Israeli forces** over the years.
 - It gained particular attention during the second Palestinian uprising, also known as the **Al-Aqsa Intifada (2000-2005)**, when it became a stronghold for armed resistance against Israeli occupation.
- Jenin Refugee Camp remains a **symbol of the Palestinian refugee issue** and the ongoing Israeli-Palestinian conflict.

What are the Other Important**Places Linked to Israel Palestine Conflict?**

- **Al Aqsa Mosque:**
 - It is one of the **holiest structures in the Islamic faith known by Muslims as Haram al-Sharif**, or the Noble Sanctuary, and by Jews as the Temple Mount.
 - The site is part of the Old City of Jerusalem, sacred to Christians, Jews and Muslims.
- **Sheikh Jarrah:**
 - Sheikh Jarrah is a neighborhood located north of the **Old City in East Jerusalem**.
 - Hundreds of thousands of **Palestinians were forced out of their homes** when the **State of Israel was created** in historical Palestine in 1948.
 - Twenty-eight of those Palestinian families moved to Sheikh Jarrah in East Jerusalem to settle there.
- **West Bank:**
 - West Bank is a **landlocked territory in West Asia**. It also contains a significant section of the **western Dead Sea**.
 - It was captured by Jordan after the **Arab-Israeli War (1948)** but Israel snatched it back **during the Six-Day War of 1967** and has occupied it ever since.

- The West Bank is sandwiched between Israel and Jordan.

➤ **Gaza Strip:**

- The Gaza Strip is located **between Israel and Egypt**. Israel occupied the strip after 1967, but **relinquished control of Gaza City** and day-to-day administration in most of the territory during the **Oslo peace process**.
- In 2005, Israel unilaterally removed **Jewish settlements from the territory**, though it continues to control international access to it.

➤ **Golan Heights:**

- The Golan Heights is a **strategic plateau that Israel captured from Syria** in the 1967 war. Israel effectively **annexed the territory in 1981**.
- In 2017, the USA officially recognized Jerusalem and Golan Heights a part of Israel

Feminist Approach to International Relations

Why in News?

After **World War 2**, the changing global order witnessed the **rise of non-state actors, ethnic tensions, and the Cold War**. This necessitated alternative approaches to **International Relations (IR)**, including the **Feminist Perspective** that views the international arena through a gendered lens.

What is the Origin of Feminist Perspective of International Relations?

➤ **Positivists and Post-Positivists:**

- The feminist perspective in IR emerged from the **"Third Debate"** between positivists and post-positivist scholars in the 1980s.
 - Positivists believed that IR is a **value-neutral field with definitions and structures such as anarchy and nation state are fixed**.
 - Post-positivists challenged this view and **called for critical analysis, pluralism**, and diversity in IR (which till then was dominated by realist and liberal perspectives).

Note:



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Note:

- Realists believe the **international arena is in a state of anarchy** (there is no overarching sovereign power to govern nation states and tell them what to do).
 - Therefore, states are constantly involved in 'power politics', trying to safeguard their own interests and security.
- Liberal scholars on the other hand prioritize cooperation. While they agree on the premise of the global order being anarchic, they contend that instead of power, **nation states actively seek alliances** in order to safeguard their interests.
- **Feminists:**
 - Feminist **challenged the masculine assumption of human nature** inherent in these perspectives, arguing that it neglected social reproduction and **development as integral aspects of human nature**.
 - They view the global order as a **socially constructed hierarchy that perpetuated gender subordination**.
 - Feminist criticize the marginalization of women's experiences in war, conflict, and diplomacy. They argued that women's voices, knowledge, perspectives, and experiences were **often overlooked or subsumed under a male-centric "universal" experience**.

How has Women's Participation in Discussing War and Conflicts been?

- In international conflict, women are often **portrayed as vulnerable** and in need of protection, but this perspective has marginalized them from **participating in discussions and processes of war**.
- There is a masculinisation of the sphere of war and conflict, where women are made completely invisible in spite of their **active role during war and conflicts** such as taking care of wounded persons and becoming prostitutes to support their war torn families.
- Even within the discourse of protection, the exclusive targeting of women through **rape and sexual violence is seen as an effect of war** and not as a **key military strategy used by nations for ethnic cleansing and genocide**.

How do Different Feminist theories contribute to the Understanding of Existing Challenges in IR?

- **Liberal Feminist:**

- While liberal feminist theory does not fundamentally challenge the traditional ideas of IR, it questions the content. Liberal feminists look on the role of the **gender gap in global politics and the disproportionate effect of war** on women in the form of sexual violence and trafficking.
- They call for **more female participation in high-level politics** and contend that the presence of more women leaders would facilitate peaceful and humanitarian policies.
- **Constructivist Feminist:**
 - Constructivist feminist theory looks at how **gendered identities play a role in global politics**. It looks at gender as the **core component which influences structures and personal relationships**.
 - It places emphasis on the idea of gender and how it **upholds unequal global material conditions**.
 - While liberal feminism focuses on achieving formal equality and individual rights for women within existing structures, **constructivist feminism examines how gender is socially constructed** and seeks to transform societal norms and power relations for **true equality**.
- **Feminist Post Structuralist:**
 - A feminist post structuralist approach talks about binary linguistic oppositions in IR like order/anarchy, developed/underdeveloped, national/international etc, which perpetuate and **seek to empower the masculine over the feminine**.
 - They are highly critical of the assertion that more women in high-level diplomatic positions would **lead to pacifist policies as it seeks to further essentialise** and reinforce certain characteristics as feminine.
- **Postcolonial Feminist:**
 - It seeks to challenge the **assumption of universality of women's experience** across regions and cultures.
 - It is especially **critical of liberal feminists'** approach of looking at women in the **Global South as powerless**, lacking agency and helpless or as one homogenous category.

How is the Feminist Approach to IR Relevant in Present Times?

- **Gender Inequality:**
 - The feminist approach highlights the **need to address gender disparities** and challenges traditional power structures **that perpetuate inequality**.

Note:

- It sheds light on how **gender shapes global politics**, including issues related to security, development, and human rights.

➤ **Peace and Security:**

- Feminist scholars and activists have **challenged traditional notions of security** and **broadened the concept to include human security**, which encompasses the well-being and rights of individuals and communities.
- They have highlighted the disproportionate impact of conflicts on women, **advocated for women's inclusion in peace processes**, and emphasized the importance of addressing **gender-based violence** as a security issue.

➤ **Global Governance:**

- The feminist approach to IR challenges the **male-centric nature of global governance** and institutions.

- It calls for greater **gender equality in decision-making bodies** and promotes the inclusion of women's perspectives and voices in shaping global policies and agendas.

- It also pushes for the recognition of care work and the redistribution of resources and power in more equitable ways.

➤ **Transnational Feminism:**

- The feminist approach to IR recognizes the importance of transnational feminist networks and movements. It acknowledges the **interconnectedness of women's struggles globally and the need for collective action** to address common challenges.
- It highlights the significance of **cross-border solidarity and cooperation** in promoting gender equality and social justice.



Note:

Social Issues

Highlights

- Palliative Care in India
- Dark Patterns
- Welfare Schemes and Brain Development
- Global Burden of Unsafe Drinking Water, Sanitation, and Hygiene
- Swachh Bharat Mission-Urban
- NHRC and UN Human Rights Council
- Multidimensional Poverty Index 2023
- WHO's Food Marketing Recommendations for Child Protection
- Sarpanch-patism
- Anaemia and Maternal Health
- World Zoonosis Day
- Atal Vayo Abhyuday Yojana
- Rehabilitation Scheme for Victims of Trafficking

Palliative Care in India

Why in News?

India, with nearly 20% of the world's population, faces a significant burden of **non-communicable diseases**. Conditions such as **cancer, diabetes, hypertension, and respiratory diseases** are on the rise, necessitating the need for **palliative care**.

- However, the **availability and accessibility of palliative care in India are limited**.

What is Palliative Care?

- **Palliative care** is explicitly recognized under the **human right to health** and it is a **type of medical care** that **focuses on improving the quality of life for people with serious illnesses**.
 - It helps to prevent suffering and aims to identify patients who may be receiving too many medical treatments that don't improve their quality of life and may cause financial strain on their families.
 - It is meant to address physical, psychological, spiritual, and social needs for people with conditions like **heart failure, kidney failure, certain neurological diseases, cancer** etc.
- According to WHO, **each year an estimated 40 million people are in need of palliative care**, 78% of whom live in low- and middle-income countries.
 - Also worldwide, **only about 14% of people who need palliative care currently receive it**.

- Furthermore, WHO explicitly recognized that palliative care is part of the comprehensive services required for NCDs through the **Global Action Plan for the Prevention and Control of NCDs 2013–2020**
 - In 2019, the **World Health Assembly** extended the WHO Global action plan for the prevention and control of NCDs 2013–2020 to **2030**.

Note:

- Non-Communicable Diseases (NCDs) are chronic diseases that are not transmissible from one person to another. NCDs include a wide spectrum of medical disorders, both acute and chronic, like **Cancers, Diabetes, Hypertension, Cardiovascular Diseases** etc.

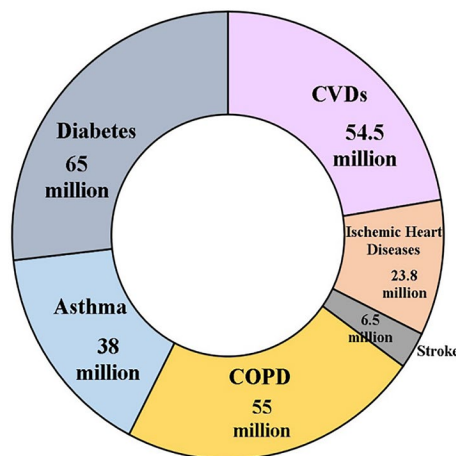


Figure 2: Burden of Non Communicable Diseases in India⁷

Note:

What is the Status of Palliative Care in India?

➤ Status:

- Palliative care in India is primarily **available in urban areas** and at tertiary healthcare facilities. **Only 1-2% of the estimated 7-10 million people in India** who need palliative care have access to it.

➤ Palliative Care Programme in India:

- Although no separate budget is allocated for the implementation of the National Palliative Care Program, palliative care is part of the 'Mission Flexipool' of **National Health Mission (NHM)**.
- National Programme for prevention & Control of Cancer, Diabetes, Cardiovascular Diseases & stroke (NPCDCS) that was launched in 2010 and later revised as **National Programme for Prevention & Control of Non-Communicable Diseases (NP-NCD)**, also aims to address the increasing burden of noncommunicable diseases in India, aims to **provide promotive, preventive, and curative care across all levels of healthcare**.

➤ Challenges:

- **Limited Awareness:** There is a **lack of awareness and understanding about palliative care among the general public** and healthcare professionals.
 - Many people in India are **not aware of the benefits of palliative care or confuse it with end-of-life care**.
- **Inadequate Infrastructure and Insufficient Training:** There is a shortage of dedicated palliative care centers, hospices, and trained healthcare professionals in India.
 - Also, healthcare professionals, including **doctors, nurses, and other caregivers**, often lack adequate training in palliative care.
 - This limits their ability to provide appropriate pain and symptom management and **psychosocial support to the patient**.
- **Lack of Attention Towards Pediatric Care:** Paediatric palliative care has also been neglected for a long time. **About 98% of children facing moderate to severe suffering during their end of life** reside in lower and middle-income countries like India.
 - This could be due to diseases like **cancer, birth defects, neurological conditions, etc.**
 - The **revised operational guidelines of NP-NCD** have also not addressed this issue.

- **Limited Implementation of NPCC:** The implementation of this program has been slow and uneven, resulting in **limited progress in expanding palliative care services**.

Dark Patterns

Why in News?

Recently, the Ministry of Consumer Affairs, Food and Public Distribution, Government of India, has established a 17-member task force to develop guidelines for consumer protection to address the issue of **Dark Patterns**.

- The Ministry has started classifying complaints received on the **National Consumer Helpline** to compile information on Dark Patterns, which can be used by the **Central Consumer Protection Authority** to initiate action under the **Consumer Protection Act, 2019**.

What are the Dark Patterns?

➤ About:

- Dark patterns, also known as deceptive patterns, refer to strategies employed by websites and apps to **make users perform actions they did not intend** to or discourage behaviors that are not advantageous for the companies.
- The term was coined by Harry Brignull, a user experience (UX) designer, in 2010.
- These patterns often **exploit cognitive biases and employ tactics** such as false urgency, forced actions, hidden costs etc.
- They can range from overtly noticeable tricks to more subtle methods that users may not immediately recognize.

- **Types of Dark Patterns:** The **Consumer Affairs Ministry** has identified **nine types** of dark patterns being used by e-commerce companies:

- **False Urgency:** Creates a sense of urgency or scarcity to pressure consumers into making a purchase or taking an action;
- **Basket Sneaking:** Dark patterns are used to **add additional products or services** to the shopping cart without the user's consent;
- **Confirm Shaming:** Uses guilt to make **consumers adhere**; criticises or attacks consumers for not **conforming to a particular belief** or viewpoint;

Note:



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- **Forced Action:** Pushes consumers **into taking an action they may not want to take**, such as signing up for a service in order to access content;
- **Nagging:** Persistent **criticism, complaints**, and requests for action;
- **Subscription Traps:** Easy to sign up for a **service but difficult to quit** or cancel; option is hidden or requires multiple steps;
- **Bait & Switch:** Advertising a **certain product/ service but delivering another**, often of lower quality;
- **Hidden costs:** Hiding additional costs **until consumers are already committed** to making a purchase;
- **Disguised ads:** Designed to **look like content**, such as news articles or user-generated content.
- **Consequences:**
 - Dark patterns **endanger the experience of Internet users** and make them more **susceptible to financial and data exploitation** by Big Tech firms.
 - Dark patterns confuse **users, introduce online obstacles**, make simple tasks time-consuming, have users sign up for unwanted services/products, and force them to pay more money or share more personal information than they intended.

How do Companies Use Dark Patterns?

- Social media companies and Big Tech firms such as **Apple, Amazon, Skype, Facebook, LinkedIn, Microsoft, and Google** use dark or deceptive patterns to downgrade the user experience to their advantage.
 - Amazon came under fire in the **European Union** for its confusing, multi-step cancelling process in Amazon Prime subscription. Amazon, in 2022, made its cancellation process easier for online customers in European countries.
- **LinkedIn users often receive unsolicited, sponsored messages** from influencers.
 - Disabling this option is a difficult process with multiple steps that requires users to be familiar with the platform controls.
- Google-owned **YouTube nags users to sign up for YouTube Premium with pop-ups**, obscuring final seconds of a video with thumbnails of other videos.

What are the Global Efforts to Combat Dark Patterns?

- In March 2021, California in the US passed amendments to the **California Consumer Privacy Act**, prohibiting

dark patterns that hindered consumers from exercising their privacy rights.

- The UK issued guidelines in April 2019, which were **later enforceable under the Data Protection Act, 2018**, restricting companies from using manipulative tactics to lure underage users into low privacy settings.

Welfare Schemes and Brain Development

Why in News?

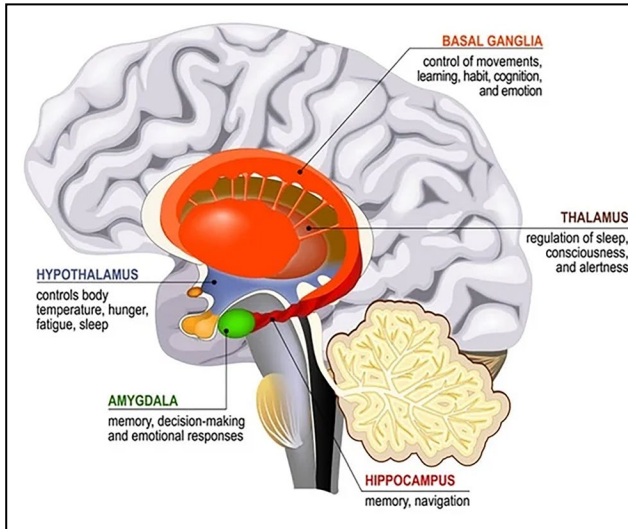
Recently, a study published in the *journal Nature* has shed light on the **impact of welfare schemes on brain development**, particularly in children from **low-income families**.

- The study, based on **brain scans of over 10,000 children aged 9-11** from **17 U.S. states**, aimed to explore the **relationship between poverty and brain development** and the role of anti-poverty policies in mitigating its effects.

What are the Key Highlights of the Study?

- **Poverty's Effect on Brain Development:**
 - Previous studies have consistently demonstrated that **growing up in low-income families** can **adversely affect brain development and cognitive abilities**.
 - In 2015, three studies reported that human children and young adults growing up in low-income families had **lower cortical volume and did relatively poorly in tests for academic performance**. The cortex is the outer layer of the brain.
 - Children from low-income families showed a higher risk of having a smaller **hippocampus**, a **structure crucial for learning and memory**.
- **Impact of Anti-Poverty Policies:**
 - Generous **anti-poverty policies** were found to **substantially lower the risk of a smaller hippocampus** in children from low-income families.
 - The **size of the hippocampus correlated positively** with family **socioeconomic status**.
 - Researchers found a significant three-way interaction between **family income, cost of living, and cash assistance programs** in predicting hippocampal volume.

Note:



- In **low-income households** residing in **high-cost-of-living states**, and **received generous cash benefits**, their **hippocampal volumes** were, on average, **34% larger** than those who lived in **low-income households** in states with a **relatively higher cost of living** and **lower cash benefits**.

- **Welfare Schemes and Mitigating Biological Effects:**
 - **Access to more financial resources** through welfare schemes **can shield families from chronic stressors** associated with low income, potentially influencing hippocampal development.
 - Anti-poverty policies can **reduce stress levels** and allow families to make decisions that lead to decreased stress, such as working fewer hours.
- **Future Implications and Limitations:**
 - **Longitudinal Study:**
 - The researchers plan to examine how **policy changes since the data collection period have influenced the mental health and brain development trajectories** of the participants.
 - Monitoring the **long-term impact of policy changes** can provide valuable insights into the effectiveness of anti-poverty measures.
 - **Addressing Socioeconomic Disparities:**
 - The study highlights the importance of **investments in social safety net programs** to address socioeconomic disparities in **neurodevelopment**.
 - Such programs can potentially **lower the costs associated with mental health, education,**

and **economic challenges** resulting from socioeconomic inequalities.

What are the Major Poverty Alleviation Programs in India?

- **Integrated Rural Development Programme (IRDP)**
- **Pradhan Mantri Awaas Yojana**
- **National Old Age Pension Scheme**
- **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) 2005**
- **Deendayal Antyodaya Yojana - National Rural Livelihood Mission (DAY-NRLM)**
- **National Urban Livelihood Mission**
- **Pradhan Mantri Kaushal Vikas Yojana**
- **Pradhan Mantri Jan Dhan Yojana**

Global Burden of Unsafe Drinking Water, Sanitation, and Hygiene

Why in News?

According to a new report by the **World Health Organization (WHO)** titled "**Burden of Disease Attributable to Unsafe Drinking Water, Sanitation and Hygiene: 2019 Update**," unsafe **drinking water, sanitation, and hygiene (WASH)** practices have led to severe consequences, resulting in a significant loss of lives and widespread disease burden.

What are the Impacts of Unsafe WASH Practices?

- **Mortality Toll:**
 - In 2019, unsafe WASH practices caused 395,000 deaths among children under the age of five.
 - **Breakdown of Deaths:**
 - 273,000 deaths were attributed to **diarrhoea**.
 - 112,000 deaths were caused by acute respiratory infections.
 - **Inadequate access to WASH services** resulted in at least **1.4 million deaths globally**.
- **Widespread Disease Impact:**
 - Diarrhoeal diseases accounted for over a million deaths and 55 million **Disability-adjusted life years (DALY)**.

Note:

- DALY is the **sum of the number of years of life lost** due to **premature death and a weighted measure of the years lived** with disability due to a disease or injury.
- An estimated 1.5 billion people worldwide are affected by **soil-transmitted helminthiases (STH)**, transmitted through poor sanitation practices.
 - STH are transmitted by eggs in human faeces, which in turn contaminate soil in areas where sanitation is poor.
- Inadequate WASH contributes to **10% of the disease burden** associated with **malnutrition**.
- **Global Disparities in WASH Access:**
 - Currently, **771 million people lack access to safe water globally**.
 - Approximately 1.7 billion people do not have access to proper **sanitation facilities**.
- **Consequences for Low and High-Income Countries:**
 - Poor hand hygiene practices led to around 384,000 diarrhoea-related deaths across all age groups in Africa and South-East Asia.
 - Even high-income countries, such as the **United States, experienced risks**, with 33,200 deaths from diarrhoeal diseases and 317,921 deaths from acute respiratory infections in 2019.

What are Unsafe WASH Practices?

- **Drinking water** from contaminated or untreated sources, such as **polluted rivers or stagnant ponds**.
- Absence or **poor maintenance of toilets, latrines, or sewage systems** can result in the improper disposal of human waste.
- Insufficient handwashing with soap, improper food handling practices, and **lack of awareness about basic hygiene**.
- The practice of **defecating in the open**, without the use of a toilet or latrine contaminates the environment, water sources, and food.
- Inadequate **disposal of solid waste and improper handling of hazardous waste** can pollute water sources, contaminate soil, and create breeding grounds for disease-carrying vectors.

What is WASH?

- **About:**
 - WASH is an acronym that **stands for the interrelated areas of Water, Sanitation, and Hygiene**.

- The **WHO WASH Strategy** has been developed in response to Member State Resolution (WHA 64.4) and the 2030 Agenda for Sustainable Development.
- It is a **component of WHO's 13th General Programme of Work 2019–2023** which aims to contribute to the health of three billion through multisectoral actions like better emergency preparedness and response; and one billion with **Universal Health Coverage (UHC)**.
- It also takes on board the need for progressive realization of the human rights to safe drinking-water and sanitation, adopted by the **UN General Assembly** in July 2010.
- **Importance of Safe WASH:**
 - Access to **clean water, proper sanitation, and hygiene reduces the risk of illness, malnutrition, and mortality**.
 - Safe WASH facilities contribute to **child and maternal health**, ensuring safer childbirth practices and preventing child growth and development issues.
 - Gender-responsive WASH services **empower women and girls, promoting gender equality and dignity**.
 - Sustainable WASH practices protect **water resources, conserve the environment**, and mitigate **climate change** impacts.
 - Safe WASH is crucial for achieving the **Sustainable Development Goals** and creating healthier, more equitable communities.
- **Principles of the WHO WASH Strategy:**
 - Prioritize actions with **high public health benefits in WHO-relevant areas**.
 - Strengthen **health sector capacities for safe WASH** and outbreak response.
 - Align with SDGs on WASH, health, climate, nutrition, and human rights.
 - Utilize high-quality science and evidence for WASH norms and procedures.
 - Promote **incremental improvements in national WASH standards and targets**.
 - Capitalize on existing regional WASH policy frameworks and targets.
 - Stimulate sustainable change through stronger government institutions.
 - Engage partners to address health issues in the WASH sector, including healthcare facilities.

Note:



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➤ SDGs Linked to WASH:

- **Goal 3: Good Health and Well-being** - WASH is essential for preventing the spread of diseases and promoting good health.
- **Goal 6: Clean Water and Sanitation** - This goal specifically addresses the need for access to clean drinking water and adequate sanitation facilities.
- **Goal 12: Responsible Consumption and Production** - WASH is critical to ensure responsible consumption and production of water resources.
- **Goal 13: Climate Action** - Climate change can impact access to safe drinking water, sanitation, and hygiene, making WASH an important component of climate action.

Swachh Bharat Mission-Urban

Why in News?

Recently, the **Ministry of Housing and Urban Affairs (MoHUA)** organized a **review-cum-workshop** to evaluate and accelerate the planning and implementation of the **second phase of Swachh Bharat Mission-Urban (SBM-U 2.0)** across the country.

- The **issue of open defecation** has once again garnered attention following the recent release of the **Joint Monitoring Program (JMP) report** on water, sanitation, and hygiene by the **WHO** and the **UNICEF** for the year 2022.

What is Swachh Bharat Mission-Urban?

- **About:**
 - **Swachh Bharat Mission-Urban (SBM-U)** was launched on October 2, 2014, by the **Ministry of Housing and Urban Affairs** as a national campaign to promote cleanliness, sanitation, and proper waste management in urban areas.
 - It aimed to make cities and towns across India clean and free from open defecation.
- **Swachh Bharat Mission-Urban 1.0:**
 - The first phase of SBM-U focused on **achieving the target of making urban India ODF** by providing access to toilets and promoting behavioral change.
 - SBM-U 1.0 was successful in achieving the target and **100% of urban India was declared ODF**.
- **Swachh Bharat Mission-Urban 2.0 (2021-2026):**
 - SBM-U 2.0, announced in Budget 2021-22, is the continuation of **SBM-U first phase**.

- The second phase of SBM-U aimed to **go beyond ODF to ODF+, and ODF++**, and focus on making urban India **garbage-free**.
- It emphasized **sustainable sanitation practices, waste management, and the promotion of a circular economy**.

➤ Achievements:

- **Open Defecation Free (ODF):**
 - Urban India has become **Open Defecation Free (ODF)**, with all **4,715 Urban Local Bodies (ULBs)** completely ODF.
 - **3,547 ULBs are ODF+** with functional and hygienic community and public toilets, and **1,191 ULBs are ODF++ with complete faecal sludge management**.
 - **14 cities are certified Water+**, which entails treatment of wastewater and its optimum reuse.
- **Waste Processing:**
 - **Waste Processing in India** has gone up by over **4 times from 17% in 2014 to 75% in 2023**, aided through **100% door-to-door waste collection in 97% wards** and **source segregation** of waste being practised by citizens across almost **90% wards in all ULBs in the country**.
- **Garbage Free Cities:**
 - The **Garbage Free Cities(GFC)-Star rating protocol** launched in **January 2018** has increased from only **56 cities in the first year to 445 cities till date**, with an ambitious target of having at least **1,000 3-star GFC by October 2024**.
 - The **2023-24 budget** has reinforced India's commitment to building a circular economy through an enhanced focus on **scientific management of dry and wet waste**.

What is Open Defecation Free Status?

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

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What are the Key**Highlights of the JMP Report?**

- **Open Defecation Rate:**
 - The report reveals that **17% of the rural population in India still practices open defecation.**
- **Access to Basic Sanitation Facilities:**
 - A quarter of the rural population in India lacks access to **“at least basic” sanitation facilities.**
 - Basic services are defined as **improved sanitation facilities that households do not share with others.**
- **Progress since 2015:**
 - The report tracks progress since 2015 when the goals for sanitation were set.
 - In **2015, approximately 41% of the rural population practiced open defecation, which was reduced to 17% in 2022.**
 - In terms of sanitation facilities, **51% of households had at least basic sanitation in 2015, increasing to 75% in 2022.**
- **Rate of Decline in Open Defecation:**
 - India has registered an **annual average decline of 3.39% in open defecation.**
 - If this decline rate continues, it would take around **four to five years to achieve open defecation-free status.**
- **Recommendations:**
 - Emphasize the **importance of behavioral change to promote toilet usage** over open defecation.
 - Quantify and measure the behavioral shift towards using toilets to accurately ascertain ODF status.
 - Address the **public health implications of open defecation** by working towards its elimination.
 - Maintain **continuous monitoring and evaluation of sanitation practices** to identify areas for improvement and ensure sustained progress.
 - **Reassess the ODF milestone in India** based on the findings of the JMP report and take **comprehensive measures to address open defecation** and improve sanitation facilities.

NHRC and UN Human Rights Council

Why in News?

Recently, the **National Human Rights Commission (NHRC)** has called for an action taken report from the Odisha government regarding the Balasore train accident.

- Simultaneously, **India recently voted in favor** of a draft resolution tabled in the **United Nations Human Rights Council**, condemning and strongly rejecting acts of desecration of the Holy Quran.
- The draft resolution, titled **‘Countering religious hatred constituting incitement to discrimination, hostility or violence,’** gained support from multiple nations, including **Bangladesh, China, Cuba, Malaysia, Pakistan, Qatar, Ukraine, and the UAE.** The resolution emphasizes the **condemnation of acts of religious hatred and calls for accountability** according to international human rights law.

What is the**National Human Rights Commission (NHRC)?**

- **About:**
 - Ensures protection of rights **related to life, liberty, equality, and dignity of individuals.**
 - Rights guaranteed by the **Indian Constitution** and **international covenants enforceable by Indian courts.**
- **Establishment:**
 - Established on **October 12, 1993**, under the Protection of **Human Rights Act (PHRA), 1993.**
 - Amended by the **Protection of Human Rights (Amendment) Act, 2006**, and **Human Rights (Amendment) Act, 2019.**
 - Established in conformity with the **Paris Principles**, adopted for promoting and protecting human rights.
- **Composition:**
 - The Commission consists of a **chairperson, five full-time Members and seven deemed Members.**
 - Chairman is a former **Chief Justice of India** or a **Supreme Court judge.**

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➤ Appointment and Tenure:

- Chairman and members appointed by the **President** on the recommendations of a **six-member committee**.
 - Committee consists of the Prime Minister, Speaker of the Lok Sabha, Deputy Chairman of the Rajya Sabha, leaders of the Opposition in both Houses of Parliament, and the Union Home Minister.
- Chairman and members hold office **for a term of three years or until they reach the age of 70**.

➤ Role and Function:

- Possesses powers of a **civil court with judicial proceedings**.
- Empowered to utilize services of central or state government officers or investigation agencies for investigating human rights violations.
- Can investigate matters within **one year of their occurrence**.
- Functions are primarily recommendatory in nature.

➤ Limitations:

- The Commission cannot inquire into **any matter after one year from the date** of the alleged human rights violation.
- Limited jurisdiction in cases of human rights violations by armed forces.
- Lacks authority to act in cases of human rights violations by private parties

What is the United Nations Human Rights Council?

➤ About:

- An **inter-governmental body** within the **United Nations** responsible for promoting and protecting **human rights worldwide**.
- Established in 2006 by the **United Nations General Assembly**, replacing the former **United Nations Commission on Human Rights**.
- The Office of the **High Commissioner for Human Rights (OHCHR)** serves as the Secretariat and is based in **Geneva, Switzerland**.

➤ Membership:

- It consists of **47 United Nations Member States** elected by the UN General Assembly.
- Membership based on equitable geographical distribution, with seats allocated to different regions.

- Members **serve for three-year terms** and are not eligible for immediate re-election after two consecutive terms.

➤ Procedures and Mechanisms:

- **Universal Periodic Review (UPR)** assesses human rights situations in all UN Member States.
- The Advisory Committee provides expertise and advice on thematic human rights issues.
- Complaint Procedure allows individuals and organizations to bring human rights violations to the Council's attention.
- UN Special Procedures monitor and report on specific thematic issues or human rights situations in countries.

➤ Issues:

- The composition of membership raises concerns, as some countries accused of human rights abuses have been included.
- Disproportionate focus on certain countries, such as Israel, has been criticized.

➤ India's involvement:

- In 2020, **India's National Human Rights Commission** submitted its as a part of the third round of the **Universal Periodic Review (UPR)** process.
- India was elected to the Council for a **period of three years beginning 1st January 2019**.

Multidimensional Poverty Index 2023

Why in News?

Recently, the **Global Multidimensional Poverty Index (MPI) 2023** has been released by the **United Nations Development Programme (UNDP)** and the **Oxford Poverty and Human Development Initiative (OPHI)**.

- The MPI measures "interlinked deprivations in health, education and standard of living that **directly affect a person's life and wellbeing**".

What are the Key Highlights of the Index?

➤ Global Outlook:

- Globally, 1.1 billion people (18% of the total population) **out of 6.1 billion people**, are acutely **multidimensionally poor and live** in acute multidimensional poverty across 110 countries.

Note:



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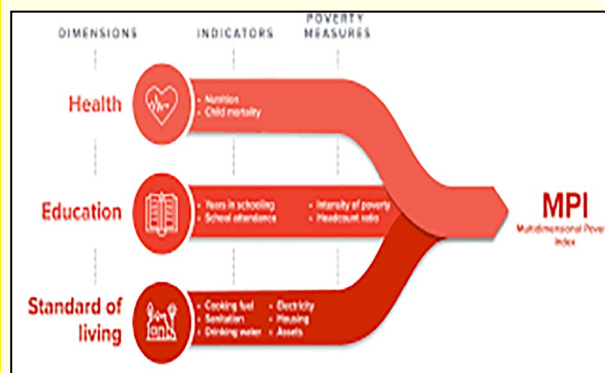
- Sub-Saharan Africa has **534 million poor** and South Asia has **389 million**.
 - These two regions are home to approximately **five out of every six poor people**.
- Children under 18 years old account for half of MPI-poor people (566 million).
- The poverty rate among children is 27.7%, while among adults it is 13.4 %.
- **Outlook for India:**
 - **Poverty in India:** India still has **more than 230 million people who are poor**.
 - The UNDP defines, “Vulnerability — the share of people who are not poor but **have deprivations in 20 - 33.3%** of all weighted indicators — can be much higher.
 - India has **some 18.7% population** under this category.
 - **India's Progress in Poverty Reduction:** India is among 25 countries, including Cambodia, China, Congo, Honduras, Indonesia, Morocco, Serbia, and Vietnam, that **successfully halved their global MPI values within 15 years**.
 - Some 415 million Indians escaped poverty between 2005-06 and 2019-21.
 - The incidence of poverty in India declined significantly, from **55.1% in 2005/2006 to 16.4% in 2019/2021**.
 - In 2005/2006, approximately 645 million people in India experienced multidimensional poverty, a number that decreased to about **370 million in 2015/2016 and further to 230 million in 2019/2021**.
 - **Improvement in Deprivation Indicators:** India progressed significantly in all the three **deprivation indicators: Health, Education, Standard of living**.
 - Decline in poverty has been **equal as well, cutting across regions and socio-economic groups**.
 - The poorest states and groups, including children and people in disadvantaged caste groups, **had the fastest absolute progress**.
 - The percentage of people who were multidimensionally poor and deprived of nutrition decreased from 44.3% in 2005/2006 to 11.8% in 2019/2021, and child mortality fell from 4.5% to 1.5%.

What are the Recommendations?

- There is a need for **context-specific multidimensional poverty indices** that reflect national definitions of poverty.
- While the global MPI provides a standardized methodology, **national definitions offer a comprehensive understanding of poverty** specific to each country.
- It is crucial to consider these context-specific indices to evaluate and address poverty effectively.

What is the Global Multidimensional Poverty Index?

- **About:**
 - The index is a key international resource that measures acute multidimensional poverty across **more than 100 developing countries**.
 - It was first launched in **2010 by the OPHI and the Human Development Report Office of the UNDP**.
 - The MPI monitors deprivations in 10 indicators spanning health, education and standard of living and includes both incidence as well as intensity of poverty.
- **MPI Indicators and Dimensions:**



- A person is multidimensionally poor if **she/he is deprived in one third or more (means 33% or more)** of the weighted indicators (out of the ten indicators). Those who are deprived in one half or more of the weighted indicators are considered living in extreme multidimensional poverty.

WHO's Food Marketing Recommendations for Child Protection

Why in News?

Recently, the **World Health Organization (WHO)** has released new guidelines, to help countries shape policies

Note:

to protect children from the harmful effects of food marketing that promote unhealthy dietary choices.

- The guidelines recommend the implementation of comprehensive mandatory policies to **restrict the marketing of foods and non-alcoholic beverages** that are high in **saturated fatty acids, High trans-fatty acids, sugars, and salt (HFSS)** to children of all ages.
- These guidelines are built on the WHO's '**Set of recommendations on the marketing of foods and non-alcoholic beverages to children**' released in 2010.

What are the Policy Recommendations to Protect Children from Food Marketing?

- **Recommendations:**
 - **Comprehensive Mandatory Policies:**
 - Restrict the **marketing of HFSS foods and non-alcoholic beverages** to protect children
 - Policies of countries should restrict advertisements of HFSS foods covering various marketing channels and forms, including **TV, radio, print, online platforms, social media, mobile devices, games, schools, public spaces, and point-of-sale.**
 - **Age Limit:**
 - The **age limit for protection should be up to 18 years**, aligning with the **Convention on the Rights of the Child.**
 - **Nutrient Profile and Country Context:**
 - A nutrient profile model should be used to define HFSS foods and beverages based on **scientific criteria adapted to the country context.**
 - The guidelines emphasize the importance of considering the country's context, including its **nutritional situation, cultural context, locally available foods, dietary customs, available resources and capacities, existing governance structures, and mechanisms, when formulating policies.**
 - **Persuasive Techniques:**
 - Prohibition of persuasive techniques appealing to children, such as **cartoons, celebrities, toys, games, discounts, or free gifts.**
 - Effective mechanisms for **monitoring, enforcement, and evaluation** of policies are necessary.
 - **Involvement of Stakeholders:**

- Involvement of relevant stakeholders in policy development and implementation, ensuring transparency and avoiding conflicts of interest.

➤ **Importance:**

○ **Evidence-Informed Guidance:**

- Policy recommendations provide **evidence-informed guidance to protect children** from harmful food marketing.
- Address **gaps and challenges in current policies**, highlighting the need for stronger regulations.

○ **Urgent Action Needed:**

- Recommendations respond to the urgent need for action due to the **increasing burden of childhood obesity and non-communicable diseases.**
- Childhood obesity rates are **projected to rise**, posing a significant public health concern.

○ **Long-Term Health Impact:**

- Childhood obesity is associated with **increased mortality** in adulthood.
- Implementing effective policies can help **mitigate long-term health consequences.**

○ **Protecting Children's Rights:**

- Recommendations prioritize the **best interest of children**, ensuring their **right to health and adequate food.**
- Policies aimed at **curbing harmful marketing practices** benefit children's well-being.

What are the Harmful Effects of Food Marketing on Children?

- Food marketing uses persuasive techniques to influence children's **food attitudes, preferences, and consumption.**
- HFSS foods (high in saturated fatty acids, trans-fatty acids, free sugars, and salt) are the main focus of food marketing which are associated with **increased risks of obesity, diabetes, cardiovascular diseases, and dental caries.**
- Food marketing affects **children's food choices by promoting unhealthy options** over healthier ones. It also increases the frequency and amount of HFSS foods consumed.
- Food marketing **displaces the consumption of nutritious foods** like fruits and vegetables and undermines **parental influence on healthy eating.**

Note:



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- Food marketing can mislead children about the **nutritional quality and health benefits of HFSS foods**. It may exploit **emotional appeals, peer pressure, or celebrity endorsement to influence children's food choices**.

What is the UN Convention on the Rights of the Child (UNCRC)?

- It is a treaty adopted by the **United Nations General Assembly** in 1989.
- It recognises a **child as every human being under 18 years old**.
- It sets out the **civil, political, economic, social, and cultural rights** of every child, regardless of their race, religion, or abilities.
- It includes rights such as the Right to Education, the Right to Rest and Leisure, and the Right to Protection from Mental or Physical Abuse including Rape and Sexual Exploitation, Right to Life and Development.
- It is the **world's most widely ratified human rights treaty**.
- **India ratified the UNCRC in 1992** and has committed to implement its principles and provisions through domestic laws, policies and programmes.

Sarpanch-patism

Why in News?

Recently, the **Supreme Court of India** was approached by the Mundona Rural Development Foundation, an NGO, regarding the issue of "**sarpanch-patism**" in the **panchayat system**.

- However, the Supreme Court clarified that it is **not within its jurisdiction to directly address the issue**. Instead, the court advised the NGO to **approach the Ministry of Panchayati Raj** and urged the **government to take appropriate action to empower women and implement reservation objectives**.

What is Sarpanch-patism?

- Sarpanch-patism is a term used to describe the **situation where men act as "sarpanch-pati, sarpanch-devar, pradhan-pati" etc.** while wielding the actual **political and decision-making power behind women** who are elected as **sarpanchs or pradhans** in the panchayat system.

- Sarpanch-patism **undermines the spirit and purpose of women's reservation** in panchayats, which was introduced by the **73rd Constitutional Amendment Act, 1992** to **empower women** at the grassroots level and improve their socio-economic conditions through representative democracy.
- Sarpanch-patism also violates the constitutional rights and dignity of women, who are reduced to "**faceless wives and daughters-in-law**" in **grassroots politics**.
- It deprives them of their agency, autonomy, and voice in public affairs.
- Sarpanch-patism also affects the **quality and effectiveness of governance and service delivery at the local level**, as it creates a gap between the elected representatives and the people. It also leads to **corruption, and misuse of funds**.

What are the Challenges in Tackling Sarpanch-patism?

- Overcoming **patriarchal norms, attitudes and practices** that hinder women's participation and empowerment in public life.
- Resisting **political interference, pressure, and violence from dominant groups** or parties that seek to control or influence panchayats.
- Socio-economic barriers such as **poverty, illiteracy, lack of mobility, etc.**, that limit women's access to resources and opportunities.
- Balancing **domestic responsibilities and public roles for women** without compromising their health or well-being.

What are the Constitutional Provisions for Women Representation in PRIs?

- The **Article 243D of the Constitution of India**, inserted through the **73rd Constitutional Amendment Act in 1992**, mandates a **reservation of not less than one-third for women** in PRIs nationwide.
 - This has been increased to **50% reservation** in several states like Andhra Pradesh, Chattisgarh, Gujarat, Himachal Pradesh, Bihar etc in their respective State Panchayati Raj Acts.
- Article 243D also provides that **one-third of the total number of seats and offices of the Chairpersons in PRIs** at each level shall be reserved for women to be allotted by rotation to different constituencies in a Panchayat.

Note:

- Such reservations of seats and offices of the chairpersons for women are also within the reservations for SCs and STs in all three tiers of PRIs.

What are the Efforts by Government to Promote Women in PRIs?

- **Rashtriya Gram Swaraj Abhiyan (RGSA):**
 - **RGSA** launched in 2018 to enhance PRIs' capacities for responsive rural governance, leveraging technology and resources for sustainable solutions aligned with **SDGs**. It also incentivized women's participation in PRIs.
- **Gram Panchayat Development Plan (GPDP):**
 - **GPDP** guidelines that are relevant to Women Empowerment include proactive participation of women in budgeting, planning, implementation and monitoring of GPDP and convening Mahila Sabhas prior to the general Gram Sabhas and their inclusion in Gram Sabhas and GPDP.

Anaemia and Maternal Health

Why in News?

Recently, a study published in The Lancet Journal, titled- **Maternal anaemia and the risk of postpartum haemorrhage: a cohort analysis of data from the WOMAN-2 trials**, has found that there is a strong link between **Anaemia** and Postpartum Hemorrhage (PPH).

- They used the data from the **World Maternal Antifibrinolytic-2 (WOMAN-2) trial**. This trial enrolled women with **moderate or severe anaemia** giving birth vaginally in hospitals in **Pakistan, Nigeria, Tanzania, and Zambia**.

What is Postpartum hemorrhage (PPH)?

- PPH is severe vaginal bleeding after childbirth.
- WHO-defined postpartum haemorrhage (estimated blood loss of at least 500 mL); and calculated postpartum haemorrhage (blood loss of $\geq 1,000$ mL).
- It's a serious condition that can lead to death. Other signs of postpartum hemorrhage are dizziness, feeling faint and blurred vision.

What are the Findings of the Study?

- **Anaemia and PPH:**

- Mean estimated blood loss **was 301 mL for women with moderate anaemia** and 340 mL for women with **severe anaemia**.
- Clinical postpartum haemorrhage occurred in **7.0% of women**. The risk of clinical postpartum haemorrhage was **6.2% in women with moderate anaemia** and 11.2% in women with severe anaemia.
 - This data is based on the trial involving 10,620 women.
- Severe anaemia is associated with seven times higher odds of death or near miss compared to moderate anaemia.
- **Anaemia and Pregnancy:**
 - Worldwide, over half a billion women of reproductive age are anemic.
 - Approximately **70,000 postpartum deaths occur annually**, mostly in low- and middle-income countries.
- **Blood Loss and Shock:**
 - Lower haemoglobin values associated with **increased blood loss** and clinical PPH.
 - Women with anaemia have **reduced oxygen-carrying capacity** and are more susceptible to shock.
 - Clinical diagnosis of postpartum haemorrhage linked to worse maternal function.

What are the Recommendations of WHO to Reduce PPH?

- It is suggested to use some of the drugs such as **oxytocin, oral misoprostol drug** etc., to prevent PPH.
 - Oxytocin is a commonly recommended medication to stimulate uterine contractions and reduce the risk of excessive bleeding.
- **Late cord clamping (performed after 1 to 3 minutes after birth)** is recommended for all births while initiating simultaneous essential newborn care.
 - **Early cord clamping (<1 minute after birth)** is not recommended unless the neonate is asphyxiated (baby's brain and other organs do not get enough oxygen and nutrients).

What is Anaemia?

Anemic Condition:

- It is a condition in which **the number of red blood cells or their oxygen-carrying capacity is insufficient** to meet physiologic needs, which vary by age, sex, altitude, smoking, and pregnancy status.

Note:

➤ Causes:

- Iron deficiency is the most common cause of anaemia, although other conditions, such as folate, vitamin B12 and vitamin A deficiencies, chronic inflammation, parasitic infections, and inherited disorders can all cause anaemia.

➤ Status in India:

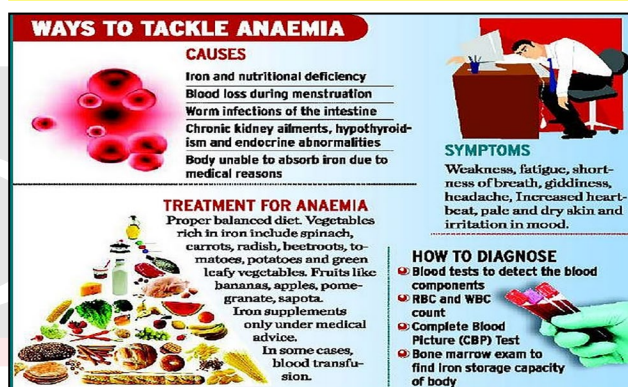
- The prevalence of anaemia among six groups as per the **National Family Health Survey 5 (2019-21)**, is 25.0% in men (15-49 years) and 57.0% in women (15-49 years), 31.1% in adolescent boys (15-19 yrs), 59.1% in adolescent girls, **52.2% in pregnant women (15-49 years)** and 67.1% in children (6-59 months).

What are Government Initiatives to Tackle Anemia?

- **Anaemia Mukh Bharat (AMB):** It was launched in 2018 as part of the Intensified National Iron Plus Initiative (NIPI) Program for accelerating the annual rate of decline of anaemia from one to three percentage points.
 - The target groups for AMB are Children 6-59 months, 5-9 years, Adolescent Girls & Boys of 10-19 years, Women of Reproductive Age (15-49 years), Pregnant Women and Lactating Mothers.
- **Weekly Iron and Folic Acid Supplementation (WIFS):**
 - This Programme is being implemented to meet the challenge of high prevalence and incidence of anaemia amongst adolescent girls and boys.
 - The intervention under WIFS includes supervised weekly ingestion of Iron Folic Acid (IFA) tablet.
- **Operationalization of Blood Bank:**
 - In District Hospitals and Blood Storage Unit in subdistrict facilities such as Sub-Divisional Hospital/ Community Health Centers is being taken to tackle complications due to severe anaemia.
- **Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA):**
 - It has been launched to focus on conducting special ANC check up on 9th of every month with the help of medical officers/ OBGYN to detect and treat cases of anaemia.

➤ Other Steps Taken:

- To control worm infestation **biannual deworming with Albendazole is provided.**
- Health management information system & Mother Child tracking system is being implemented for reporting and tracking the cases of anaemic and severely anaemic pregnant women.
- Universal **screening of pregnant women for anaemia** is a part of ante-natal care and all pregnant women are provided iron and folic acid tablets during their ante-natal visits through the existing network of sub-centres and primary health centres and other health facilities as well as through outreach activities at Village Health & Nutrition Days (VHNDs).



World Zoonosis Day

Why in News?

The Department of Animal Husbandry and Dairying, Ministry of Fisheries, Animal Husbandry and Dairying recently conducted an awareness program on **zoonotic diseases** as part of the **Aazadi Ka Amrit Mahostav** initiative on **World Zoonosis Day (July 6th, 2023)**.

- The program aimed to **educate farmers about zoonotic disease** risks and national efforts for prevention. Due to their **close contact with animals**, farmers are at higher risk of contracting zoonotic diseases.
- The importance of the **"One Health" concept** is highlighted in addressing zoonotic disease risks.

What is World Zoonosis Day?

- **History:**
 - World Zoonosis Day marks the anniversary of the **first vaccination against a zoonotic disease.**

Note:

- On **July 6, 1885**, **Louis Pasteur**, a French scientist, successfully administered the **first vaccine for zoonotic disease**.
- **Significance:**
 - World Zoonosis Day educates people about the **risks and impacts of zoonotic diseases** on human and animal health.
 - **60% of known infectious diseases and 75% of emerging infectious diseases** are **zoonotic**, according to the **World Health Organization (WHO)**.

What are Zoonotic Diseases?

- **About:**
 - Zoonotic diseases are illnesses that can be transmitted **between animals and humans**. These diseases can be caused by **bacteria, viruses, parasites, or fungi**.
- **Classification:**
 - **Based on Pathogens:**
 - **Bacterial Zoonoses:** These diseases are caused by **bacterial infections** that can be transmitted from **animals to humans**.
 - Examples include **anthrax** and **brucellosis**.
 - **Viral Zoonoses:** Well-known viral zoonotic diseases include **rabies, Ebola, and Covid-19**.
 - **Parasitic Zoonoses:** Diseases such as **toxoplasmosis** and **leishmaniasis** fall under this category.
 - **Fungal Zoonoses:** Zoonotic fungal infections, like **ringworm** are caused by fungi that can be transmitted from animals to humans.
 - **Based on Animal Species:**
 - **Wildlife Zoonoses:** These diseases primarily involve **interactions between humans and wildlife**, such as **hantavirus infections transmitted by rodents** or diseases spread by wild birds, like **avian influenza (bird flu)**.
 - **Domestic Animal Zoonoses:** Diseases such as **brucellosis** from cattle or **toxoplasmosis** from cats, fall under this category.
 - **Based on Mode of Transmission:**
 - **Direct Contact Zoonoses:** Infections that occur through **direct contact with infected animals**, their body fluids, or contaminated surfaces.
 - Examples include **rabies transmitted through animal bites** and Q fever from contact with infected livestock.

- **Vector-Borne Zoonoses:** Diseases transmitted by vectors such as **mosquitoes and ticks**.
 - Examples include **Lyme disease** transmitted by ticks and **dengue** fever transmitted by mosquitoes.
- **Waterborne Zoonoses:** **Leptospirosis** from contaminated water sources is an example of waterborne zoonotic disease.
- **Causes of Zoonotic Diseases:**
 - The emergence and spread of zoonotic diseases are influenced by several factors, including **environmental changes, wildlife interactions, livestock farming practices, and human behavior**.
 - Encroachment into natural habitats, wildlife trade, inadequate food safety measures, and improper sanitation contribute to the transmission of zoonotic diseases.
- **Prevention Strategies:**
 - Multisectoral collaboration is essential in preventing and controlling zoonotic diseases.
 - The **"One Health" approach** emphasizes the collaboration between human health, animal health, and environmental sectors.
 - Early **detection and surveillance systems** for zoonotic diseases play a crucial role in preventing outbreaks and epidemics.
 - Promoting **hygiene practices**, such as proper handwashing, food safety measures, and safe handling of animals, helps reduce the risk of transmission.
 - **Vaccination programs for animals**, especially those in close contact with humans, can be effective in preventing zoonotic diseases.
 - Improving **public awareness and education about zoonotic diseases** and their prevention is vital in promoting responsible behavior and reducing the risk of transmission.

What are India's Initiatives Related to Zoonotic Diseases?

- **National Animal Disease Control Programme (NADCP):**
 - Played a vital role in controlling two major zoonotic diseases: **Foot & Mouth Disease (FMD)** and **Brucellosis**.
- **Mobile Veterinary Units (MVUs):**
 - MVUs have been deployed to provide veterinary services at farmers' doorsteps, including disease diagnosis, treatment, minor surgeries, and raising awareness about the management of diseased animals.


Note:

- **Animal Birth Control (Dogs) Rules, 2023:**
 - The focus of the rules is on **anti-rabies vaccination of stray dogs** and neutering of stray dogs as means of population stabilization.
- **National One Health Programme for Prevention & Control of Zoonoses:**
 - Focuses on strengthening surveillance, diagnosis,

prevention and control of zoonotic diseases through inter-sectoral coordination and collaboration.

- **Vaccination efforts:**
 - Focus on achieving 100% vaccination coverage for FMD in buffalo, sheep, goat, and pig populations, as well as vaccinating 100% of bovine female calves aged 4-8 months for brucellosis.

What is the One Health Concept?



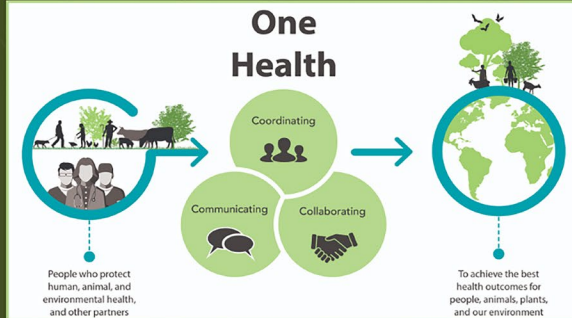
ONE HEALTH

An approach to balance and optimize the health of people, animals and the environment

Based on the agreement between the tripartite-plus alliance i.e., the FAO, the World Organisation for Animal Health (OIE) and the WHO

THE APPROACH

- Prevent outbreaks of zoonotic disease in animals and people
- Improve food safety and security
- Reduce AMR infections and improve human and animal health
- Protect global health security
- Protect biodiversity and conservation



ONE HEALTH FACTS

- 60% of pathogens that cause human diseases originate from domestic animals or wildlife
- 20% of global animal production losses are linked to animal diseases
- Humans and their livestock are more likely to encounter wildlife when more than 25% of an original forest cover is lost

ONE HEALTH JOINT PLAN OF ACTION

- Launched by the Quadripartite-the FAO, UNEP, the WHO, and the OIE
- It is valid from 2022-2026 and is aimed at mitigating the health challenges at global, regional, and country levels

National One Health Mission

ABOUT

- Aims to coordinate across achieving overall pandemic preparedness and integrated disease control against priority diseases of both human and animal sectors

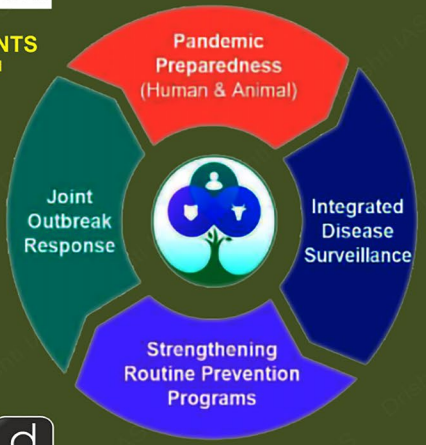
LATEST STEP



- Animal Pandemic Preparedness Initiative (APPI)
- Animal Health System Support for One Health (AHSSOH)

EARLIER INITIATIVES

- The Integrated Disease Surveillance Project, 2004
- A multi-disciplinary Road Map to Combat Zoonoses in India, 2008

ELEMENTS



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Note:

Atal Vayo Abhyuday Yojana

Why in News?

The Ministry of Social Justice and Empowerment, Government of India has been working towards creating an inclusive and equitable society for all its citizens and **Atal Vayo Abhyuday Yojana (AVYAY)** is one of the Schemes in that direction.

What is Atal Vayo Abhyuday Yojana?

➤ About:

- Earlier the AVYAY, was known as National Action Plan for Senior Citizen (NAPSrc), which was revamped, renamed as **Atal Vayo Abhyuday Yojana** in April 2021.
- It is a Centrally Sponsored Scheme **aimed at empowering senior citizens in India.**

➤ Objective:

- This scheme **recognizes the invaluable contribution made by the elderly to society** and seeks to **ensure their well-being and social inclusion.**
- By recognizing the invaluable contributions of the elderly to society, **the government aims to empower and uplift them**, ensuring their active participation and inclusion in all aspects of life.

➤ Components:

- **Integrated Programme for Senior Citizens (IPSrc):** It provides financial assistance to **eligible organization's for running and maintenance of Senior Citizen Homes/ Continuous Care Homes** to improve the quality of life of the senior citizens, especially indigent senior citizens by providing basic amenities etc.
- **Rashtriya Vayoshri Yojana (RVY):** It provides eligible senior citizens suffering from any of the **age-related disability/ infirmity**, with assisted living devices which can restore near normalcy in their bodily functions, overcoming the disability/ infirmity manifested such as low vision, hearing impairment, loss of teeth and loco-motor disabilities.
 - Financial criteria for beneficiaries are either the Senior Citizen belongs to **'Below Poverty Line' (BPL)** category, or he/ she has income up to Rs. 15,000 (Rupees Fifteen Thousand) per month.

➤ Achievements:

- Nearly 1.5 lakh beneficiaries are staying in the **Senior Citizen homes.**
- 361 districts across the country have been covered.
- During the last 3 financial years a total of **Rs. 288.08 crore grants in aid released and number of beneficiaries is 3,63,570.**
 - Under RVY a total of 269 camps have been held and the Number of beneficiaries of this camp is over 4 lakhs. Under this scheme, a total amount of **Rs. 140.34 crore has been released during the last 3 financial years** and a total number of 8,48,841 devices were distributed to 1,57,514 beneficiaries in 130 camps.

➤ Significance:

- The AVYAY stands as a testament to the government's commitment to the well-being and empowerment of senior citizens in India.
- By addressing their **financial, healthcare, and social needs**, the scheme aims to empower the elderly, ensuring their active participation and inclusion in society.
- Through this initiative, the **government strives to create an environment where senior citizens can live a life of dignity, respect, and fulfilment**, acknowledging their invaluable contributions to the nation.

What are the Initiatives Related to Elderly in India?

- **National Policy on Older Persons (NPOP)**
- **National Helpline for Senior Citizen (14567)**
- **Seniorcare Ageing Growth Engine (SAGE)**
- **National Social Assistance Programme**
- **Pradhan Mantri Vaya Vandana Yojana (PMVVY)**
- **SAMPANN Project**
- **SACRED Portal for Elderly**

Rehabilitation Scheme for Victims of Trafficking

Why in News?

The Ministry of Women and Child Development, Government of India, has approved a scheme that **aims to provide financial assistance to states and Union Territories to establish protection and rehabilitation homes for victims of trafficking**, particularly in states with international borders.

Note:



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What are the Major Provisions of the Scheme?

- **Financial Assistance for Protection and Rehabilitation Homes:** The scheme aims to provide **financial aid to states and Union Territories** in order to establish **protection and rehabilitation homes for victims of trafficking**.
 - These homes will cater to the specific needs of victims, particularly minors and young women, by providing shelter, food, clothing, counseling, primary health facilities, and other essential daily needs.
- **Strengthening Anti-Human Trafficking Units (AHTUs):** In addition to the establishment of protection and rehabilitation homes, the government has allocated funds from the **Nirbhaya Fund** to **support the strengthening of anti-human trafficking units in every district across all states and Union Territories**.
 - The funding has been extended to all states and Union Territories, including AHTUs in **Border Guarding Forces like the BSF (Border Security Force) and SSB (Sashastra Seema Bal)**.
 - Presently, there are **788 functional AHTUs, including 30 within Border Guarding Forces**, across the country.

What is the Status of Human Trafficking in India?

- **About:**
 - Human trafficking is a global issue that affects numerous countries, and **India is no exception**.
 - With its **large population, economic disparities, and complex social dynamics**, India has become a hotspot for various forms of human trafficking.
- **Statistics:**
 - According to the **National Crime Records Bureau (NCRB) data**, 2,189 cases of human trafficking were filed in 2022, involving 6,533 victims.
 - Among these victims, **4,062 were female, and 2,471 were male**. Notably, **2,877 victims were minors**.
 - While **more underage boys (1,570) were trafficked in 2021 than girls (1,307)**, the trend was reversed when considering adult victims, with women outnumbering men.
 - Certain states have reported higher numbers of human trafficking cases, as indicated by **AHTUs**:

- **Telangana, Maharashtra, and Assam** had the highest number of cases registered in their respective AHTUs in 2021.
- These states, due to their geographical locations and other factors, are particularly vulnerable to **cross-border trafficking and require special attention and resources**.
- India's neighboring countries often serve as sources for traffickers who exploit women and girls by **offering false promises of employment or a better standard of living**.

➤ Various Forms of Human Trafficking:

- **Forced Labor:** Victims are coerced or deceived into working under exploitative conditions, including industries like agriculture, construction, domestic work, and manufacturing.
- **Sexual Exploitation:** Individuals, particularly women and children, are trafficked for commercial sexual exploitation, including prostitution and pornography.
- **Child Trafficking:** Children are trafficked for various purposes, including child labor, forced begging, child marriage, adoption scams, and sexual exploitation.
- **Bonded Labor:** People are trapped in a cycle of debt bondage, where they are forced to work to repay a debt that often continues to increase due to exploitative practices.
- **Organ Trafficking:** Trafficking of organs involves the illegal trade of organs like kidneys, liver, and corneas for transplantation purposes.

➤ Relevant Laws in India and International Conventions:

- **Article 23 and 24 of the Constitution of India.**
 - **Article 23** prohibits human trafficking and begar (forced labour without payment).
 - **Article 24** forbids employment of children below the age of 14 years in dangerous jobs like factories and mines.
- **Indian Penal Code (IPC) Section:**
 - **Section 370 and 370A of IPC** provide for comprehensive measures to counter the menace of human trafficking including trafficking of children for exploitation in any form including physical exploitation or any form of sexual exploitation, slavery, servitude, or the forced removal of organs.
 - **Sections 372 and 373** dealing with selling and buying of girls for the purpose of prostitution.

Note:

○ Other Legislations:

- **The Immoral Traffic (Prevention) Act, 1956 (ITPA)** is the premier legislation for prevention of trafficking for commercial sexual exploitation.
- There are other specific legislations enacted relating to trafficking in women and children - **Prohibition of Child Marriage Act, 2006, Bonded Labour System (Abolition) Act, 1976, Child Labour (Prohibition and Regulation) Act, 1986, Transplantation of Human Organs Act, 1994,**
- **Protection of Children from Sexual offences (POCSO) Act, 2012**, is a special law to protect children from sexual abuse and exploitation.

○ International Convention:

- **United Nations Convention on Transnational Organised Crime (UNTOC)** has a Protocol to Prevent, Suppress and Punish Trafficking in Persons, especially Women and Children (India has ratified).
- **SAARC Convention on Preventing and Combating Trafficking in Women and Children for Prostitution** (India has ratified).

What are the Major Causes and Impacts of Human Trafficking?

➤ Causes:

- **Socioeconomic Factors:** **Poverty, unemployment, and lack of economic opportunities** create vulnerability, pushing individuals into desperate situations where they are more likely to be trafficked.
- **Gender Inequality and Discrimination:** Deep-rooted **gender inequalities, discrimination,** and violence against women and girls increase their susceptibility to trafficking.
 - This includes issues such as dowry-related violence, child marriage, and lack of access to education.

- **Political Instability and Conflict:** Regions affected by **political instability, armed conflict,** and displacement provide **fertile ground for trafficking**, as people are displaced and left vulnerable without protection.
- **Corruption and Organized Crime:** Widespread corruption within law **enforcement agencies, immigration authorities, and judicial systems** enables traffickers to operate with impunity, making it difficult to identify, investigate, and prosecute cases effectively.

➤ Impacts:

- **Physical and Psychological Trauma:** Trafficking victims endure physical and psychological abuse, violence, and trauma.
 - They often suffer from injuries, sexually transmitted infections, malnutrition, and physical exhaustion.
 - Moreover, the psychological impact includes **anxiety, depression, post-traumatic stress disorder (PTSD),** and a loss of trust in others.
- **Violation of Human Rights:** Human trafficking fundamentally violates the victims' **human rights.** It deprives them of their **freedom, dignity, and security.**
- **Economic Exploitation:** Trafficked individuals are subjected to harsh working conditions, long hours, and little or no pay.
 - In many cases, **victims become trapped in debt bondage,** where they are forced to work to repay an ever-increasing debt, making escape from exploitation extremely difficult.
- **Disruption of Social Fabric:** Human trafficking disrupts the social fabric of communities and families.
 - It tears apart families as individuals are forcibly separated from their loved ones. This disruption leads to **loss of social support networks, and strained relationships within communities.**



Note:



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Science & Technology

Highlights

- Whole-Genome Sequencing in Newborns
- CMV and ToMV Virus
- *Naegleria fowleri*: The "Brain-Eating Amoeba"
- Guillain-Barre Syndrome
- New Evidence of Phosphine in Clouds of Venus
- Launch Vehicle Mark 3
- Solar Flare
- Time Dilation in Early Universe
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- What is Antimicrobial Resistance?
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- International Conference on Green Hydrogen (ICGH-2023)
- Bharat 6G Alliance
- Majorana Zero Modes
- Concerns Related to High Modernism in AI
- Mahalanobis's Approach: Addressing India's Big Data and AI Challenges

Whole-Genome Sequencing in Newborns

Why in News?

Recently, the use of rapid **whole-genome sequencing (WGS)** in newborns, including healthy newborns, has emerged as a revolutionary approach to diagnose and treat **genetic diseases**.

- By providing a comprehensive view of an **infant's genetic makeup**, this technology enables healthcare workers to make **fast and effective diagnoses**, leading to improved outcomes and reduced healthcare costs.

What is Whole-Genome Sequencing?

- **About:**
 - All organisms have a unique **genetic code, or genome**, that is composed of **nucleotide bases-Adenine (A), Thymine (T), Cytosine (C) and Guanine (G)**.
 - The unique **Deoxyribonucleic Acid (DNA) fingerprint, or pattern** can be identified by **knowing the sequence of the bases** in an organism.
 - **Determining the order** of bases is called sequencing.
 - **Whole genome sequencing** is a laboratory procedure that **determines the order of bases in the genome of an organism in one process**.

Importance of Sequencing Newborn Genomes:

- Rapid, precise diagnosis of rare genetic diseases **not detected by standard screenings**.
- Detection of **treatable conditions, enabling early intervention or gene-based therapies**.
- Insight into **future health risks**, facilitating **informed choices and preventive measures**.
- Revelation of ancestry, traits, and carrier status for personal and social value.

Why Sequence Healthy Newborns?

- The BabySeq project in the U.S. explores the potential benefits of sequencing newborns for routine care.
- A study conducted by the project revealed that over **10% of apparently healthy infants had unanticipated genetic disease risks**.
- Sequencing of Healthy Newborns **expands the scope of newborn screening for genetic diseases** that may not be detected by standard biochemical tests.
- Sequencing of Healthy Newborns provides **valuable information about the future health risks and predispositions of the individual**.

What is Genome?

- A **genome** refers to **all of the genetic material in an organism**, and the human genome is mostly the same in all people, but a very small part of the DNA does vary between one individual and another.

Note:

- Every organism's **genetic code is contained in its DNA**, the building blocks of life.
 - The discovery that DNA is **structured as a "double helix" by James Watson and Francis Crick in 1953**, started the quest for understanding how genes dictate life, its traits, and what causes diseases.
- **Each genome contains all of the information needed** to build and maintain that organism.
- In humans, a copy of the entire genome contains more than 3 billion DNA base pairs.

What is the Difference between Genome and Gene?

GENE VERSUS GENOME	
A gene is a part of a DNA molecule	The genome is the total DNA in a cell
Hereditary element of genetic information	All set of nuclear DNA
Encodes protein synthesis	Encodes both proteins and regulatory elements for protein synthesis
Length is about a few hundreds of bases	Length of the genome of a higher organism is about billion base pairs
A higher organism has about thousands of genes	Each organism has only one genome
Variations of the gene named alleles can be naturally selected	Horizontal gene transfer & duplication cause large variations in the genome

Note:



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What are the Challenges Associated with Newborn Genome-Sequencing?

- Newborn genome-sequencing generates a **large amount of personal and sensitive data**, which raises **ethical, legal and social issues** such as **privacy, consent, ownership, disclosure and discrimination**.
- This sequencing may also produce **uncertain or incidental findings** that may not have clear clinical implications or actionability, which may **cause anxiety, confusion or harm to the individual or their family**.
- This also demands adequate education and training for healthcare professionals and the public, to ensure **proper interpretation and communication of the results**.

CMV and ToMV Virus

Why in News?

Tomato growers in Maharashtra attribute crop decline to the **Cucumber Mosaic Virus (CMV)**, while growers in Karnataka and other **South Indian states** blame the **Tomato Mosaic Virus (ToMV)** for their crop losses.

- Over the last three years, **growers of tomato have complained of increased infestation with these two viruses**, leading to **partial to complete crop losses**.

What are ToMV and CMV?

- **ToMV:**
 - **About:**
 - ToMV belongs to the **Virgaviridae family** and is closely related to the **Tobacco Mosaic Virus (TMV)**. It infects **tomato, tobacco, peppers**, and certain ornamental plants.
 - It was first identified in **tomato in 1935**.
 - **Transmission:**
 - ToMV mainly spreads through **infected seeds, saplings, agricultural tools, and human contact**.
 - It can also be transmitted by some insect vectors, such as **thrips and whiteflies**.
 - **Effects on Crops:**
 - ToMV causes **green mottling and yellowing of leaves**, which often appear as blisters or fern-like patterns.

- The leaves may also curl downwards or upwards and become distorted.
- Younger plants are **dwarfed**, and fruit setting is affected.
- **Control Measures:**
 - Emphasize **biosafety standards** in nurseries and implementing compulsory seed treatment.
 - Farmers should **inspect saplings before planting** and discard any infected material.
- **CMV:**
 - **About:**
 - CMV belongs to the **Bromoviridae family** and is one of the most widespread plant viruses. It has a broader host range, affecting **cucumber, melon, eggplant, tomato, carrot, lettuce, celery, cucurbits**, and some ornamentals.
 - It was first identified in **cucumber in 1934**.
 - **Transmission:**
 - CMV mainly spreads through **aphids**, which are **sap-sucking insects that can acquire and transmit the virus within minutes**.
 - It can also be transmitted by seeds, mechanical inoculation, and grafting.
 - **Effect on Crops:**
 - Distorts leaves, primarily at the top and bottom while leaving the middle relatively unaffected.
 - In cucumber, it causes a **mosaic-like pattern of yellow and green spots**.
 - **Affects fruit formation** and leads to stunting and reduced production.
 - **Control Measures:**
 - Focus on **preventing aphids** by using **quick-acting insecticides or mineral oils**.
 - Care should be taken to avoid **aphid migration** and spread of the virus to other fields.
- **Similarity:**
 - Both viruses have a **single-stranded RNA genome** that is encapsidated in a **rod-shaped protein coat**. **Both viruses enter the plant cells through wounds** or natural openings and replicate in the cytoplasm.
 - They then move systemically throughout the plant via the **phloem**.
 - Also, Both viruses can cause almost **100% crop loss unless properly treated on time**.

Note:



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Note:

- **Phloem** is a complex tissue found in vascular plants, responsible for the **transport of organic nutrients, primarily sugars**, throughout the plant.
- **Cytoplasm** is the gel-like substance that fills the interior of cells. It is a semifluid medium composed of **water, salts, proteins, and other molecules**.
- **RNA** is a genetic material composed of **ribonucleic acid (RNA)**. It carries genetic information in the form of **single-stranded nucleotide sequences**.

Naegleria fowleri: The “Brain-Eating Amoeba”

Why in News?

Recently, a person in Kerala’s Alappuzha district died due to a rare infection caused by **Naegleria fowleri** after a week of high fever and rapid deterioration in his vitals.

What is Naegleria fowleri?

- **About:**
 - Naegleria fowleri, commonly known as the “**brain-eating amoeba**,” is a **single-cell organism** found in **warm freshwater environments** such as lakes, hot springs, and poorly maintained swimming pools.
 - It is a **microscopic organism** that can only be seen with a microscope.
 - The amoeba enters the body through the **nose** and can cause a **severe brain infection** known as **primary amebic meningoencephalitis (PAM)**.



- **Spread in the Human Body:**
 - The amoeba is typically acquired through the **nasal passage and mouth** when a **person swims, dives, or uses contaminated water for religious rituals**.

- It then migrates through the **olfactory nerve to the brain**, leading to **severe inflammation and destruction of brain tissue**.
- Naegleria fowleri infection does **not spread from person to person**.
- **At-risk Individuals:**
 - While the **human body is generally vulnerable** to Naegleria fowleri, **infections are extremely rare**.
 - Certain factors can increase vulnerability, such as a **weakened immune system**, a history of **nasal or sinus issues**, or activities involving exposure to warm freshwater.
- **Symptoms and Prognosis:**
 - Symptoms usually appear within a week of infection and include severe **headache, fever, nausea, vomiting, stiff neck, confusion, seizures, and hallucinations**.
 - The infection progresses rapidly and **can lead to coma and death**. The **chances of survival are unfortunately low**.
- **Treatment:**
 - Treatment includes a **combination of drugs**.
 - The drug **Miltefosine** has shown efficacy in killing Naegleria fowleri in laboratory settings and has been used successfully in the treatment of some survivors.
 - Even with treatment, the **chances of surviving Naegleria fowleri infection remain low** with a recorded **death rate of 97 per cent**.

Guillain-Barre Syndrome

Why in News?

Peru has declared a 90-day national health emergency in response to a recent surge in **Guillain-Barre Syndrome (GBS)** cases, raising concerns about the potential connection between GBS and **Covid-19**.

- Notably, **Peru experienced a large outbreak of GBS in 2019 as well**, with 683 suspected or confirmed cases during a specific period.

What is Guillain-Barre Syndrome?

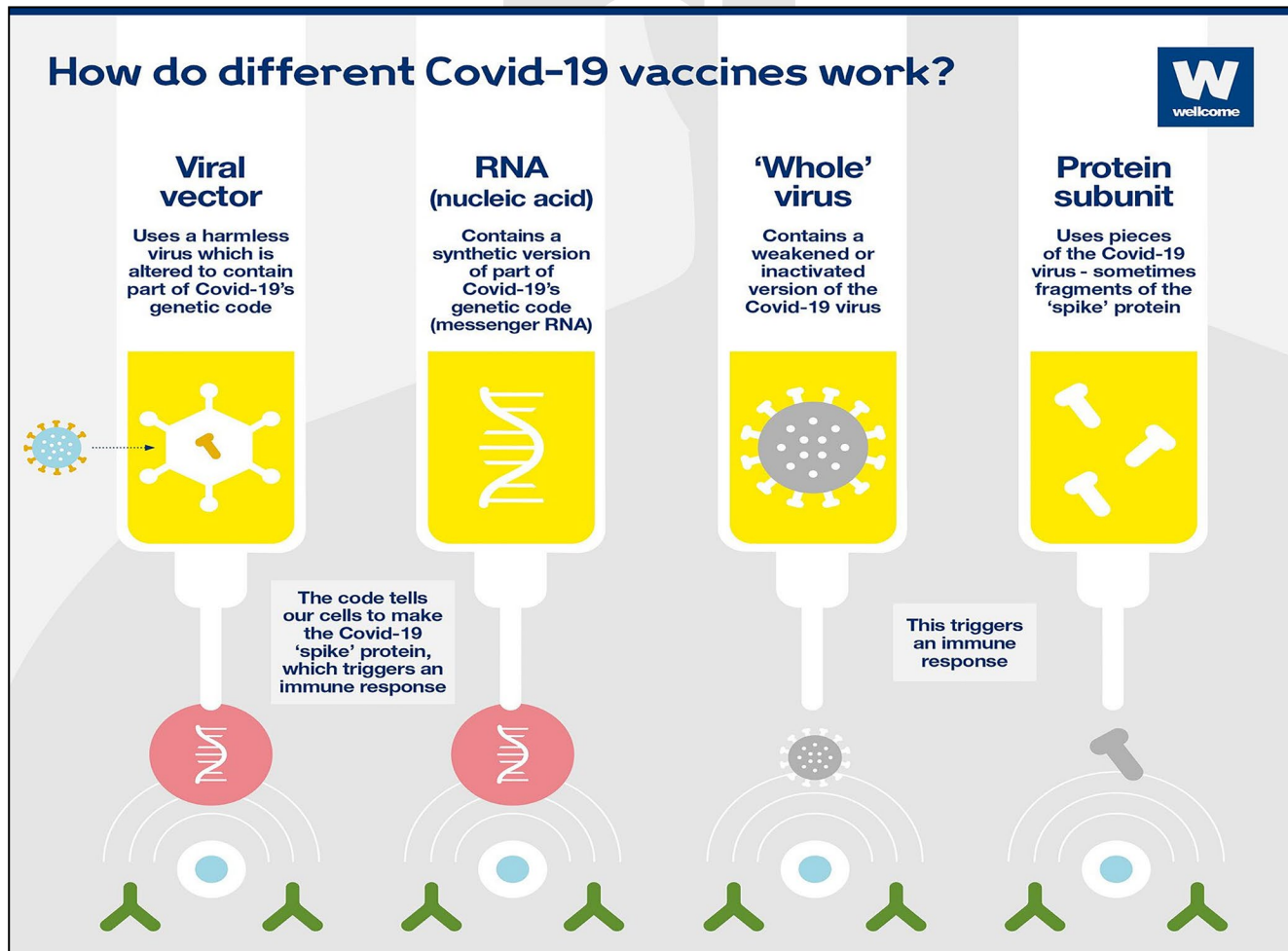
- **About:** GBS is a serious **autoimmune disorder** that affects the **peripheral nervous system**. It initially presents **weakness, tingling, and numbness in the limbs**, which can progress to **paralysis lasting 6-12 months or longer**.

Note:



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- The syndrome **affects the nerves responsible for muscle movement**, pain, temperature, and touch sensations.
- While **more common in adults and males**, GBS can occur in individuals of all ages.
- **Cause:** The exact cause of GBS is unknown, but as per the **World Health Organisation (WHO)**, GBS is often preceded by an infection. This could be a **bacterial or viral infection**. This leads the immune system to attack the body itself.
- In rare cases, **vaccinations** and surgery may slightly increase the risk of developing GBS, but the likelihood of this happening is very low.
- Studies have shown that the **risk of getting GBS from infections like the flu** is much higher than the risk from vaccines, such as the **flu vaccine**.
- **Treatment:** GBS treatment involves procedures like **plasmapheresis**, which removes plasma and replaces it with other fluids.
- **GBS and Covid-19:** GBS cases have been reported in both adults and children with Covid-19. Also, there have been concerns about cases of GBS following **administration of Covid-19 vaccines**.
- About **100 suspected cases of GBS** were identified among the **12.8 million people** who received the **Johnson & Johnson vaccine (viral vector vaccine)**.
 - Some cases of GBS have also been reported after receiving the **Pfizer (mRNA vaccine)** and **AstraZeneca (viral vector vaccine)** as well.
- A subcommittee of the **WHO** found that rare cases of GBS have been reported with **adenovirus vector Covid-19 vaccines, but not with mRNA vaccines**.
- However, recent studies suggest despite these potential side effects, the **benefits of Covid-19 vaccination outweigh the risks**.
 - The **incidence rate of GBS after SARS-CoV-2 infection or vaccination** is low.



Note:

New Evidence of Phosphine in Clouds of Venus

Why in News?

Scientists detected phosphine at deeper level in Venus' atmosphere than before using the James Clark Maxwell Telescope (JCMT) at Mauna Kea Observatory, Hawaii.

- Scientists in 2020 detected the presence of **phosphine gas** in the clouds of **Venus**.
- That discovery led to much debate and excitement about the presence of life on **Venus** given that **phosphine** is a molecule associated with **biological activity** on **Earth**.

Does life exist on Venus?

- **Phosphine** on **Earth** is known to be synthesized by **bacteria** thriving in environments with extremely **low levels of oxygen**.
- **Phosphine** has been detected in the deeper layers of **Venus' clouds**.
- **Scientists** have acknowledged that while the **detection of phosphine** could potentially serve as a **biosignature**, it could also be attributed to other mechanisms that are currently not completely comprehended.
- A prevalent perspective suggests that **phosphine** could potentially be produced by introducing **phosphorus-containing rocks** into the **upper atmosphere**, subjecting them to erosion through processes involving **water, acid**, and other factors, resulting in the formation of **phosphine gas**.

What is Phosphine (PH₃)?

- It is a **phosphorus atom** with **three hydrogen atoms** attached and is highly **toxic** to people.
- On **rocky planets** such as **Venus** and **Earth**, **phosphine** can only be made by life whether **human** or **microbe**.
- **Phosphine** is made naturally by some species of **anaerobic bacteria**, organisms that live in the oxygen-starved environments of **landfills, marshlands**, and **even animal guts**.
- To produce **phosphine**, **Earth bacteria** take up **phosphate** from **minerals or biological material** and add **hydrogen**.

- **Phosphine** also arises non-biologically in certain **industrial settings**.
- Used as a **chemical weapon** during **World War I**.
- **Phosphine** is still manufactured as an **agricultural fumigant**, is used in the **semiconductor industry**, and is a by-product of **meth labs**.

What are the Key Facts About Venus?

- **Venus** is **Earth's closest planetary neighbor**. It is also known as **earth's twin**.
- Similar in structure but slightly smaller than **Earth**, it is the **second planet** from the **Sun**.
- **Venus** is wrapped in a **thick and toxic atmosphere** that traps in heat.
- Surface temperatures reach a scorching **880 degrees Fahrenheit**, hot enough to melt **lead**. It is the hottest planet in the **solar system**.
- Highly dense, **65 miles** of **cloud** and **haze**, puts **atmospheric pressure** more than **90 times** what's felt on **Earth's surface**.
- Also, the planet's atmosphere is primarily suffocating **carbon dioxide** and **sulfuric acid clouds**.

Launch Vehicle Mark 3

Why in News?

Indian Space Research Organization (ISRO) will launch its **Chandrayaan-3 Mission** in **LVM (Launch Vehicle Mark) 3** on 14th July 2023.

What are the Launch Vehicles of ISRO?

- ISRO has **3 classes** of Launch Vehicles,
 - **PSLV (Polar Satellite Launch Vehicle)**: It has a famous reputation as a workhorse with a very low failure rate, the PSLV can lift up to 3.8 tonnes of **Low Earth Orbit**.
 - **GSLV (Geostationary Launch Vehicle)**: ISRO developed and uses the GSLV to launch heavier payloads and if required in higher orbits. Like the PSLV, GSLV also has multiple configurations.
 - The most Powerful **configuration** is **LVM-3**.
 - **SSLV (Small Satellite Launch Vehicle)**: It is a 3 stage Launch Vehicle configured with three **Solid Propulsion Stages** and **liquid propulsion based Velocity Trimming Module (VTM)** as a terminal stage.

Note:

What is LVM 3?

- The LVM-3 has 3 stages,
 - **The first (or bottom most stage)** is in the form of 2 S200 boosters straps to the sides of the rocket body. They combust a solid fuel called hydroxyl-terminated polybutadiene,
 - **The second stage** is powered by Vikas Engines, which combust a **liquid fuel**, either nitrogen tetroxide or unsymmetrical dimethylhydrazine.
 - The **Uppermost final stage** is Powered by a cryogenic engine. It combusts **liquified hydrogen with liquified oxygen**.
- It can lift upto 8 tonnes in low earth orbit.
- **Some of the LVM 3 Missions launched are,**
 - **OneWeb India-2 Mission**
 - OneWeb India-1 Mission
 - **Chandrayaan-2 Mission**
 - **GSAT-29 Mission**
 - GSAT-19 Mission
 - **CARE Mission**

What is the Chandrayaan-3 Mission?

- Chandrayaan-3 is India's **third moon mission and is a follow-up of Chandrayaan-2** of July 2019, which aimed to land a rover on the lunar South Pole.
- The mission is scheduled to be launched later in 2023 by LVM3 from the Satish Dhawan Space Centre at Sriharikota.
- The subsequent failure of the Vikram lander led to the pursuit of another mission to demonstrate the landing capabilities needed for the **Lunar Polar Exploration Mission** proposed in partnership with Japan for 2024.
- The Mission will **have three major modules- the Propulsion module, Lander module and Rover**.
- The propulsion module will carry the lander and rover configuration till 100 km lunar orbit.
- The Lander will have the capability to soft land at a specified lunar site and deploy the Rover which will carry out in-situ chemical analysis of the lunar surface during the course of its mobility.

Solar Flare**Why in News?**

Recently, the Sun emitted an X-class **solar flare**, disrupting radio communications over parts of the **United States** and the **Pacific Ocean**.

- According to the **National Aeronautics and Space Administration (NASA)**, the flare is classified as an **X1.0 flare**.

What is a Solar Flare?

- **About:**
 - A solar flare is a **tremendous explosion on the Sun** that happens when energy stored in 'twisted' **magnetic fields** (usually above sunspots) is suddenly released.
 - They are **seen as bright areas on the sun** and they can last from minutes to hours.
 - In a matter of just a few minutes, they heat the material to many millions of degrees and produce a burst of radiation across the **electromagnetic spectrum**, including from **radio waves** to **x-rays** and **gamma rays**.
 - They can affect radio communications, power grids and navigation signals and endanger astronauts and spacecraft.
- **Categories:**
 - There are **five categories of solar flare according to their brightness in the x-ray wavelengths which include A, B, C, M, and X; each class is at least ten times more potent than the one before it**.
 - **X-class Flares (Big):** They are major events that can trigger radio blackouts around the whole world and long-lasting radiation storms in the upper atmosphere.
 - **M-class Flares (Medium-Sized):** They generally cause brief radio blackouts that affect Earth's polar regions. Minor radiation storms sometimes follow an M-class flare.
 - **C-class Flares:** Compared to X- and M-class events, C-class flares are small with few noticeable consequences here on Earth.
 - The **smallest ones are A-class** (near background levels), followed by other flares.

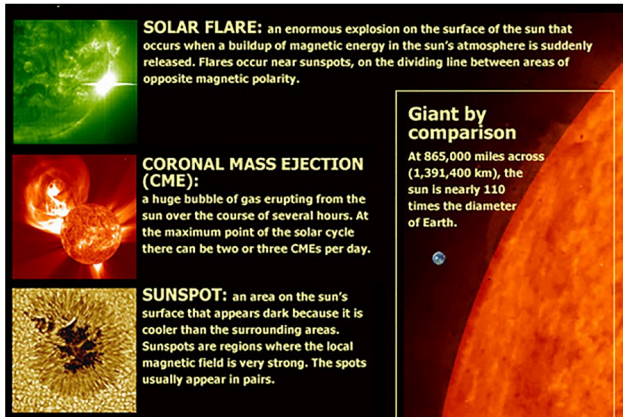
Note:



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Note:

- Solar flares are different from **Coronal Mass Ejections' (CMEs)**, which were once thought to be initiated by solar flares.
- CMEs are huge bubbles of gas **threaded with magnetic field lines that are ejected from the Sun over the course of several hours**. Although some are accompanied by flares, **it is now known that most CMEs are not associated with flares**.



Time Dilation in Early Universe

Why in News?

A recent study has utilized observations of **Quasars**, intense black holes to demonstrate time dilation in the early universe.

- The researchers **examined the brightness of 190 quasars across the universe**, dating back approximately **1.5 billion years after the Big Bang**. By comparing the brightness of these ancient quasars to those existing today, they discovered that certain fluctuations that occur in a specific duration today occurred **five times more slowly in the earliest quasars**.

What are the Key Highlights of the Study?

- **Slower Passage of Time in the Past:**
 - The continual expansion of the universe accounts for the **slower passage of time in the past** compared to the present.
 - The time **passed approximately one-fifth** as quickly as it does today. The observations stretch back to about 12.3 billion years ago, when the universe was roughly a tenth its present age.

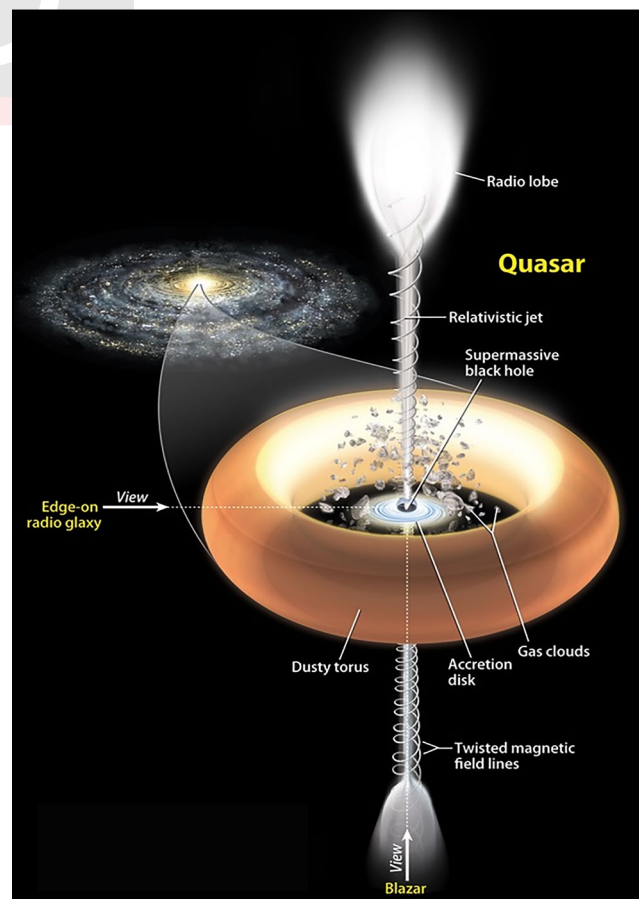
- According to Einstein's general theory of relativity, time and space are interconnected, and since the Big Bang, the universe **has been expanding in all directions**.

➤ Previous Observations:

- Scientists had previously documented time dilation dating back around 7 billion years based on **observations of supernovas, stellar explosions**.
- By studying these explosions from the past, **they found that events unfolded more slowly from the perspective of our present time** due to the known time it takes for today's supernovas to brighten and fade.

What is the Significance of the Study?

- This research highlights the intricate **nature of time and its interplay with the expansion of the universe**.
- By continuing to explore distant objects and phenomena, scientists hope to gain further understanding of the concept of time and its potential implications, **including the possibility of time travel and advanced propulsion systems like warp drives**.



Note:

What are Quasars?

- **About:**
 - Quasars, which are incredibly bright objects, served as a “clock” in the study. They are supermassive **black holes**, millions to billions of times more massive than the sun, located at the centers of galaxies.
 - These black holes draw matter towards them through **strong gravitational forces**, emitting **powerful radiation** and high-energy particle jets, while surrounded by a glowing disk of matter.
- **Significance of Quasars in Examining Time Dilation:**
 - Quasars provide an **advantage over individual stellar explosions** because their brightness remains **observable from the early stages of the universe**. The fluctuations in quasar brightness reveal **statistical properties and time scales that can be used to measure the passage of time**.

What is Time Dilation?

- Time dilation is a phenomenon in **physics that occurs due to differences in relative motion or gravitational fields**. It is a consequence of Einstein’s theory of relativity, both the special theory of relativity and the general theory of relativity.
- In the special theory of relativity, time dilation occurs when **two observers are in relative motion to each other**.
- According to this theory, time is not **absolute but is relative to the observer’s frame** of reference.
- When objects move relative to each other at speeds close to the speed of light, time appears to pass more slowly for the moving object compared to the stationary one.
- This means that time is dilated or stretched out for the moving object from the perspective of the stationary observer.

Gravitational Waves

Why in News?

Recently, an international team of astronomers announced scientific evidence confirming the presence of **gravitational waves** using pulsar observations.

- **India’s Giant Metrewave Radio Telescope (GMRT)** was among the **world’s six large telescopes** that played a vital role in providing this evidence.

What are the Key Findings?

- They reported the first direct evidence for the relentless vibrations of space-time caused by **ultra-low frequency gravitational waves**.
- They also **set new limits on the strength and frequency of these waves**, which are consistent with theoretical predictions.
- They are also tantalisingly close to the discovery of **nanohertz gravitational waves**, which would open up new possibilities for studying galaxy evolution, cosmology, and fundamental physics.

How Does GMRT Detect Gravitational Waves?

- GMRT detects gravitational waves by using **pulsars—the only accessible celestial clocks for humans**, which are **rapidly rotating neutron stars**.
- Pulsars emit regular pulses of radio waves that can be used to **measure their rotation periods and distances with high precision**.
- By observing **Pulsar timing arrays (PTAs)** distributed across the sky, GMRT can look for **tiny variations in their pulse arrival times** caused by **gravitational waves** passing through the **Earth-pulsar line of sight**. This technique is known as **pulsar timing**.
- GMRT is a crucial player in the PTA experiment, as it provides unique data at low radio frequencies and high sensitivity.

Note:

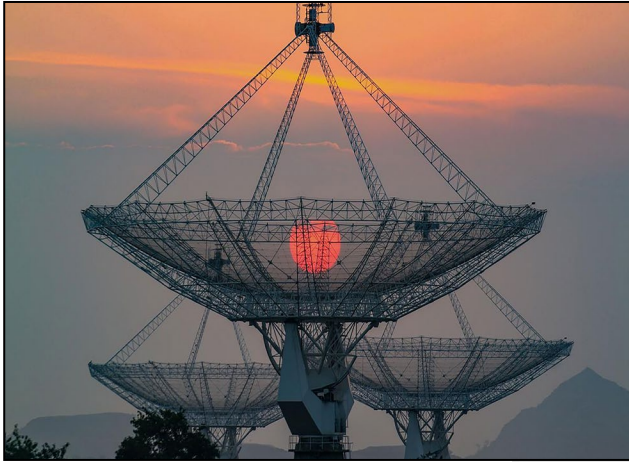
- PTAs are international collaborations of radio telescopes that observe hundreds of pulsars over many years to search for gravitational waves in the nanohertz band.
- **GMRT is part of the Indian Pulsar Timing Array (InPTA)**, which is a collaboration of **Indian and Japanese researchers** that uses GMRT data along with other telescopes.

What is GMRT?

- GMRT is a **low-frequency radio telescope** consisting of an array of 30 fully steerable parabolic radio telescopes of 45-meter diameter.
- It is located near **Narayangaon, Pune** in India, and operated by the **National Centre for Radio Astrophysics (NCRA)**, a part of the **Tata Institute of Fundamental Research, Mumbai**.

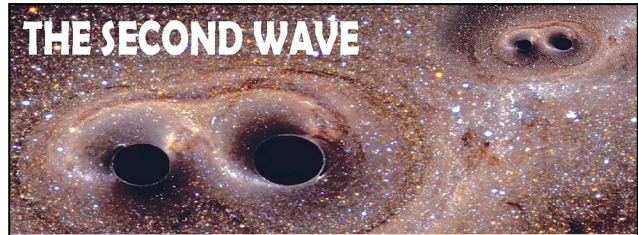
Note:

- It is one of the **largest and most sensitive radio telescope** array in the world at low frequencies.
- GMRT has recently undergone significant upgrades in its receivers and electronics, which have improved its sensitivity and bandwidth. It is now known as the **upgraded GMRT (uGMRT)**.



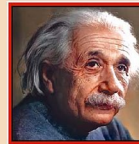
What are Gravitational Waves?

- **About:**
 - Gravitational waves are **ripples in space-time** caused by violent and energetic processes in the Universe.
 - **Albert Einstein** predicted their existence in his **general theory of Relativity** in 1916.
- **Production of Gravitational Waves**
 - **Cataclysmic Events:** The strongest gravitational waves originate from **colliding black holes, supernovae, and colliding neutron stars**.
 - **Neutron Star Rotation:** Gravitational waves can also be produced by the **rotation of non-perfectly spherical neutron stars** and possibly remnants of gravitational radiation from the **Big Bang**.
- **Features and Detection**
 - Gravitational waves are challenging to detect due to their **weak interaction with matter**.
 - Gravitational waves were first detected in 2015 using an experiment involving **Laser Interferometer Gravitational Observatory (LIGO)** detectors.
 - Sensitive instruments like interferometers, such as the LIGO, are developed to detect gravitational waves by measuring tiny disturbances in space-time.



EINSTEIN'S THEORY

Einstein predicted the existence of the waves in his theory of relativity a century ago, and scientists have been able to detect them with an instrument known as the Laser Interferometer Gravitational-Wave Observatory, or LIGO



GRAVITATIONAL WAVES

Black holes form in the final stage of most massive stars' evolution. The space bodies are so dense that neither light nor matter can escape them.

Sometimes the holes couple, orbiting in a 'dance' around each other as they lose energy in the form of gravitational waves, ultimately merging into a single black hole

Those gravitational waves allow scientists to detect when the black holes merge

THE FIRST DETECTION

The first detection of waves- in September

2015 –was announced in February 2016, in a landmark discovery for physics and astronomy after decades of efforts

THE NEW WAVE

Researchers announced they had found the waves a second time in December 2015, produced by the collision of two black holes some 1.4 billion years ago.

SIZE OF BLACKHOLE

It is very significant that these black holes were much less massive than those in the first detection. It is a promising start to mapping the populations of black holes in our universe.

WHAT IS LIGO? The Laser Interferometer Gravitational-Wave Observatory (LIGO) consists of two identical detectors 3,000 km apart – one in Livingston, Louisiana and the other in Hanford, Washington

India Joins Artemis Accords

Why in News?

Recently, India's Prime Minister announced **India's decision to join the Artemis Accords** during the visit to the United States.

- **National Aeronautics and Space Administration (NASA) and Indian Space Research Organisation (ISRO) will collaborate** to send Indian astronauts, trained at the Johnson Space Center in Houston, Texas, to the **International Space Station (ISS)** in 2024.

What are Artemis Accords?

- **About:**
 - **Artemis Accords** are established by the **U.S. State Department and NASA with seven other founding members: Australia, Canada, Italy, Japan, Luxembourg, the United Arab Emirates, and the United Kingdom** in 2020 for setting common principles to govern civil exploration and use of outer space, the moon, Mars, comets, and asteroids, for peaceful purposes.

Note:



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- It builds upon the foundation of the **Outer Space Treaty of 1967**.
 - The Outer Space Treaty, a **multilateral pact** under the **United Nations**, serves as the foundation for international space law.

- The treaty emphasizes space as a **shared resource for humanity**, prohibits national appropriation, and encourages the peaceful use of space.

➤ **Signatory Countries:**



- India became the **27th** country to sign the nonbinding **Artemis Accords**.

➤ **Commitments under the Accords:**

- **Peaceful Purposes:** The signatories will implement memorandum of understanding (MOUs) between governments or agencies to **conduct space activities for peaceful purposes in accordance with international law**.
- **Common Infrastructure:** Signatories recognize the **importance of common exploration infrastructure** to enhance scientific discovery and commercial utilization.
- **Registration and Data Sharing:** Relevant space objects are registered, and scientific **data is openly shared in a timely manner**. **Private sectors are exempt unless acting on behalf of a signatory**.
- **Preservation of Heritage:** Signatories are **expected to preserve historic landing sites**, artifacts, and evidence of activity on celestial bodies.
- **Utilization of Space Resources:** Utilization of space resources should **support safe and sustainable**

activities and not interfere with other signatories' activities. Information on location and nature must be shared to prevent interference.

- **Mitigation of Debris:** Signatories plan for the **safe disposal of spacecraft** and limit the generation of harmful debris.

What are the Main Missions under the Artemis Program?

➤ **Artemis-I: Unmanned Mission to the Moon**

- The Artemis program began with the launch of the **spacecraft named "Orion"** on the **Space Launch System (SLS)** from NASA's Kennedy Space Center on **November 16, 2022**.
- The **SLS**, a **super heavy-lift launch vehicle**, carried Orion on a single mission directly to the moon.

➤ **Artemis-II: Crewed Lunar Flyby Mission:**

- Scheduled for 2024, **Artemis-II will mark the first crewed mission under the Artemis program**.

Note:

- **Four astronauts will be aboard the SLS** as it performs multiple maneuvers on an expanding orbit around Earth.
 - The mission will also **involve a lunar flyby and return to Earth.**

➤ **Artemis-III: Human Return to the Moon:**

- Set for 2025, **Artemis-III will mark a significant milestone in human space exploration** as astronauts return to the moon.
- This mission will go beyond the lunar flyby of Artemis-II, allowing astronauts to **land on the lunar surface and study the moon more extensively.**
- Also, the **establishment of a Lunar Gateway station is planned for 2029.** This station will serve as a docking point for astronauts and facilitate scientific research and experiments.

What are the Benefits and Challenges for India Related to the Accord?

➤ **Benefits:**

- India's participation in the **Artemis Accords facilitates access to advanced training**, technological advancements, and scientific opportunities.
- India can leverage the Artemis programme to advance its own lunar exploration goals, such as the **Chandrayaan-3 mission.**
- Collaborating with NASA would enhance **India's capabilities for the Gaganyaan human mission and future ambitious space missions.**
- Also, India's **cost-effective missions and innovative approach will benefit the Artemis program**, promoting mutual advancements in space exploration.

➤ **Challenges:**

- The **possibility of being seen as aligning with the U.S. against other major space powers**, such as **China and Russia**, who have their own plans for lunar exploration.
- The **uncertainty over the legal status and implications of the Artemis Accords**, especially regarding the **provision that allows for unregulated mining on the moon and other celestial bodies.**
- The need to balance its commitments under the Artemis Accords with its obligations under **other existing or emerging multilateral frameworks or treaties on outer space.**

Antimicrobial Resistance and One Health

Why in News?

Recently, four major multilateral agencies - **Food and Agriculture Organization (FAO)**, **UN Environment Programme (UNEP)**, **World Health Organization (WHO)**, and **World Organisation for Animal Health (WOAH)**, announced the launch of a priority research agenda to address the critical issue of **antimicrobial resistance (AMR).**

- The research agenda is based on the **One Health approach.**

What are the Major Focus Areas of the Research Agenda?

➤ **Major Objectives:**

- To find out **drivers and pathways of AMR transmission** across different sectors and environment.
- To assess and evaluate the impact of AMR on various aspects of health, economy and society.
- To focus on **innovation and development of new or improved diagnostics**, therapeutics or vaccines to combat infections caused by resistant microorganisms.

➤ **Cross Cutting Themes:**

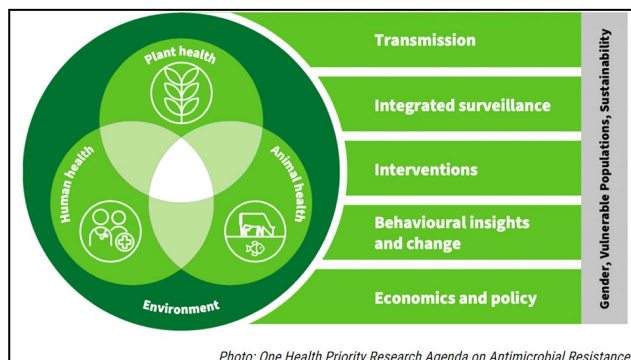
- The research agenda identifies **3 cross-cutting themes** that need to be considered in **One Health AMR research**, namely **gender**, **vulnerable populations** and **sustainability.**
 - **Gender** influences how **people access and use antimicrobials**, how they are exposed to and affected by AMR, and **how they participate in and benefit from AMR research.**
 - **Vulnerable populations** refer to groups of people **who are at higher risk of exposure to or infection by resistant microorganisms** due to various factors such as age, poverty, malnutrition, displacement, marginalization or lack of access to quality healthcare.
 - **Sustainability** implies balancing the environmental, economic and social dimensions of development while ensuring human rights and well-being.

Note:



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- It also requires taking into account the **intergenerational equity and justice implications of AMR.**



Battery Electric Vehicles in India

Why in News?

As India strives to achieve its **net-zero emissions target**, **battery electric vehicles (BEVs)** have emerged as a centerpiece of the **government's push for sustainable mobility.**

- However, while countries like Norway and China have seen success with BEVs, India faces unique challenges due to its specific conditions.

What are Battery Electric Vehicles?

➤ About:

- Battery Electric Vehicles (BEVs) are a type of electric vehicle that runs solely on **electric power stored in high-capacity batteries.**
- They do not have an **internal combustion engine(ICE)** and **produce zero tailpipe emissions.**
- BEVs use electric motors to drive the wheels, providing **instant torque** and smooth acceleration.

➤ Battery Technology:

- BEVs rely on advanced battery technology, **primarily Lithium-ion (Li-ion) batteries.**

- Li-ion batteries offer **high energy density, longer range**, and improved performance.

➤ Charging Infrastructure:

- BEVs require a network of charging stations for recharging their batteries. Charging infrastructure includes various types of chargers:
 - **Level 1 (household outlets)**
 - **Level 2 (dedicated charging stations)**
 - **Level 3 (DC fast chargers).**
- Public charging stations, workplaces, and residential buildings play a crucial role in expanding the charging infrastructure.

What are the Problems with Battery Electric Vehicles?

➤ Charging Network:

- Currently, **India has a limited number of public charging stations**, requiring a tailored strategy that accommodates the dominant presence of two- and three-wheelers.
 - Only about 2,000 public charging stations are currently operational across the country.
- There exists a lack of **standardization and interoperability among chargers and vehicles.**

➤ Electricity Source:

- The majority of **India's electricity is still generated from coal-fired thermal plants**, impacting the environmental benefits of EVs.

FOUR TYPES OF EVs

HEVs: Conventional hybrid electric vehicles (such as variants of the Toyota Hyryder Hybrid or Honda City e:HEV in India) combine a conventional ICE system with an electric propulsion system, resulting in a hybrid drivetrain that substantially lowers fuel usage. The onboard battery in a conventional hybrid is charged when the IC engine is powering the drivetrain.

PHEVs: Plug-in hybrid vehicles (such as the Chevrolet Volt) also have a hybrid drivetrain that uses both an ICE and electric power for motive power, backed by rechargeable batteries that can be, in this case, plugged into a power source.



BEVs: Vehicles like the Tata Nexon in India, or the Nissan Leaf and Tesla Model S, have no ICE or fuel tank, and run on a fully electric drivetrain powered by rechargeable batteries.

FCVs: Fuel cell vehicles (such as Toyota's Mirai and Honda's Clarity) use hydrogen to power an onboard electric motor. FCVs combine hydrogen and oxygen to produce electricity, which runs the motor, and the only residue of the chemical process is water. Since they're powered entirely by electricity, FCVs are considered EVs — but unlike BEVs, their range and refuelling processes are comparable to conventional cars and trucks.

Note:

- Unless the power generation mix changes significantly, India would be using fossil fuel generation to power EVs.
- **Value Chain Dependency:**
 - The demand for Li-ion batteries from India is projected to grow at a **CAGR of ~30% by volume up to 2030**; more than **50,000 tonnes of lithium requirement for the country** to manufacture EV batteries alone.
 - However, more than **90% of the global Li production is concentrated in Chile, Argentina, and Bolivia (and Australia and China)** and other key inputs such as **cobalt and nickel are mined in the Congo and Indonesia**. As a result, **India would be almost entirely dependent on imports from a small pool of countries** to cater to its demand.
- **High Initial Cost of Owning an Electric Vehicle:**
 - EVs remain **expensive compared to Internal Combustion Engine (ICE) vehicles**. Costly batteries contribute to the overall high price.
 - Limited **availability and affordability of EV models** in the **mass market segment** makes the transition to EVs even more difficult.
- **Lack of Awareness and Consumer Preference:**
 - **Consumer preference for ICE vehicles** based on brand loyalty, resale value, and comfort and **limited knowledge of potential buyers** regarding EV benefits and features further adds to the problem.
 - Cultural factors also influence **social acceptance and perception of EVs**.
- **Other Challenges:**
 - **Shortage of skilled workers and technicians for EV servicing and repair.**
 - Increasing **electricity demand and grid stability concerns.**
 - Surge in 2 and 3-wheeler EVs but same can't be said for 4-wheeler EVs.
- They can serve as an **intermediate step towards 'all-electric' vehicles and help establish the battery ecosystem.**
- **Ethanol & Flex Fuel:**
 - **Flex fuel vehicles** can run on various fuel types, including **ethanol**, **reducing reliance on fossil fuels.**
- **Fuel Cell Electric Vehicles (FCEVs) & Hydrogen ICE:**
 - FCEVs run on hydrogen fuel cells, which **produce electricity and water as the only by-products** offering a **clean and efficient alternative to BEVs.**
 - **Hydrogen ICE vehicles** use **hydrogen as a fuel in ICEs** offering a simpler and **cheaper alternative to BEVs.**
 - However, both FCEVs and Hydrogen ICEs have their own shortcomings in terms of infrastructure and zero-emissions.
- **Synthetic Fuels:**
 - Porsche is developing **synthetic fuels that make ICEs CO₂-neutral**, potentially extending the life of ICE vehicles.
 - These fuels, produced from carbon dioxide and hydrogen using renewable energy, could have broader applications.

What are Some Government Initiatives to Promote EV adoption?

- **Faster Adoption and Manufacturing of Electric Vehicles (FAME)scheme II**
- **National Electric Mobility Mission Plan (NEMMP)**
- **National Mission on Transformative Mobility and Battery Storage**
- **Go Electric campaign**
- **Production Linked Incentive (PLI) scheme:**
 - Incentives for the manufacturing of EVs and components
- **Ministry of Power's Revised Guidelines on Charging Infrastructure:**
 - At least one charging station to be present in a grid of 3 km and at every 25 kms on both sides of the highways.
- **Amendment to Model Building Bye-laws, 2016 (MBBL):**
 - Mandatory to set aside 20% of the parking space for EV charging facilities in residential and commercial buildings.
- **India's support to the global EV30@30 campaign**

What are the Possible Alternative Technologies to BEVs?

- **Hybrid EVs:**
 - They offer improved **fuel efficiency** without requiring extensive charging infrastructure.

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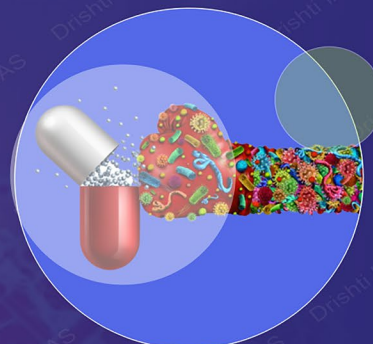
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What is Antimicrobial Resistance?

ANTIMICROBIAL RESISTANCE



The ability of microorganisms to resist the effects of antimicrobial drugs



CAUSES OF ↑ AMR

- Poor infection control/sanitation
- Antibiotic overuse
- Genetic mutations of microbe
- Lack of investment in R&D of new antimicrobial drugs

Microbes that develop AMR are called 'Superbugs'

IMPACTS OF AMR

- ↑ Risk of spreading infections
- Makes infections harder to treat; prolonged illness
- ↑ Healthcare costs

EXAMPLE

- Carbapenem antibiotics stop responding due to AMR in *K. pneumoniae*
- AMR *Mycobacterium tuberculosis* causing Rifampicin-Resistant TB (RR-TB)
- Drug-resistant HIV (HIVDR) making antiretroviral (ARV) drugs ineffective

RECOGNITION BY WHO

- Identified AMR as **one of the top 10 threats** to global health
- Launched **GLASS** (Global Antimicrobial Resistance and Use Surveillance System) in 2015

INDIA'S INITIATIVES AGAINST AMR

- Surveillance of AMR in microbes causing **TB, Vector Borne diseases, AIDS etc.**
- **National Action Plan on AMR (2017)** with One Health approach
- **Antibiotic Stewardship Program** by ICMR

New Delhi metallo-β-lactamase-1 (NDM-1) is a bacterial enzyme, emerged from India, that renders all current β-lactam antibiotics inactive

What Measures can be Taken to Address Antimicrobial Resistance?

- **Enhanced Surveillance and Monitoring:** Establish robust systems for monitoring and tracking the emergence and spread of resistant organisms.
 - This includes **tracking patterns of resistance, collecting data on antibiotic usage**, and sharing information internationally to identify hotspots and take timely actions.

- **Rational Use of Antibiotics:** Promote **responsible use of antibiotics in human and animal health**, ensuring they are prescribed and used only when necessary.
 - **Encourage healthcare providers to follow appropriate guidelines** for antibiotic prescription and educate the public about the risks of unnecessary antibiotic use.
- **Infection Prevention and Control:** Implement effective infection prevention and control practices in

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healthcare settings (**hand hygiene, proper sanitation, and adherence to standard precautions**).

- **Preventing infections reduces the need for antibiotics**, consequently preventing AMR.
- **Vaccination Programs:** Strengthen vaccination programs to prevent the occurrence of infectious diseases and reduce the need for antibiotic treatment.

International Conference on Green Hydrogen (ICGH-2023)

Why in News?

The **three-day International Conference on Green Hydrogen (ICGH-2023)** has commenced in New Delhi.

- The conference aims to **establish a Green Hydrogen ecosystem** and foster a systemic approach to global decarbonisation goals.

What are the Main Themes of the Conference?

- **Hydrogen Production Technologies:** This theme will focus on various methods of producing green hydrogen such as **electrolysis, thermochemical, biological, photocatalysis, etc.**
 - It will also discuss the challenges and opportunities in scaling up these technologies and reducing their costs.
- **Hydrogen Storage and Distribution:** This theme will address the issues related to **storing and transporting green hydrogen** such as compression, liquefaction, metal hydrides, ammonia, etc.
 - It will also explore the potential of hydrogen pipelines, refueling stations, etc.
- **Hydrogen Applications:** This theme will showcase the various applications of green hydrogen in different sectors such as **mobility, industry, power generation, etc.**
 - It will also **highlight the benefits and challenges of using green hydrogen** as a fuel or feedstock.
- **Green Financing:** This theme will explore the various sources and mechanisms of financing green hydrogen projects such as **green bonds, carbon credits, subsidies, etc.**
 - It will also discuss the role of public-private partnerships, multilateral agencies, etc. in supporting green hydrogen initiatives.

- **Human Resource Development:** This theme will focus on the need for developing skilled manpower for the green hydrogen sectors such as **engineers, technicians, researchers, entrepreneurs, etc.**
 - It will also discuss the strategies for upskilling and reskilling the existing workforce and creating awareness among stakeholders.
- **Startup Ecosystem:** This theme will highlight the **role of startups in innovating and disrupting the green hydrogen sector.**
 - It will also showcase some of the **successful startups in this domain and their products or services.**

What is Green Hydrogen?

- **About:**
 - Green hydrogen is a form of renewable energy that is produced by **splitting water molecules into hydrogen and oxygen using electricity from renewable sources** such as solar, wind, hydro or biomass.
- **Significance:**
 - It is the **only type of hydrogen that is produced in a climate-neutral manner**, making it critical to reach net zero emissions by 2050.
 - It has the potential to decarbonize various sectors such as **transport, industry, power and buildings**, and contribute to the global efforts to mitigate climate change.
 - It can also help to **balance the intermittency of renewable energy sources**, by storing excess electricity and releasing it when needed.
 - It can also be converted into other forms of energy carriers such as **ammonia, methanol or synthetic fuels**, which can be used for various applications.
- **Status of Green Hydrogen in India:**
 - The country has begun setting up **3.5 million tons of green hydrogen manufacturing capacity** and aims to produce at least 5 million metric tonnes of green hydrogen per year by 2030.
 - **India's cost of green hydrogen is expected to be the lowest globally** due to the low cost of setting up renewable energy capacity in the country.
 - India has made significant progress in advancing green hydrogen technologies and has the **National Green Hydrogen Mission** in place to promote research, development, and deployment of green hydrogen across various domains.

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NATIONAL GREEN HYDROGEN MISSION

NODAL MINISTRY

- Ministry of New and Renewable Energy

OBJECTIVE

- Decarbonise energy/industrial/mobility sector
- Develop indigenous manufacturing capacities
- Create export opportunities for GH_2 and its derivative

COMPONENTS OF NGHM

- Strategic Interventions for Green Hydrogen Transition Programme (SIGHT)
- Strategic Hydrogen Innovation Partnership (SHIP) (PPP for R&D)

GH_2 is not commercially viable at present; current cost in India is around ₹350-400/kg.
The National Hydrogen Energy Mission aims to bring it down under ₹100/kg.

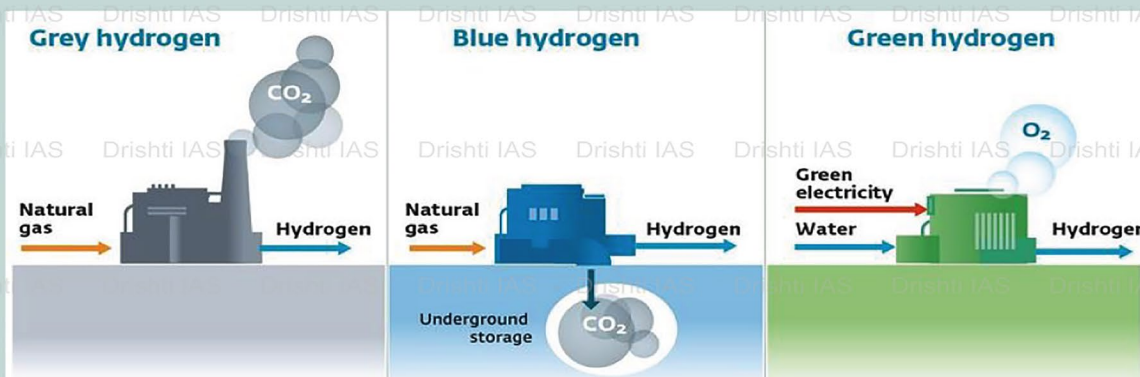
Expected Outcomes by 2030

- ◆ Atleast 5MMT GH_2 annual production
- ◆ Rs 1 lakh crore fossil fuel import savings
- ◆ 6 lakh jobs
- ◆ 50MMT CO_2 annual emissions averted
- ◆ ₹ 8 lakh crore investment

HYDROGEN AND GREEN HYDROGEN

Hydrogen is the most common element in nature but exists only in combination with other elements. It has to be extracted from naturally occurring compounds (like water).

Green Hydrogen (GH_2) is made by splitting water through an electrical process called electrolysis, using an electrolyser powered by renewable energy (RE).



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What are the Major Challenges Associated with Green Hydrogen?

- **High Production Costs:** Green hydrogen production involves **electrolysis of water using renewable energy sources**. However, the **cost of renewable energy infrastructure and electrolyzers remains relatively high**, making green hydrogen production costlier compared to fossil fuel-based alternatives.
- **Limited Renewable Energy Capacity:** The **intermittent nature of solar and wind power requires substantial investments in energy storage infrastructure** to ensure uninterrupted power supply for electrolysis.
- **Infrastructure Constraints:** Building a robust hydrogen infrastructure in India is a critical challenge because the **existing infrastructure and supply chain for conventional hydrogen are not sufficient or compatible for green hydrogen**.
- **Water Availability:** Green hydrogen production requires a **significant amount of water for the electrolysis process**. In regions with **limited water resources or facing water scarcity**, ensuring sustainable water supply for large-scale green hydrogen production can be challenging.

Bharat 6G Alliance

Why in News?

Recently, the Department of Telecommunications (DoT) under the Ministry of Communications launched the **Bharat 6G Alliance (B6GA)** to foster innovation and leadership in **6G technology**, the next frontier of wireless communication.

- In addition, with a grant of 240.51 crores under the **Telecom Technology Development Fund (TTDF)**, two agreements were signed for projects.

What is the Bharat 6G Alliance (B6GA)?

- **About:**
 - The B6GA is a collaborative platform comprising public and private companies, academia, research institutions, and standards development organizations.
 - The alliance will **forge partnerships and synergies with other 6G global alliances** to facilitate international collaboration and knowledge exchange.

Objective:

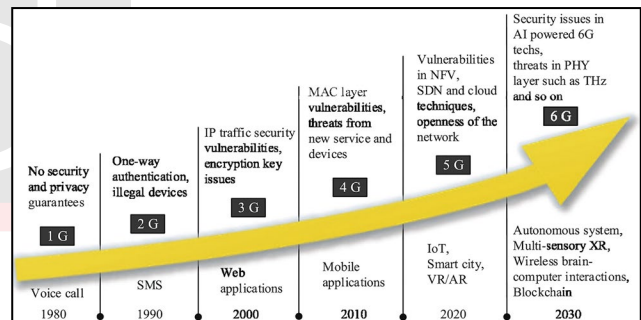
- Its primary objective is to understand the **business and societal needs of 6G technology**, foster consensus, and drive high-impact research and development initiatives.

Importance:

- It will help **India to take a lead role in the development and adoption of 6G technology**, which will have a huge impact on the economy, society, and environment.
- It will also help India to **leverage its strengths in software, hardware, and manufacturing**, as well as its large talent pool and market potential.

What is 6G Technology?

- **6G technology is the successor of 5G technology**, which is currently being deployed in various countries, including India.



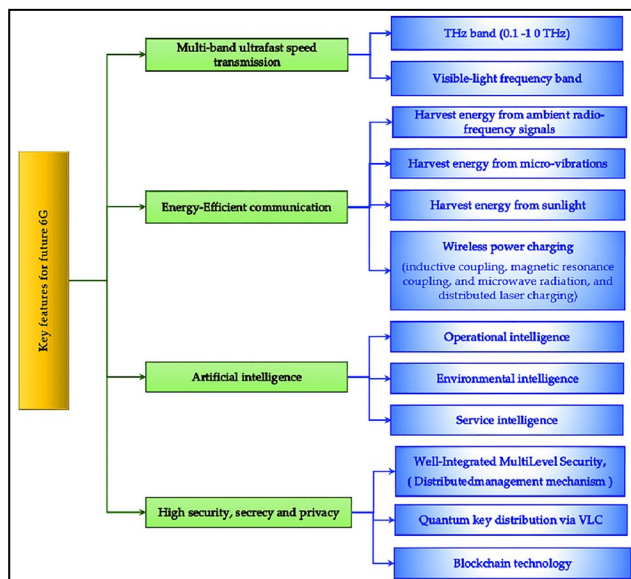
- 6G technology is expected to offer speeds up to **100 times faster than 5G**, as well as **ultra-low latency, high reliability, and massive connectivity**.
- 6G technology is also envisioned to enable new applications and services such as **holographic communication, brain-computer interface, quantum internet, and artificial intelligence**.
- Holographic communication in 6G refers to the transmission and reception of **3D holographic images in real-time**, enabling immersive and lifelike communication experiences.
- Brain-computer interface in 6G is a futuristic technology that will enable users to **control computers and devices with their thoughts**.
- It seeks to utilize the **terahertz band of frequency** which is currently unused.
 - Terahertz waves fall between **infrared waves and microwaves on the electromagnetic spectrum**.

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- These waves are extremely tiny and fragile, but there's a huge amount of free spectrum up there that would allow for spectacular data rates.



How has India's Telecom Sector Evolved in Recent Years?

- India is the world's second-largest telecommunications market with a subscriber base of 1,170.38 million in December 2022.
- Significant reductions in **data costs, from Rs. 300/GB in 2014 to Rs. 10/GB in 2023.**
- Drastic improvements in regulatory processes, including a reduction in the Right of Way permission **duration from 230 to 9 days.**
- Expansion of BTS sites by four times, reaching 25 lakh installations.
- Increased **Foreign Direct Investment (FDI)** in the telecom sector, amounting to 24 billion dollars.
- Streamlined allocation of spectrum to **Telecom Service Providers (TSPs) within 24 hours.**
- Japan has aligned with India on **Digital Payment system of India.**
- Achievements of **BSNL** in stabilizing the market and generating operating profits.
- India's successful technology exports to 12 countries, including the USA.

What is Telecom Technology Development Fund (TTDF) Scheme?

- It was launched by **DoT/ Universal Service Obligation Fund (USOF)** in 2022.

- **5% of annual collections** from USOF will be available for **TTDF Scheme for funding research & development of technologies, products, and services.**
- The scheme is envisaged to **bridge the digital divide by developing and manufacturing state-of-the-art technologies** and to form synergies among academia, start-ups, research institutes, and the industry to build and develop the telecom ecosystem.

Majorana Zero Modes

Why in News?

Recently, Microsoft researchers announced a significant breakthrough in the creation of **Majorana Zero Modes**, a type of particle with potential implications for revolutionizing quantum computing.

- Microsoft researchers engineered a topological superconductor composed of an aluminium **Superconductor** and an indium arsenide **Semiconductor.**
- Their device passed a stringent protocol, including measurements and simulations, **indicating a high probability of hosting Majorana zero modes.**
- The topological gap protocol and observation of the conductance peak are considered strong evidence for Majorana zero modes.

What are Majorana Zero Modes?

- **Majorana Fermions:**
 - All subatomic particles that **make up matter are called fermions.**
 - In 1928, physicist Paul Dirac developed the **Dirac equation to understand how quantum mechanics and the special theory of relativity could coexist.**
 - The Dirac equation described the behaviour of subatomic particles that moved at **near the speed of light.**
 - This equation predicted the **existence of antiparticles for each particle**, leading to the discovery of the first antiparticle, the positron (or the anti-electron) in 1932.
 - In 1937, physicist Ettore Majorana found that the Dirac equation allowed for particles that satisfied **certain conditions to be their own antiparticles** to be their own antiparticles.
 - In his honour, fermions that are **their own antiparticles are called Majorana fermions.**

Note:

- Neutrinos are one type of particle that physicists believe could be **Majorana fermions**, although experimental proof is still lacking.

➤ **Majorana Zero Modes:**

- Fermions possess four quantum numbers, with one of them being quantum spin, which only has half-integer values.
- Bound states of fermions that are their own antiparticles are called **Majorana zero modes**.
- Majorana zero modes have been a subject of research for over two decades.
- Their unique characteristics make them **promising for topological quantum computing**.

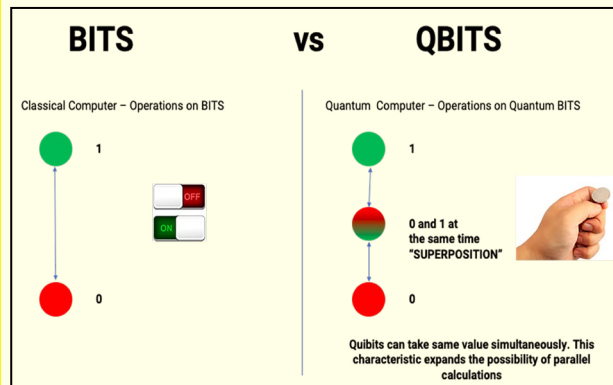
What can be the Potential Advantages of Majorana Zero Modes in Computing?

- Majorana zero modes possess unique properties that **make Quantum Computers more robust and computationally superior**. Quantum computers currently use individual electrons as qubits, but they are fragile and susceptible to decoherence.
- Majorana zero modes, composed of an electron and a hole, can be used as **more stable qubits**.
- Even if one of the entities is disturbed, the **overall qubit does not decohere, protecting the encoded information**.
- Majorana zero modes offer **topological degeneracy**, allowing for the storage and retrieval of information from different topological properties, without easily losing the encoded information.
 - Topology is the study of those properties of matter that **don't change when it undergoes continuous deformation**—i.e., when it's stretched, folded, twisted, etc., but not ruptured or glued to itself.

What is Quantum Computing?

- Quantum computing uses **phenomena in quantum physics** to create new ways of computing.
 - Quantum physics explains the behavior of energy and material on the atomic and subatomic levels.
- Quantum computing involves **qubits**. Unlike a normal computer bit, which can be either 0 or 1, a **qubit can exist in a multidimensional state**.
- The power of quantum computers **grows exponentially with more qubits**.

- Classical computers that add more **bits can increase power only linearly**.
- Quantum computing has the capability to sift through huge numbers of possibilities and extract **potential solutions to complex problems** and challenges.
- The basic **properties of quantum computing** are superposition, entanglement, and interference.
 - **Superposition:**
 - It is the ability of a quantum system to be in multiple states simultaneously.
 - The example of superposition is the flip of a coin, which consistently lands as heads or tails—a very binary concept. However, when that coin is in mid-air, it is both heads and tails and until it lands, heads and tails simultaneously. Before measurement, the electron exists in quantum superposition.



- **Entanglement:**
 - It means the two members of a pair (Qubits) exist in a single quantum state. Changing the state of one of the qubits will instantaneously change the state of the other one in a predictable way. This happens even if they are separated by very long distances.
 - Einstein called spooky 'action at a distance'.
- **Interference:**
 - Quantum interference states that elementary particles (Qubits) can not only be in more than one place at any given time (through superposition), but that an individual particle, such as a photon (light particles) can cross its own trajectory and interfere with the direction of its path.

Note:

Concerns Related to High Modernism in AI

Why in News?

The emergence of **Giant Artificial Intelligences (gAIs)** like **ChatGPT** has garnered significant attention in recent times. However, there are concerns related to **High Modernism** in designing these AIs.

What is ChatGPT?

- ChatGPT is a **variant of GPT (Generative Pre-trained Transformer)** which is a large-scale **neural network-based language model** developed by OpenAI.
- GPT models are trained on **vast amounts of text data to generate human-like text**.
- It can generate responses to a wide range of topics, such as answering **questions, providing explanations, and engaging in conversations**.
- In addition to being able to “admit its mistakes, challenge false premises, and refuse unsuitable requests,” ChatGPT can also “**answer follow-up questions**.”
- The chatbot was also trained using Reinforcement Learning from Human Feedback (RLHF).

How High Modernism Poses Challenges in Designing AI?

- **About High Modernism:**
 - High modernism refers to a **top-down ideology driven by a faith in order and measurable progress**. It is characterized by an unfaltering confidence in science and technology as means to reorder the social and natural world.
 - It often **disregards local knowledge and lived experiences**, leading to unintended consequences.
 - This approach, when applied to AI design, can **overlook the complexity and diversity of human thought**, resulting in biased and incomplete systems.
- **Challenges of High Modernism in AI Design:**
 - **Loss of Diversity:** gAIs are trained predominantly on internet text, which is biased towards certain languages, religions, races, and cultures, risk perpetuating these biases.

- The **lack of diverse training data** can lead to **language loss** and **hinder the richness of human thought** and expression.
- **Reduction of Local Knowledge:** By abstracting away the nuanced knowledge acquired through direct experience, gAIs prioritize the “**atlas view**” of information available on the internet.
- This approach **neglects local context and the territory-specific insights** necessary for accurate and multi-dimensional understanding.

What is the Role of Diversity in Designing AIs?

- **Avoiding Standardization:**
 - Lack of diverse AI models may result in standardized, one-size-fits-all solutions that **fail to account for regional, cultural, or individual variations**.
 - Promoting diversity in AI development can **yield multiple perspectives, encouraging innovation** and tailored solutions.
- **Improved Understanding:**
 - Diversity in AI models helps **capture a broader range of perspectives** and knowledge, reducing biases and enhancing the models’ understanding and response capabilities.
 - It allows for the **inclusion of diverse languages, cultures, and experiences**, fostering a more inclusive and equitable AI landscape.

What are the Ways to Thwart the Risks Posed by gAIs?

- **Slow Down AI Commercialization:**
 - Slowing the pace of AI commercialization allows for **democratic inputs and comprehensive discussions** about the **Ethical, social, and cultural implications of AI technology**.
 - This approach ensures that decisions about AI development are not solely driven by profit motives but **also consider broader societal interests**.
- **Promote Diverse AI Models:**
 - Encouraging the development of diverse AI models, each with its own incentives and perspectives, **fosters a more robust and inclusive AI ecosystem**.
 - Multiple models with different focuses and languages can **collectively contribute to a more comprehensive understanding** of the world.

Note:

Mahalanobis's Approach: Addressing India's Big Data and AI Challenges

Why in News?

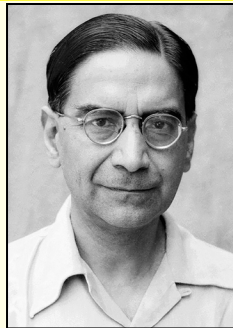
India celebrated **National Statistics Day** on June 29th, commemorating the birthday of **Prof. Prasanta Chandra Mahalanobis**, renowned as the 'Plan Man' of India.

- As India grapples with the challenges of **Big Data** and the transformative power of **artificial intelligence (AI)**, reflecting on Mahalanobis's approach can offer insights into addressing these issues effectively.

What are the Major Contributions of PC Mahalanobis?

➤ About:

- Professor P.C. Mahalanobis, a prominent scientist and statistical pioneer, contributed significantly in the field of data collection, analysis, and planning for national development.
- He was born in **Calcutta (now Kolkata)**. His grandfather Gurucharan was a social reformer and a follower of **Debendranath Tagore**, the father of **Rabindranath Tagore**.



➤ Major Contributions:

- In **1931**, he founded the **Indian Statistical Institute (ISI)** in **Calcutta**, with the aim of promoting research and education in statistics and related disciplines.
 - He also founded **Sankhya**, the first Indian statistical journal, in **1933**.
- In **1955**, he was appointed as a member of the **Planning Commission of India** by **Prime Minister Jawaharlal Nehru**.
 - He played a key role in designing India's strategy for industrialisation and economic development in the **Second Five-Year Plan (1956-61)**, also known as **Mahalanobis Plan** based on his own **mathematical model** that emphasized heavy industries and capital goods.

- Also, his involvement in the establishment and shaping of **Rabindranath Tagore's Visva Bharati University** highlights his significant contributions beyond statistics.
 - In **1968**, he was honoured with the **Padma Vibhushan**.

What Insights Does

Mahalanobis's Approach Provide for Tackling India's Big Data and AI Challenges?

➤ Regulating AI and Mahalanobis's Influence:

- As AI poses challenges such as **job displacement**, **spread of disinformation** and other **ethical concerns**, there is a global push for its regulation.
- Mahalanobis's introduction of **built-in cross-checks** in his surveys, inspired by **Kautilya's Arthashastra**, demonstrates his foresight in ensuring data integrity.
- Mahalanobis's approach reminds us of the importance of rigorous data preprocessing, ensuring fairness and transparency in AI algorithms.
 - For instance, when deploying AI in hiring processes, it is crucial to assess and mitigate biases to ensure equal opportunities for all candidates.
- Mahalanobis's approach emphasizes the need to confront and address such challenges to build responsible and inclusive AI systems.

➤ Integration of Multiple Data Sources:

- Mahalanobis advocated for **integrating diverse data sources** to capture a holistic view of the economy and society.
- In the context of Big Data and AI, this implies incorporating various data streams, including **structured and unstructured data**, **social media feeds**, **satellite imagery**, and **sensor data**.
 - Such integration can facilitate comprehensive analysis and enable innovative applications.
 - For example, in **agriculture**, combining **meteorological data**, **satellite imagery**, and **farmer-generated data** can provide valuable insights on crop health, pest outbreaks, and optimal irrigation practices.
- This approach enables the development of AI-driven solutions like precision agriculture, improving crop yields and farmers' livelihoods.

Note:



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➤ **Importance of Statistical Models:**

- Mahalanobis stressed the importance of statistical models to derive meaningful inferences and predictions.
- In the era of Big Data and AI, **advanced machine learning algorithms and predictive modeling techniques** play a pivotal role in analyzing vast datasets.
- These models can be employed in various domains, such as **healthcare, finance, and urban planning**.
- For instance, **by applying predictive models to healthcare data, policymakers can identify population health trends, forecast disease outbreaks, and allocate resources effectively**.
- This approach facilitates evidence-based decision-making and proactive interventions.



Note:

Environment & Ecology

Highlights

- *Rising Water Levels in the Yamuna River*
- *Decline in Global Tropical Primary Forests: Global Forest Watch*
- *Impact of Microplastics on Gut Microbiomes*
- *Solar Radiation Management*
- *Deep Sea Mining*
- *Additions to India's Faunal and Floral Databases*
- *Global Environment Facility*
- *Green Credit Programme*
- *Fukushima Water Issue*
- *Energy Transition Index 2023: WEF*

Rising Water Levels in the Yamuna River

Why in News?

Delhi is currently experiencing a severe **waterlogging crisis due to the rising water levels of the Yamuna River**. The water level has surged to **208.13 meters**, marking the highest recorded level since **1963**.

What is the Cause and Impact of Increasing Water Level of Yamuna?

- **Cause:**
- Recent **heavy rainfall** in upstream states like Himachal Pradesh, Uttarakhand, Haryana, and

Punjab are believed to be the main cause of the rising Yamuna River level.

- The **Hathnikund barrage in Haryana**, responsible for **regulating the flow of the Yamuna into Delhi**, has released a substantial amount of water due to the rainfall.

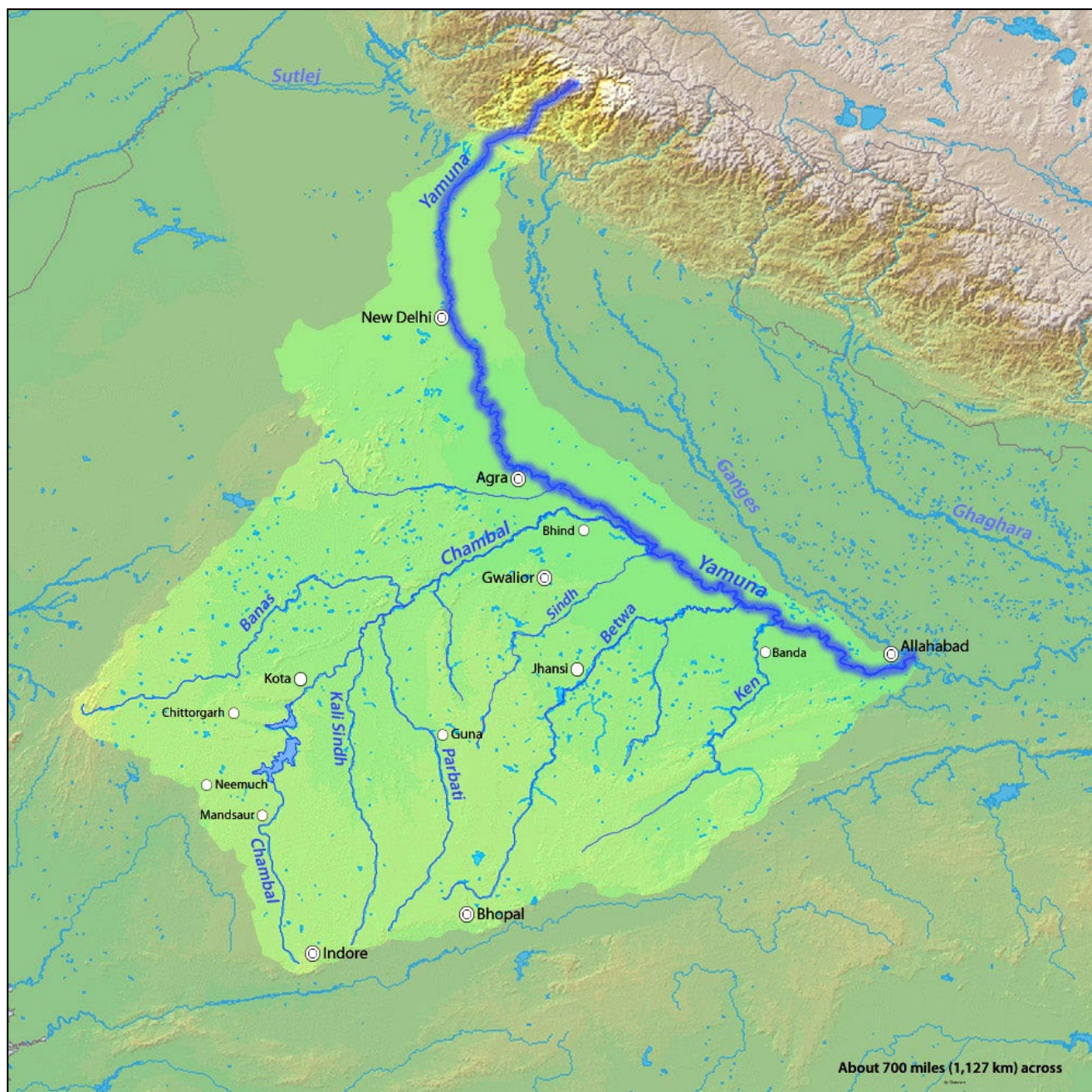
➤ **Impact:**

- The increased water level of the Yamuna has **resulted in flooding in low-lying areas of Delhi**, affecting a significant number of people and disrupting transportation and water supply.
- **Water supply in Delhi is also impacted as Delhi government decided to cut down supply by 25% following the closure of three water treatment plants due to the rising level of the Yamuna.**

Yamuna River

- **About:** The Yamuna River is one of the major tributaries of the Ganges in Northern India.
 - It forms an integral part of the **Yamuna-Ganga Plain**, one of the world's most extensive alluvial plains.
- **Source:** It has its source in the **Yamunotri Glacier at an elevation of 6,387 meters** on the southwestern sides of **Banderpooch crests** in the **lower Himalayan ranges**.
- **Basin:** It meets the **Ganges at the Sangam (where Kumbh mela is held)** in Prayagraj, Uttar Pradesh after flowing through **Uttarakhand, Himachal Pradesh, Haryana and Delhi**.
- **Important Dam:** Lakhwar-Vyasi Dam (Uttarakhand), Tajewala Barrage Dam (Haryana) etc.
- **Important Tributaries:** Chambal, Sindh, Betwa and Ken.
- **Government Initiatives Related to Yamuna River:**
 - **Yamuna Action Plan**
 - **Delhi Government's Six-Point Action Plan to Clean Yamuna by February 2025**

Note:



About 700 miles (1,127 km) across

Decline in Global Tropical Primary Forests: Global Forest Watch

Why in News?

The latest report from World Resources Institute's (WRI) **Global Forest Watch** has revealed a staggering loss of **tropical primary forests** in 2022, amounting to

4.1 million hectares. This loss is equivalent to losing an area of 11 football fields per minute.

- The report emphasizes the significance of primary forests in the tropics, **where over 96% of deforestation occurs**, urging global attention to the issue.
- WRI is a **global nonprofit organization that works with leaders in government, business and civil society** to research, design, and carry out practical solutions that simultaneously improve people's lives and ensure nature can thrive.

Note:

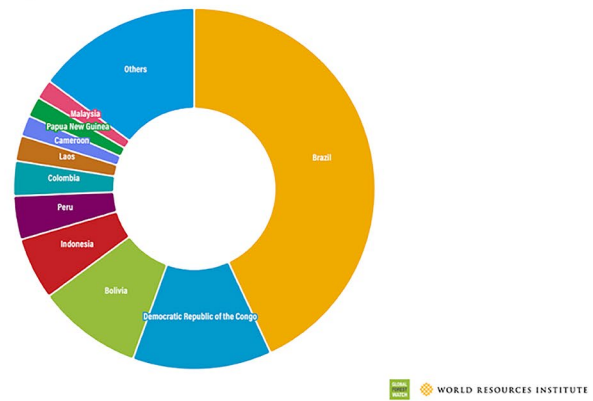
What are Primary Forests?

- Primary forests are characterized by their **dense coverage of native tree species**, **minimal human interference**, and **undisturbed ecological processes**.
 - According to the **Food and Agricultural Organization (FAO)**, primary forests account for approximately **one-third (34%) of the world's forested land**.
- They store **more carbon** and support **greater biodiversity** compared to other forest types. Therefore, **their loss is nearly irreversible**, as secondary forests cannot match their **biodiversity** and **carbon sequestration capabilities**.

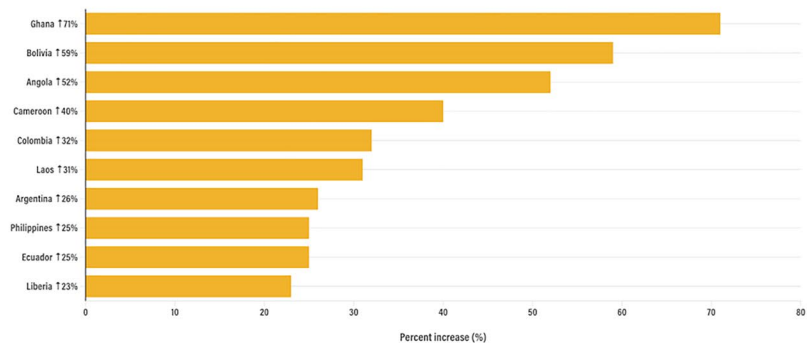
What are the Major Findings of the Report?

- **Forest-Related Commitments and Progress:**
 - The current rate of forest loss indicates a failure to restore forests adequately. The world is **not on track to meet forest-related commitments**, including the goal to end and reverse deforestation by 2030 (**COP26 Glasgow 2021**).
 - Restoring 350 million hectares (Mha) of lost and degraded forests by 2030 is another key global pledge (**The Bonn Challenge**).
 - To meet this target, **global deforestation must be reduced by at least 10% annually**. Also, tree cover must increase by **22 Mha per year between 2021 and 2030**.
- **Tree Cover Loss:** The total global tree cover loss in **2022 declined by 10%**. This includes **primary, secondary, and planted forests**. This decrease, according to Global Forest Watch, is a **direct result of a decrease in fire-related forest losses** which **decreased 28% from 2021**.

Top countries for primary forest loss by area in 2022

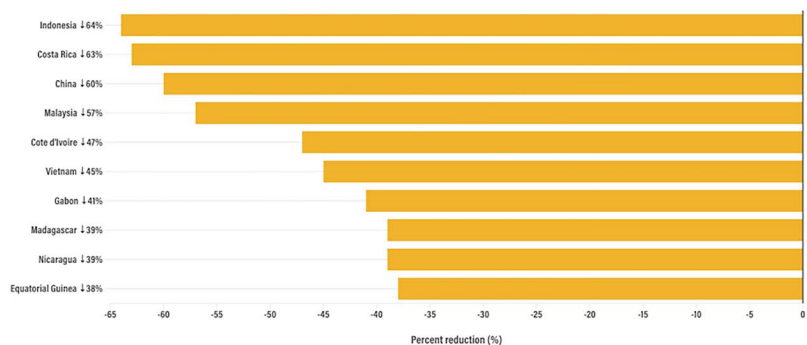


Top 10 countries for increase in primary forest loss as of 2022



Top 10 countries were determined by comparing the average primary forest loss from 2015-17 to the average from 2020-22. Includes countries with a least 1 Mha of tropical primary forest in 2001.

Top 10 countries for reduction in primary forest loss as of 2022



Top 10 countries were determined by comparing the average primary forest loss from 2015-17 to the average from 2020-22. Includes countries with a least 1 Mha of tropical primary forest in 2001.

- However, non-fire losses in 2022 increased by slightly less than 1%.

➤ Forest Loss in India:

- India experienced the loss of **43.9 thousand hectares of humid primary forest between 2021 and 2022**.

Note:

- This accounted for **17% of the country's total tree cover loss** during the period, which amounted to **255 thousand hectares**.

Note:

- The **Ministry of Environment, Forest & Climate Change** defines 'forest cover' in India as "all lands, more than one hectare in area with a tree canopy density of more than 10%", and 'tree cover' as "tree patches outside recorded forest areas exclusive of forest cover and less than the minimum mappable area of one hectare".

What is the Status of Forests in India?

- **About:**
 - According to the **India State of Forest Report 2021**, the total forest and tree cover in India is **24.62%** of the geographical area of the country. The total forest cover is **21.71%** and the total tree cover is **2.91%**.
 - Area-wise **Madhya Pradesh has the largest forest cover** in the country followed by Arunachal Pradesh, Chhattisgarh, Odisha and Maharashtra.
 - In terms of forest cover as percentage of total geographical area, the top five States are **Mizoram (84.53%)**, **Arunachal Pradesh (79.33%)**, **Meghalaya (76.00%)**, **Manipur (74.34%)** and **Nagaland (73.90%)**.
- **Government Initiatives for Forest Conservation:**
 - **Forest Conservation Act, 1980**
 - **National Afforestation Programme**
 - **Environment Protection Act of 1986**
 - **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006**

Impact of Microplastics on Gut Microbiomes

Why in News?

Recently, the **FAO (Food and Agriculture Organization)** in its report "**Impact of Microplastics and Nanoplastics on Human Health**" highlighted that the **Microplastics** and nano plastics considerably impact human and animal gut microbiomes as well as the environment.

What is Gut Microbiome?

- The gut microbiome is the **totality of microorganisms, bacteria, viruses, protozoa, and fungi**, and their collective genetic material present in the gastrointestinal tract (GIT).
- The gut microbiota plays an important role in **nutrient and mineral absorption, synthesis of enzymes, vitamins and amino acids**, and production of short-chain fatty acids (SCFAs).
 - The microbiome refers to the collection of genomes from all the microorganisms in the environment while **Microbiota usually refers to microorganisms that are found within a specific environment**.

What are the Key Highlights of the Report?

- **Intestinal Inflammation and Dysbiosis:**
 - **Exposure to plastic has led to intestinal inflammation and gut dysbiosis** — changes in the gut microbiome and microbiota.
 - Microplastics act as stressors and cause inflammatory responses in the host, affecting certain microorganisms and **resulting in microbial dysbiosis**.
 - Dysbiosis is defined by an imbalance in bacterial composition, changes in bacterial metabolic activities, or changes in bacterial distribution within the gut.
- **Deposition in Human Body:**
 - **Microplastics found in water bottles and food items** such as sugar, honey, sea salt, tea and others have eventually deposited in human lung tissue, placenta, stool, blood and meconium.
- **Plastics' Interaction with the Environment:**
 - Plastics of hydrophobic nature can adsorb hydrophobic chemicals or **persistent organic pollutants from the environment** (for example, polychlorinated biphenyls, polycyclic aromatic hydrocarbons and dichloro diphenyl trichloroethane).
- **Impact on Organism and Metabolism:**
 - Accumulation of microplastic in the gut, changes in the mucus layer and gut **permeability, alterations of the mucosal structure**, oxidative stress and immune response.
 - Physical abrasion of microplastic and its accumulation in the gut can lead to satiety in the organism and even reduce food consumption.

Note:

- It may eventually lead to weight loss and metabolic changes and can also affect liver function and metabolism.
- The severity of the impact is proportional to the **concentration and particle shape of microplastics**.

What is the Significance of the Findings?

- The FAO report emphasizes the significant impact of microplastics and nanoplastics on gut microbiomes and human health.
- Understanding the effects of plastic exposure **on gut microbiomes and the environment is crucial for developing effective mitigation strategies**.

What are Microplastics?

➤ About:

- They are defined as **plastics less than five millimeters in diameter**—smaller in diameter than the standard pearl used in jewelry. It can be harmful to our ocean and aquatic life.
- Under the influence of **solar UV radiation**, wind, currents and other natural factors, plastic fragments into small particles, termed **microplastics (particles smaller than 5 mm) or nanoplastics (particles smaller than 100 nm)**.
- There are **two categories of microplastics**: primary and secondary.

➤ Classification:

- **Primary Microplastics**: They are tiny particles **designed for commercial use and microfibers shed** from clothing and other textiles.
 - E.g Microbeads found in personal care products, plastic pellets and plastic fibres.
- **Secondary Microplastics**: They are **formed from the breakdown of larger plastics** such as water bottles.
 - This breakdown is caused by exposure to environmental factors, mainly the sun's radiation and ocean waves.

Solar Radiation Management

Why in News?

Solar radiation management (SRM) has emerged as a potential tool to counter the effects of global warming by **reflecting sunlight** back into space.

- A recently released report by the US government highlights the **need for comprehensive research and a governance framework to assess the risks and benefits associated with SRM**.

What is Solar Radiation Management?

➤ About:

- **Solar radiation management** is a form of **climate engineering** that aims to **reduce global warming by reflecting some of the sun's energy** back into space before it can heat up the Earth.
- SRM is an **idea born of desperation**, as the world faces an ongoing and accelerating climate crisis that threatens human well-being and planetary health.

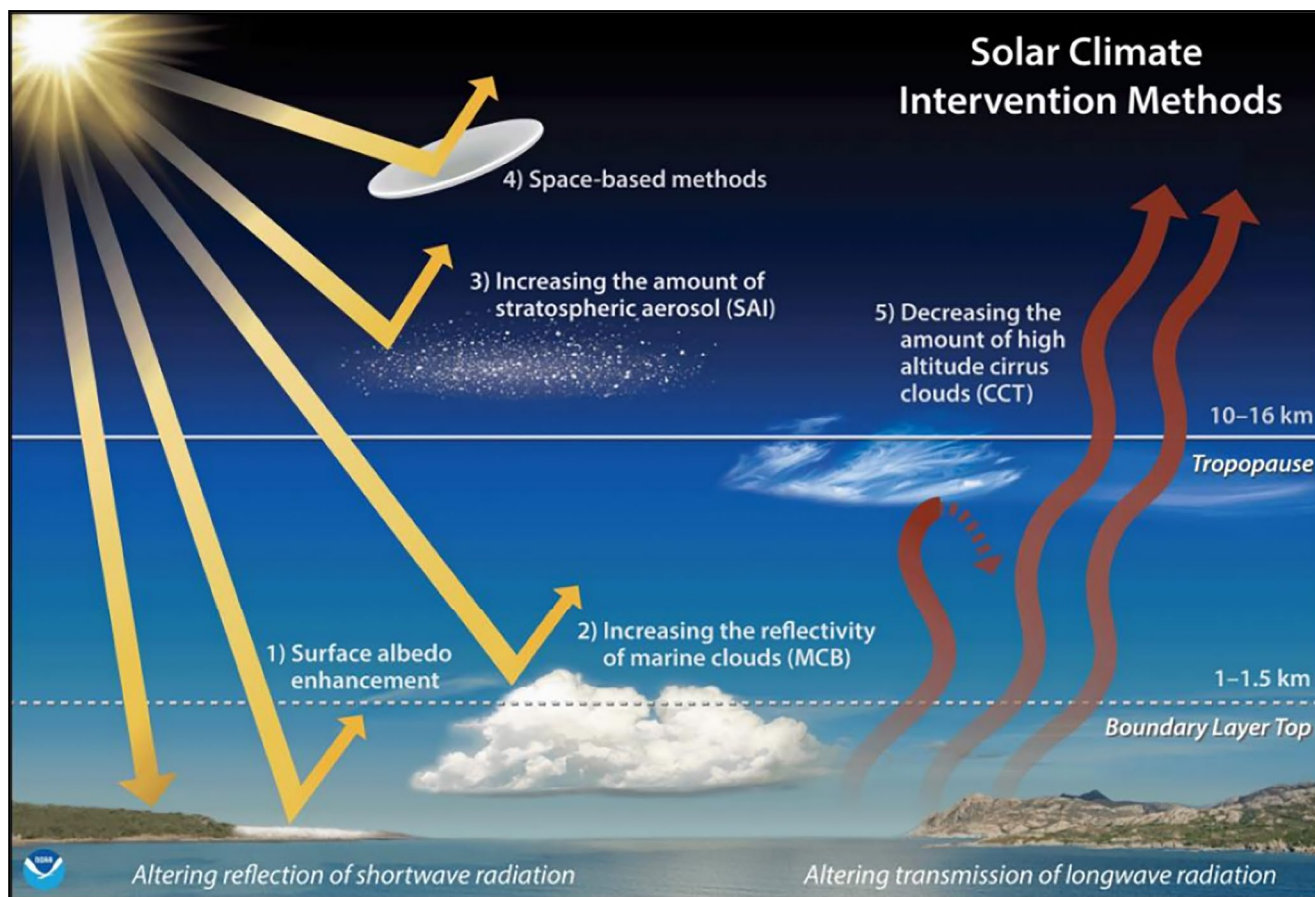
➤ Some of Most Discussed Methods of SRM:

- **Stratospheric Aerosol Injection (SAI)**: This involves **injecting reflective particles**, such as **sulfate aerosols**, into the upper atmosphere (stratosphere), where they would scatter some of the incoming solar radiation back into space.
 - This would **mimic the cooling effect of volcanic eruptions**, which also release aerosols into the stratosphere.
- **Marine Cloud Brightening (MCB)**: This involves **spraying fine droplets of seawater or other substances into low-level clouds (marine stratocumulus)** over the oceans, where they would act as cloud condensation nuclei and increase the reflectivity and persistence of the clouds.
 - This would enhance the cooling effect of clouds, **which already reflect about 20% of the incoming solar radiation**.
 - MCB is considered to be more localized and reversible than SAI, but also more technically challenging and dependent on weather conditions.
- **Space Sunshades**: This involves **placing large mirrors or screens in orbit around the Earth** or at a **stable point between the Earth and the sun (Lagrange point 1)**, where they would block or deflect some of the incoming solar radiation.
 - This would **reduce the amount of solar energy reaching the Earth's surface**.
 - Space sunshades are considered to be more controllable and adjustable than SAI or MCB, but also more expensive and complex to deploy and maintain.

Note:



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➤ **Advantages:**

- SRM could potentially provide a **quick reduction in global temperatures**, providing temporary relief from extreme climate events.
- It could be cost-effective compared to other options, depending on the method used and the scale required.
- **SRM could be reversible on short timescales** if stopped or adjusted.

➤ **Disadvantages:**

- SRM **could not address all aspects of climate change**, such as **ocean acidification**, **biodiversity loss**, or sea level rise due to thermal expansion.
- It could have negative or unintended side effects on regional or global climate systems, such as **altering precipitation patterns**, **affecting monsoons**, **droughts**, **storms**, or **crop yields**.
- SRM could pose **ethical or geopolitical challenges**, such as creating winners and losers among countries or regions, raising questions of justice, equity, consent, liability, or responsibility.

Deep Sea Mining

Why in News?

The **International Seabed Authority (ISA)** is preparing to allow **Deep Sea Mining** in the International Seabed, including mining for minerals needed for **Green Energy**.

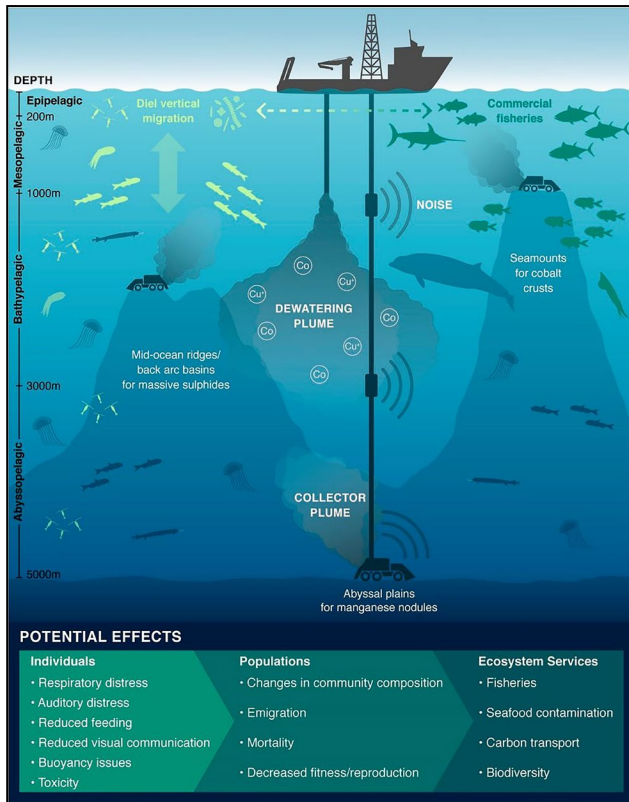
- The ISA's Legal and Technical Commission, which oversees the development of deep sea mining regulations, **will meet in early July 2023** to discuss the mining code draft. The earliest that mining under ISA regulations could begin is 2026.

What is Deep Sea Mining?

- Deep sea mining involves **removing mineral deposits and metals from the ocean's seabed**.
- There are **three types of such mining**,
 - Taking deposit-rich polymetallic nodules off the ocean floor
 - Mining massive seafloor sulfide deposits
 - Stripping cobalt crusts from rock.

Note:

- These nodules, deposits and crusts contain materials, such as nickel, rare earths, cobalt and more, that are **needed for batteries and other materials used in tapping Renewable Energy** and also for everyday technology like cellphones and computers.
 - Companies and governments view these as **strategically important resources that will be needed as onshore reserves** are depleted and demand continues to rise.



What are the Environmental Concerns related to Deep Sea Mining?

- Deep Sea Mining can damage the Marine Ecosystem and ecosystems. Damage from mining can include **noise, vibration and light pollution, as well as possible leaks and spills of fuels** and other chemicals used in the mining process.
- Sediment plumes from some mining processes are a major concern. Once valuable materials are extracted, **slurry sediment plumes are sometimes pumped back into the sea**. That can harm filter feeding species like **corals and sponges** and could smother or otherwise interfere with some creatures.

- Deep-sea mining would go beyond harming the seabed and have a **wider impact on fish populations**, marine mammals and the essential function of the deep-sea ecosystems in regulating the climate.

How is Deep Sea Mining Regulated?

- Countries manage their own maritime territory and exclusive economic zones, while the high seas and the international ocean floor are governed by the **United Nations Convention on the Law of the Seas (UNCLOS)**.
- Under the treaty, **the seabed and its mineral resources are considered the "common heritage of mankind"** that must be managed in a way that protects the interests of humanity through the sharing of economic benefits, support for marine scientific research, and protecting marine environments.

What is the International Seabed Authority?

About:

- The ISA is an autonomous organization within the **United Nations common system**, with headquarters located in Kingston, Jamaica.
- All States parties to the 1982 UNCLOS are **members of the Authority**, amounting to 168 members, including the European Union.
 - The Authority is one of the three international institutions established by UNCLOS;
 - The other two are the **Commission on the Limits of the Continental Shelf** and the **International Tribunal for the Law of the Sea**.

Objective:

- Its primary function is to **regulate exploration for, and exploitation of deep seabed minerals** found in 'the Area', which is defined by the Convention as the seabed and subsoil beyond the limits of national jurisdiction, that is, beyond the outer limits of the continental shelf.
 - The Area comprises just over 50 % of the entire seabed on Earth.

Additions to India's Faunal and Floral Databases

Why in News?

India witnessed significant advancements in its **biodiversity knowledge in the year 2022** with the **addition**

Note:

of numerous animal and plant species to its faunal and floral databases.

- The findings were compiled in two publications: "Animal Discoveries - New Species and New Records 2023" by the **Zoological Survey of India (ZSI)** and "Plant Discoveries 2022" by the **Botanical Survey of India (BSI)**.

What are the Major Additions in India's Faunal and Floral Database?

➤ Faunal Discoveries:

- In **2022**, India added a total of **664 animal species to its faunal database**. This includes **467 new species and 197 new records**, which are species found in India for the first time.
- The discoveries encompassed various categories: **three new species and one new record of mammals, two new records of birds, 30 new species and two new records of reptiles**, 6 new species and one new record of amphibians, and 28 new species and eight new records of fish.
- **Invertebrates** accounted for the majority of new faunal discoveries with **583 species**, while vertebrates constituted 81 species.
 - **Insects comprised the largest group among invertebrates**, and fish dominated among vertebrates.

Note:

- **Vertebrates:** Animals **with a backbone/spine**, well-developed internal skeleton, distinct head with a brain, bilateral symmetry, and complex internal organs. **Examples: mammals, birds, reptiles.**
- **Invertebrates:** Animals **without a backbone/spine**, typically have an exoskeleton or soft body varying body plans, and simpler internal organ systems. **Examples: insects, worms, jellyfish.**

- Kerala recorded the highest number of new discoveries, contributing 14.6% of the total, followed by Karnataka (13.2%) and Tamil Nadu (12.6%).

- The Andaman and Nicobar Islands, West Bengal, and Arunachal Pradesh also made significant contributions.



Glischropus meghalayanus, a species of bamboo dwelling bat from Meghalaya. | Photo Credit: Special Arrangement

- The new mammal species included *Miniopterus phillipsi*, a long-fingered bat, and *Glischropus meghalayanus*, a bamboo-dwelling bat, both found in Meghalaya.



Sela macaque, a new species discovered in the western and central Arunachal Pradesh. | Photo Credit: Special Arrangement

- Another significant discovery was the *Sela macaque (Macaca selai)*, a new macaque species found in Arunachal Pradesh.
- Notable new records include the sighting of *Macaca leucogenys*, a white-cheeked macaque, in West Siang, Arunachal Pradesh that was previously found in southeastern Tibet.
- The yellow-rumped flycatcher (*Ficedula zanthopygia*) was also found in Narcondam Island of the Andaman archipelago after being known from various other regions.
- With the addition of these new discoveries and records, India's faunal diversity increased to **103,922 species**.

➤ Floral Discoveries:

- India added **339 new plant taxa to its floral database in 2022**, consisting of **186 taxa new to science** and **153 taxa as new distributional records** within the country.
- The discoveries encompassed various plant groups: **37% seed plants, 29% fungi, 16% lichens, 8% algae, 6% bryophytes, 3% microbes, and 1% pteridophytes.**
- **Seed plants constituted the largest proportion of new discoveries**, with **dicotyledons accounting for 73%** and **monocotyledons for 27%**.
- The **Western Himalayas** and the **Western Ghats** were the regions where a significant number of discoveries were made, **contributing 21% and 16% respectively.**



The yellow-rumped flycatcher was recorded in Narcondam Island of the Andaman archipelago. | Photo Credit: Special Arrangement

Note:



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Note:

- **Dicotyledons (Dicots):** Dicotyledons are plants that have embryos with two cotyledons or seed leaves.
 - They encompass a wide range of plants such as trees, shrubs, herbs, and many familiar flowering plants like roses.
- **Monocotyledons (Monocots):** Monocotyledons are plants that have embryos with a single cotyledon or seed leaf.
 - Monocots include plants such as grasses, corn, orchids, and onion.

- Kerala stood out as the state with the highest number of plant discoveries, accounting for 16.8% of the total.



- Among the notable plant discoveries were the new genera **Nandadevia Pusalkar**, found in the Uttarakhand Himalayas, and **Nilgiriella Pusalkar**, endemic to the southern Western Ghats in Karnataka, Kerala, and Tamil Nadu.
- Additionally, **Calanthe lamellosa**, an orchid species previously recorded in China and Myanmar, was found for the first time in India in the Japfu mountain range in Kohima, Nagaland.

Botanical Survey of India

- It is the apex research organization under the **Ministry of Environment and Forests (MoEFCC)** for carrying out taxonomic and floristic studies on wild plant resources of the country. It was established in 1890.
- It has **nine regional circles** situated at different regions of the country. However the headquarter is in **Kolkata, West Bengal**.

Zoological Survey of India

- **ZSI** is also a subordinate organization of the MoEFCC and was established in 1916 as a national center for the faunistic survey and exploration of the resources leading to the advancement of knowledge on the exceptionally rich faunal diversity of the country.
- **ZSI** has its headquarters at **Kolkata** and **16 regional stations** located in different geographic locations of the country.

Global Environment Facility

Why in News?

Recently, at the **64th Global Environment Facility (GEF)** council meeting in Brazil, the governing body approved the disbursement of USD 1.4 billion to accelerate efforts to tackle the climate, biodiversity and pollution crises.

- This is the 2nd work program of the **GEF-8 funding period**, which runs from 2022 and 2026.

What are the Key Highlights of the Meet?

- **Global Biodiversity Framework Fund:**
 - The Governing board has approved the establishment of a new fund, the **Global Biodiversity Framework Fund (GBFF)**, to finance the implementation of the **Kunming-Montreal Global Biodiversity Framework**.
 - This fund is crucial as nearly 50% of its resources will be allocated to biodiversity-related work during the **GEF-8 period**.
- **Fund Allocations:**
 - 20% will be allocated to **Indigenous Peoples and local communities (IPLCs)**, 25% to GEF agencies, 36% to SIDS (Small Island Developing States), and 3% to **LDCs (Least Developed Countries)**.
 - The allocation for IPLCs will be reviewed two years after the ratification in August, while the allocations for SIDS and LDCs will be reviewed three years after ratification.

What is Global Environment Facility?

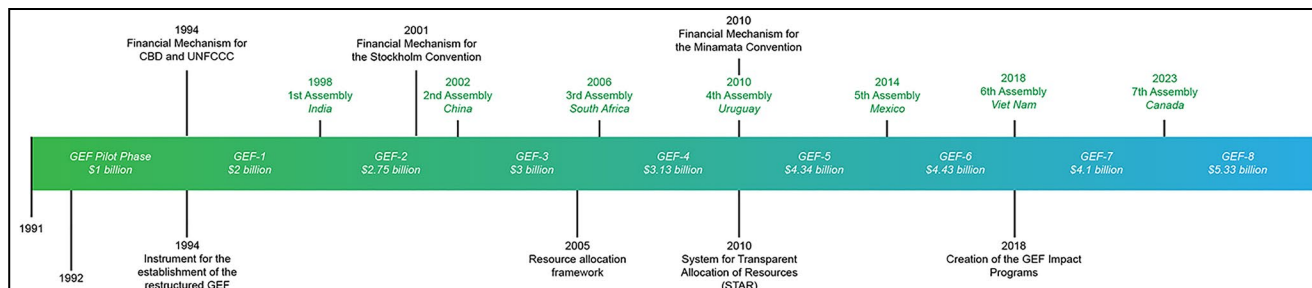
- The GEF was established on the **eve of the 1992 Rio Earth Summit**.
- It is a **family of funds dedicated to confronting biodiversity loss**, climate change, pollution, and strains on land and ocean health.
- It has a unique governing structure organized around an **Assembly, the Council, the Secretariat, 18 agencies**, a Scientific and Technical Advisory Panel, and the Evaluation Office.
- It provides **Financial Assistance for five major International Conventions:**
 - The **Minamata Convention** on Mercury (signed in 2013 and entered into force in 2017).

Note:



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- The **Stockholm Convention on Persistent Organic Pollutants (POPs)** (adopted in 2001 and entered into force in 2004).
- The **United Nations Convention on Biological Diversity (UNCBD)** (entered into force in 1993).
- The **United Nations Convention to Combat Desertification (UNCCD)** (adopted in 1994).
- The **United Nations Framework Convention on Climate Change (UNFCCC)** (signed in 1992 and entered into force in 1994).



- It has **184 member countries**, including India.
- Its secretariat is based in Washington, D.C.
- The World Bank serves as the **GEF Trustee**, administering the GEF Trust Fund (contributions by donors).

What is GEF Council?

- The Council, the GEF's main governing body, **comprises 32 members appointed by constituencies of GEF member countries** (14 from developed countries, 16 from developing countries, and two from economies in transition).
 - India has formed a permanent Constituency in the Executive Council of the GEF together with Bangladesh, Sri Lanka, Bhutan, Nepal and Maldives.
- Council members rotate **at different intervals determined by each constituency**.
- The Council **meets twice annually**.
- The Council develops, adopts and evaluates **the operational policies and programs for GEF-financed activities**.
 - It also reviews and approves the work program (projects submitted for approval), making decisions by consensus.

Green Credit Programme

Why in News?

Recently, the Ministry of Environment, Forest and Climate Change, Government of India has notified the draft '**Green Credit Programme (GCP)**' implementation rules for 2023.

- It was first announced in the **2023-24 Union Budget** with a view to leverage a competitive market-based approach and incentivize **voluntary environmental actions of various stakeholders**.

What is the Green Credit Programme?

- **About:**
 - The 'Green Credit' means a **singular unit of an incentive provided** for a specified activity, delivering a **positive impact on the environment**.
 - The Green Credit Programme is a mechanism that **complements the domestic Carbon Market**.
 - While the domestic carbon market focuses solely on **CO2 Emission reductions**, the Green Credit System aims to meet other environmental obligations as well, incentivizing sustainable actions by companies, individuals, and local bodies.
 - The green credits will be tradable and those **earning it will be able to put these credits up for sale** on a proposed domestic market platform.
- **Green Credit Activities:**
 - **Tree Plantation-Based Green Credit:** To promote activities for increasing the green cover across the country through **tree plantation and related activities**.
 - **Water-Based Green Credit:** To promote water conservation, water harvesting and water use efficiency / savings, **including treatment and reuse of wastewater**.
 - **Sustainable Agriculture-Based Green Credit:** To promote natural and **Regenerative Agricultural practices** and land restoration to improve productivity, soil health and nutritional value of food produced.

Note:



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- **Waste Management-Based Green Credit:** To promote sustainable and improved practices for waste management, **including collection, segregation and treatment.**
- **Air Pollution Reduction-Based Green Credit:** To promote measures for reducing air pollution and other pollution abatement activities.
- **Mangrove conservation and restoration-based green credit:** To promote measures for conservation and restoration of mangroves.
- **Ecomark-based Green Credit:** To encourage manufacturers to obtain 'Ecomark' label for their goods and services.
- **Sustainable Building and Infrastructure-based Green Credit:** To encourage the construction of buildings and other infrastructure using sustainable technologies and materials.
- Through the programme, **thresholds and benchmarks** will be developed for each Green Credit activity.
- **Administration:**
 - The **Indian Council of Forestry Research and Education (ICFRE)** shall be the administrator of the programme which will develop **guidelines, processes and procedures for implementation** of the programme.
- **Significance:**
 - The Green Credit Programme will also encourage private sector industries and companies as well as other entities **to meet their existing obligations**, stemming from other legal frameworks, by taking actions which are able to converge with activities relevant for **generating or buying green credits.**
 - The guidelines bring together mechanisms to quantify and support ecosystem services together and would be of **great help for organic farmers and FPOs.**
 - It's a first of its kind instrument that seeks to value and reward multiple ecosystem services to **allow green projects to achieve optimal returns beyond just carbon.**

What are the Concerns

Regarding Greed Credit Mechanism?

- Experts are concerned that the market-based mechanism of green credits may lead to **Greenwashing.**
 - Greenwashing refers to the practice of making false or exaggerated claims about environmental sustainability or achievements to create a positive image while not actually delivering significant environmental benefits.
- The fear is that companies or entities may engage in tokenistic or superficial activities to generate **green credits without making substantial efforts** to address environmental issues.
- There are also concerns about the effectiveness of these mechanisms in achieving urgent emissions reductions and the **allocation of resources for monitoring and fraud prevention** instead of more transformative efforts directed by the government.

Fukushima Water Issue

Why in News?

Japan's plan to **release over 1 million tons of water**, which is claimed to be treated but potentially radioactive, from the **Fukushima nuclear power plant** into the sea, has sparked strong opposition and anxiety among neighboring countries, particularly **South Korea.**



Note:



What is the Fukushima Water Issue?

➤ About:

- The Fukushima Daiichi Nuclear power plant suffered a **meltdown** in 2011 after a massive **earthquake** and **tsunami**, releasing large amounts of radioactive materials into the environment.
- No deaths were initially attributed to the incident, although around **18,000 people lost their lives as a result of the earthquake and tsunami**.
- Since then, Japan has been storing the cooling water for nuclear fuel and rain and groundwater seeping through the damaged reactor buildings in large tanks on site.

➤ Recent Developments of the Issue:

- The water is treated using a filtering system called **Advanced Liquid Processing System (ALPS)**, which removes most of the radioactive elements **except**

for **tritium**, a hydrogen isotope that is difficult to separate.

- Japan says it has no space to keep storing the water, and that releasing it into the sea.
- The **International Atomic Energy Agency (IAEA)** is assisting Japan to release the water into the sea.

Note: Tritium is radioactive and has a **half-life** of about 12.5 years.

➤ Raised Concerns:

- South Korea fears that the water release will contaminate its waters, salt and seafood, affecting its **fishing industry** and public health.
- The increased demand for salt in South Korea has led to a nearly 27% price surge, attributed to both stockpiling and external factors like **weather** and **lower production**.

Note:

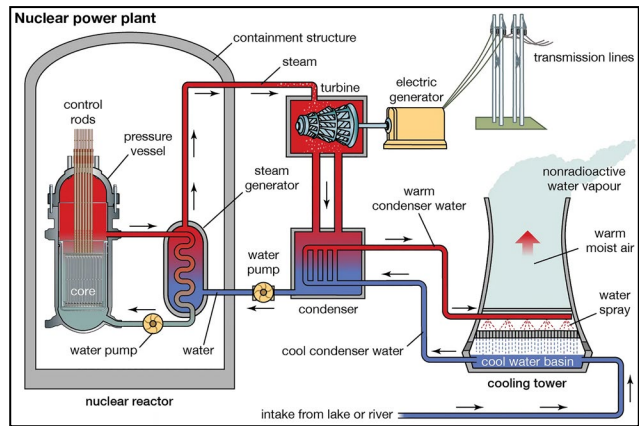
- China has also criticized Japan's plan, questioned its transparency and expressed concerns about the **potential impact on the marine environment and global health.**

What are the Other Major Nuclear Disasters of the World?

- **Chernobyl Disaster (1986):** One of the most well-known and severe nuclear disasters, the Chernobyl disaster took place in **Chernobyl Nuclear Power Plant in Ukraine.**
 - A **sudden power surge during a safety test led to a series of explosions and fires that destroyed the reactor core** and released large amounts of radioactive material into the atmosphere.
- **Three Mile Island Accident (1979):** This accident occurred in the **United States at the Three Mile Island Nuclear Generating Station in Pennsylvania.** A partial meltdown of the reactor's core resulted in the **release of radioactive gases.**
- **Kyshtym Disaster (1957):** It took place at the **Mayak Production Association in the Soviet Union (now Russia).**
 - It involved a **nuclear waste storage tank explosion,** releasing a significant amount of radioactive materials into the environment.

What is a Nuclear Power Plant?

- Nuclear power plants are a **type of power plant that use the process of nuclear fission in order to generate electricity.**
 - In nuclear fission, **atoms are split apart to form smaller atoms, releasing energy.**
 - Fission takes place inside the reactor of a nuclear power plant. At the center of the reactor is the **core, which contains uranium fuel.**
- The **heat produced during nuclear fission in the reactor core is used to boil water into steam,** which turns the blades of a steam turbine.
 - As the turbine blades turn, they drive generators that make electricity.
- Nuclear plants cool the steam back into water in a separate structure at the power plant called a **cooling tower, or they use water from ponds, rivers, or the ocean.**
 - The cooled water is then reused to produce steam.



What is the International Atomic Energy Agency?

- IAEA is an **intergovernmental organization** that seeks to promote the **peaceful use of nuclear energy** and to **inhibit its use for any military purpose, including nuclear weapons.**
- It was **established in 1957** as the world's **"Atoms for Peace"** organization within the United Nations family, and governed by its own founding treaty, the **Statute of the IAEA.**
- It **reports to both the UN General Assembly and the UN Security Council,** and is headquartered at the **UN Office at Vienna, Austria**
- In **2005,** it was awarded the **Nobel Peace Prize** for their work for a safe and peaceful world.

Energy Transition Index 2023: WEF

Why in News?

Recently, the **World Economic Forum (WEF)** has ranked India at the **67th place globally** on its Energy Transition Index (ETI).

- The Index highlights **India as the sole major economy with energy transition momentum** accelerating across all dimensions and Singapore is the **only other major economy showing "true momentum by advancing sustainability,** energy security and equity in a balanced way.

Note: The ETI benchmarks **120 economies on the current performance of their energy systems** across economic development and growth, environmental sustainability and energy security and access indicators and their readiness for transition to secure, sustainable, affordable and inclusive energy systems.

Note:



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What are the Key**Highlights of the Energy Transition Index?**

- **Rankings:**
 - Sweden topped the list and was followed by **Denmark, Norway, Finland and Switzerland** in the top five on the list of 120 countries.
 - **France (7) was the only G20 Country in the top 10**, followed closely by Germany (11), the U.S. (12), and the U.K. (13).
- **Global Outlook:**
 - Global average ETI scores increased by 10% since 2014 but **showed only marginal growth** in the past three years.
 - Only 41 countries have made steady progress in the past decade.

**What are the Contributors to India's
Energy Transition Progress and Concerns?**

- **Contributors:** Universal electricity access, **clean cooking options, and renewable energy deployment** have improved India's performance.
 - Low reliance on natural gas and effective utilization of existing capacities helped India withstand the recent energy crisis.
- **Concerns:** Rising import dependence amid global energy market volatilities, predominantly carbon-intensive energy mix. Challenges include **balancing economic growth and creating quality jobs** for the growing working-age population.

- **Recommendations:** Sustained momentum, effective policy management, and partnerships are crucial for achieving long-term energy transition goals. This entails promoting **clean energy investments, innovation, and energy efficiency while ensuring inclusivity**.
 - Building a skilled workforce, fostering public-private collaboration, and **investing in low-carbon technology research and development** are essential for India's successful energy transition.

What is World Economic Forum?

- **About:**
 - WEF is a **Swiss nonprofit foundation established in 1971**, based in Geneva, Switzerland.
 - Recognized by the Swiss authorities as the international institution for public-private cooperation.
- **Mission:**
 - Committed to improving the **state of the world by engaging business**, political, academic, and other leaders of society to shape global, regional, and industry agendas.
- **Founder and Executive Chairman:** Klaus Schwab.
- **Major Reports published by WEF are:**
 - **Global Competitiveness Report.**
 - Global IT Report
 - WEF along with INSEAD, and Cornell University publishes this report.
 - **Global Gender Gap Report.**
 - Global Risk Report.
 - Global Travel and Tourism Report.



Note:

Security

Highlights

- Siachen Glacier
- Infrastructure Developments Around Pangong Tso
- SAGAR SAMPARK

Siachen Glacier

Why in News?

NJ 9842 is the known boundary between India and Pakistan, but fewer know about **5Q 131 05 084**, the number assigned to the **Siachen Glacier** by the **Geological Survey of India (GSI)**, a disputed area between the two countries since 1984.

- The point NJ 9842 as it is the last mutually demarcated point between India and Pakistan as per the Karachi ceasefire agreement of 1949 and also the point where the **Line of Control** of the Simla Agreement ends.

What is the First GSI Survey of Siachen Glacier?

- **GSI Survey:**
 - The first GSI survey of the Siachen Glacier was conducted in June 1958 by an Assistant Geologist V. K. Raina, with the **GSI**.
 - The survey aimed to study the **Himalayan glacier systems as part of the International Geophysical Year activities**.
 - The GSI team spent nearly **three months camping at the base of the glacier**, conducting various studies and establishing survey points.
- **Significance for India:**
 - The survey holds significance for India as it marks the **official Indian exploration of the Siachen Glacier**, an area that would later become a bone of contention between India and Pakistan.
 - The peaceful environs surveyed in 1958 turned into a conflict zone when India **launched Operation Meghdoot in 1984** to secure its presence in the region.
 - The GSI survey provides **historical evidence of India's early knowledge and scientific engagement**

with the glacier, countering any claims of Pakistani control since the beginning.

➤ Pakistan's Claims:

- Initially, during the GSI survey in 1958, Pakistan **did not raise any protests or objections** to the Indian presence on the glacier. This could be attributed to both countries abiding by the terms of the **Karachi ceasefire agreement of 1949**, which had delineated the ceasefire line up to the glaciers and called for mutual demarcation.
- However, Pakistan's lack of interest in scientific visits and explorations in the region might have also played a role.
- It was only 25 years later, in August 1983, that **Pakistan unilaterally extended the Line of Control (LOC) from NJ 9842 till the Karakoram Pass** in its protest notes, challenging the status quo.
 - This move raised concerns in India, **leading to the pre-emptive occupation of the strategic Saltoro Heights** by Indian forces in April 1984.
- Pakistan's claims and actions since then have been based on differing interpretations of **historical agreements, such as the Karachi ceasefire agreement and the Simla Agreement**.

What is Siachen Glacier?

- The Siachen Glacier is located in the **Eastern Karakoram range in the Himalayas**, just northeast of **Point NJ9842** where the **LOC** between India and Pakistan ends.
 - The entire Siachen Glacier, with all major passes, has been under the administration of India since **1984 (Operation Meghdoot)**.
- The Siachen Glacier is **positioned from northwest to southeast**. It originates at the base of the Indira Col West, a col (low point) on the Indira Ridge, **at an altitude of 6,115 metres, and it descends to an altitude of 3,570 metres**.

Note:



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- It is the **Second-Longest glacier in the World's Non-Polar areas** after Fedchenko Glacier in Tajikistan.
- The Siachen Glacier lies **immediately south of the great drainage divide** that separates the Eurasian

Plate from the Indian subcontinent in the extensively glaciated portion of the **Karakoram** sometimes called the **"Third Pole"**.

- **Nubra river originates** from Siachen Glacier.
- The Siachen Glacier is the **world's highest battlefield**.



Infrastructure Developments Around Pangong Tso

Why in News?

Three years after the violent **clash between Indian and Chinese forces in Galwan**, there is significant infrastructure development taking place in the India-China border region.

- These infrastructure developments are occurring on both sides since the standoff even as the two await the **19th round of Corps Commander level talks** to find a resolution to their dispute in the region.

What are the Infrastructure Developments Around the Border Region?

- **China's Infrastructure Efforts:**
 - Construction of a **bridge across the Pangong Tso**, connecting the north and south banks, is in progress.

- Large-scale construction activity, including road connectivity towards Shandong village, is observed on the Chinese side.
- A 22 km-long tunnel is being constructed along the **G-0177 expressway**, connecting to the vital **G-216 highway in Tibet**.

➤ India's Infrastructure Projects:

- India is building a black-topped road on the north bank of the Pangong Tso, **towards Finger 4**.
- **Border Roads Organisation (BRO)** is nearing completion of key infrastructure projects such as the **Sela, Nechipu, and Sela-Chhabrela tunnels**, enhancing all-weather connectivity along the LAC.
 - Construction work on an alternate axis to the critical **Darbuk-Skyok-Daulat Beg Oldie road** is advancing through the Saser La.
- India-China Border Roads (ICBR) initiative was also started to improve the mobility of the Indian forces and the connectivity of the border areas. It has three phases: ICBR-I (73 roads), ICBR-II (104 roads) and ICBR-III (37 roads).

Note:



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- The capital budget of the BRO, which does most of the ICBR work, has increased by **43% to Rs 5,000 crore in 2023-24.**
- Nearly **70% of these roads under ICBR-III would be built in Arunachal Pradesh.**
 - The **Sela Tunnel Road project** is the most prominent project to connect Arunachal Pradesh via a network of roads. It will be the **world's longest bi-lane tunnel** at altitude above 13,000 ft built.
- The **Vibrant Villages Programme**, a **Centrally sponsored scheme**, was announced in the **Union Budget 2022-23.**
 - It aims to provide comprehensive development of villages on the border with China and improve the quality of life of people living in identified border villages.
 - The program will improve infrastructure in states like **Himachal Pradesh, and Arunachal Pradesh.** Under the program, residential and tourist centers will be constructed.

What is the Implication of These Infrastructure Developmental Projects?

- **Positive:**
 - Enhanced border infrastructure **strengthens India's defense capabilities** and improves its **ability to patrol and secure the border.**
 - Improved connectivity **benefits local communities**, boosts regional development, and generates economic opportunities.
 - The improved infrastructure allows **India to maintain a stronger strategic position** in the region, potentially deterring any aggressive moves from China.
- **Negative:**
 - Infrastructure developments may contribute to **ongoing border disputes** and heighten tensions.
 - It raises **concerns within both India and China** about improved connectivity and defense capabilities in the region **of the other country.**
 - Perception of India's (or China's) assertiveness could **influence bilateral negotiations and relations.**

Pangong Tso Lake:

➤ **Characteristics:**

- Pangong Tso is a 135-km long landlocked lake located at an altitude of over 14,000 feet i.e., 4350 m above sea level.
- The lake, a glacial melt, has mountain spurs of the Chang Chenmo range jetting down, referred to as **fingers.**
 - It is **one of the highest altitude lakes** in the world that is filled with **saline water.**
 - However, even though it is a saline water lake, Pangong Tso freezes completely.
 - The brackish water of this region has very low micro-vegetation.
 - No aquatic life or fish, except crustaceans during winters are found.
- Pangong Tso is **popular for its changing colour** ability; its colour changes from shades of **blue to green to red.**

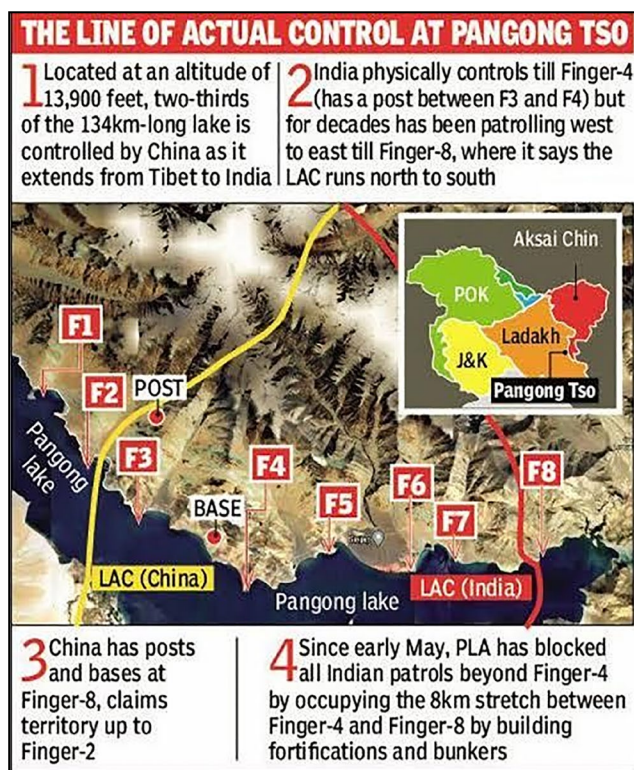
➤ **The Fingers of Pangong Tso:**

- The **Pangong Tso** is a lake located in eastern Ladakh, and it has a unique shape resembling a boomerang, stretching for about 135 kilometers.
- The lake is characterized by **mountain spurs that protrude into the water, known as "fingers".**
 - The **fingers of Pangong Tso are numbered from 1 to 8**, with Finger 1 being the closest to the eastern end of the lake and Finger 8 the farthest.
 - India and China have differing perceptions of the **Line of Actual Control (LAC)**, which serves as the de facto border between the two countries.



Note:

- **India and China's Share:**
 - Indian and China have around one-third and two-thirds of Pangong Tso Lake respectively.
 - India has around 45 km of Pangong Tso under its control. The eastern end of Pangong Tso lies in Tibet
- **Border Dispute at Pangong Tso:**
- **India claims control over the lake until Finger 4 but believes its territory extends up to Finger 8.**
 - The north bank, where the fingers are located, has been the center of clashes and tensions between the two countries.
 - Indian troops are stationed near Finger 3, while the Chinese have a base east of Finger 8, claiming territory up to Finger 2.



SAGAR SAMPARK

Why in News?

The Ministry of Ports, Shipping, and Waterways of India has inaugurated 'SAGAR SAMPARK', that marks a significant step towards digital transformation in the maritime industry.

What is SAGAR SAMPARK?

- **About:**
 - It is an indigenous **Differential Global Navigation Satellite System (DGNSS)**.
 - DGNSS is a **terrestrial based enhancement system** which corrects the errors and inaccuracies in the Global Navigation Satellite System (GNSS) allowing for more accurate positioning information.
 - The introduction of the DGNSS system will have a **profound impact on maritime navigation**, enabling safer and more efficient movement of **vessels in port and harbor areas**.
- **Features:**
 - **Enhanced Safety:** The DGNSS service will assist mariners in safe navigation, reducing the risk of collisions, groundings, and accidents at sea.
 - **Accuracy Improvement:** The DGNSS significantly improves the accuracy of GPS positioning, reducing errors caused by atmospheric interferences, satellite clock drift and other factors.
 - **Redundancy and Availability:** The DGNSS incorporates multiple satellite constellations like **GPS** and **Global Navigation Satellite System (GLONASS)**, ensuring increased availability and redundancy as per international standards.
 - **Precise Positioning:** Mariners can now improve their positioning **within 5 meters using the latest DGNSS system**, enabling better navigation and reducing the margin of error.
 - **Meeting International Obligations:** The DGNSS fulfills the international obligations of the **International Maritime Organization (IMO)**, **Safety of Life at Sea (SOLAS)**, and the **International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA)**.

Note:

- **Safety of Life at Sea:** The **International Convention for the Safety of Life at Sea (SOLAS)**, is an important international treaty concerning the safety of merchant ships.
 - It ensures that ships comply with minimum safety standards in construction, equipment and operation of ships.

Note:

- **International Association of Marine Aids to Navigation and Lighthouse Authorities:** IALA is a non-profit, international technical association.
 - Established in 1957, IALA encourages its members to work together in a common effort to harmonise **Marine Aids to Navigation worldwide** and to ensure that the **movements of vessels are safe, expeditious and cost-effective while protecting the environment.**

What are the Other Government Initiatives Related to Maritime Security?

- **NavIC:** **NavIC** or Indian Regional Navigation Satellite System (IRNSS) is designed with a constellation of 7 satellites and a network of ground stations operating 24×7.

- NavIC coverage area includes **India and a region up to 1500 km beyond Indian boundary.**
- **IMO** has recognized NavIC as a component of the **World-Wide Radio Navigation System (WWRNS).**
- **SAGAR Vision:** In 2015, India unveiled its strategic vision for the Indian Ocean i.e. **Security and Growth for All in the Region (SAGAR)** to improve relations with its maritime neighbours on the economic and security fronts.
- **Indian Ocean Naval Symposium:** The **IONS** is a voluntary and inclusive initiative that brings together navies of **Indian Ocean Region (IOR)** littoral states to increase maritime co-operation and enhance regional security.
- **Maritime India Vision 2030:** It aims to accelerate the growth of the maritime sector over the next decade by **enhancing infrastructure, efficiency, services and capacity across ports, shipping and waterways.**



Note:

Art and Culture

Highlights

- National Maritime Heritage Complex
- Lambani Art
- Buddha's Relevance to the Modern Youth

National Maritime Heritage Complex

Why in News?

Recently, Union Minister of Ports, Shipping and Waterways, reviewed the project process of **National Maritime Heritage Complex** (NMHC), Lothal in Gandhinagar, Gujarat.

- NMHC complex will have **Asia's Biggest Under Water Marine Museum** and India's Grandest Naval Museum.

What is the National Maritime Heritage Complex?

➤ About:

- The NMHC is being constructed at the historic **Indus Valley civilization** region of **Lothal**, Gujarat, under the Ministry of Ports, Shipping, and Waterways.
- Its primary objective is to **showcase the maritime heritage** of India from **ancient to modern times**, utilizing an edutainment approach and incorporating the latest technology.

➤ Significance:

- The NMHC is set to become the **world's largest maritime museum complex** and an international tourist destination.
- It will play a crucial role in educating visitors about India's rich maritime history and elevate India's image in the global maritime sector.
- The project is part of the **Sagarmala Programme** and is being developed with the participation of public and private institutes, organizations, and **corporate social responsibility (CSR)** initiatives. **Major ports in India** have also contributed funds to support the project.

➤ Unique Features of NMHC:

- Includes **Lothal Mini Recreation**; **Four theme parks**: Memorial, Maritime and Navy, Climate, and Adventure and Amusement; Coastal States Pavilion.

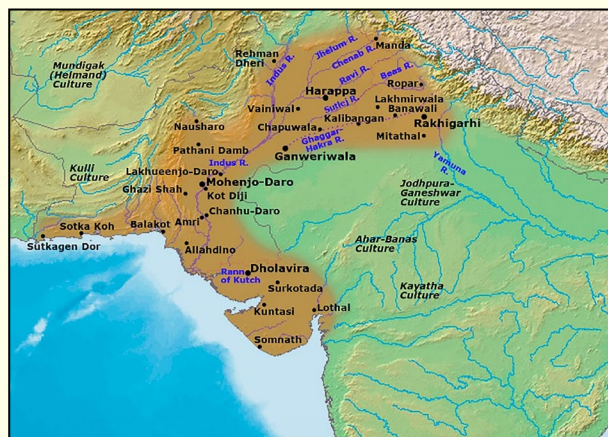
What is Lothal?

➤ About:

- One of the southernmost sites of the IVC in Gujarat's Bhāl region. Believed to have been built around 2,200 BC.
- It flourished as a trade center around 2,200 BC, with trade connections reaching West Asia and Africa.
- Known for its **trade of beads, gems, and ornaments**.
- Meaning of "Lothal" in Gujarati is "the mound of the dead."
- The excavated site of Lothal is the only port town of the Indus Valley Civilization.

➤ Nomination for UNESCO World Heritage Site:

- Lothal was nominated in April 2014 for inclusion on the **UNESCO World Heritage List**.
- Its application is pending on the tentative list of UNESCO.



Note:

Lambani Art

Why in News?

The third **G20 Culture Working Group (CWG)** meeting in Hampi, Karnataka witnessed a historic moment as a **Guinness World Record** was established for the 'largest display of Lambani items' in the event, titled 'Threads of Unity'.

- This achievement showcased the collective efforts of over **450 Lambani women artisans** and cultural practitioners from the nomadic Lambani community in Karnataka.
- By supporting Lambani artisans, this initiative contributes to the economic independence of women. It aligns with the third priority of the CWG, '**Promotion of Cultural and Creative Industries and Creative Economy**'.

What is Lambani Art?

- Lambani art is a form of **textile embellishment** practiced by the **Lambani or Banjara community**, a nomadic group inhabiting several states of India, especially Karnataka.
- It is characterised by **colourful threads, mirror work, and a rich array of stitch patterns** on loosely woven fabric.
 - It involves skillfully stitching together small pieces of discarded fabric to create a beautiful patchwork.
- It is recognised as a sustainable practice that works on the principle of **recycle and reuse**.



- The Lambani embroidery techniques and aesthetics bear similarities with textile traditions in Eastern Europe, West Asia, and Central Asia, showcasing the interconnectedness of global textile arts
 - **Sandur Lambani embroidery**, a specific type of Lambani art from the Sandur region of Karnataka, received a **Geographical Indication tag in 2010**.

G20 Culture Working Group

- The **G20 Culture Ministers met for the first time in 2020** and highlighted culture's cross-cutting contribution to advancing G20 agenda.
 - Recognizing its impact on various aspects of development, culture was integrated into the G20 agenda as a **Culture Working Group in 2021**, acknowledging its synergies with other policy areas
- The **G20 Culture Working Group** stands among the 13 thematic Working Groups set up by the Indian Presidency to frame the **G20 process in 2023** as part of the Sherpa Track.
- **Priority Areas of CWC:**
 - **Protection and Restitution of Cultural Property**
 - **Harnessing Living Heritage for a Sustainable Future**
 - **Promotion of Cultural and Creative Industries and Creative Economy**
 - **Leveraging Digital Technologies for the Protection and Promotion of Culture**

Buddha's Relevance to the Modern Youth

Why in News?

The **President of India**, urged the **youth to draw inspiration from the teachings of Lord Buddha**, on the occasion of **Dharma Chakra Pravartana Divas** (3rd July 2023).

- The President reflected on how **Lord Buddha's first sermon on Asadha Purnima** planted the **seeds of the middle path of the Dhamma**.

Note:

Who was Lord Buddha?

GAUTAM BUDDHA



Believed to be 8th of the 10 incarnations of Lord Vishnu (Dashavatar)

BIRTH

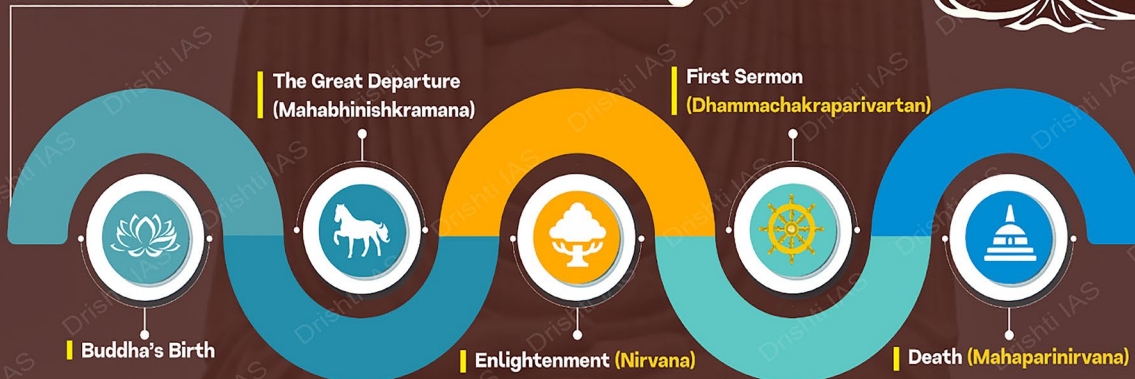
- Born as Siddhartha (563 BC)
- Birthplace - **Lumbini** (Nepal) near **Kapilavastu**

PARENTS

- Father - elected ruler of Kapilvastu; headed **Shakya republican clan**
- Mother - princess from **Koshalan dynasty**



IMPORTANT EVENTS



*Buddha referred to himself as **Tathagata** (one who has thus come/gone) and has been addressed as **Bhagavat** (in Buddhist texts)*

CONTEMPORARIES

- Vardhaman Mahavira**
- Bimbisara**
- Ajatshatru**

OTHER IMPORTANT PLACES ASSOCIATED WITH BUDDHA

- Bodh Gaya** (Enlightenment) (named Buddha after attaining enlightenment)
- Sarnath** (first sermon)
- Vaishali** (last sermon)
- Kushinagara** (death place (487 BC))

➤ Major Teachings of Lord Buddha:

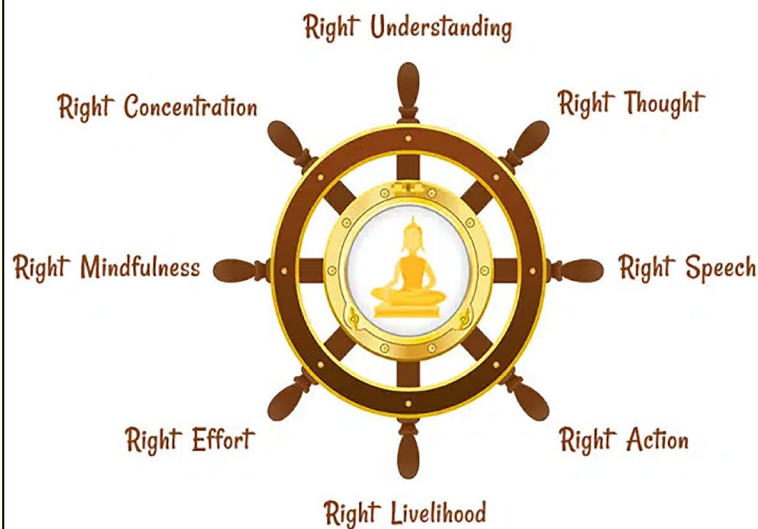
- The Three Marks of Existence:** These are the characteristics of all phenomena that one should understand and accept. They are **impermanence (anicca)**, **unsatisfactoriness (dukkha)**, and **non-self (anatta)**.
- The Four Noble Truths:** These are the truths about the nature of suffering, its cause, its cessation, and the path to its cessation. The cause of suffering is **ignorance, attachment, and aversion**.
 - The cessation of suffering is possible by following the Noble Eightfold Path:

Note:



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THE NOBLE EIGHTFOLD PATH



The Division of Wisdom

- 1.) Right Understanding
- 2.) Right Thought

The Division of Ethical Conduct

- 3.) Right Speech
- 4.) Right Action
- 5.) Right Livelihood

The Division of Mental Discipline

- 6.) Right Effort
- 7.) Right Mindfulness
- 8.) Right Concentration

- **The Four Sublime States:** These are the positive mental qualities that one should cultivate and radiate to all beings. They are **loving-kindness (metta)**, **compassion (karuna)**, **sympathetic joy (mudita)**, and **equanimity (upekkha)**.
 - By developing these states, one can foster **harmony, empathy, altruism, and peace**.
- **The Five Precepts:** These are the basic ethical principles that Buddha laid down for his lay followers.
 - They are: **to abstain from killing, stealing, sexual misconduct, lying and intoxication**.
 - They help us to avoid harming ourselves and others, to respect life and property, to **maintain purity and honesty** and to **preserve clarity and awareness**.

How can Youth Draw Inspiration from Buddha to Navigate Life's Challenges?

- **Mindfulness as a Foundation:** One of the central tenets of Buddha's teachings is the practice of mindfulness.
 - Mindfulness encourages individuals to **cultivate a deep awareness of the present moment**, fostering an enhanced understanding of their thoughts, emotions, and actions.
 - In a world saturated with distractions, **young people can draw inspiration from Buddha's emphasis on being fully present and engaged**.
 - By practicing mindfulness, **youth can learn to manage stress, improve focus and concentration**, and nurture a greater sense of self-awareness, leading to improved mental well-being and personal growth.
- **Impermanence and Non-Attachment:** Buddha's teachings emphasize the **impermanence (the state or fact of lasting for only a limited period of time)** of all phenomena and the futility of attachment.
 - In a materialistic **society driven by instant gratification**, youth can find **solace and inspiration in the understanding that everything is transient**.
 - By recognizing the impermanence of **both joy and suffering**, **young individuals can cultivate a mindset that is adaptable, resilient, and open to change**.
 - Learning to let go of attachment to outcomes, possessions, and even relationships can free the youth from unnecessary suffering and allow them to embrace life with greater equanimity.
 - **Compassion and Empathy:** In a world where **divisions and conflicts persist**, **young people can**

Note:



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find inspiration in Buddha's teachings on loving-kindness and compassion.

- By cultivating empathy, youth can develop a **deeper understanding of others' struggles**, fostering a sense of unity and connection.
- **Self-Discovery and Inner Transformation:** Young people, **often grappling with questions of identity and purpose**, can draw inspiration from Buddha's teachings on self-exploration.
- By engaging in introspection and self-reflection, youth can gain insights into their **true nature, passions, and aspirations**.

- **Engaging in Social and Environmental Responsibility:** Buddha's teachings emphasize the **interconnectedness of all beings and advocate for responsible action**.

- The youth can actively engage in **social and environmental responsibility by working towards equality, justice, and sustainable practices**.
- They can participate in community initiatives, advocate for marginalized groups, and **champion environmental conservation**.
- By embodying these teachings, they contribute to building a **more equitable, harmonious, and environmentally conscious society**.



Note:

History

Highlights

- Alluri Sitarama Raju

Alluri Sitarama Raju

Why in News?

Recently, the President of India attended the **closing ceremony** of the **125th Birth Anniversary of Alluri Sitarama Raju** in Hyderabad.

- The 125th ceremony of Alluri Sitha Rama Raju was a **year-long celebration of the birth anniversary** of the legendary freedom fighter. The ceremony was launched by the Prime Minister on July 4, 2022.

Who was Alluri Sitarama Raju?

➤ About:

- Alluri Sitarama Raju was an Indian revolutionary who fought against the **British colonial rule in India**.
- He led a **guerrilla campaign in the Eastern Ghats region** of present-day Andhra Pradesh, mobilizing the tribal people against the oppressive forest laws and policies of the British government.
- He is widely regarded as a **hero of the jungle** or **Manyam Veerudu** by the local people for his **bravery and sacrifice**.



➤ Early Life and Background:

- He was born on **4 July 1897 or 1898** in Pandrangi village, Visakhapatnam district, Andhra Pradesh.
- He belonged to a **Telugu-speaking Kshatriya family**.

➤ Rampa Rebellion (or Manyam Rebellion) of 1922-1924:

- Alluri Sitarama Raju joined the **Non-cooperation movement** led by **Mahatma Gandhi** and witnessed the **exploitation of tribal people** in the Eastern Ghats region by British authorities.
- The tribal people practiced **podu or shifting cultivation**, which involved **clearing patches of forest land for agriculture and moving to another area after a few years**. This was their traditional and sustainable way of life, which also ensured their food security and cultural identity.
- The **Madras Forest Act of 1882** imposed restrictions on the tribal people's movement and prohibited their collection of minor forest produce, forcing them into **low-wage labor for the forest department or contractors**.
- Alluri Sitarama Raju **formed a guerrilla army and used Guerrilla warfare** to launch attacks on British police stations and outposts.
 - Guerrilla warfare is a form of irregular warfare in which small groups of combatants use military tactics including **ambushes, sabotage, raids, petty warfare, hit-and-run tactics, and mobility, to fight a larger and less-mobile traditional military**.
- He aimed to liberate the tribal people and drive the British out of the Eastern Ghats.
- **Death and Legacy:**
 - Alluri Sitarama Raju was captured and killed by British forces in Koyyuru village on 7 May 1924, marking the end of the Rampa Rebellion.
 - Alluri Sitarama Raju's life exemplified the **unity of society without discrimination based on caste and class**.
 - A **postal stamp** issued by the Government of India in 1986 featuring Alluri Sitarama Raju.
 - A biographical film titled **Alluri Seetharama Raju** was released in 1974.

Note:

Geography

Highlights

- Massive Shelf Clouds Formation
- Anthropocene Epoch
- Marine Heatwave and its Impacts

Massive Shelf Clouds Formation

Why in News?

Recently, a massive Shelf Cloud formation has been spotted in Haridwar, Uttarakhand.



What are Shelf Clouds?

➤ About:

- Shelf clouds - also known as **Arcus clouds** - are often associated with powerful **storm systems**, and many times they are reported as **wall clouds**, funnel clouds, or rotation.
- These clouds are sometimes seen **beneath cumulonimbus clouds**, the dense, towering vertical cloud that causes intense rain.
- They often appear **ahead of powerful Thunderstorms with heavy rain**, strong winds, and occasionally hail or tornadoes.

➤ Formation:

- When a cold **downdraft from a cumulonimbus cloud** reaches the ground, the cold air may spread rapidly along the ground, **pushing existing warm moist air upwards**.

- As the cold air descends, it pushes warm air upward, **causing condensation and cloud formation**. This process creates the distinct horizontal shape and appearance of a shelf cloud.

What are the Types of Clouds?

➤ High Clouds:

- **Cirrus Clouds:** Cirrus clouds are **high-altitude clouds that appear wispy**, feathery, and white. They are composed of **ice crystals** and are often associated with **fair weather**.
 - Cirrus clouds can cause **halo**, a ring around the sun or the moon.
- **Cirrocumulus Clouds:** High-altitude clouds that appear as **small, white, and fluffy cloud** patches. They often have a wavy or honeycomb-like pattern.
- **Cirrostratus Clouds:** High-altitude clouds that form a thin, whitish veil covering the sky. They can produce halos around the sun or moon.

➤ Middle Clouds:

- **Altostratus Clouds:** Mid-level clouds that form white or gray patches or layers. They often have a wavy or lumpy appearance.
- **Altostratus Clouds:** Mid-level clouds that create a uniform, gray or bluish-gray layer covering the sky. They are **thicker and denser than cirrostratus clouds** and can lead to light precipitation.

➤ Low Clouds:

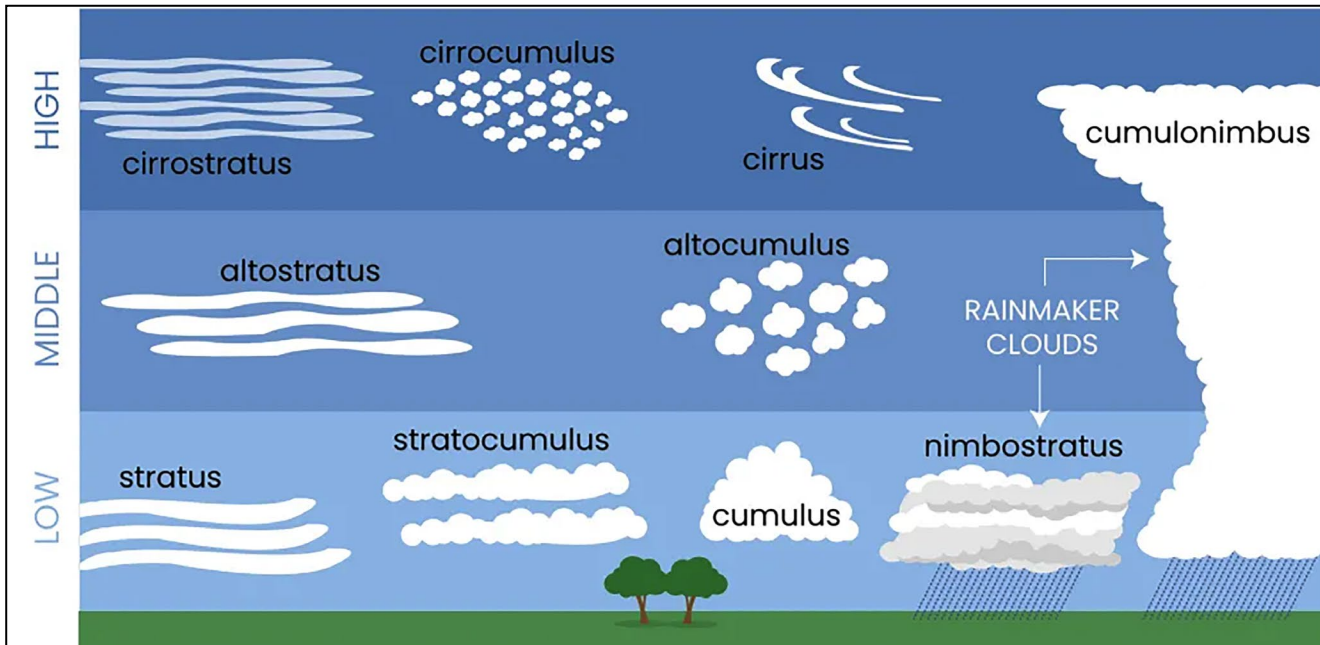
- **Cumulus Clouds:** Cumulus clouds are **fluffy, white clouds with a flat base** and a rounded top. They are typically formed by **rising warm air currents** and are often seen on **sunny days**. Cumulus clouds can develop into cumulonimbus clouds, which are associated with thunderstorms.
- **Stratus Clouds:** Stratus clouds are **low-level clouds that appear as a uniform grayish layer** covering the sky. They often bring drizzle or light precipitation and can create a dull, overcast appearance.

Note:

- **Stratocumulus Clouds:** Low-level clouds with a **patchy appearance**, often appearing as rounded masses. They can be white or gray and cover a significant portion of the sky.
- **Nimbostratus Clouds:** Thick, dark, and featureless clouds that cover the sky. They bring continuous

precipitation, often lasting for an extended period.

- **Clouds that exhibit Significant Vertical Development:**
- **Cumulonimbus Clouds:** Large, towering clouds **associated with thunderstorms**. They have a dark base and can reach high altitudes, producing heavy rain, lightning, and strong winds.



Anthropocene Epoch

Why in News?

Recently, the Anthropocene Working Group (AWG) has proposed that the **Anthropocene**, a new geological epoch characterized by significant human impact on Earth's systems, **began in 1950**.

- The AWG is an interdisciplinary research group dedicated to the investigation of the Anthropocene.
- If the proposal wins the necessary majority support, the **International Union of Geological Sciences** could officially ratify the new **Global boundary Stratotype Section and Point (GSSP) in August 2024**.

Note: The GSSP is a designated geological reference point that marks the boundary between **two geological time units**. It serves as an internationally agreed-upon standard for defining and **correlating different periods in Earth's history**. GSSPs are crucial for establishing the boundaries of epochs, ages, and other divisions within the geologic time scale.

What is the Background?

- The starting date of Anthropocene is supported by evidence **from Crawford Lake near Toronto, Canada**, which contains traces of the **radioactive element plutonium**.
- Around the year 1950, there was a **notable increase in the concentration of plutonium particles**. This significant change serves as a **clear indication of human impact and**, consequently, provides **evidence of the Anthropocene era**.
- The research findings of Crawford Lake provided strong evidence for the AWG's hypothesis that the unprecedented increase in industrial and socioeconomic activity of the Great Acceleration around the mid-twentieth century **has caused alterations to the Earth System on a scale that terminated ~11,700 years** of largely stable **Holocene conditions** and marks the beginning of a new Earth epoch.

What is the Anthropocene?

- The Anthropocene epoch as a term was first **coined by Nobel Prize-winning chemist Paul Crutzen** and

Note:



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biology professor Eugene Stoermer in 2000 to denote the present geological time interval, in which the **Earth's ecosystem has gone through radical changes** due to human impact, especially since the onset of the **Industrial Revolution**.

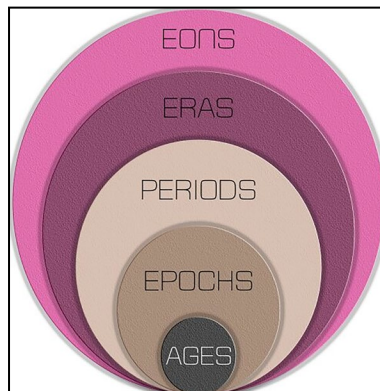
- There are numerous phenomena associated with this epoch, such as **Global Warming, Sea-Level Rise, Ocean Acidification**, mass-scale soil erosion, the advent of deadly **Heat Waves**, deterioration of the biosphere and other detrimental changes in the environment.

What is the Holocene Epoch?

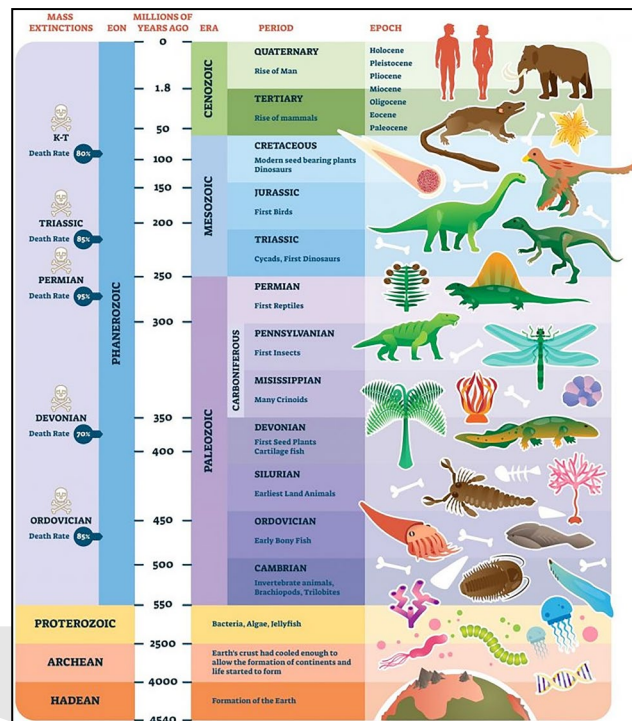
- The Holocene is the **current geological epoch, which began approximately 11,700 years ago** at the end of the last major ice age.
- It is characterized by a relatively **stable and warm climate**, as well as the development of human civilization.
- The Holocene follows the **Pleistocene epoch and is part of the larger Quaternary period**.
- During the Holocene, Earth's climate experienced fluctuations, but overall, it has been a period of **relatively milder and more stable conditions compared** to the preceding ice age. The retreat of glaciers and the rise in global temperatures allowed for the expansion of forests, grasslands, and diverse ecosystems.

What is the Geological Time Scale?

- Geologists divide the **4.6-billion-year existence of Earth into slices of time** such as Eon, Era, System/Period, Series/Epoch, and Stage/Age.



- Eons are divided into Eras, Eras into Periods, Periods into Epochs, and Epochs into Ages.
- Each slice corresponds to **significant happenings** - such as the break-up of continents, dramatic shifts in climate, and even the emergence of particular types of animals and plant life.



What is the International Union of Geological Science?

- The International Union of Geological Sciences (IUGS) is a global non-governmental organization that **aims to promote and advance the Earth sciences**. It serves as the international coordinating body for professional geological research and education.
- The IUGS was founded in **1961** and is a member of the International Science Council (ISC).

Marine Heatwave and its Impacts

Why in News?

The northern **Bay of Bengal** has been experiencing an intense **Marine Heatwave** since 28th June 2023, leading to India's **usually arid northwest receiving extreme rainfall**.

What is Marine Heatwave?

- Marine Heatwaves are **prolonged periods** of anomalously high **Sea Surface Temperature (SST)**.
- These events are linked to **coral bleaching, seagrass destruction, and loss of kelp forests, affecting the fisheries sector** adversely.

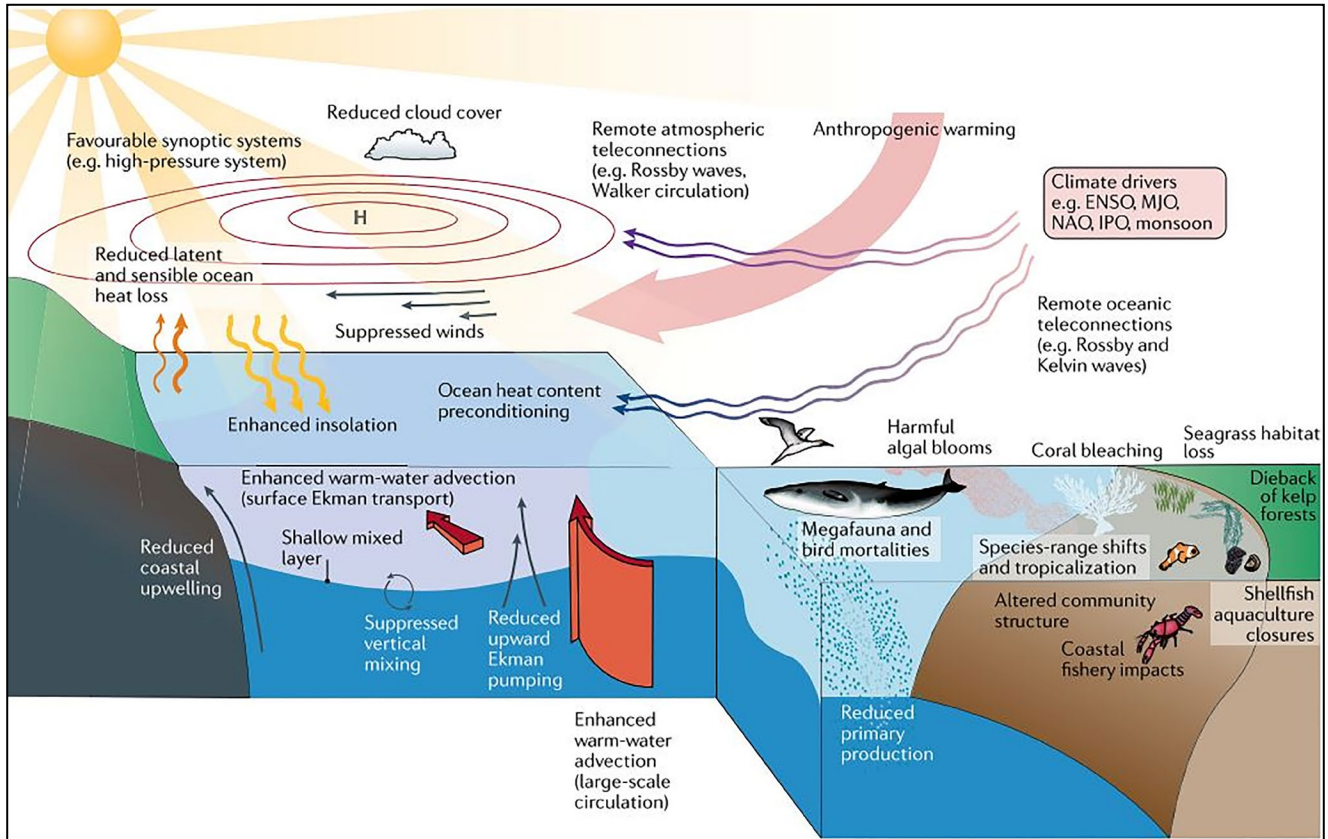
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- The most common drivers of marine heatwaves include **ocean currents which can build up areas of warm water** and air-sea heat flux or warming through the ocean surface from the atmosphere.

- Winds can enhance or suppress the warming in a marine heatwave, and **climate modes like El Niño** can change the likelihood of events occurring in certain regions.



How does Marine Heatwave Impact Rainfall in Northwest India?

- The marine heatwave in the Bay of Bengal **increased sea surface temperatures, causing higher evaporation rates** and a greater moisture supply in the atmosphere. This surplus of moisture contributed to above-average rainfall in northwest India.
- The marine heatwave likely **influenced the formation and behavior of depressions** in the Bay of Bengal, which may have contributed to an **increase in the frequency and intensity of depressions**, particularly on faster timescales (3-10 days).
 - Depressions, which are low-pressure systems, play a significant role in the monsoon and rainfall patterns.
- The marine heatwave, along with changing timescales of depressions, **affected the path and trajectory of these weather systems**. Depressions tended to move more towards northwest India rather than

north-central India, causing a higher concentration of rainfall in the northwest region, leading to above-average rainfall in that area.

What are the other Impacts of Marine Heatwaves?

- **Affect Ecosystem Structure:**
 - Marine heat waves **affect ecosystem structure**, by supporting certain species and suppressing others.
 - It has been associated with the mass mortality of marine invertebrates and may force species to change behaviour in a way that puts wildlife at increased risk of harm.
- **Change Habitat Ranges of Certain Species:**
 - Marine heatwaves can change the **habitat ranges of certain species**, such as the spiny sea urchin off southeastern Australia which has been expanding southward into Tasmania at the expense of kelp forests which it feeds upon.

Note:

- **Economic Losses:**
 - Marine heatwaves can cause **economic losses through impacts on fisheries** and aquaculture.
- **Affect Biodiversity:**
 - Biodiversity can be drastically affected by marine heatwaves.
 - A study from 2020 (*Genesis and Trends in Marine Heatwaves Over the Tropical Indian Ocean and Their Interaction With the Indian Summer Monsoon*) reveals that a previous marine heatwave led to **bleaching of 85% of corals in the Gulf of Mannar** near the Tamil Nadu coast.
- **Increase the Risk of Deoxygenation and Acidification:**
 - Often, they occur alongside other stressors such as **ocean acidification**, deoxygenation, and overfishing.
 - In such cases, MHWs not only further damage habitats, but also increase the risk of deoxygenation and acidification.

How does the Bay of Bengal Impact Monsoon?

Moisture Source:

- The warm and humid air mass over the Bay of Bengal provides the **necessary moisture** that is carried by the monsoon winds towards the Indian subcontinent.

Heat Exchange:

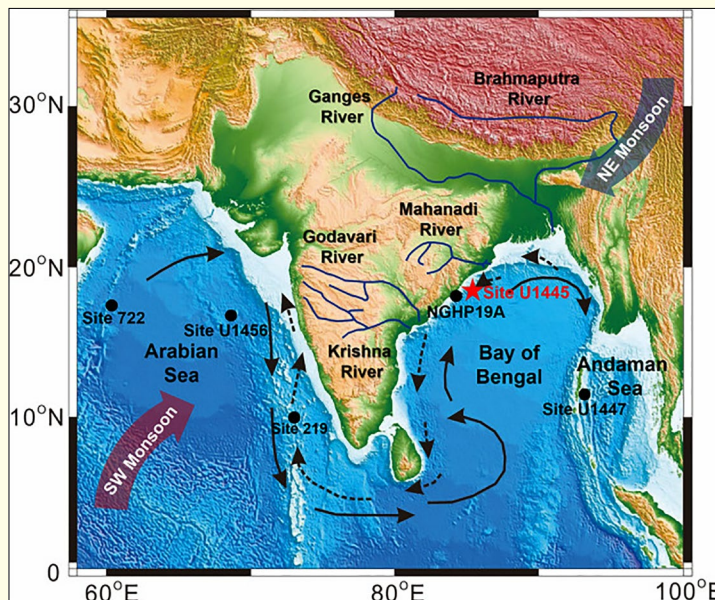
- The Bay of Bengal has warm sea surface temperatures, especially in its northern part. During the monsoon season, the landmass of the Indian subcontinent gets heated up, **creating a low-pressure area**. The warm air rises, and cooler air from the Bay of Bengal rushes in to replace it, **causing a pressure gradient**. This pressure gradient helps draw in **moisture-laden winds from the Bay of Bengal**, contributing to the monsoon rainfall.

U-Turn of Monsoon Currents:

- The monsoon winds **blowing from the southwest over the Arabian Sea** cross over into the Bay of Bengal. When they reach the Bay of Bengal, they make a U-turn and start moving towards the northeast, eventually bringing rainfall to different parts of India.
- The warm temperatures in the Bay of Bengal facilitate this **U-turn and the transport of moisture to the Indian subcontinent**.

Low-Level Jet Stream:

- The Bay of Bengal also influences the formation and intensity of the low-level jet stream, known as the **Somali Jet**.
- This jet stream plays a crucial role in the transport of moisture from the equatorial Indian Ocean to the Indian subcontinent.
- The warm sea surface temperatures in the Bay of Bengal contribute to the **strengthening of this low-level jet, enhancing the moisture supply during the monsoon season**.



Note:

Miscellaneous

Highlights

- Cluster Munition
- SAFF Championship 2023
- PEN Pinter Prize 2023

Cluster Munition

Why in News?

United States (US) has made the decision to provide **cluster munitions** to **Ukraine** as part of a new military aid package worth up to **USD 800 million**.

- This move has raised concerns about civilian casualties, with calls from the **United Nations** to avoid using such weapons.

What is a Cluster Munition?

- **About:**
 - A cluster munition is a form of **air-dropped or ground-launched explosive weapon** that releases or ejects smaller submunitions, commonly known as **bomblets**, over a wide area.
 - They are designed to **kill personnel and destroy vehicles**, runways, power lines, or other targets.
 - Some cluster munitions can also **disperse chemical or biological agents**, land mines, or leaflets.
- **Challenges:**
 - Cluster munitions **can indiscriminately harm civilians and civilian objects**, violating international humanitarian law.
 - They have a **high failure rate**, leaving behind unexploded ordnance that poses ongoing danger.
 - Additionally, **they contaminate vast areas for extended periods**, rendering them unfit for human use and burdening healthcare and economies in affected nations.
- **Past Use:**
 - During the **Afghanistan War in 2001**, the US considered cluster bombs significant.
 - US last used cluster bombs during the **battle with Iraq in 2003**

- In the Syrian civil war, Russian-supplied Syrian government troops frequently deployed cluster munitions.
- Israel utilized cluster bombs in civilian areas in south Lebanon, notably during the **2006 war with Hezbollah**.
- The **Saudi-led coalition in Yemen** faced criticism for employing cluster bombs in their conflict with the **Houthi rebels**.

➤ Convention on Cluster Munitions:

- **Convention on Cluster Munitions** outlaws the use, production, transfer, and stockpiling of these weapons due to their indiscriminate and long-lasting effects on civilian populations.
- It was adopted in **Dublin by 107 States on 30 May 2008** and signed in Oslo on 3 December 2008.
 - The Convention became binding international law when it entered into force on **1 August 2010**.
- To date, **a total of 123 States have joined the Convention: 111 States Parties and 12 Signatories**.
 - The convention remains unsigned by several nations, including **India, the United States, Russia, Ukraine, Pakistan and Israel**.

SAFF Championship 2023

Why in News?

Recently, India marked a remarkable victory in the **South Asian Football Federation (SAFF) Championship 2023 held in Bengaluru, Karnataka**, securing their **ninth title** by defeating Kuwait in a thrilling football match.

What is SAFF Championship?

- **About:**
 - The SAFF Championship is an internationally recognized football tournament that brings

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together teams from the **South Asian subcontinent**. Organized by the **South Asian Football Federation (SAFF)**, one of the five sub-confederations under the **Asian Football Confederation (AFC)**.

- **SAFF was formed in 1997** by founding Member Associations from **Bangladesh, India, Maldives, Nepal, Pakistan and Sri Lanka**.
- The SAFF Secretariat currently operates from **Dhaka, Bangladesh**.

➤ **Origin and Evolution:**

○ **Founding members:**

- India, Pakistan, Sri Lanka, Bangladesh, Nepal, and Maldives.

○ **Expansion:**

- Bhutan joined in 2000, while Afghanistan became a member in 2005 before moving to the **Central Asian Football Association (CAFA)** in 2015.

○ **Evolution:**

- The South Asian football tournament started as the **South Asian Association for Regional Cooperation (SAARC) Gold Cup** in 1993.
- It was later renamed the **South Asian Gold Cup** in 1995 and became the **SAFF Gold Cup** from 1997 to 2005.
- Since **2008**, it has been known as the **SAFF Championship**.

➤ **India's Performance:**

○ **Men's SAFF Championship:**

- India has been a **powerhouse in the tournament**, reaching the **finals in all editions except 2003**.
- India has won **nine men's SAFF Championship titles** out of the 14 editions.

Men's SAFF Championship winners list

Edition	Winner	Runners up
Lahore 1993	India	Sri Lanka
Colombo 1995	Sri Lanka	India
Kathmandu 1997	India	Maldives
Goa 1999	India	Bangladesh
Dhaka 2003	Bangladesh	Maldives
Islamabad 2005	India	Bangladesh
Colombo and Male 2008	Maldives	India
Dhaka 2009	India	Maldives
New Delhi 2011	India	Afghanistan
Kathmandu 2013	Afghanistan	India
Thiruvananthapuram 2015	India	Afghanistan
Dhaka 2018	Maldives	India
Male 2021	India	Nepal
Bengaluru 2023	India	Kuwait

Note:

➤ Women's SAFF Championship:

- India has enjoyed success in the SAFF Championship, winning the inaugural edition in 2010 and subsequently securing victories in 2012, 2014, 2016, and 2019.

Edition	Winner	Runners up
Cox's Bazar 2010	India	Nepal
Colombo 2012	India	Nepal
Islamabad 2014	India	Nepal
Siliguri 2016	India	Bangladesh
Biratnagar 2019	India	Nepal
Kathmandu 2022	Bangladesh	Nepal

PEN Pinter Prize 2023

Why in News?

Michael Rosen, a renowned poet and writer, has been recognized for his literary contributions and honored with the prestigious **PEN Pinter Prize 2023**.



- Rosen is known for making **poetry accessible to children** through his work and performances. His themes are often social, political and ethical.

What is the History and Purpose of the PEN Pinter Prize?

- The PEN Pinter Prize was established in 2009 by

English PEN, the founding centre of a global literary network that promotes literature and human rights.

- The prize was named after **Harold Pinter**, who was a vice president of English PEN and an active member of the **International PEN Writers in Prison Committee (WiPC)**.
- It was inspired by Pinter's **Nobel Prize acceptance speech in 2005**, titled "Art, Truth and Politics", in which he spoke about the role of the writer as a "**citizen of the world**" who questions and exposes the lies of power.
- The prize aims to recognise writers who **use their words to defend the dignity and rights of others**.
- The Prize is awarded annually to a writer resident in the **United Kingdom, the Republic of Ireland, the Commonwealth or former Commonwealth**.
 - The winner must be the author of a significant body of plays, poetry, essays, or fiction of outstanding literary merit, **written in English**.
 - Past recipients of the prestigious award include **Hanif Kureishi, Lemn Sissay, and Malorie Blackman**.

What are the Other Major Literacy Awards?

- **International:**
 - **Nobel Prize in Literature** (2022- Annie Ernaux)
 - **Booker Prize**
 - **The UNESCO King Sejong Literacy Prize**
- **Indian:**
 - **Jnanpith Award**
 - **Sahitya Akademi Award**



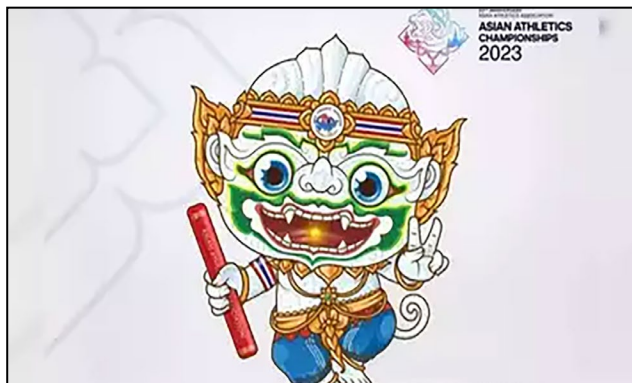
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Rapid Fire Current Affairs

Highlights

- Official Mascot of Asian Athletics Championships 2023
- Floating Gold
- MoD & FSSAI Promote Millets & Healthy Eating in Armed Forces
- Rural and Urban India Almost Equally Affected by PM 2.5
- BHARAT Campaign Launched to Boost Agri Infra Funding
- India and EFTA Accelerate TEPA Negotiations
- GACL Initiates Domestic Production of Hydrazine Hydrate and Purified Phosphoric Acid
- Punjab Agricultural University Develops Nutrient-Rich Wheat Variety
- SAMARTH: Empowering Textile Sector through Skill Development
- Ker Puja
- The Solomon Islands and China Strengthen Relations
- SC Upholds Rights of Non-Notified Forest Inhabitants
- Product Design Centre and Grain-Ex System
- World Population Da
- Data Sharing Mechanism for Gati Shakti Infrastructure Platform
- India and Panama signs MoU on Electoral Cooperation
- IRDAI and Obligatory Cession
- Findings from Sangam Age Excavated in Tamil Nadu
- SALVEX
- India's First Chatbot
- Similipal Tiger Reserve (STR)
- Methane-Rich Groundwater Springs in the Arctic
- Zaporizhzhya Nuclear Plant: Lower Risks Compared to Chernobyl
- Cheetahs to be Relocated from Kuno to Gandhi Sagar Sanctuary
- Four New Countries Consulted to Join OPEC
- India Tops Global Charts for Childhood Diabetes and Deaths
- JIMEX 23
- DGCA India and EASA Collaborate for Unmanned Aviation Advancement
- Death Anniversary of Swami Vivekananda
- India's Firms Show Strong Credit Quality and Robust Growth
- Odisha Government Launches Mo Jungle Jami Yojana
- Empowering Women Entrepreneurs: eSARAS App
- Neeraj Chopra Finishes 1st at Lausanne Diamond League 2023
- Indian Refiners Shift to Chinese Yuan for Russian Oil Payments
- Data Carbon Ladder
- Preparedness for Vector-Borne Diseases
- India Post and Canada Post Introduce ITPS for E-commerce
- INS Sunayna Participates in Op Southern Readiness 2023
- India Claims Eighth Asian Kabaddi Championship Title
- INS Sunayna Visit to Beira, Mozambique
- World Mining Congress
- 'Report Fish Disease' App
- Chennai-Vladivostok Maritime Route
- Debrigarh Wildlife Sanctuary

Official Mascot of Asian Athletics Championships 2023



The **2023 Asian Athletics Championships** which began in Thailand recently **have chosen revered Hindu god Hanuman as the official mascot for the 2023 year's event**. The event was **held on the 50th anniversary of the establishment of the Asian Athletics Association (established in 1973)**.

The **25th Asian Athletics Championships 2023 logo indicates** the athletes participating in the games, skills, teamwork of athletes, showcase of **athleticism, dedication, and sportsmanship**.

A **total of nine countries** (Japan; Hong Kong; Singapore; China; Indonesia; the Republic of Korea; Malaysia; and Philippines) **participate in the Asian event including India**.

Read More: **Winter Olympics**

Note:

Floating Gold

Recently, a massive chunk of floating gold has been found in the belly of a dead whale beached on the Spanish island of **La Palma**. The highly valuable substance is called **ambergris**.

Ambergris (grey amber), is generally referred to as whale vomit. It is a solid waxy substance originating in the intestine of the sperm whale. It is produced only by an estimated 1% of sperm whales. Chemically, ambergris contains alkaloids, acids, and a specific compound called ambrein, which is similar to cholesterol. It floats around the surface of the water body and at times settles on the coast. Because of its high value, it is referred to as floating gold. It is highly used in the perfume market.



The sperm whale, (*Physeter macrocephalus*), is dark blue-gray or brownish, with white patches on the belly. They are found in temperate and tropical waters throughout the world. They are listed as vulnerable in the **IUCN Red List**, mentioned in Appendix I of **CITES** and included in **Schedule 1 of the Wildlife (Protection) Act, 1972**.

Read More: **Ambergris & Sperm Whale**

MoD & FSSAI Promote Millets & Healthy Eating in Armed Forces

The **Ministry of Defence (MoD)** and the **Food Safety and Standards Authority of India (FSSAI)** have signed a **Memorandum of Understanding (MoU)** to promote the use of **millets** and healthy eating practices among the armed forces.

Millets are small-seeded annual grasses that are rich in nutrients, drought-resistant, and suitable for semi-arid regions. India is the largest producer of millets in the world, and contributes to 20% of global production. **India's Millet Revolution** is a movement that seeks to

increase awareness of the **health and environmental benefits of millets**, promote traditional agricultural practices, and support small-scale farmers.

Read more: **Food Safety and Standards Authority of India (FSSAI), India's Millet Revolution**

Rural and Urban India Almost Equally Affected by PM 2.5

An analysis by **Climate Trends** revealed that rural and urban areas in India experienced equally poor levels of ultrafine **particulate matter (PM) 2.5** in 2022. This questions the **government's focus on urban areas for controlling air pollution**. The study also highlighted the higher impact of PM 2.5 on rural populations in terms of **reduced lifespan**. The **National Clean Air Plan (NCAP)** primarily invested in urban areas, neglecting rural regions without pollution monitoring or mitigation measures. Experts emphasize the need for a wider monitoring network and policies to address pollution in rural India.

PM 2.5 is an atmospheric particulate matter of diameter of fewer than **2.5 micrometres**, which is around **3% the diameter of a human hair**. It causes respiratory problems and reduces visibility.

Read more: **Air Pollution in India & NCAP, particulate matter (PM) 2.5**

BHARAT Campaign Launched to Boost Agri Infra Funding

Recently, the **Ministry of Agriculture** has called upon banks to actively promote the **Agriculture Infrastructure Fund (AIF)**, a financing facility aimed at developing **post-harvest infrastructure** and **community farm assets** in the agricultural sector. With a target disbursement of **Rs 1 lakh crore by 2025-26**, the AIF will provide **interest reduction and credit guarantee assistance until 2032-33**. To accelerate the flow of funds, the ministry has launched the **BHARAT (Banks Heralding Accelerated Rural & Agriculture Transformation) campaign**, urging banks to participate actively in the promotion of the Agri Infra Fund. During the one-month campaign, banks are encouraged to **achieve a target of Rs 7,200 crore**. The involvement and support of over 100 banking executives

Note:

from commercial banks, regional rural banks, small finance banks, NBFCs, and select cooperative banks have been sought.

Read more: [Agriculture Infrastructure Fund \(AIF\)](#)

India and EFTA Accelerate TEPA Negotiations

Recently, the Union Minister of Commerce & Industry, Consumer Affairs, Food & Public Distribution and Textiles, concluded a successful meeting with the **European Free Trade Association (EFTA)** delegation in London. The discussions centered around advancing the **Trade and Economic Partnership Agreement (TEPA)** negotiations between India and EFTA. The primary objective of these negotiations is to establish a **fair, mutually beneficial, and comprehensive trade deal** between India and EFTA.

EFTA is an intergovernmental organization that was established in 1960 as an alternative trade bloc for those **European states that were unable or unwilling to join the European Union (EU)**. EFTA is India's 9th largest trading partner, accounting for about 2.5% of India's total merchandise trade in 2020-21.

The TEPA aims to **create opportunities for trade and investment between India and EFTA by eliminating/reducing tariffs and non-tariff barriers** on a wide range of products.

Read more: [India and EFTA, India and EFTA states](#)

GACL Initiates Domestic Production of Hydrazine Hydrate and Purified Phosphoric Acid

In a significant stride towards achieving self-reliance under the **Atmanirbhar Bharat mission**, Gujarat Alkalies and Chemicals Ltd (GACL), a leading **chlor-alkali producer**, has commenced the **shipment of Hydrazine Hydrate**. Furthermore, **GACL has also** addressed the scarcity of **Purified Phosphoric Acid** manufacturers in India by setting up a plant with a capacity of 33,870 MTA.

Hydrazine hydrate is a chemical compound with the formula $N_2H_4 \cdot H_2O$. It is primarily used as a **reducing agent** in **various chemical reactions**, such as the synthesis of **pharmaceuticals and agricultural chemicals**.

Read more: [Atmanirbhar Bharat Mission](#)

Punjab Agricultural University Develops Nutrient-Rich Wheat Variety

In a groundbreaking development, the Punjab Agricultural University (PAU) has successfully bred a **new variety of wheat called PBW RS1**, which contains **high levels of amylose starch known to reduce the risks of type-2 diabetes and cardiovascular diseases**.

PBW RS1 has a total starch content similar to other wheat varieties (66-70%), but it boasts a remarkable **30.3% resistant starch content compared to the 7.5-10% found in other varieties**. The variety not only offers nutritional benefits but also exhibits complete resistance to yellow rust and **moderate resistance to brown rust fungal diseases**.

Despite its nutritional advantages, PBW RS1 poses a **challenge in terms of cultivation due to its lower average grain yield** compared to other wheat varieties in Punjab.

Read more: [Food security, Nutritional security, Diabetes, Cardiovascular diseases](#)

SAMARTH: Empowering Textile Sector through Skill Development

In a recent meeting, the Empowered Committee for the **Scheme for Capacity Building in Textiles Sector (SAMARTH)** announced significant developments to **enhance skill development in the textiles industry**. With 43 new implementing partners and an additional **target of training 75,000 beneficiaries**, SAMARTH aims to impart essential skills to the workforce. The **Funding pattern has also been revised** with an increment of **5% in cost norms** which will give much **needed additional financial support** to industries imparting skill under this Scheme. SAMARTH covers 28 states and 6 Union territories, benefiting various sections of society, including SC, ST, and marginalized categories, with a focus on women.

SAMARTH is a demand-driven and **placement-oriented umbrella skilling programme** of the **Ministry of Textiles** formulated under the broad skilling policy framework adopted by **M/o Skill Development & Entrepreneurship**.

Read more: [SAMARTH Scheme](#)

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Ker Puja

Ker Puja is religious festival that celebrated in the state of **Tripura**. The guardian God, called Ker, is worshipped at this time. It is held few days after the **Kharchi Puja**.

The **celebration** is primarily centered in **Agartala**. On the day of the festival, the **city's entrance is locked** and people from outlying areas are restricted from entering the area.

Read more: **Kharchi Puja**

The Solomon Islands and China Strengthen Relations

The **Solomon Islands** and **China** have reinforced their ties through agreements on **police, economic, and technical cooperation**. This comes after the Solomon Islands switched diplomatic **ties from Taiwan to China in 2019**. China aims to further expand relations and trade through initiatives like the **Belt and Road Initiative**, fostering economic and geopolitical interests in the **South Pacific**. The growing partnership between the Solomon Islands and China draws attention to regional dynamics and raises implications for international relations.

The Solomon Islands is a **Melanesian nation in Oceania, east of Papua New Guinea**, with over 990 islands. Its capital is Honiara on Guadalcanal, and it has a rich history of Melanesian habitation for 30,000 years.



Read more: **Solomon Islands**

SC Upholds Rights of Non-Notified Forest Inhabitants

The **Supreme Court of India**, in a recent hearing, has acknowledged that **forest inhabitants beyond Adivasi or backward communities** have the **right to be heard before eviction from forest lands they occupy**. The court's decision, based on the **Forest Rights Act of 2006**, recognizes that **non-notified forest dwellers are integral to forest communities, even if they lack official recognition** due to socio-political and economic factors.

The Forest Rights Act of 2006 **recognizes and grants legal rights to forest-dwelling tribal communities** and other traditional forest dwellers, enabling them to **access and manage forest resources**. It aims to protect the rights of these communities, **promote sustainable forest management, and ensure their socio-economic well-being**.

Read more: **Forest Rights Act of 2006**

Product Design Centre and Grain-Ex System

The **MeitY** has inaugurated the **Product Design Centre (PDC) at the Centre for Development of Advanced Computing (C-DAC), Kolkata**, provides state-of-the-art facilities for system designing, prototyping, ideation, and fabrication. This center is poised to benefit **startups, entrepreneurs, and MSMEs** in the region by offering them access to cutting-edge software and printing technologies. In addition to the PDC launch, a revolutionary **appearance-based detection system**, known as **Grain-Ex**, was also unveiled during the event. Developed in collaboration with **ICAR-IARI, New Delhi**, as part of the '**National programme on Electronics and ICT applications in Agriculture and Environment (AgriEnics)**,' Grain-Ex employs machine vision technology to detect the quality of pulses accurately. This system promises to bring about a transformative change in the **e-NAM markets**, enabling quality-based pricing and benefiting over **1,200 e-NAM connected markets**.

Read more: **Centre for Development of Advanced Computing, e-NAM markets**.

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World Population Day

World Population Day is observed on July 11th every year to raise awareness about global population issues and the importance of reproductive health and rights. It was established by the **United Nations** in 1989.

The history of World Population Day dates back to **July 11, 1987**, when the global population reached a significant milestone of **five billion people**. This event served as a catalyst for recognising the need to address population-related concerns such as poverty, health, education, and sustainability.

Theme for World Population Day 2023 is “**Unleashing the power of gender equality: Uplifting the voices of women and girls to unlock our world’s infinite possibilities.**”

Read more: **World Population Day, United Nations.**

Data Sharing Mechanism for Gati Shakti Infrastructure Platform

The Government of India plans a data sharing mechanism for **PM Gati Shakti infrastructure** platform, facilitating information exchange of **geospatial data** on multi-modal connectivity and infrastructure with industry and investors. Under the **Network Planning Group (NPG)** of the platform, a total of **85 large central infrastructure projects, worth approximately ₹5.4 lakh crore**, have been evaluated and facilitated thus far. PM Gati Shakti’s data accelerates road and rail project report preparation, improving infrastructure development efficiency. PM Gati Shakti is a **digital platform designed to coordinate and monitor infrastructure** projects across 16 ministries, focusing on **multi-modal connectivity**. Its objective is to enhance India’s economic growth, competitiveness, and ease of doing business by reducing logistics costs and travel time.

Read more: **PM Gatishakti National Master Plan**

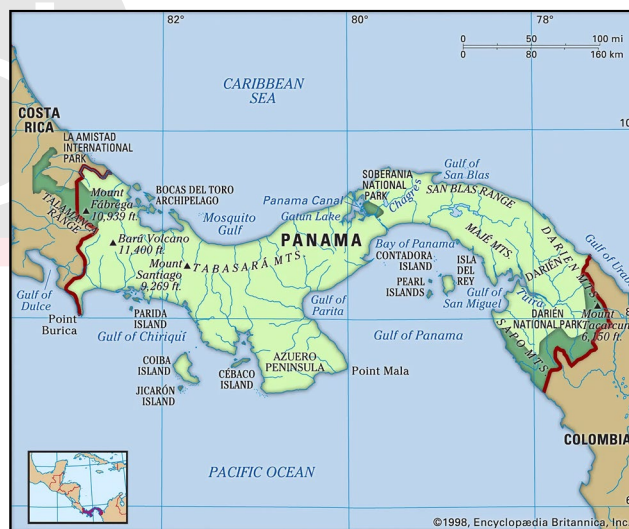
India and Panama signs MoU on Electoral Cooperation

The **Election Commission of India (ECI)** and Panama’s **Electoral Tribunal (ET)** have signed a **Memorandum of Understanding (MOU)** to establish a framework for

ongoing cooperation in **election management and administration**.

The discussions focused on the use of **technology and social media** in elections. Having signed MoUs with **Mexico, Brazil and Chile in the past years**, this is the **fourth MoU signed by ECI with an Election Management Bodies (EMBs) in the Latin American region**, with an overall **31 MoUs with EMBs and international organisations** across the world. Both ECI and ET are members of the **Association of World Election Bodies (A-WEB)**, which facilitates global collaboration among EMBs.

A-WEB is the **world’s largest international organization in the field of election management**. It currently comprises **119 EMBs from 110 countries**. It was established in **2013 in South Korea** with the aim of promoting **free, fair, transparent, and participative elections worldwide**.



Read more: **Election Commission of India, General Assembly of the Association of World Election Bodies**

IRDAI and Obligatory Cession

The **Insurance Regulatory and Development Authority (IRDAI)** has maintained the *status quo* on obligatory cession of business for FY 23-24 at 4%. The govt had notified the move recently saying that the entire **Obligatory Cession** is to be placed with **General Insurance Corporation of India (GIC Re)** only.

Obligatory cession refers to the part of the business that general insurance companies have to mandatorily cede to the **national reinsurer GIC Re**. The private general

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insurers are against this as it hinders their freedom of doing the reinsurance business.

IRDAI is a regulatory body created with the aim of protecting the interests of insurance customers. It was established under the IRDA Act 1999 and functions under the Ministry of Finance.

Read More: [IRDAI](#)

Findings from Sangam Age Excavated in Tamil Nadu

A gold stud, a bone point and a carnelian bead have been unearthed by archaeologists at Porpanaikottai in Pudukottai district of TN. A Sangam-age fort is believed to have existed at the site.

The stud is believed to be used as a nose ornament whereas the bone point was probably used for weaving in the Sangam Age. The discovery of the red round-shaped carnelian bead is a pointer to domestic trade; they were usually sourced from Gujarat.



Studies carried out at the site using Light Detection and Ranging (LIDAR), a remote sensing method, have also indicated that a fort had existed at Porpanaikottai.

Read More: [Sangam Age](#), [LiDAR Technology](#)

SALVEX

The 7th edition of the Indian Navy – US Navy (IN – USN) Salvage and Explosive Ordnance Disposal (EOD) exercise – SALVEX was conducted recently at Kochi. IN and USN have been participating in joint Salvage and EOD exercises since 2005.

The constructive engagement on operational terms is aimed at enhancing the skill sets of the Diving teams in a number of diverse disciplines such as mine detection and neutralisation, wreck location and salvage.

Other exercises between India and US include Yudhabhaya, Vajra Prahar, Malabar (Multilateral), Red Flag 16-1, and Exercise Cope India.



Read More: [India-US Relations](#)

India's First Chatbot

The UT of Jammu and Kashmir (J&K) launched India's first Tele-MANAS chatbot which will start an instant conversation with people in distress.

Tele-MANAS is a two-tier system. Tier 1 comprises State Tele MANAS cells, which include trained counsellors and mental health specialists. Tier 2 comprises specialists at District Mental Health Programme (DMHP)/Medical College resources for physical consultation and/or eSanjeevani for audio-visual consultation.

eSanjeevani is a national doctor-to-doctor telemedicine service that strives to provide an alternative to conventional physical consultations via the digital platform. It is a cohesive part of the Ayushman Bharat Digital Health Mission (ABDM).

Read More: [Prioritising Mental Well-being](#)

Similipal Tiger Reserve (STR)

The Odisha government deployed armed police personnel at the Similipal Tiger Reserve (STR) to protect the 2,700 km² reserve area that is home to unique

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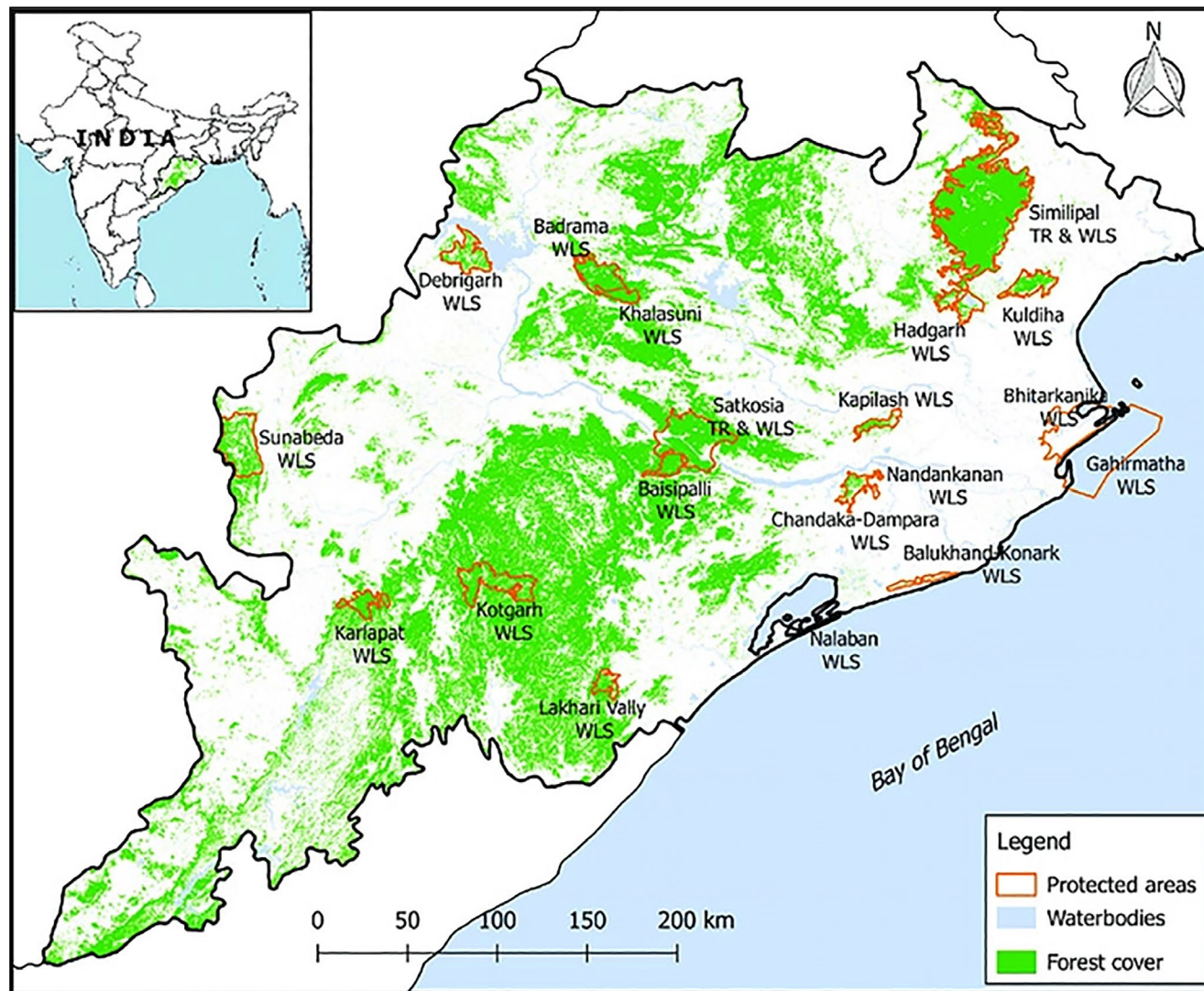


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melanistic tigers. Melanistic refers to having very dark skin/hair due to higher-than-normal level of melanin (substance that gives pigmentation to skin/hair).

STR was formally designated a tiger reserve in 1956 and brought under **Project Tiger** in the year 1973. It was

declared a biosphere reserve by the **Government of India** in June, 1994. It has been part of the **UNESCO World Network of Biosphere Reserve** since 2009. It is also a part of the **Mayurbhanj Elephant Reserve**. Geographically, it lies in the eastern end of the eastern ghat.

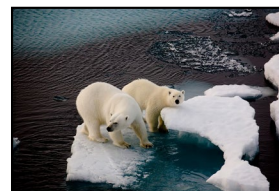


Read More: **Similipal Tiger Reserve (STR)**

Methane-Rich Groundwater Springs in the Arctic

Climate change is causing the retreat of glaciers in the Arctic, revealing methane-rich **groundwater springs**, according to a study published in **Nature Geoscience**. These springs, found in Svalbard, a Norwegian archipelago in the Arctic, are releasing over **2,000 tonnes of methane annually**, equivalent to **10% of Norway's oil and gas**

industry emissions. The high methane concentrations in the water, detected year-round, suggest the presence of trapped methane under glaciers. These springs are not part of the **global methane budget**. The global methane budget **estimates the amount of methane released through sources and captured through sinks.**



Note:

Groundwater springs are natural occurrences where **water from an underground aquifer emerges onto the Earth's surface**. They are typically formed when pressure builds up within the aquifer, forcing water to flow through fractures or openings in the rocks.

Read more: **Methane Emissions, Phase Out Methane Emissions By 2030**

Zaporizhzhya Nuclear Plant: Lower Risks Compared to Chernobyl

The **Zaporizhzhya Nuclear Power Plant (NPP)** in **Ukraine**, currently under **Russian control**, faces safety threats due to the ongoing conflict. However, a recent report by the **Bellona Foundation** highlights that risks and potential consequences at Zaporizhzhya NPP are not expected to be as severe as Chernobyl.

Zaporizhzhya is the **largest nuclear power plant in Europe**. It accounts for **about 40% of the total electricity generated by all the Ukrainian NPPs** and **one-fifth of Ukraine's annual electricity production**.



Read more: **Zaporizhzhya Nuclear Power Plant**

Cheetahs to be Relocated from Kuno to Gandhi Sagar Sanctuary

In an effort to ensure the preservation and expansion of the cheetah population in India, officials have announced

plans to relocate some African cheetahs from Kuno National Park (KNP) in Madhya Pradesh to the Gandhi Sagar Sanctuary within the same state.

The wildlife warden of KNP stated that the relocation would be carried out in strict adherence to the **Cheetah Action Plan**, which involves identifying suitable habitats for the cheetahs.

The decision to relocate the cheetahs comes after the **Supreme Court's directive to distribute cheetahs across a broader geographic range**, following the deaths of three cheetahs within a 45-day period earlier this year.

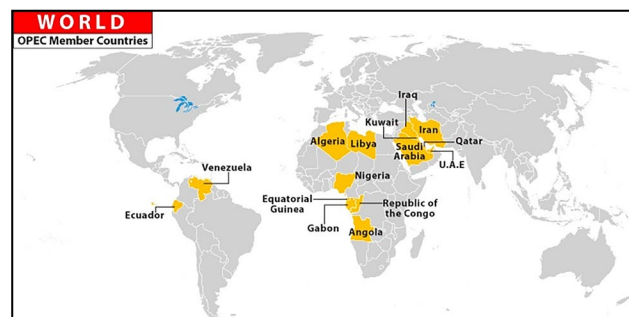
Read more: **African cheetahs, Cheetah Action Plan.**

Four New Countries Consulted to Join OPEC

Recently, the **Organization of the Petroleum Exporting Countries (OPEC)** Secretary General announced that discussions are underway with four new countries, namely **Azerbaijan, Malaysia, Brunei, and Mexico**, to join the organization.

OPEC, which was established in 1960 with founding members **Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela**, now consists of **13 member states**. OPEC produces around 30% of the world's **crude oil**, with its members accounting for approximately 60% of the global petroleum trade. In 2016, OPEC expanded its alliance by including 10 major oil-producing countries, **forming OPEC+**.

OPEC+ includes the **13 OPEC member countries** along with **Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan, and Sudan**. The objective is to coordinate and unify **petroleum policies, stabilize oil markets, ensure a steady supply of petroleum to consumers, provide a reliable income for producers, and deliver a fair return on investment** in the petroleum industry. The headquarters of OPEC is in **Vienna, Austria**.



Read more: **Organization of the Petroleum Exporting Countries (OPEC)**

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India Tops Global Charts for Childhood Diabetes and Deaths

A new study published in the journal JAMA Network has revealed that **India witnessed the highest number of childhood diabetes cases and deaths globally in 2019**. The study highlighted that India also had the highest **disability-adjusted life-years (DALY)**, representing the loss of **one year of full health, according to the World Health Organization**. Global childhood diabetes cases increased by **39.4% since 1990**, with 227,580 cases and 5,390 deaths reported in 2019.

The rise in **type 2** diabetes in children is linked to global **childhood obesity, unhealthy lifestyles, and parental history of the condition**. Childhood diabetes is a condition where a **child's body cannot produce or use insulin properly**. Insulin is a hormone that helps **move sugar from the blood into the cells for energy**. There are two main types of childhood diabetes: **type 1** and **type 2**.

Read more: **Type 1 Diabetes, New Injection for Type 2 Diabetes**

JIMEX 23

The **seventh edition of the bilateral Japan-India Maritime Exercise 2023 (JIMEX 23)** is set to take place from **5th to 10th July 2023** in **Visakhapatnam, Andhra Pradesh**.

JIMEX 23 brings together units from the **Japan Maritime Self Defence Force (JMSDF)** and the **Indian Navy**. The exercise will involve the participation of various naval assets such as **guided missile destroyers, corvettes, submarines, maritime patrol aircraft, and helicopters**.



Read more: **Japan-India Maritime Exercise, Maritime security**

DGCA India and EASA Collaborate for Unmanned Aviation Advancement

The **Directorate General of Civil Aviation (DGCA)** India and the **European Union Aviation Safety Agency (EASA)** have solidified their collaboration through the signing of a Memorandum of Understanding (MoU) focused on **Unmanned Aircraft Systems and Innovative Air Mobility**.

The MoU encompasses licensing of **personnel, training, air traffic management, infrastructure**, and the establishment of **Unmanned Aircraft System Traffic Management (UTM)** standards and services.

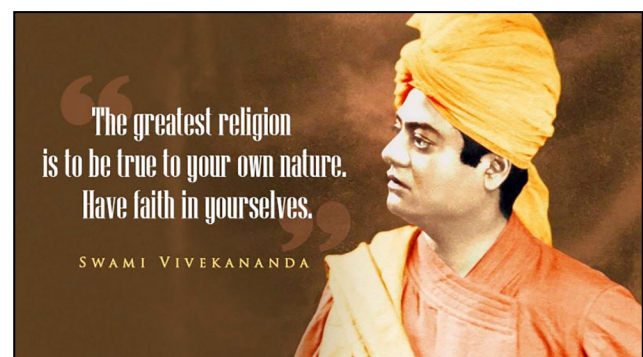
Read more: **Directorate General of Civil Aviation, Unmanned Aircraft Systems**

Death Anniversary of Swami Vivekananda

Prime Minister of India paid homage to **Swami Vivekananda** on his **Punya Tithi** (death anniversary) and hailed his inspiring principles for a strong India.

Swami Vivekananda attained Mahasamadhi (death) on July 4, 1902, at the age of 39. It is a day to remember his ideals of **service, humanity, and spiritual enlightenment**.

Swami Vivekananda was a **Hindu monk, philosopher, author, and reformer** who introduced **Vedanta and Yoga to the Western world**. He was the chief disciple of **Ramakrishna**, a mystic who taught him the unity of all religions. He founded the **Ramakrishna Math and Mission**, which promotes spiritual and social service, and inspired millions of people with his speeches and writings.



Read more: **Swami Vivekananda**

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India's Firms Show Strong Credit Quality and Robust Growth

According to a report by **S&P Global Ratings**, the companies tracked in India are in a **favorable credit position**, supported by **robust underlying growth and accommodative balance sheets**. The report highlights the country's strong economic growth, which is projected to reach 6% in 2023 and 6.9% in 2024, making it the highest in the region. Additionally, the presence of **strong onshore liquidity** helps counterbalance the challenges posed by tougher external-funding conditions. While companies continue to focus on debt reduction, the pace of deleveraging may slow due to increased **capital expenditure**.

Deleveraging refers to the process of reducing or eliminating debt in order to improve the financial stability of an individual, company, or economy. It typically involves decreasing the **ratio of debt to equity** or assets, thereby reducing the overall leverage or indebtedness.

Read more: **Credit Ratings**

Odisha Government Launches Mo Jungle Jami Yojana

The Odisha government has introduced the **Mo Jungle Jami Yojana**, a scheme aimed at **bolstering forest rights among tribals and forest dwellers across the state's districts**. If implemented, Odisha will become the **first state in India to recognize community forest rights** in addition to individual rights offered by the central government. The scheme aims to ensure livelihood and food security for the Scheduled Tribe and forest dwelling population by **granting ownership of land and access to forest resources to the beneficiaries in accordance with their entitlements**.

Odisha has a significant number of villages and Scheduled Tribe families that are targeted to benefit from the scheme. **With 62 different tribes, including 13 Particularly Vulnerable Tribal Groups (PVTGs)**, the state's tribal population accounts for **22.85% of the overall population**.

Read more: **Particularly Vulnerable Tribal Groups, Forest rights**

Empowering Women Entrepreneurs: eSARAS App

Deendayal Antyodaya Yojna- National Rural Livelihoods Mission (DAY-NRLM) has taken a significant step towards supporting **women in Self-help Groups (SHGs)** by launching the **eSARAS mobile App**. This app aims to enhance the **marketing initiatives for products made by SHGs**. Additionally, the **eSARAS fulfillment centre**, managed by the **Foundation for Development of Rural Value Chains (FDRVC)**, a Not for Profit Company constituted jointly by Ministry of Rural Development and Tata Trust, will handle the **processing, packaging, and shipping of products** purchased through the eSARAS Portal and App. This provides a user-friendly platform for **promoting authentic handicrafts and handlooms** but also ensures efficient logistics to deliver online orders directly to customers' doorsteps.

Read more: **Self Help Groups**

Neeraj Chopra Finishes 1st at Lausanne Diamond League 2023

Neeraj Chopra, the Olympic gold medalist, clinched first place in the javelin event in the Lausanne Diamond League 2023 by achieving a remarkable throw of 87.66 m. The Lausanne meet was Neeraj Chopra's second competition of the season and the first since the **Doha Diamond League**.

Lausanne Diamond League 2023 was the **sixth meet of the Diamond League athletics series**, which took place at the **Athletissima stadium in Switzerland**.

Read more: **Olympics**

Indian Refiners Shift to Chinese Yuan for Russian Oil Payments

Indian refiners have turned to the **Chinese yuan** as an alternative payment method for oil imports from Russia. **Indian Oil Corporation**, the largest buyer of Russian crude oil in India, became the **first state refiner to do so**. Western sanctions imposed on Russia following the **Russia Ukraine tussle** have prompted Russia and its

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customers to seek alternatives to the U.S. dollar for settling payments.

China, as Russia's top crude supplier, has already shifted to yuan payments for most of its **energy imports** from Russia. India, now the largest buyer of seaborne Russian oil, has taken the lead in diversifying payment options. While the exact extent of Russian oil purchased by Indian refiners with yuan remains unclear, this development reflects a **strategic shift in payment methods** amidst evolving geopolitical dynamics.

Read more: **Russia Ukraine tussle.**

Data Carbon Ladder

Scientists have developed a tool called the **Data Carbon Ladder**, which enables businesses to calculate the **carbon emissions** associated with their **digital data**. With the **global data volume** projected to exceed **180 zettabytes by 2025** and doubling every two years, understanding the carbon dioxide output of digital data is crucial.

The tool addresses a critical oversight in **global decarbonization** policies by considering the carbon footprint of data, an often-neglected factor. Data centers, responsible for **2.5% to 3.7% of all human-induced carbon dioxide emissions**, surpass the **aviation industry's emissions (2.1%)**. By utilizing this tool, businesses and organizations can improve the sustainability of their data projects, **minimizing their environmental impact** and **creating more efficient and eco-friendly solutions**.

Read more: **Carbon emissions, Decarbonization**

Preparedness for Vector-Borne Diseases

Recently, Union Health Minister virtually assessed **state readiness in preventing and controlling vector-borne diseases** before the monsoon season, emphasizing proactive measures and the importance of anticipating health requirements to reduce disease burden.

Vector-borne diseases are a group of illnesses **transmitted to humans through the bite of infected vectors** such as **mosquitoes, ticks, fleas, and flies**. These diseases include **malaria, dengue fever, chikungunya, Japanese encephalitis, lymphatic filariasis, and kala-azar**. They are typically seasonal and prone to outbreaks, with **most occurring during the monsoon and post-monsoon periods**.

Read more: **Dengue, Kala-azar Disease, Japanese encephalitis, malaria**

India Post and Canada Post Introduce ITPS for E-commerce

India Post and Canada Post have recently signed an agreement to launch the **International Tracked Packet Service (ITPS)** between the two countries. This service is effective from July 01, 2023.

The ITPS is a competitive **service for the transmission and delivery of packets** and has been designed to meet the **cross-border shipping** requirements of **e-commerce exporters** including **MSMEs**, small businesses, merchants, etc to promote exports of their products using local post offices. The ITPS, already available with **38 partner countries**, including recent additions like **Britain, France, UAE, and Egypt**, will now include **Canada as its 39th partner**.

The ITPS rates are kept very economical in comparison to **International EMS (Speed Post)** and other market products.

INS Sunayna Participates in Op Southern Readiness 2023

The recent participation of **INS Sunayna** in **Op Southern Readiness 2023**, conducted by the **Combined Maritime Forces (CMF)** in **Seychelles** from 10-12 Jul 23, marked a significant step towards strengthening multilateral ties and enhancing cooperation in the maritime domain.

The **Combined Maritime Forces (CMF)** is a multinational maritime partnership, which exists to uphold the **Rules-Based International Order (RBIO)** by countering illicit non-state actors on the high seas and promoting security, stability, and prosperity across approximately 3.2 million square miles of international waters, which encompass some of the **world's most important shipping lanes**. It has **38 member nations (including India)**.

INS Sunayna, the second of the **NOPV (Naval Offshore Patrol Vessel)** class of ship designed to undertake fleet support operations, coastal and offshore patrolling, ocean surveillance and monitoring of **Sea Lines of Communications** and offshore assets, and escort duties.

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Read more: **Combined Maritime Forces, Naval Offshore Patrol Vessel**

India Claims Eighth Asian Kabaddi Championship Title

India emerged victorious in the **Asian Kabaddi Championship 2023**, clinching the title for the **eighth time in nine editions**. The final took place in Busan, South Korea. The Indian kabaddi teams will now set their sights on the **upcoming Asian Games in Hangzhou, China**, scheduled from September 23 to October 8, 2023. The **1st Asian Kabaddi Championship** was held in 1980 and was included as a demonstration game in the **9th Asian Games, New Delhi in 1982**.

Kabaddi is best known **Indian Traditional Game** which basically a combative sport, with seven players on each side; played for a period of 40 minutes with a 5 minutes break (20-5-20). The core idea of the game is **to score points by raiding into the opponent's court** and touching as many defense players as possible without getting caught on a single breath.

The **All-India Kabaddi Federation** was formed in 1950 to look after the promotion of the game. The new body, **Amateur Kabaddi Federation of India (AKFI)** came into existence from 1972 **affiliated to Indian Olympic Association (IOA)** with a view to popularize the game in India & neighboring countries of Asia.

Read more: **Role of Sport in Aspirational India**

INS Sunayna Visit to Beira, Mozambique

INS Sunayna, a naval vessel of the **Indian Navy**, recently made a port visit to **Beira, Mozambique**, highlighting India's commitment to fostering cordial relations with its maritime neighbors and promoting the vision of **Security and Growth for All in the Region (SAGAR)**.

The deployment of **INS Sunayna** also includes a **scheduled joint Exclusive Economic Zone (EEZ) patrol off the coast of Mozambique**, enhancing the security cooperation between the two countries.

SAGAR was launched in 2015. It is India's strategic vision for the Indian Ocean Region (IOR). Through SAGAR, India seeks to **deepen economic and security cooperation with its maritime neighbours** and assist in building their maritime security capabilities.



Read more: **Security and Growth for All in the Region, Exclusive Economic Zone.**

World Mining Congress

The India pavilion at the **World Mining Congress**, held recently in **Brisbane, Australia**, showcased the country's technological prowess in the mining, energy sector and its commitment to **sustainable development**.

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The World Mining Congress (WMC) is the leading international forum for the global mining and resource industries. It promotes and supports scientific and technical cooperation in the sustainable development of natural mineral and energy resources and showcases the latest innovations and best practices in the sector.

The WMC was **inaugurated in 1958** by Prof. Bolesław Krupiński, a prominent Polish scientist and mining engineer. It is run by a permanent **secretariat seated in Katowice, Poland** and is **affiliated with the United Nations**. The WMC is **held triennially** across the world.

Read More: [Mining Sector in India](#)

'Report Fish Disease' App

The **Union Ministry of Animal Husbandry, Fisheries, and Dairying** has unveiled a new mobile app called '**Report Fish Disease**' to help fish farmers and improve disease management in the **aquaculture** sector.

Fish Diseases are the major constraint to the growth of the aquaculture industry. Surveillance for aquatic animal diseases is essential for early detection of diseases, thereby minimizing their impacts. Early detection of diseases is important for eradication and containment. Many cases of diseases in aquaculture go unreported due to unavailability of the field-level disease reporting mechanism.

The RFD app will help farmers report incidences of **diseases in finfish, shrimps, and molluscs** on their farms to field-level officers and fish health experts.

Read More: [India's Fisheries Sector](#)

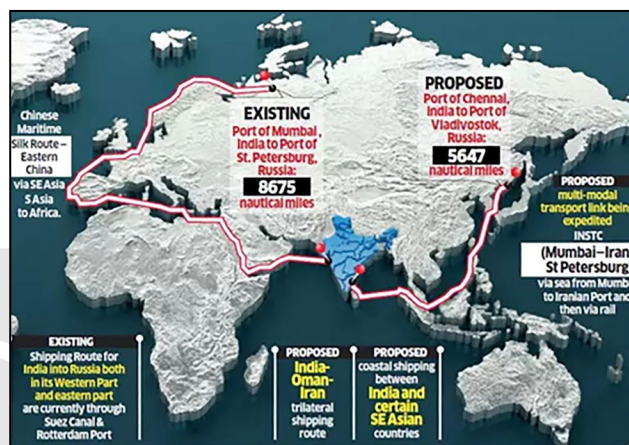
Chennai-Vladivostok Maritime Route

India and Russia are keen to make the Chennai – Vladivostok maritime route operational. The Vladivostok – Chennai route passes through the **Sea of Japan, the South China Sea and Malacca Strait**. During the 2019 visit, the PM of India signed a Memorandum of Intent (MoI) on the '**Development of Maritime Communications**

between the Port of Vladivostok and the Port of Chennai' with the Russian President.

The route will bring down transport time to 10-12 days, almost a third of what is taken under the **existing popular route that covers from St Petersburg to Mumbai**. At the same time, **costs are expected to come down significantly by 30%**.

It would also give India access to the **Far East, including countries like Mongolia**, and a significant presence in the **Southeast Asian region**.



Debrigarh Wildlife Sanctuary

Debrigarh, a wildlife sanctuary in Odisha's Bargarh district, **has been made completely free from any human settlement**. As per the State Forest and Environment department, Debrigarh Sanctuary, which is proposed to be a tiger reserve, has high prey base.

The sanctuary is habitat of animals such as Indian Bison's, Wild Boars, Sambhar and Peacocks. The four-horned antelope (Chousingha) which is listed as vulnerable in **IUCN red list** also inhabits this sanctuary.

The **Hirakud Reservoir**, which is a **Ramsar Site** and **International Bird Area**, is also located next to the sanctuary.

The sanctuary also finds a special mention because of noted freedom fighter **Veer Surendra Sai** who made his base at 'Barapathara' located within the sanctuary during his rebellion against the British.

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Key Points

Details

Summary

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Key Points

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