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Let's Prepare the Right way!!

Current Affairs Magazine

Specially Developed only for UPSC CSE



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1 POLITY AND GOVERNANCE

1.1 LEGAL SERVICES AUTHORITY

Ordeal of child marriage victims in Udaipur ends with Legal Services Authority's help.

About Legal Services Authority Act, 1987

- The **Legal Services Authorities Act 1987** was enacted to enforce the provisions of **Article 39 A**.
- Article 39A of the constitution pertains to promoting justice on the basis of equal opportunity by providing **free legal aid to weaker sections of society**.
- **Article 39A was inserted in the constitution by the 42nd Amendment act 1976.**
- The Act resulted in creation of The **National Legal Services Authority (NALSA)** across the country.
- Following types of services are covered in legal aid under the act,
 - Legal proceedings represented by advocates.
 - Document preparation of any pleadings, appeal memo, or paper book which includes for translation and printing of documents towards legal proceeding.
 - Expenses incurred for drafting special leave petitions or other legal documents.
 - Any service given and amount charged relating to any legal case conducted or proceedings before any court or other Authority or tribunal which are of legal nature and.
 - Advises of legal nature.
 - In addition to above, payment of fees towards any aid or advice given to the beneficiaries for claiming benefits for the schemes and statues framed by any state government or central government, it can be included under free legal services.

National Legal Services Authority

- The Chief Justice of India is **patron-in-chief of NALSA**.
- The **second senior-most Judge** of the Supreme Court of India is the **Executive-Chairman**.
- **To promote an inclusive legal system** in order to ensure fair and meaningful justice to the marginalized and disadvantaged sector is the vision of NALSA.
- The prime objective of NALSA is **speedy disposal of cases** and reducing the burden of the judiciary.
- **NALSA is housed at the Supreme Court of India.**
- It is the apex body constituted to lay down policies and principles for making legal services available under the provisions of the Act and to frame most effective and economical schemes for legal services.
- **It also disburses funds and grants to State Legal Services Authorities** and NGOs for implementing legal aid schemes and programmes.

State Legal Services Authority

- In every State, the State Legal Services Authority has been constituted to give effect to the policies and directions of the NALSA.
- To give free legal services to the people and **conduct Lok Adalats in the State**.
- The State Legal Services Authority is **headed by Hon'ble the Chief Justice of the respective High Court who is the Patron-in-Chief of the State Legal Services Authority**.
- A Senior **Most Judge of the High Court is nominated as Executive Chairman, SLSA**.

District Legal Services Authority

- In every District, District Legal Services Authority has been constituted **to implement Legal Services Programmes in the District**.
- The District Legal Services Authority is situated in the District Courts Complex in every District.
- It is chaired by the District Judge of the respective district.

- A Civil Judge Cadre Judicial Officer is appointed as Secretary on a fulltime basis.

Eligibility for free Legal Aid:

- **Under Section 12** of the Legal Services Authorities Act, 1987, the following individuals are eligible for free legal services:
- Scheduled Castes or Scheduled Tribes Members
- Victims of Trafficking or Begar
- **Women and Children**
- Mentally Ill or Disabled Persons
- Victims of Undeserved Want: Includes victims of mass disasters, ethnic violence, caste atrocities, floods, droughts, earthquakes, or industrial disasters.
- Industrial Workmen
- Persons in Custody: Includes those in protective homes, juvenile homes, psychiatric hospitals, or psychiatric nursing homes.
- Low-Income Individuals:
- Annual income less than ₹9,000 (or higher as prescribed by State Govt.) for cases before courts other than the Supreme Court.
- Annual income less than ₹12,000 (or higher as prescribed by Central Govt.) for cases before the Supreme Court.

Lok Adalat

- NALSA along with other Legal Services Institutions conducts Lok Adalats.
- Lok Adalat is one of the alternative dispute redressal mechanisms. It is a forum where disputes/cases pending in the court of law or at pre-litigation stage are settled/ compromised amicably.
- Lok Adalats have been given **statutory status under the Legal Services Authorities Act, 1987**.
- The award (decision) made by the Lok Adalats is **deemed to be a decree of a civil court and is final and binding on all parties** and no appeal against such an award lies before any court of law.
- If the parties are not satisfied with the award of the Lok Adalat though there is no provision for an appeal against such an award.
- They are free to initiate litigation by approaching the court of appropriate jurisdiction by filing a case by following the required procedure, in exercise of their right to litigate

Challenges:

- **Limited Beneficiary Reach:** Despite over 80% of India's 1.25 billion population being eligible for legal aid, only 15 million people have benefited since 1995 (**India Justice Report 2019**). This indicates a significant gap in the reach and accessibility of legal services.
- **Financial Mismanagement:** The lack of financial management and accountability, coupled with insufficient performance monitoring, has severely compromised the performance and effectiveness of legal services authorities. Efficient fund allocation and usage are critical for maintaining and expanding legal aid services.
- **Women Representation:** Only 18% of panel lawyers are women, which restricts efficiency, particularly in handling cases related to women. Increasing the representation of women in the legal aid system is crucial for ensuring gender-sensitive legal services.
- **Inconsistent Organizational Procedures:** In 2018, 2,254 sub-divisional/taluka legal services committees and 664 District Legal Services Authorities (DLSA) were established. However, inconsistent procedures and lack of uniformity across these bodies hinder their overall effectiveness.
- **Limited Reach of DLSA:** District Legal Services Authorities have not been established in all judicial districts of Tripura, West Bengal, Telangana, Chhattisgarh, Gujarat, and Uttar Pradesh, limiting the reach and impact of legal aid services in these regions.

- **Awareness and Education:** A significant portion of the eligible population is unaware of their right to free legal aid. There is a need for more extensive public awareness campaigns and education programs to inform citizens about available legal services.
- **Technological Integration:** The adoption of technology in the legal aid system is limited, affecting the efficiency and accessibility of services. Implementing digital platforms and tools can streamline processes and reach a broader audience.
- **Resource Constraints:** Legal services authorities often face resource constraints, including insufficient staffing and inadequate infrastructure, which hamper their ability to provide effective services.
- **Coordination and Collaboration:** There is often a lack of coordination between different levels of legal services authorities (national, state, and district), as well as with other related agencies and NGOs.

Way forward

- **Enhance Women Representation:** Increase recruitment and training of women panel lawyers.
- **Expand Beneficiary Reach:** Launch awareness campaigns and outreach programs in rural and remote areas.
- **Improve Financial Management:** Establish robust financial management, accountability mechanisms, and regular performance monitoring.
- **Standardize Procedures:** Develop and enforce uniform guidelines across all legal services bodies.
- **Increase DLSA Presence:** Ensure District Legal Services Authorities are established in all judicial districts.
- **Boost Awareness and Education:** Conduct extensive public education programs about legal aid rights.
- **Integrate Technology:** Implement digital platforms and tools for efficient legal aid delivery.
- **Address Resource Constraints:** Improve staffing and infrastructure for legal services authorities.
- **Strengthen Coordination:** Enhance collaboration between national, state, and district legal services authorities and related agencies

1.2 CPI MAOIST

After a gap of almost two decades, the residents of Alluri Sitharama Raju district in Andhra Pradesh will be able to cast their votes, without any concern for violence from the LeftWing Extremists of the CPI (Maoist).

About Maoism

- **Origin of Maoism:** Developed by **Mao Zedong**, Maoism is a branch of **communism that adapts Marxism-Leninism** to the Chinese context, emphasizing the role of the peasantry in revolution and the concept of protracted people's war.
- **Ideology of Maoism:** Focuses on **anti-imperialism**, the central role of the peasantry, dictatorship of the proletariat, and the need for continuous revolution to prevent capitalist restoration.
 - **Anti-Imperialism:** Maoism or **Leftwing Extremism** advocates for the overthrow of imperialist and capitalist systems **through armed struggle and the establishment of a socialist state**.
 - **Peasant Revolution:** The ideology places significant emphasis on the role of the **peasantry** as the primary revolutionary force, in contrast to the urban **proletariat's** role in classical Marxism.
 - **Dictatorship of the Proletariat:** Maoism calls for the establishment of a **dictatorship of the proletariat**, led by the vanguard Communist Party, to **suppress the bourgeoisie** and transition to socialism.
 - **Continuous Revolution:** The ideology emphasizes the need for continuous revolution to prevent the restoration of capitalism and bourgeois elements within the socialist state.

- **Proletariat:** The working class who sell their labor to survive.
- **Bourgeoisie:** The capitalist class who own the means of production and employ labor.
- These concepts emerged during the **rise of industrialism**

History of Maoism in India

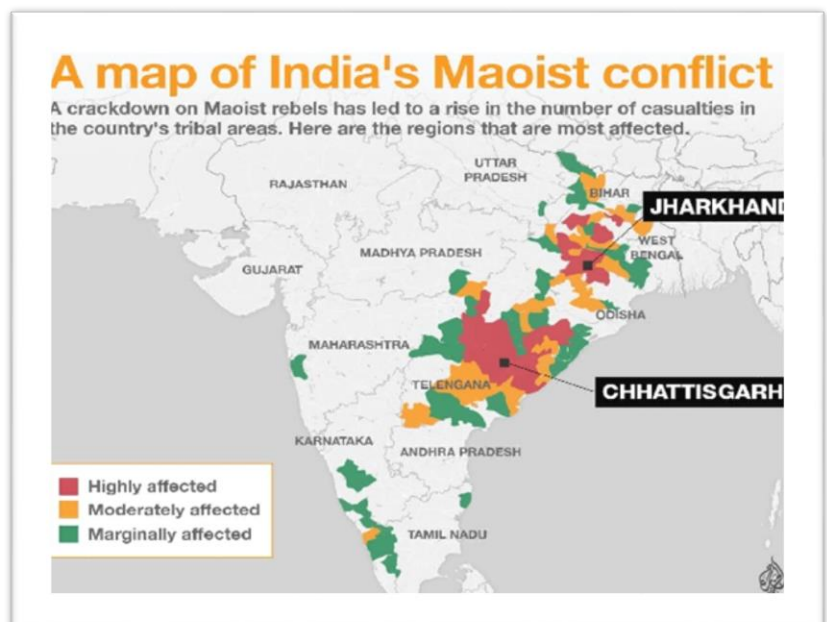
- **Naxalbari Uprising:** The Naxalite movement, inspired by Maoism, **began in 1967 with the Naxalbari village**, West Bengal, led by Charu Mazumdar and Kanu Sanyal.
- **Formation of CPI (ML):** The Communist Party of India (Marxist-Leninist) was formed in 1969 by splitting from the Communist Party of India (Marxist), adopting Maoism as its ideology.
- **Fragmentation and Splits:** Over the years, the Naxalite movement fragmented into various groups, with the **Peoples' War Group (PWG)** and the **Maoist Communist Centre (MCC)** emerging as the most prominent.
- **Merger into CPI (Maoist):** In 2004, the PWG and the MCC merged to form the **Communist Party of India (Maoist)**, the present-day Maoist organization in India.

CPI (Maoist)

- **Banned Terrorist Organization:** The CPI (Maoist) is a banned terrorist organization under the **Unlawful Activities (Prevention) Act, 1967**.
- **Leadership Structure:** The party functions with a central committee, politburo, and military commission overseeing its activities.
- **Forced Recruitment and Violence:** The CPI (Maoist) is accused of using violence and intimidation to control territory and forcefully recruit members.
- **Internal Clashes and Dwindling Influence:** The group faces internal clashes and a decline in influence due to counter-insurgency efforts.

Present Status in India

- **Red Corridor:** The CPI (Maoist) has a significant presence in the "Red Corridor," a region spanning several states in central and eastern India, including **Chhattisgarh, Jharkhand, and Odisha**.
- **Armed Struggle:** The Maoists continue to wage an armed struggle against the Indian state, engaging in **guerrilla warfare**, ambushes, and attacks on security forces and government targets.
- **Recruitment and Expansion:** The CPI (Maoist) actively recruits from **tribal and marginalized communities**, exploiting socio-economic grievances and expanding its influence in underdeveloped areas.
- **Reduction:** Security operations such as Operation green hunt, **Salwa Judam** and **development initiatives** like Integrated Action Plan (IAP) have weakened their hold in some areas. **As per MHA report**, the total no of LWE affected districts has come down to 70 districts.



Challenges Posed by Maoism

- **Undermining State Authority:** The Maoist presence weakens government control in affected regions, leading to lawlessness and disrupted governance.
- **Violence and Civilian Casualties:** Maoist activities result in significant casualties among security personnel and civilians, with **tribal communities often targeted as alleged informers**.
- **Exploitation of Socio-Economic Grievances:** The Maoists exploit land rights, resource distribution, and tribal discontent to recruit members and garner support.
- **Disruption of Development Projects:** Infrastructure projects, including roads, schools, and hospitals, are frequently attacked, hindering economic and social development.

- **Economic Impact:** The insurgency **creates economic instability**, deterring investments and stalling growth in affected areas, while disrupting local businesses and industries.
- **Psychological Impact:** Continuous violence and threats create a climate of fear, affecting the mental health and well-being of local populations.
- **Human Rights Violations:** Both the Maoists and security forces have been accused of human rights abuses, complicating efforts to address the insurgency and build trust among local communities.
- **Environmental Degradation:** The conflict often leads to environmental damage, as both sides may use natural resources unsustainably or cause destruction to gain tactical advantages.

Government Initiatives

- **Security Operations:** Various operations, such as Operation Green Hunt, Specialised forces like **Grey Hound (Telangana)** have been launched to counter the Maoist insurgency, involving coordinated efforts by **Central Armed Police Forces (CAPFs)** and state police.
- **Integrated Action Plan (IAP):** Focuses on infrastructure development, education, healthcare, and economic opportunities in Maoist-affected areas to address underdevelopment and improve governance.
- **Rehabilitation Policies:** Encourages Maoist cadres to surrender and reintegrate into mainstream society through vocational training, employment opportunities, and financial assistance.
- **Strengthening Security Infrastructure:** Establishing fortified police stations, improving intelligence gathering, and enhancing coordination among security agencies with modern equipment and paramilitary forces.
- **Special Infrastructure Scheme (SIS):** Provides **financial assistance** for infrastructure development, including roads, bridges, and other critical projects in Maoist-affected areas.
- **Civic Action Programmes:** Builds trust between security forces and local communities through medical camps, sports events, and educational activities to counter Maoist propaganda.
- **Modernisation of Police Forces:** Financial support for the modernization and up gradation of state police forces, focusing on training, improving operational capabilities, and providing advanced equipment.

Way Forward

- **Holistic Approach:** a comprehensive approach that combines security measures with socio-economic development and good governance initiatives.
- **Development and Inclusion:** Focusing on inclusive development, addressing grievances of marginalized communities, and improving access to basic services in affected areas is crucial to undermine the Maoists' support base.
- **Security Coordination:** Enhanced coordination and intelligence sharing among security forces at the state and central levels is essential for effective counter-insurgency operations.
- **Political Dialogue:** While maintaining a firm stance against violence, the government should explore avenues for political dialogue with Maoist groups willing to renounce violence and engage in peaceful negotiations.

1.3 RESERVATION BASED ON RELIGION

The election season has brought the fundamental constitutional questions around reservation- whether a secular country like India have religion-based reservation.

About Reservations

Definition:

- Reservations are **affirmative action policies** designed to improve the educational and employment opportunities for historically marginalized and underrepresented communities.

Purpose:

- To address **historical injustices and social discrimination**.
- To ensure equitable representation in education, employment, and political institutions.

- To promote social and economic inclusion of disadvantaged groups.

Constitutional Basis:

- **Articles 15(4) and 16(4)** of the Indian Constitution provide for reservations for socially and educationally backward classes, Scheduled Castes (SCs), and Scheduled Tribes (STs).
- Amendments such as the **77th, 85th, and 103rd have expanded and modified the scope of reservations.**

Categories of Beneficiaries

- **Scheduled Castes (SCs):** Historically marginalized communities facing **caste-based discrimination**.
- **Scheduled Tribes (STs):** Indigenous communities with **distinct cultures and socioeconomic disadvantages**.
- **Other Backward Classes (OBCs):** Socially and educationally backward communities not adequately represented.
- **Economically Weaker Sections (EWS):** Individuals from the unreserved category with low family income.

Existing Reservation to Muslims in India

- As OBC: Several Muslim communities are entitled to the OBC reservation at the central and State levels.
 - This stems from **Article 16(4) of the Constitution**, which guarantees reservations for a **“backward class of citizens**, which in the opinion of the State, is not adequately represented in the services under the State
 - OBC reservations exclude the **“creamy layer” (₹8 lakh annual income or more)**.
- **In EWS Quota:** Persons who are not covered under the scheme of reservation for **SCs, STs, and OBCs** and whose family has a **gross annual income below Rs. 8 lakh** (Rupees eight lakh only) of any religion are to be identified as EWSs (Economically Weaker Section) for the benefit of reservation of 10%.
- **State specific :**
 - **Kerala:** Out of the 30% OBC quota, Muslims are entitled to 8% in educational institutions and 10% in government jobs.
 - **Tamil Nadu:** It has in place a reservation of 3.5% reservation for Muslims based on their social and educational backwardness.
 - **Bihar:** The OBCs have been divided into backward and most backward classes, Muslims fall into the latter category.
 - **Karnataka:** Out of the 32% reservation for OBCs, a **sub-category comprising 4% was reserved for Muslims.**

Observations of SC on Muslim Reservation

M R Balaji case (1962):

- The SC held that while castes among Hindus may be an important factor to take into account when **assessing the social backwardness of certain groups or classes of citizens**, it cannot be the only test in this regard. Therefore, it is possible that in some states certain Muslims, Christians or Jains form socially backward groups.

N M Thomas vs. State of Kerala (1975)

- **Reservation is not an exception to equality**, but as an extension of equality. The crucial word in **Articles 15 and 16 is ‘only’** which may refer to a religious, racial, or caste group that constitutes a weaker section (under Article 46) or constitute a backward class, it would be entitled to special provisions for its advancement.

Arguments against such Reservation

Secular Principles:

- Providing reservations based solely on religion **contradicts the principle of secularism** enshrined in the Indian Constitution, which mandates equal treatment of all religions by the state.
- Religion-based reservations could set a precedent that **undermines the secular fabric of the nation**.

Administrative and Implementation Challenges:

- Implementing reservations based on **religion poses significant administrative challenges**, such as determining the criteria for identifying beneficiaries and preventing misuse.
- Ensuring accurate and fair identification of eligible individuals within **the Muslim community** can be complex and contentious.

Risk of Social Fragmentation:

- Religion-based reservations could **deepen social divisions and lead to communal resentment**, potentially undermining national unity.
- It might **create a sense of preferential treatment** among different religious groups, leading to societal discord.

Opposition from Constituent Assembly:

- The **framers of the Constitution were against reservation** based solely on religion, as it could lead to communal polarization.
- Historical debates in the Constituent Assembly reflect concerns about the **divisive potential of religion-based reservations**.

Alternative Solutions:

- **Instead of religion-based reservations**, focus could be **on socio-economic criteria** that address the needs of all disadvantaged groups, including Muslims.
- Policies targeting economic and educational upliftment for all poor and backward communities, regardless of religion, may be more effective and less divisive.

Arguments in Favour of Such Reservation**Historical and Social Backwardness:**

- Many **Muslim communities face significant social and educational backwardness**, similar to other disadvantaged groups.
- Reports like the **Sachar Committee (2006)** and **Ranganath Misra Commission (2007)** have highlighted the socioeconomic disadvantages faced by Muslims, advocating for targeted interventions.

Equity and Inclusion:

- Reservations can help **ensure equitable representation of Muslims** in educational institutions and government jobs.
- Providing reservations is a step towards inclusive development, ensuring that marginalized Muslim communities have access to opportunities.

Expert Recommendations:

- **Mandal Commission (1980)**: Included several Muslim castes in the OBC list based on their backwardness.
- **Sachar Committee (2006)**: Found that the Muslim community was almost as backward as SCs and STs, and more backward than non-Muslim OBCs. It recommended measures to improve the socio-economic and educational status of Muslims.
- **Ranganath Misra Commission (2007)**: Suggested **15% reservation for minorities**, including 10% for Muslims, to address their social and educational deprivation.

Constitutional Mandate for Social Justice:

- **Article 15(4) and 16(4) of the Constitution allow** for special provisions for socially and educationally backward classes, which can include backward Muslim communities.
- **Reservations for Muslims** can be seen as an extension of the state's duty to promote social justice and equality.

Way Forward

- **Sub-Categorization within OBCs**: Implement sub-categorization to ensure equitable distribution of reservation benefits among various sub-groups, including Muslims.
- **Socio-Economic Criteria**: Focus on socio-economic criteria for reservations to target all disadvantaged groups effectively, regardless of religion.
- **Periodic Review and Assessment**: Establish mechanisms for regular review and assessment of the impact of reservations to ensure they meet their intended goals.
- **Inclusive Development Programs**: Develop programs aimed at improving education, healthcare, and economic opportunities for all backward communities, including Muslims.

- **Balancing Secularism and Social Justice:** Formulate policies that balance the principles of secularism with the need for social justice, ensuring communal harmony.

1.4 PROTECTION OF CHILDREN FROM SEXUAL OFFENCE ACT

About POSCO Act

- **The POCSO Act was enacted in 2012** to protect children from sexual offences.
- The Act was amended in 2019 to enhance punishments for various offences to deter perpetrators and ensure the safety and security of children.

Constitutional Provisions Related to Children

- **Article 15(3):** This clause empowers the state to **make special provisions for women and children**. It allows the government to enact laws and policies specifically designed to protect and promote the interests of children.
- **Article 21A:** This article guarantees the **right to free and compulsory education** for all children between the ages of 6 and 14. It underscores the importance of education in the overall development and protection of children.
- **Article 24:** This provision prohibits the employment of **children below the age of 14 in factories**, mines, or any other hazardous occupations. It aims to protect children from exploitation and dangerous working conditions.
- **Article 45:** Originally, this article directed the state to **provide early childhood care and education** for all children until they complete the age of six years. It was a directive principle aiming to improve the welfare and development of young children.

International Framework

- **United Nations Convention on the Rights of the Child (UNCRC):** Adopted in 1989, the UNCRC is a comprehensive human rights treaty that outlines the civil, political, economic, social, and cultural rights of children. India ratified the UNCRC in 1992, committing to uphold and protect these rights. Key provisions include:
 - **Right to Protection from Abuse and Exploitation: Articles 19, 34, and 36 specifically address** the protection of children from all forms of abuse, sexual exploitation, and harmful practices.
 - **Right to Education: Article 28 emphasises the right of the child to education**, aiming to achieve this through progressive measures.

International Labour Organization (ILO) Conventions:

- **Convention No. 138 (Minimum Age Convention, 1973):** Sets the **minimum age** for admission to employment and work, aiming to eliminate child labour.
- **Convention No. 182 (Worst Forms of Child Labour Convention, 1999):** Focuses on the elimination of the worst forms of child labour, including slavery, trafficking, and hazardous work.

Salient Provisions of the POCSO Act

- **Definition:** Child as any person **below eighteen years of age**.
- **Time frame:** Investigation in the cases is to be **completed in two months** (from the date of registration of FIR) and trial in six months.
- **POCSO states a sexual assault** is to be considered aggravated if The abused child is mentally ill or when the abuse is committed by
 - A member of the armed forces or Security forces
 - A public servant
 - A person in a position of trust or authority of the child, like a family member, police officer, teacher, or doctor or a person-management or staff of a hospital, whether Government or private.
- **Imprisonment period:** It prescribes rigorous imprisonment for a term which **shall not be less than ten years** but which may extend to imprisonment for life and also fine as **punishment for aggravated penetrative sexual assault**.
- It also makes provisions for **avoiding the re-victimization of the child** at the hands of the judicial system.

- **Mandatory to Report the Cases:** It makes it the legal duty of a person aware of the offence to report the sexual abuse. In case he fails to do so, the person can be punished **with six months' imprisonment or a fine.**
- **Punishment for Trafficking:** It also prescribes punishment to the people who traffic children for sexual purposes.
- The Act also provides for punishment **against false complaints or untrue information.**
- Aggravated penetrative sexual assault under POCSO Act, 2012 is the equivalent provision for aggravated rape.
- A person can be charged with this offence in certain aggravating circumstances, such as if the rape occurs within a relationship of trust or authority, or if it leads to pregnancy, among others.
- Under POCSO, the consent of a person under **the age of 18 is irrelevant**, regardless of the nature and circumstance of the sexual interaction, or the particulars of the person with whom it takes place. This means that any sex with a minor is rape.

Revisions to the POCSO Act

- **2013 and 2018 Amendments:** Minor amendments were made to improve the Act's provisions.
- **2019 Amendment:** In response to rising cases of sexual offences against children, **the minimum punishment for penetrative sexual assault was increased from 7 to 10 years**, and for aggravated penetrative sexual assault from 10 to 20 years.
- **The death penalty** was introduced for aggravated penetrative sexual assault. New offences were introduced for transmitting or propagating child pornography.

Shortcomings in the Working of POCSO Act

- **Awareness and Reporting:** Limited awareness and cultural stigmas lead to underreporting. Only 35% of children and 32% of caregivers aware of POCSO (2020 study).
- **Training and Sensitisation:** Inadequate training for officials, medical practitioners, and law enforcement leads to insensitivity and mishandling of cases.
- **Investigation and Prosecution:** Delays in investigations and charge-sheet filing weaken cases. False information complicates proceedings. **Only 14% of cases result in conviction; 43% in acquittal.**
- **Trial Stage Challenges:** Lack of Special Courts and Special Public Prosecutors; non-compliance with timelines.
- **Post-Trial Stage Challenges:** Delays in compensation disbursement; inadequate interim compensation orders.
- **Victim Support and Rehabilitation:** Inadequate counselling and rehabilitation; lasting trauma requires continuous support. Lack of support persons for child victims.
- **Infrastructure and Resources:** Slow designation of Special Courts; **inadequate infrastructure**; high case volumes delay trials.
- **Coordination and Implementation:** Poor inter-agency coordination; gaps between policy and practice hinder implementation.
- **Pendency of Cases:** POCSO case pendency reached 85% in 2020.
- **Data Collection and Research:** Insufficient data hampers targeted interventions; more studies needed to assess effectiveness and impact.

Steps to Enhance Effectiveness of the POCSO Act

- **Legislative and Policy Recommendations:** Reduce the age of consent from 18 to 16 years with safeguards, hold public consultations for substantive amendments, and stipulate a time limit for interim compensation disbursement.
- **Making POCSO Courts Functional:** Appoint trained Special Public Prosecutors, establish Vulnerable Witness Deposition Centres, employ a hybrid approach for recording evidence, ensure continuous presence of support persons, and provide training for judges and prosecutors.
- **Increasing Awareness:** Include information about POCSO in school curricula, provide training to school staff, and include POCSO in teaching course curricula.

- **Capacity Building:** Conduct periodic integrated capacity building programmes for stakeholders, and improve forensic science laboratory infrastructure

1.5 STATEHOOD FOR DELHI

AAP (Aam Aadmi Party) has consistently demanded full statehood for Delhi, arguing that the current hybrid status between a Union Territory and a state hampers effective governance and development, necessitating a more autonomous and streamlined administrative structure.

Unique Status of Delhi

- **Status:** Unlike a full-fledged state or a Union Territory, Delhi is stuck between the two. **It is neither a full state nor a Union Territory.**
- **Power Centres:** This means it has **two power centers**
 - an elected Chief Minister and
 - A centre appointed Lieutenant Governor.
- **Constitutional Status:** **Article 239AA** conferred special status on Delhi following the recommendations of the **S Balakrishnan Committee that was set up in 1987** to look into Delhi's demands for statehood.
- It was inserted into the Constitution by the **69th Amendment Act, 1991.**
- **Provisions:** According to this provision, the NCT of Delhi will have an administrator and a Legislative Assembly.
 - Subject to the provisions of the Constitution, the Legislative Assembly, "shall have the power to make laws for the whole or any part of the NCT with respect to any of the matters in the State List or Concurrent List in so far as any such matter is applicable to Union territories."
 - **Exception to 7th schedule:** The subjects of police, public order, and land.

The Government of National Capital Territory of Delhi (Amendment) Act, 2023

- **Background:** On 11 May 2023 a **5 judge Constitutional Bench** of the Supreme Court ruled on the issue of who controls the bureaucracy in the national capital. The bench, **headed by Chief Justice of India DY Chandrachud**, held that the legislature (Elected Government) has control over bureaucrats in administration of services and control over officers' transfer and posting except in matters of public order, police and land.
- **The act was passed to nullify the judgment.**
- **Powers:** It extended the Central Government's control of services and gave powers to the Lieutenant Governor of Delhi over the capital city's elected Government.
- It also led to the formation of **National Capital Civil Services Authority (NCCSA)**
 - It is an administrative authority that will **manage the Civil Services in Delhi.**
 - The authority will have 3 members- **Chief Minister of Delhi, the Chief Secretary and the Principal Home Secretary.**
 - The meetings of this **authority will be chaired by the Chief Minister of Delhi.** The decisions are taken by vote.
 - NCCSA gives the union government more power to make decisions regarding the tenure, salaries, allowances, powers, and duties of officers.
 - **Role of CM in NCCSA**
 - CM will chair the meetings of NCCSA and decide the meeting's day and date. He will be presiding over discussions in NCCSA.
- **Role of LG in NCCSA**
 - **LG will have the final decision-making authority.** He can return files to NCCSA for reconsideration or can also take independent decisions for transfer and posting.

Arguments in Favour of Statehood for Delhi

- **DDA for Land and Housing Issues:** The Delhi government lacks the resources to ensure **efficient and effective land usage and allocation** for its people and welfare programs as it has no say in it.

- **Police for fixing Accountability for Delhi's law and Order:** Due to the absence of control over the police force, the Delhi government faces problems in proper maintenance of law and order in the state.
- **MCD (Municipal Corporation of Delhi):** As a **local body** which is supposed to work on health, education and sanitation, the synchronization in utilization of resources is extremely poor.
- **Increasing Population:** Increasing populations leads to increasing aspirations and this has led to a demand for a proper government.
- **LG and CM crisis:** The presence of multiple power centres causes policy paralysis and most of the precious time is then wasted in the management of these issues rather than working for public welfare.

Arguments against Statehood for Delhi

- **Essentiality of Central Control:** Delhi, being the national capital, houses various critical infrastructures such as Parliament buildings, embassies, etc. leaving them in entirety to **the state government may prove dangerous for such critical infrastructure**.
- **Law and Order:** Grant of statehood may prove detrimental to the administration of the national capital, especially in the case of law and order.
- **Quality of Administration:** The quality of administration may suffer due to a **lack of finance** in the state administration.
- **Security of Critical Infrastructure:** The security of critical infrastructure may be at stake with the disposal of entire power in the hands of the state government.

Way Forward

Bifurcation of Powers:

- **New Delhi as a Separate Entity:** Create a model where New Delhi, including diplomatic enclaves and central government institutions, remains under central government control, while the rest of Delhi is governed by a state government, similar to the **Washington D.C. model**.
- **Expert Committee:** Establish an expert committee to draft a detailed legal and procedural framework for implementing this bifurcation, addressing all governance and administrative challenges.

Enhanced Coordination:

- **Central-Delhi Government Collaboration:** Formalise mechanisms for regular coordination between the central government and the Delhi government. This could include joint task forces, regular meetings, and shared strategic planning sessions.
- **Municipal Representation:** Ensure that the state government has representation in municipal bodies to facilitate better coordination and avoid conflicts, possibly through formal consultation mechanisms.

Legal and Constitutional Amendments:

- **Amend Article 239AA:** Amend the Constitution, specifically Article 239AA, to clearly delineate the powers and responsibilities of the central and state governments in Delhi, ensuring clarity and reducing jurisdictional conflicts.
- **National Capital Territory Act:** Revise the National Capital Territory Act to reflect the new governance structure, providing a clear legal basis for the division of powers.

Public Engagement and Transparency:

- **Stakeholder Consultations:** Conduct extensive consultations with various stakeholders, including residents, businesses, and civil society, to gather input and build consensus on the proposed changes.
- **Transparent Governance:** Enhance transparency in governance processes through public forums, regular updates, and accessible information, ensuring that the public is informed and engaged in decision-making.

Security Provisions:

- **Central Control over Security:** Maintain central control over key security aspects, including the police and public order in New Delhi, to ensure the security of national and diplomatic infrastructure.

- **Joint Security Task Force:** Establish a joint security task force comprising central and state officials to coordinate on security matters across the entire National Capital Territory.

1.6 DRAFT DIGITAL COMPETITION BILL

Recently, the government proposed the Digital Competition Bill 2024, which aims to regulate the digital sector and prevent anti-competitive practices.

About Digital Competition Bill

- It proposes new legislative framework which aims to address the unique challenges posed by digital marketplaces and ensure fair competition within the rapidly evolving tech sector in India.
- The bill is inspired by the **European Union's Digital Markets Act (DMA)**.

Current Status of the Digital Market in India

- **Rapid Growth:** The digital market in India is expanding quickly, with a **projected growth from USD 5.15 billion in 2023 to USD 55.37 billion by 2032**.
- **E-commerce Boom:** Driven by over 900 million internet users, **the e-commerce sector is thriving**, fuelled by increased smartphone usage and affordable data.
- **Technological Advancements:** Adoption of AI, data analytics, AR, VR, and blockchain is transforming the digital landscape, enhancing consumer engagement and marketing efficiency.
- **Government Initiatives:** The Digital India campaign and supportive policies are fostering a digitally empowered society and a robust digital economy.
- **Regional Leaders:** States like Karnataka, Maharashtra, Telangana, Gujarat, and Haryana are leading in digital transformation, significantly contributing to market growth.

Key Proposals of the Draft Digital Competition Bill

Predictive Regulation

- **Proactive Approach:** The bill introduces provisions to set presumptive norms to curb anti-competitive practices before they actually occur, addressing the complexity of digital markets.
- **Heavy Penalties:** Violations of these norms can result in substantial fines, potentially amounting to billions of dollars.
- **Current Framework Limitations:** India's current ex-post framework under the Competition Act, 2002, has faced criticism for delays and disadvantaging smaller competitors.

Significant Entities

- **Systematically Significant Digital Enterprises (SSDE):** Companies will be designated as SSDEs based on specific criteria:
 - **Quantitative Parameters:**
 - Turnover in India of at least Rs 4,000 crore over the last three financial years, or
 - Global turnover of at least \$30 billion, or
 - Gross merchandise value in India of at least Rs 16,000 crore, or
 - Global market capitalization of at least \$75 billion, or
 - Core digital service with at least 1 crore end users or 10,000 business users.
 - **Discretionary Designation:** Entities not meeting these parameters can still be designated as SSDEs if the CCI believes they have a significant presence in any core digital service.
 - **Prohibited Practices:** SSDEs are prohibited from engaging in:
 - **Self-Preferencing:** Favouring their own products or services over competitors'.
 - **Anti-Steering:** Restricting users from being directed to third-party services or products.
 - **Restricting Third-Party Applications:** Limiting the functionality of third-party apps on their platforms.
 - **Penalties:** Violations can result in fines up to 10% of the company's global turnover.

Associate Digital Enterprises (ADEs)

- **Designation Criteria:** ADEs are identified based on the interplay of data across major technology groups:
 - **Group Association:** An entity within a technology group that benefits from data collected by another group company can be designated as an ADE.
 - **Example:**
 - **Google Maps:** If Google Search directs **significant traffic data** to Google Maps, it can be designated as an ADE.
 - **YouTube:** If YouTube's recommendations are heavily influenced by data from Google Search, it can also be designated as an ADE.
- **Regulatory Obligations:** ADEs will have the same regulatory obligations as SSDEs, ensuring they comply with rules on self-preferencing, anti-steering, and third-party application restrictions.

Empowering the Competition Commission of India (CCI)

- The bill empowers the CCI to proactively intervene and enforce regulations, addressing conflicts and anti-competitive practices in the digital market.

Data Regulation

- **Fair Data Use:** Regulates how data can be shared and used within tech conglomerates to ensure fair competition and prevent misuse.

Significance

- **Ensuring Fair Competition:** The bill aims to create a level playing field in the digital market by regulating dominant players, preventing them from engaging in anti-competitive practices that could stifle competition and innovation.
- **Supporting Startups:** By preventing market monopolization and ensuring fair competition, the bill supports startups and small businesses, enabling them to compete more effectively against larger, established players.
- **Protecting Consumers:** By curbing practices like **self-preferencing and anti-steering**, the bill ensures consumers have more choices and access to diverse services, leading to better quality and fair pricing.
- **Regulating Data Interplay:** Recognizing the significant role of data sharing within tech conglomerates, the bill ensures that data collected by one company is not misused to unfairly benefit other group companies, thereby promoting fair competition.
- **Encouraging Innovation:** The bill seeks to lower market entry barriers for new players, promoting a competitive environment where innovation can thrive, benefiting consumers with more innovative products and services.
- **Aligning with Global Standards:** Inspired by the European Union's Digital Markets Act (DMA), the bill aligns India's digital market regulations with global standards, enhancing the country's reputation as a fair and competitive market.

Criticism

- **Compliance Burden on Big Tech:** Major technology companies argue that the stringent regulations and compliance requirements could impose significant administrative and financial burdens. This could shift their focus from innovation and research to regulatory compliance, potentially stifling technological advancements.
- **Discretionary Powers of the CCI:** The extensive discretionary powers granted to the CCI to designate SSDEs and ADEs based on quantitative assessments are a point of contention. Critics argue that this could lead to subjective decision-making and potentially arbitrary enforcement actions.
- **Potential for Increased Litigation:** The preventive and presumptive nature of the bill may lead to an increase in litigation, as companies challenge CCI's designations and the imposed restrictions. This could result in prolonged legal battles, adding to the operational complexities for businesses.
- **Global Competitiveness:** Critics argue that stringent regulations might affect the global competitiveness of Indian tech companies. As they comply with rigorous local regulations, they **might struggle to compete** on an international scale against companies operating in less regulated environments.

- **Security Concerns:** Companies like **Google and Apple have raised concerns** about security implications. For instance, regulations requiring platforms to allow third-party applications could expose users to security risks, as these apps might not adhere to the same security standards.
- **Economic Impact:** Some critics suggest that the bill could have unintended economic consequences, such as reducing foreign direct investment in India's digital sector. Companies might be **deterred by the prospect of heavy regulations and potential fines**, impacting the overall growth of the digital economy.

Way Forward

- **Stakeholder Consultation:** Engage in continuous dialogue with stakeholders, including tech companies, consumer groups, and industry experts, to refine the bill and address concerns about compliance burdens and regulatory impacts.
- **Clear Guidelines:** Establish clear and transparent criteria for the designation of **Systematically Significant Digital Enterprises (SSDEs) and Associate Digital Enterprises (ADEs)** to prevent subjective decision-making and ensure fair implementation.
- **Balancing Regulation and Innovation:** Ensure that the regulatory framework supports innovation by minimizing unnecessary compliance burdens and focusing on creating a level playing field without stifling technological advancements.
- **Enhanced CCI Capacity:** Strengthen the technical and operational capacity of the Competition Commission of India (CCI) to handle the complexities of the digital market effectively, including early detection and timely resolution of anti-competitive practices.
- **Security Measures:** Implement robust security measures to mitigate the risks associated with third-party applications and ensure user data protection, addressing concerns raised by companies like Google and Apple.
- **Global Competitiveness:** Align the regulatory framework with global standards to maintain the international competitiveness of Indian tech companies, ensuring they can compete effectively on a global scale.
- **Periodic Reviews:** Conduct regular reviews of the regulatory impact to adapt to the rapidly evolving digital market, ensuring the legislation remains relevant and effective in addressing new challenges.

1.7 THE RIGHT TO PRIVATE PROPERTY AND LAND ACQUISITION

In a recent judgement, the Supreme Court stated that compulsory acquisition of private property without following mandatory procedures will not make the acquisition constitutional.

Recent Judgement: Strengthening Property Rights

- **Violation of Due Process:** In a recent judgement, the Supreme Court ruled that the state cannot acquire property without following the due process of law, as mandated by Article 300A of the Constitution.
- **Fair Compensation:** The court emphasized the importance of **providing fair compensation** to landowners whose property is acquired for public purposes.
- **Adherence to Land Acquisition Laws:** The state must strictly adhere to the provisions of the **Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013**, and other applicable laws.
- **Judicial Oversight:** The court asserted its role in ensuring that the state's power is exercised within the bounds of the law with respect to individual property rights.

About Right to Property

- **Legal Entitlement:** The right to property grants individuals the legal entitlement to acquire, hold, and dispose of property (land or belongings) as they see fit.
- **Original Position:** Initially enshrined as a **fundamental right under Articles 19(1) (f) and 31** of the Constitution.
- **Current Status:** Following the **44th Amendment Act (1978)**, it is now a constitutional right under **Article 300A**.

Important Articles

- **Article. 19 (1) (f):** Right to Acquire, hold and dispose of Property. **(Repealed)**.
- **Article 31:** Right to private ownership and the right to enjoy and dispose of property. **(Repealed)**.
- **Article 31A:** It protects laws related to land reforms from challenges based on fundamental rights violations.
- **Article 31B:** It protects Acts included in the Ninth Schedule from being void due to inconsistency with Fundamental rights.
- **Article 31C:** It allows laws for **implementing directive principles to override fundamental rights**.
- **Article 300A:** Safeguards for Property.
 - **Protection from Deprivation:** This article states that no one can be deprived of their property except by following procedures established by law.
 - **Government Authority:** The government can acquire private property for public purposes, but only with proper legal authorization and fair compensation.
 - **Fair and Just Law:** The law used for acquisition must be fair, just, and reasonable, ensuring transparency and due process.

Land Acquisition Procedure

- **Legal Framework:** The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, outlines the current process for land acquisition.
- **Social Impact Assessment:** Section 4 of the Act mandates a social impact assessment to evaluate the project's impact on affected communities and their livelihoods.
- **Compensation & Rehabilitation:** Fair compensation for the acquired land and a comprehensive rehabilitation package must be provided to those whose land is taken.
- **Consent Clause:** **Section 2** of the act requires the **consent of at least 70% of the affected landowners** for acquisition of land for public-private partnership projects and 80% for private projects.

Challenges with Land Acquisition

Bureaucratic Delays

- **Complex Procedures:** The land acquisition process involves multiple stages, such as notifications, social impact assessments (SIAs), public hearings, and compensation determinations, which can lead to significant delays.
- **Administrative Hurdles:** Coordination among various government departments and agencies often results in **procedural bottlenecks and slow decision-making**, hindering development initiatives.

Compensation Concerns

- **Inadequate Compensation:** The compensation offered often does not reflect the true market value of the land, especially in rapidly urbanising areas, causing financial hardship for landowners.
- **Livelihood Impact:** Compensation often fails to adequately cover the loss of livelihoods, particularly for those dependent on agriculture or informal sectors, exacerbating economic challenges for affected families.

Resettlement Issues

- **Ineffective Resettlement Plans:** Comprehensive **rehabilitation and resettlement (R&R)** plans are often lacking, resulting in inadequate housing, loss of community support systems, and insufficient livelihood opportunities for displaced persons.
- **Social Displacement:** Large-scale projects can displace entire communities, disrupting social networks and causing severe hardship for vulnerable populations such as slum dwellers and tribal communities.

Litigation Hurdles

- **Legal Challenges:** Land acquisition projects frequently face legal challenges and court cases filed by affected parties, which can stall projects and significantly increase costs.
- **Need for Transparency:** The lack of transparent and fair procedures in land acquisition often leads to mistrust and resistance, highlighting the necessity for clear and equitable processes.

Public Opposition

- **Resistance from Landowners:** Strong opposition from landowners who are unwilling to sell their land can delay projects and complicate the acquisition process.
- **Community Protests:** Affected communities often organise protests and campaigns against land acquisition, leading to public unrest and further delays.

Governance and Policy Mismatch

- **Special Purpose Vehicle (SPV) Model:** The SPV model for executing projects can conflict with existing local governance structures, leading to jurisdictional and operational challenges.
- **Local Governance Empowerment:** The centralized approach of some land acquisition projects can undermine the authority of local governing bodies, contrary to the principles of the 74th Constitutional Amendment, which aims to strengthen local self-governance.

Implementation of Legal Provisions

- **Inconsistent Application:** The provisions of the LARR Act, 2013, are not uniformly applied across different states and regions, leading to discrepancies in the land acquisition process and outcomes.

Transparency and Public Participation

- **Lack of Transparency:** Insufficient disclosure of information and lack of transparency in the acquisition process can lead to mistrust and resistance from the public.
- **Limited Public Participation:** Affected communities are often not adequately involved in the decision-making process, resulting in solutions that do not address their needs and concerns.

Way Forward

Simplifying Procedures

- **Streamline Bureaucratic Processes:** Simplify and expedite the land acquisition process by reducing bureaucratic red tape and improving coordination among government departments.
- **Digitalization:** Implement digital platforms for faster processing of notifications, approvals, and compensation disbursement to enhance efficiency and transparency.

Fair Compensation

- **Accurate Market Valuation:** Ensure that the compensation reflects the current market value of the land, considering factors such as location, potential for future development, and economic conditions.
- **Livelihood Restoration:** Include additional compensation for loss of livelihoods and ensure support for affected individuals to find new employment opportunities or start alternative livelihoods.

Sustainable Resettlement

- **Comprehensive R&R Plans:** Develop robust Rehabilitation and Resettlement (R&R) plans that provide adequate housing, infrastructure, and livelihood opportunities for displaced persons.
- **Community Integration:** Design resettlement plans to maintain social cohesion and community support systems, ensuring that displaced populations can rebuild their lives effectively.

Enhancing Governance

- **Strengthening Local Governance:** Align the governance structure of land acquisition projects with the 74th Constitutional Amendment, empowering urban local bodies (ULBs) and rural local governments to take a more active role.
- **Decentralization:** Decentralize decision-making to ensure that local needs and contexts are adequately considered in land acquisition projects.
- **Public Participation and Inclusivity**
- **Citizen Engagement:** Strengthen mechanisms for citizen engagement in the planning and implementation of land acquisition projects, ensuring that the voices of affected communities are heard and considered.
- **Transparency:** Enhance transparency by making all relevant information publicly accessible, including through digital platforms, and ensuring regular updates on project progress and compensation disbursement.

Legal Reforms and Policy Changes

- **Uniform Application of LARR Act:** Ensure consistent application of the LARR Act, 2013, across all states and regions to avoid discrepancies and ensure fairness.
- **Policy Adjustments:** Modify policies to address specific challenges such as compensation adequacy, environmental impacts, and social displacement.
- **Funding Diversification**
- **Innovative Financing:** Explore innovative financing mechanisms like municipal bonds, land value capture, and public-private partnerships (PPPs) to bridge funding gaps.
- **Timely Disbursement:** Ensure timely disbursement of funds to prevent financial distress among affected landowners and expedite project timelines.
- **Judicial Oversight and Grievance Redressal**
- **Independent Oversight Bodies:** Establish independent oversight bodies to monitor land acquisition processes and ensure compliance with legal and ethical standards.
- **Effective Grievance Mechanisms:** Strengthen grievance redressal mechanisms to promptly address disputes and complaints from affected individuals, ensuring fair and just outcomes.

1.8 ARTICLE 31C

A nine-judge panel of the Supreme Court, headed by Chief Justice of India D.Y. Chandrachud, has agreed to address the significant constitutional implications of whether Article 31C remains in effect, particularly in relation to the government's power to acquire and redistribute private property.

Article 31C protects laws enacted to ensure

- The “material resources of the community” are distributed to serve the common good (Article 39(b)) and
- That wealth and the means of production are not “concentrated” to the “common detriment” (Article 39(c)).
- As per Article 31C, these particular directive principles (Articles 39(b) and 39(c)) cannot be challenged by invoking **the right to equality (Article 14)** or the rights under **Article 19 (freedom of speech, right to assemble peacefully, etc.)**.

Judicial evolution of Article 31C

The 25th Constitutional Amendment Act (1971)

- **Introduction of Article 31C:** This article was introduced as part of the 25th Constitutional Amendment Act, primarily **to address issues related to the nationalization of banks and the abolition of privy purses**.
- The amendment specifically mentioned the “Bank Nationalisation Case”, in which the SC stopped the Centre from acquiring control of 14 commercial banks by enacting the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1969. In this case, the court held that the ‘right to compensation’ was not appropriately ensured by the Banking Act.
- **Provisions:** The amendment altered Article 31, granting the government authority to acquire private property for **public use and insulating such laws from judicial review** concerning the adequacy of compensation.

Kesavananda Bharati Case (1973)

- **Challenge to the Amendment:** The constitutionality of the **25th Amendment, including Article 31C**, was challenged in the Supreme Court in the Kesavananda Bharati case.
- **Judgment:** A narrow 7-6 majority of the 13-judge bench upheld that the Constitution possesses a “basic structure” that cannot be altered, even by a constitutional amendment.
- **Significance:** This seminal ruling established the doctrine of the basic structure, placing limits on parliamentary power to amend the Constitution.

Doctrine of Severability Applied to Article 31C

- **Key Ruling:** The Supreme Court struck down the latter part of Article 31C, which stated that no law purporting to enact policies under this article "shall be called into question in any court on the grounds that it does not give effect to such policy."
- **Legal Principle:** This decision highlighted the doctrine of severability, affirming that unconstitutional parts of a statute can be severed, allowing the remainder of the law to remain effective.

42nd Constitutional Amendment Act (1976)

- **Enactment and Expansion of Article 31C:** In response to earlier controversies, Parliament expanded the protections under Article 31C through the 42nd CAA, extending these protections to "all or any of the principles laid down in Part IV of the Constitution" under clause 4, thus safeguarding every Directive Principle from challenges under Articles 14 and 19.

Minerva Mills v. Union of India (1980)

- **Further Judicial Scrutiny: Clauses 4 and 5 of the Forty-second Amendment** were reviewed by the Supreme Court.
- **Decision:** The court invalidated these clauses, reaffirming that Parliament's power to amend the Constitution is limited and cannot be used to remove these limitations, nor to grant itself unlimited amendment powers.
- **Constitutional Safeguards:** This judgment further reinforced the limitations on altering the Constitution's basic structure or fundamental rights.
- **Ambiguity:** However, the ruling introduced a conundrum: **By invalidating a portion of the 25th Amendment, did the court effectively nullify Article 31C in its entirety?**

- The Supreme Court is currently examining an appeal related to **Chapter VIII-A of the Maharashtra Housing and Area Development Act, 1976 (MHADA)**, which was added by an amendment in 1986.

Provisions of the Amendment:

- Allows the government to acquire "**cessed**" properties in Mumbai.
- The acquisition is justified by the need to distribute "material resources of the community...to subserve the common good," aligning with Article 39(b) of the Constitution.

Historical Judicial Decisions:

- In 1991, the Bombay High Court upheld the amendment, **citing protection under Article 31C**, which shields laws that further the **objectives of Article 39(b)**.

Supreme Court Appeal (1992):

- Initiated to challenge the High Court's decision.
- Central question: Whether "material resources of the community" under Article 39(b) includes private resources such as cessed properties.

Aspect	Challenge/Impact	Pros	Cons
Investor Sentiment	Deterrence of investors due to overriding property rights	Facilitates socially beneficial reforms without litigation	Deters investment, limiting economic growth and innovation
Capital Mobility	Potential for capital exodus fearing government interference	Redirects capital towards reducing social and economic disparities	Causes economic instability, impacts currency valuation, reduces competitiveness
Corruption and State Power	Risk of increased corruption and misuse of authority	Empowers swift implementation of policies for societal good	Leads to potential abuse of power, eroding public trust and governance integrity

- **Economic and Governance Challenges of Implementing Article 39B via Article 31**

1.9 NONE OF THE ABOVE (NOTA)

The recurring election cycles have reignited discussions on enhancing the efficacy of the 'None of the Above' (NOTA) option and underscored the ongoing need for comprehensive electoral reforms.

About NOTA

- **Formal Rejection:** NOTA allows voters to **formally express their rejection** of all running candidates in an election.
- **Exercising Right:** It enables voters to **exercise their right not to vote** for any candidate while still participating in the electoral process.
- **No Impact on Result:** However, NOTA votes do **not impact the outcome of the election, as the candidate with the highest valid votes still wins.**

History of NOTA

- **Origin:** The concept of NOTA was first introduced in India by the Supreme Court in 2013, following a Public Interest Litigation (PIL) filed by the **People's Union for Civil Liberties (PUCL)**.
- **Constitutional Basis:** In 2018, the Supreme Court reiterated that NOTA is a fundamental right under **Article 19(1) (a)** of the Constitution, which guarantees freedom of speech and expression. The court opined that this **freedom includes the right to express dissatisfaction** with the current candidates, enhancing democratic ethos.
- **EVM Implementation:** The Election Commission installed a button for NOTA in all EVMs to give voters this choice.
- **First Use:** NOTA was first used in the **2013 legislative assembly elections** in Chhattisgarh, Mizoram, Rajasthan, Madhya Pradesh, and Delhi.

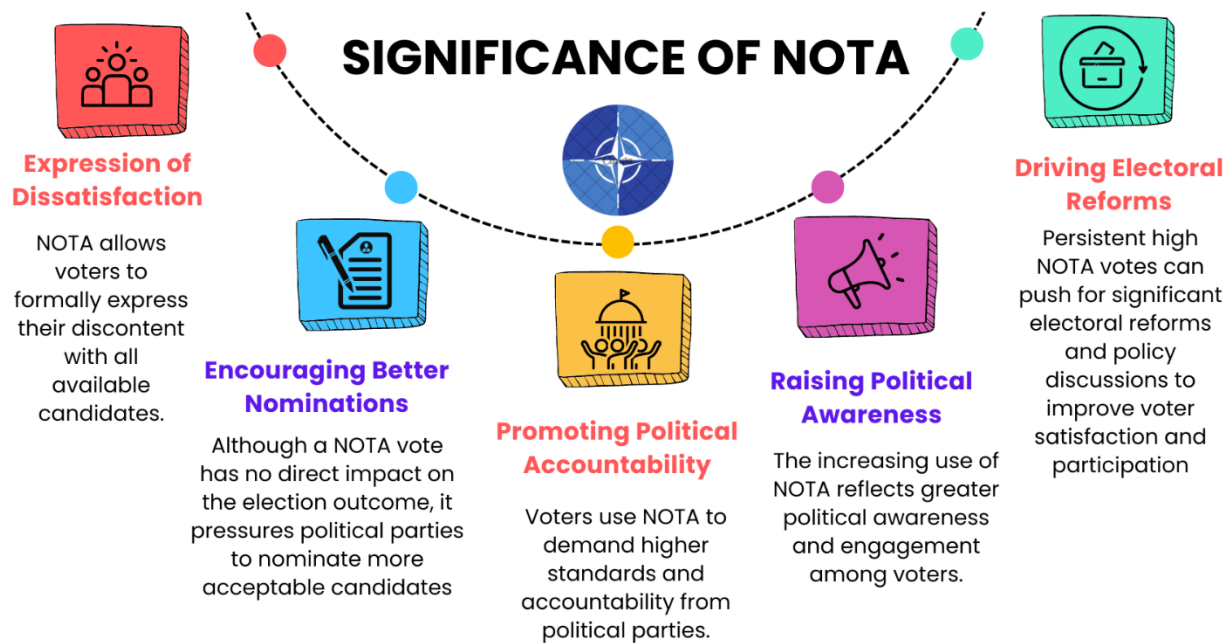
Operational Mechanics and Legal Basis of NOTA

Legal Context:

- **The Conduct of Elections Rules, 1961: Rule 49-O (Before NOTA):** Allowed voters to not vote for any candidate but compromised voter secrecy by requiring them to inform the presiding officer.
- **The Representation of the People Act, 1951:**
 - **Section 79(d):** Defines "electoral right" to include the right to vote or refrain from voting at an election.
 - **Section 128:** Emphasizes the maintenance of secrecy of voting.
- **Design and Placement on Ballot:** Designed by National Institute of Design, Ahmedabad. In the electronic voting machines (EVMs), the NOTA option is strategically positioned at the end of the candidate list, labelled as "None of the Above".
- **Vote Counting and Impact:** While NOTA votes are counted and the totals are reported, **they do not influence the final result of the election.** The candidate with the highest number of votes among the actual candidates will win, regardless of NOTA vote totals. This practice highlights the symbolic nature of NOTA in expressing voter dissent.
- **Secrecy and Anonymity:** NOTA adheres to the same stringent confidentiality measures as other voting options. This ensures that the anonymity of voters choosing NOTA is preserved, reinforcing the principle of secret ballot in the democratic process.

Trends and Analysis

- **NOTA Voting Statistics:** As per a report of Association of Democratic Reforms (ADR), since its implementation in 2013, NOTA polled 1.08 percent (60,00,197 votes) of total votes in 2014, while it received 1.06 percent (65,23,975 votes) of total votes in 2019.



Patterns in NOTA Votes

- **Reserved Constituencies:** High NOTA votes often in reserved constituencies' → **Example: Araku** (ST reserved, Andhra Pradesh) was second in NOTA votes in 2019 → Indicates significant grievances among tribal and SC communities.
- **Urban vs. Rural:** In general, NOTA has been more popular in urban areas compared to rural areas, potentially due to higher awareness and education levels.
- **Disillusionment with Candidates:** High NOTA votes in some constituencies have been attributed to voter disillusionment with the candidates and lack of credible alternatives.

Challenges and Criticisms

- **Toothless Tiger:** Many experts have labelled NOTA a "toothless tiger" because it does not impact the election outcome. Even if NOTA gets 99 votes out of 100, the candidate with just one vote is declared the winner. This diminishes its significance in the eyes of voters.
- **Low Utilisation:** Low awareness and understanding of NOTA among voters, especially in rural areas and marginalized communities, limit its effective utilisation.
- **Opposition from Parties:** Some political parties and candidates resist the widespread use of NOTA, fearing it could undermine their chances of winning. This resistance can affect the promotion of NOTA.
- **Voter apathy:** There is a risk that NOTA could contribute to voter apathy if voters feel that their dissent does not lead to tangible change. As noted by ADR report, NOTA has not led to a reduction in the number of candidates with criminal backgrounds, failing to put pressure on parties to field better candidates.
- **Implementation Issues:** Experts have questioned the implementation of NOTA, claiming it has not fulfilled its purpose. They argue that **without legal consequences for high NOTA votes**, the option remains ineffective.

Way Forward

Electoral Reforms:

- **Give NOTA more significance** → e.g., trigger re-elections if NOTA > 50% (as in Colombia).
- Bar candidates losing to NOTA from immediate re-election → implement rules to prevent re-contesting.

Voter Education:

- **Increase awareness in rural and marginalized areas** → intensify education campaigns.
- **Disseminate information effectively** → collaborate with educational institutions, civil society, and media.
- **Foster early understanding** → introduce NOTA information in school and college curricula.

Political Accountability:

- **Make parties responsive to NOTA votes'** → report and address concerns publicly.
- **Formalize responses to high NOTA percentages** → establish mechanisms for party accountability.
- **Ensure better candidate selection** → implement stricter vetting processes, excluding those with criminal backgrounds.

Facilitating Participation:

- **Ease new/independent candidate entry** → reduce fees, simplify nominations, provide campaign support.
- **Enhance diversity in candidates** → implement quotas/incentives for women, minorities, and underrepresented groups.

Legal Empowerment of NOTA:

- **Empower NOTA to invalidate elections** → advocate for constitutional amendments or new legislation.
- **Periodic Reviews:**
- **Assess NOTA's effectiveness regularly** → establish independent electoral commission reviews.
- **Continuously improve implementation** → incorporate feedback from voters, analysts, and civil society.

1.10 INDIAN CYBER CRIME COORDINATION CENTRE (I4C)

Many Indians are falling prey to financial fraud carried out over the Internet, allegedly by criminals based in three contiguous Southeast Asian countries: Myanmar, Laos, and Cambodia.

- **Data: National Cybercrime Reporting Portal (NCRP) data show 7.4 lakh complaints** were made between January 1 and April 30 this year, while 15.56 lakh complaints were received in all of 2023.
- The I4C has identified four broad categories of fraud originating from these **three countries: Myanmar, Laos, and Cambodia, following certain modus operandi.**
- **Trading scam:** The alleged fraudsters issued ads on social media offering free trading tips on the stock market. Victims were asked to **join a WhatsApp group or Telegram channel**, where they would receive "tips" on **making money by investing in shares.**
- **Digital arrest:** Potential victims would get a call in which the caller would tell them that the **victims had sent or were the intended recipients of a parcel containing illegal goods, drugs, fake passports**, or other contraband.
- **Investment scam (task-based):** Victims typically received a **WhatsApp message from an overseas number**, purportedly belonging to a representative of a company.
 - Fake job offers involving rating social media posts. **Initial small payments**, then larger deposits required for higher returns.
- **Romance/Dating scam:** Conventional trap, though laid online. The victims were lured by people they thought were foreign women.
 - These **"women" would propose relationships or marriage**, and then make plans to come and meet in person. However, the victim would typically get a call from the "woman" that she had been detained at the airport and needed money to get out.

Indian Cyber Crime Coordination Centre (I4C)

- Indian Cyber Crime Coordination Centre (I4C) is an initiative of the **Ministry of Home Affairs, Government of India** to deal with cybercrime in the country in a coordinated and comprehensive manner.
- I4C focuses on **tackling all the issues related to Cybercrime for the citizens**, which includes improving coordination between various Law Enforcement Agencies.
- Indian Cyber Crime Coordination Centre scheme was approved on 05th October 2018

Objectives of I4C

- **Curbing Cybercrime:** To act as a nodal point to curb Cybercrime in the country.
- **Controlling Cybercrime:** To strengthen the fight against Cybercrime committed against women and children.
- **Filing Cybercrime:** Facilitate easy filing Cybercrime related complaints and identifying Cybercrime trends and patterns.
- **Early Warning:** To act as an early warning system for Law Enforcement Agencies for proactive Cybercrime prevention and detection.
- **Awareness:** creation among the public about preventing Cybercrime.
- **Assist States/UTs in capacity building of Police Officers,** Public Prosecutors and Judicial Officers in the area of cyber forensic, investigation, cyber hygiene, cyber-criminology, etc.

Components of I4C

- **National Cyber Crime Threat Analytics Unit (TAU):** Analyzes and monitors cybercrime threats.
- **National Cyber Crime Reporting Portal:** Provides a platform for citizens to report cybercrimes online.
- **Cyber Crime Investigation and Forensic Units:** Established in each state and union territory for specialized cybercrime investigation.
- **Cyber Crime Research and Innovation Centre:** Focuses on developing innovative technologies to combat cybercrime.
- **National Cyber Crime Training Centre:** Offers training programs for law enforcement agencies and other stakeholders.

Initiatives of I4C

- **Cyber Safe Women:** A campaign aimed at protecting women and children from cybercrimes.
- **Massive Open Online Courses (MOOC)** platform called '**CyTrain' portal**' developed to help in the capacity building of Police Officers/Judicial Officers through online courses on critical aspects of Cybercrime investigation.
- **The Citizen Financial Cyber Fraud Reporting and Management System:** launched for immediate reporting of financial cyber frauds.
 - **The National Toll- free Helpline number '1930'** has been operationalized to provide citizen assistance in lodging online cyber complaints.
- **Joint Cyber Coordination Teams (JCCT)** based upon Cybercrime hotspots
- **CyberDost:** It handles various social media platforms to generate **cyber awareness among citizens**

1.11 SPECIAL MARRIAGE ACT, 1954

*A marriage between a **Muslim man and a Hindu woman** is not valid under Muslim personal law and will be deemed "irregular" even if they are married under the Special Marriage Act, the Madhya Pradesh High Court ruled.*

About SMA:

- The **Special Marriage Act (SMA), 1954** is the statute providing **legal framework for the marriage** of people belonging to different religions.
- **Nature of Marriage:** The marriage performed under the Special Marriage Act, 1954 is a civil contract.
 - There is no need for rites or wedding ceremonies.
 - Marriages solemnized under the **Special Marriage Act are not governed by personal laws.**

Written notice

- **Section 5:** When a marriage is intended to be solemnized under this Act, the parties to the marriage shall give notice thereof in writing in the Form specified in the **Second Schedule to the Marriage Officer** of the district in which at least one of the parties to the marriage has resided for a period of not less than thirty days immediately preceding the date on which such notice is given.
- **Section 7:** It allows any person to object to the marriage before the expiration of 30 days from the date of the notice's publication.

Applicability

Any person, Irrespective of Religion.

- **Hindus, Muslims, Buddhists, Jains, Sikhs, Christians, Parsis, or Jews can also perform marriage under the Special Marriage Act, 1954.**

Inter-Religion Marriages are Performed Under this Act.

- This Act is applicable to the entire territory of India and extends to intending spouses who are both Indian nationals living abroad.

Indian National Living Abroad.

- It also applies to a marriage between foreign national and an Indian national within India.

Conditions for Marriage

- **No polygamy:** Each party involved should have no other subsisting valid marriage.
 - In other words, the resulting marriage should be monogamous for both parties.
- **Age:** The groom must be at least 21 years old; the bride must be at least 18 years old.
- **Mental capacity:** The parties should be competent regarding their mental capacity to the extent that they are able to give valid consent for the marriage.
- **Prohibited Relationship:** The parties should not fall within the degree of prohibited relationship.

Succession

- **Indian Succession Act:** Succession to the property of a person married under this Act or customary marriage registered under this Act and that of their children, are governed by Indian Succession Act.
- **Hindu succession Act:** If the parties to the marriage are Hindu, Buddhist, Sikh or Jain religion, the succession to their property will be governed by Hindu succession Act.

1.12 WORLD PRESS FREEDOM INDEX 2024

Reporters without Borders (RSF) published its annual World Press Freedom Index 2024 in which India was placed 159th out of 180 countries in 2024.

About World Press Freedom Index

- The World Press Freedom Index is an annual ranking of countries that has been compiled and published by the France-based global media watchdog **Reporters without Borders (RSF)** since 2002.
- **Objective:** The index aims to measure the level of **freedom available to journalists, news organizations, and netizens** within each country, as well as the efforts made by authorities to respect and uphold this freedom.
- **Focus:** The index focuses exclusively on press freedom and **does not evaluate the overall quality of journalism, nor does it assess broader human rights violations.**
- **Methodology:** In 2021, RSF introduced a new methodology to better define and measure press freedom. According to this methodology, press freedom is defined as:
 - **Journalistic Independence:** The capability of journalists, both as individuals and as a collective, to select, produce, and disseminate news that serves the public interest,
 - **Freedom from Interference:** The ability to operate independently of political, economic, legal, and social influences,
 - **Safety of Journalists:** The assurance of safety from threats to **their physical and mental well-being.**

Indicators Used in the Index

- To accurately reflect the state of press freedom, the index employs five key indicators:
- **Political Context:** How political conditions influence press operations.
- **Legal Framework:** The laws and regulations that support or restrict press freedom.
- **Economic Context:** The economic environment and its impact on media operations and independence.
- **Sociocultural Context:** Societal attitudes and cultural norms that may affect journalistic practices.

- **Safety:** The overall safety and security of journalists as they carry out their work.

India's Ranking

- **India's rank improved from 161 in 2023 to 159 in 2024 out of 180 countries.** India's score fell over the last year, from 36.62 to 31.28.
- Norway and Denmark continue to set high standards in press freedom, topping the list, while Eritrea and Syria remain at the bottom, facing severe challenges and restrictions for journalists.

1.13 MAHARASHTRA CONTROL OF ORGANIZED CRIME ACT (MCOCA)

Special MCOCA court convicted Chota Rajan for committing offenses punishable under sections 302 (murder) and 120B (criminal conspiracy) of the Indian Penal Code and relevant sections of the MCOCA, 1999.

About MCOCA:

- **The Maharashtra Control of Organised Crime Act, 1999:** is a law enacted by the state of Maharashtra.
- **Aim:** It aims to combat organized crime and terrorism.
- **MCOCA was the first state legislation** enacted to address organized crime in India.

Organized Crime:

- **MCOCA definition of 'organized crime':** Any continuing **unlawful activity** by an individual, singly or jointly, either as a member of an organized crime syndicate or on behalf of such syndicate, by **use of violence or threat of violence or intimidation or coercion, or other unlawful means**, with the objective of gaining pecuniary benefits, or gaining undue economic or other advantage for himself or any person or promoting insurgency.
- **Organized crime syndicate:** consisting of **two or more persons who singly** or collectively engage in organized crime.

Powers under MCOCA:

- **State police:** It grants the State police powers of surveillance, relaxed evidentiary standards and procedural safeguards, investigate and prosecute crime syndicates, **including intercepting communications, secret witnesses and seizing property.**
- **Type of Offense:** Every offense under this act is recognised as a cognizable offense with necessary precautions under the Code of Criminal Procedure Act.
- **Penalty:** It prescribes additional criminal penalties, including the death penalty.
- **Applicability:**
 - **MCOCA applies to the entire State of Maharashtra.**
 - The **Home Ministry** of the Government of India extended the applicability of MCOCA to the National Capital Territory of Delhi as well, by a notification dated 2 January 2002.
 - MCOCA overrides all other Indian laws and will prevail over any Indian law that conflicts with the provisions that MCOCA contains.

Establishment of Special Courts:

- **Sections 5 to 8 of MCOCA provide** for the establishment of special courts to try offenses defined under the Act.
- Such courts can be established by the Maharashtra State Government by notification and are staffed by judges nominated by the State, **in concurrence with the Chief Justice of the Bombay High Court.**

1.14 DIPLOMATIC PASSPORT

The Ministry of External Affairs (MEA) recently informed that Suspended JD(S) MP Prajwal Revanna had travelled to Germany on a diplomatic passport and however he did not seek political clearance for the trip.

What is a Diplomatic Passport?

- **Official Document:** A diplomatic passport is a special travel document issued by the Indian government to designated officials.
- **Distinct Appearance:** Unlike the standard blue cover, diplomatic passports have **maroon** cover, signifying their unique purpose.
- **Faster Processing:** They are issued with expedited processing compared to regular passports.
- **Limited Validity:** Their validity period typically ranges from 1 to **5 years**, depending on the holder's position and assignment.

Who is Eligible for a Diplomatic Passport?

- **Diplomatic and Consular Corps:** The primary recipients are diplomats, consuls, and members of the Indian Foreign Service.
- **Government Officials on Assignment:** Government officials undertaking official overseas duties can be issued diplomatic passports.
- **Privileged Positions:** Certain high-ranking officials, like Members of Parliament (MPs) on official visits, may be eligible.
- **Authorization is Key:** Ultimately, the Ministry of External Affairs (MEA) grants approval for issuance based on the applicant's official capacity.

Criticism of Diplomatic Passports

- **Misuse:** Some individuals may misuse diplomatic immunity for personal gain or escape legal consequences.
- **Lack of Accountability:** Critics argue that diplomatic passport holders should be held accountable for any wrongdoing.
- **Selective Issuance:** Concerns about favouritism or political influence in granting diplomatic passports.
- **Security Concerns:** **Loss or misuse of a diplomatic passport** could pose security risks if it falls into the wrong hands.

Recent Case of Prajwal Revanna

- **Sexual Abuse Allegations:** Suspended JD(S) MP **Prajwal Revanna** faced allegations of sexual abuse.
- **Travel to Germany:** He travelled to Germany using a diplomatic passport.
- **No Political Clearance:** The MEA informed that no political clearance was sought or issued for his travel.
- **Visa Exemption Agreement:** Germany is among the 34 countries with visa exemption agreements for diplomatic passport holders.

How Can a Diplomatic Passport Be Revoked?

- **Passport Act 1967:** The passport authority can impound or revoke a passport under specific circumstances.
- **Grounds for Revocation:** Wrongful possession, suppression of material information, court orders, in the interests of the sovereignty and integrity of India, or to maintain friendly relations of India with any foreign country.
- **Conviction of an offence-** It can also be revoked if the holder has, after the issue of the passport, been convicted by a court in India, and sentenced to **imprisonment for not less than two years**.
- **Court Order Required:** In Prajwal Revanna's case, the government can revoke his diplomatic passport only after a court order.

Way Forward

- Balancing diplomatic privileges with accountability is crucial. Stricter scrutiny, transparency, and adherence to legal norms can enhance the effectiveness of diplomatic passports while maintaining integrity and trust.

1.15 EXPENDITURE ALLOWED IN ELECTIONS

According to a recent report, during the 2019 general elections, the BJP and the Congress collectively spent an astronomical sum of over ₹20 billion.

Expenditure Allowed in Elections

- **Maximum Allowed Limit for Candidates**
 - For Lok Sabha constituencies - **Rs 95 lakh**
 - For Assembly seats - **Rs 40 lakh**.
- However, in certain smaller states and Union Territories, these caps are slightly lower, with Rs 75 lakh and Rs 28 lakh allocated for Lok Sabha and Assembly candidates, respectively.
- **Types of Expenditure:** The allowed expenditure covers expenses like campaigning, travel, publicity materials, and rally arrangements.
- **Accountability:** Candidates must maintain a detailed account of their election expenditure.
 - They must submit these accounts to the Election Commission after the polls.

Laws Governing Election Expenditure

- **Representation of the People Act, 1951:** It defines the code of conduct and expenditure limits for candidates.
- **Conduct of Election Rules, 1961:** These rules, framed under the 1951 Act, provide detailed guidelines on election expenditure.
- **Form 20 and Form 21:** Candidates must submit **Form 20 (declaration of election expenses)** and **Form 21 (statement of election expenses)** to the ECI.
- **Penalties for Violation:** Failure to comply with expenditure limits can lead to **disqualification** of the candidate.
 - Providing false accounts is a **punishable offense** under the Representation of the People Act, 1951.

Supervising Authority

- **Election Commission of India (ECI):** It sets expenditure limits, monitors compliance, and takes action against violations.
- **District Election Officers (DEOs):** At the district level, DEOs supervise election-related activities, including expenditure monitoring.
- **Income Tax Department:** The Income Tax Department plays a role in tracking the sources of funds for election expenditure.
- **Law Enforcement Agencies:** Agencies like the police and enforcement directorate assist the ECI in monitoring expenditure.

1.16 SARNA CODE

The INDIA alliance members have promised to bring out a separate Sarna religious code for tribals.

Demand for the Sarna code

- **The Sarna Code refers to the codification of religious** and cultural practices of certain tribal communities who are nature worshippers.
- Followers of '**Sarna**' are usually nature worshippers.
- They have been demanding recognition of it as a distinct religion for decades.
- At present, under the census, there are codes for only six religions: Hinduism, Islam, Christianity, Sikhism, Buddhism and Jainism.
- While filling in these columns, a tribal resident has to identify himself or herself as one of these or as 'others' but cannot specify his / her religion as a different one.

Sarna Religion

- **Followers:** Sarnaism is a religious faith predominantly followed by indigenous tribal communities.
- **Area:** Mainly in the Chota Nagpur Plateau region across states like **Jharkhand, Odisha, West Bengal, Bihar, and Chhattisgarh**.
- **Principles:** Its core principles emphasize "**Jal**" (water), "**Jungle**" (forest), and "**Zameen**" (land), with adherents offering prayers to trees and hills while believing in the protection of forests.

- **Etymology:** Sarna means "grove" and is etymologically related to the name of the sal tree.
- **Count:** In the 2011 census, the Sarna religion counted 4,957,467 followers in India.
- **Tribes:** Among the prominent tribes practicing Sarna are **Santal (30.48%), Oraon (21.35%),** Ho (17.87%), Munda (12.48%), Bhumij (1.72%), Lohar (1.70%), Mahali (1.07%), Kharia (0.87%), and Bedia (0.64%).

1.17 NATIONAL HUMAN RIGHTS COMMISSION OF INDIA

UN-linked body defers NHRC-India accreditation for second year in a row.

News Details

- The Geneva-based, **United Nations-linked Global Alliance of National Human Rights Institutions (GANHRI)** deferred the accreditation of the National Human Rights Commission-India (NHRC) for the second year in a row.
- This is **the first time India's status** has been suspended for two years in a row, in 2023 and in 2024.
- The decision was taken during the meeting of the **Sub Committee on Accreditation (SCA) on May 1, 2024.**
- This decision could now affect India's ability to vote at the Human Rights Council and some UNGA bodies.

1.18 RULES FOR THE USE OF STATE-FUNDED MEDIA BY PARTIES DURING POLLS

- Recognized political parties are allowed to freely use state-owned television and radio during polls.
- **Start:** The process has been followed since the 1998 Lok Sabha elections.
- **Decision on Timing:** The ECI decides how much time each recognized national and state party will be allotted prior to the start of the election campaign.

Time Allotment

- **National Parties:** All put together, get a minimum of 10 hours of telecasting time on Doordarshan's national channel, and at least 15 hours on its regional channels.
 - **They also get 10 hours of broadcasting** time on the national hook-up of All India Radio (AIR) and 15 hours of broadcasting on regional AIR stations.
- **State Parties:** All state parties put together, get a minimum of 30 hours of telecasting time on the **appropriate regional Doordarshan channel and AIR radio station.**

Current Election Allotted Time:

- **Allotment:** The ECI allocated broadcast and telecast time to each of **the six national parties AAP, BSP, BJP, CPI(M), Congress, and National People's Party and 59 state parties.**
- **National parties:** Out of the 10 hours prescribed, **a total of 4.5 hours (45 minutes each)** was allocated in both Doordarshan and AIR.
 - **The remaining 5.5 hours was further allocated on the basis of vote share in the 2019 Lok Sabha elections.**
- **State Parties:** Similar formulae was followed while allocating time to state parties.

ECI Guidelines on speeches' contents

- **Submission of Transcript:** Parties and their speakers are expected to submit transcripts of their speeches three to four days before recording.
- **Approval:** These must be approved by the concerned authorities in the respective AIR and Doordarshan stations.
- **It forbids:**
 - Criticism of other countries
 - Attack on religions or communities.
 - Anything obscene or defamatory
 - Incitement of violence
 - Anything amounting to contempt of court.
 - Aspersions against the integrity of the President and judiciary
 - Anything affecting the unity, sovereignty, and integrity of the nation and

- Any criticism by name of any person.

1.19 NATIONAL COMPANY LAW APPELLATE TRIBUNAL

- **Nature:** The National Company Law Appellate Tribunal (NCLAT) is a tribunal vested with **judicial authority**.

Jurisdiction:

- It is a body **with appellate jurisdiction**.
- The tribunal is responsible for hearing appeals from the orders of the National Company Law Tribunal(s) (NCLT).
- The tribunal also hears appeals from orders issued by the **Insolvency and Bankruptcy Board of India under Section 202 and Section 211 of IBC** (Insolvency and Bankruptcy Code).
- It also hears appeals from any direction issued, decision made, or order passed by the Competition Commission of India (CCI) and the National Financial Reporting Authority (NFRA).
- **Statutory provisions:** It was formed by the Central Government of India under Section 410 of the Companies Act, 2013.
- **Appeals:** The decisions of National Company Law Appellate Tribunal **are appealable in Supreme Court of India**.
- **Bench:** The National Company Law Appellate Tribunal has a principal **bench in Delhi and another one in Chennai**.
- **Composition:**
 - **The NCLAT includes.**
 - A chairperson,
 - 3 judicial members, and
 - 2 technical members.
 - It consists of a total of not more than eleven members.
 - The chairperson shall be a person who is or has been a Judge of the Supreme Court or the Chief Justice of a High Court (Sec 411).

1.20 BLUE CORNER NOTICE

- **The Central Bureau of Investigation (CBI)** is poised to issue a Blue Corner notice against an absconding Janata Dal (Secular) MP accused of sexual abuse.

What is the Blue Corner Notice?

- A Blue Corner notice is a part of **Interpol's elaborate system of color-coded notices**.
- A 'Blue Corner' notice is issued when the case is related to missing persons.
- It is also called an "enquiry notice," such an alert is sent for additional information from member States about a person, to verify their identity, location, or criminal record concerning a criminal investigation.

Interpol's color-coded notices

- There are eight types of notices, seven of which are color-coded by their function
 - Red Notice, Yellow Notice, Blue Notice, Black Notice, Green Notice, Orange Notice, and Purple Notice.
- **Red Notice:** To seek the location and arrest of persons wanted for prosecution or to serve a sentence.
- **Yellow Notice:** To help locate missing persons, often minors, or to help identify persons who are unable to identify themselves.
- **Black Notice:** To seek information on unidentified bodies.
- **Green Notice:** To provide warning about a person's criminal activities, where the person is considered to be a possible threat to public safety.
- **Orange Notice:** To warn of an event, a person, an object or a process representing a serious and imminent threat to public safety.

- **Purple Notice:** To seek or provide information on modus operandi, objects, devices and concealment methods used by criminals.
- **An eighth special notice is issued at the request of the United Nations Security Council.**

INTERPOL

- The **International Criminal Police Organization – INTERPOL** is an international organization that facilitates worldwide police cooperation and crime control.
- It is the **world's largest international police organization.**
- It is headquartered in **Lyon, France.**
- It has seven regional bureaus worldwide, and a National Central Bureau in all **196 member states.**

1.21 ANTICIPATORY BAIL

- Where any person has a reason to believe that he may be arrested on accusation of having committed a **non-bailable offense, he may apply to the High Court or the Court of Session** for a direction under this section that in the event of such arrest he shall be released on bail and the court shall provide him anticipatory bail.
- **The considerations taken into account are:**
 - The nature and gravity of the accusation
 - The antecedents of the applicant including the fact as to whether he has previously undergone imprisonment on conviction by a Court in respect of any cognizable offense
 - The possibility of the applicant to **flee from justice.**
 - Where the accusation has been made with the object of injuring or humiliating the applicant by having him so arrested,
- **It allows a person to seek bail in anticipation of an arrest on accusation** of having committed a **non-bailable offense.**
- The provision for anticipatory bail is present under Section 438(1) of the Criminal Procedure Code.
- Although The Criminal Procedure Code, 1973, does not define bail.
- **It is not a matter of right of an accused.**

State of M.P vs. Pradeep Sharma (2013)

- SC held that “when a person against whom a warrant had been issued and is absconding or concealing himself in order to avoid execution of warrant and declared as a proclaimed offender in terms of **Section 82** of the Code he is not entitled to the relief of anticipatory bail”.

1.22 INTERIM BAIL

- Recently, **interim bail** was granted to Delhi Chief Minister in the liquor policy case till to campaign for the Lok Sabha elections.
- **Interim bail in India is a temporary release granted to an accused person from custody under Section 439 CrPC.** It can be extended as per discretion of court depending on instances.
 - A court may issue interim bail, while your application for anticipatory bail or regular bail is being processed.
- Interim bail in India is Not explicitly defined under a specific statute but is derived from the discretionary powers granted to courts under various legal provisions.

Important judgements

- **Priya Ranjan Nayak vs State Of ones. Odisha 2021:** Interim bail can be granted on the grounds of death of his near ones
- **Munawar v. State of Madhya Pradesh 2021:** If the case registered does not have punishment more than seven years and on mere allegations, a person should not be arrested and interim bail should be granted.

- **Nikesh Tarachand Shah v. Union of India (UOI) and Ors., AIR 2017:** Granting of interim bail is also a general rule and it is given till a final adjudication on the regular bail or anticipatory bail application is disposed off.
- **Sukhwant Singh & Ors v. State of Punjab (2009):** SC held that the interim bail is a measure especially to safeguard the reputation of an accused. Also, the court has the inherent power to grant bail to a person whose bail application is still pending for disposal.
- **Atik Ansari v. The State, Nct Delhi., 2006:** Interim bail can be granted on the **medical grounds**
- **Dula Metu Panda vs State Of Gujarat: Marriage** is one of the special grounds on which interim bail is granted.

1.23 HINDU MARRIAGE ACT, 1955

- **A Bench of Justices BV Nagarathna and Augustine George Masih** pronounced the verdict that **the absence of the ceremony would mean no marital status is conferred** on the couple under the Hindu marriage Act.
 - It stated that Hindu marriage is a sacred process and **not a “song and dance” and “winning and dining” event.**
 - **Section 7** of the Act lists ‘ceremonies of a Hindu marriage’ which have to be complied with for validity of the marriage.
- **Origin:** The **Hindu Marriage Act, 1955** is one of the arms of the Hindu code bill.
- **Applicability:**
 - It is applicable to any person who **isn't a Muslim, Christian, Parsi, or Jew.**
 - It applies to any person who is a **Hindu by birth or who has converted to Hinduism.**
 - It also covers marriages where one party is a Hindu, and the other party is not a Muslim, Christian, Parsi, or Jew.
- **Purpose:**
 - It provides rules and regulations for solemnizing and registering marriages.
 - The act specifies conditions for a valid marriage, rights, and obligations of spouses, and grounds for divorce.
 - To eliminate the social ills like polygamy.

1.24 LOOKOUT CIRCULAR

- Look out circular (LOC) is a circular **letter used by authorities in India** to check whether a traveling person is wanted by the police.
- **Uses:** It may be used at immigration checks at international borders such as international airports or sea ports.
- **Period:** An LOC is valid for an initial period of one year, but can be extended.
- **Statute:** Look Out Circulars (LOC) have not been defined in any statute.
- **Issued by:** It is governed by the Office Memorandums issued by the Ministry of Home Affairs ('MHA').
- **Purpose:**
 - Look out circulars are opened to search for absconding criminals and also to prevent and monitor effectively the entry or exit of anyone who may be sought by law enforcement authorities
 - When issued, they are sent to all immigration checkpoints in the country.
- **Some of the agencies that have been authorized to request for opening of LOCs are:**

○ Ministry of Home Affairs (MHA);	○ Narcotics Control Bureau;
○ Ministry of External Affairs (MEA);	○ Directorate of Revenue Intelligence;
○ District Magistrate;	○ Central Board of Direct Taxes (CBDT);
○ Superintendent of Police;	○ Intelligence Bureau;
○ CBI;	○ National Investigation Agency (NIA);
○ Customs and Income Tax Departments, etc.	

2 INTERNATIONAL RELATIONS

2.1 INDO-SPAIN RELATIONS

Recently, Spain refused entry to a ship carrying arms from Chennai to Israel to dock at one of its ports, highlighting the complexities in Indo-Spain diplomatic relations.

History of Indo-Spain Relations

- **Early ties:** Spain's historical connections with India date back to the **16th century** when Spanish missionaries and traders arrived on Indian shores. The Spanish established settlements in parts of coastal India like Gujarat and Chennai.
- **Formal ties:** Diplomatic relations were formally established in **1956** with the opening of the **Spanish Embassy** in New Delhi.
- **Shared democratic values:** Since the **establishment of democracy in Spain in 1978**, both nations have emphasized the importance of democratic principles and global cooperation.
- **Strengthening Relations:** High-level visits, strategic dialogues, and bilateral agreements over recent decades have significantly deepened the Indo-Spain partnership, covering areas such as trade, defense, culture, and education.



Geographical Advantage of Spain in Relations with EU

- **Gateway to Europe:** Spain's location provides an entry point for Indian goods and services into the vast European market.
- **Trade and Investment Hub:** Spain serves a hub for Indian businesses seeking access to the EU market.
- **Strategic Advantage:** Spain's location allows it to monitor all maritime transportation and counter any threats to the security of Europe.

Indo-Spain Trade Relations

- **Growing trade:** Bilateral trade has witnessed steady growth, with Spain being India's 6th largest trading partner in the European Union.
- **Favorable balance:** India enjoys a **trade surplus** with Spain, with exports exceeding imports significantly. Key Indian exports include textiles, organic chemicals, and engineering goods.

- **Investment potential:** Spain is a significant investor in India, with a cumulative FDI exceeding \$3.94 billion. Sectors like **infrastructure, renewable energy, and automobiles** attract Spanish investment.
- **Collaboration in Renewable Energy:** Spanish companies are actively involved in solar and wind energy projects in India.

Other Aspects of Indo-Spain Relations

- **Defense Cooperation:** India and Spain have been exploring opportunities for defense cooperation, including joint exercises and training.
- **Educational partnerships:** Increasing student and faculty exchange programs between Indian and Spanish universities strengthen educational ties.
- **Tourism:** Spain is a popular tourist destination for Indians, while India's rich cultural heritage attracts Spanish tourists.
- **Diaspora connect:** The vibrant Indian diaspora in Spain acts as a bridge between the two nations, fostering social and cultural links.

Recent Controversy

- **Arms Shipment Blocked:** Recently Spain's decision to block an arms shipment from Chennai to Israel caused a temporary strain in relations.
- **Reason:** Spain cited concerns that the arms could potentially contribute to the escalation of the ongoing Israeli-Palestinian conflict.
- **India's response:** India clarified its position on the legality of the shipment and its adherence to international regulations.
- **Impact:** The incident caused diplomatic tensions between Spain and Israel, with Israel condemning the move as a violation of international agreements.

Challenges in India-Spain Relations

Limited Trade Diversification:

- Trade remains concentrated in a few sectors, such as textiles, organic chemicals, engineering goods, and pharmaceuticals. Exploring new avenues in technology, agriculture, healthcare, and financial services is crucial for enhancing bilateral trade.

Distance and Logistical Hurdles:

- Geographical distance poses logistical challenges, including higher transportation costs and longer shipping times, which can affect trade and investment flows.

Managing Geopolitical Sensitivities:

- Navigating geopolitical sensitivities, particularly in defence and security cooperation, is challenging. Balancing strategic interests while fostering mutual trust is essential. Spain's EU and NATO relationships and India's Asian partnerships can complicate bilateral agreements.

Economic and Investment Barriers:

- Regulatory differences can pose barriers to trade and investment. Harmonizing regulations and easing bureaucratic processes are essential for smoother economic cooperation. Ensuring investment protection and intellectual property rights remains a critical concern.

Cultural and Language Barriers:

- Differences in business culture and practices can lead to misunderstandings. Enhanced cultural exchange programs and language training can bridge these gaps and foster better business relationships.

Infrastructure Constraints:

- Both countries face infrastructure challenges that can impede trade and investment. Improving transportation networks, port facilities, and digital infrastructure is vital for supporting bilateral economic activities.
- Limited Awareness and Connectivity:

- Limited awareness about opportunities in each other's markets can hinder trade and investment. Promoting business forums, trade fairs, and informational campaigns can increase connectivity and awareness.

Recent Controversy:

- The recent arms shipment controversy has strained diplomatic relations, highlighting the need for clearer communication and adherence to international regulations to prevent misunderstandings.

Way Forward

Multilateral Cooperation

- **Collaborate in International Forums:** Continue joint efforts in the United Nations, G20, and other international organizations to amplify collective influence on global issues.

Enhancing Economic Ties

- **Trade Diversification:** Explore new sectors like technology, agriculture, and healthcare to reduce dependency on a few sectors.
- **Ease of Doing Business:** Simplify regulatory frameworks to facilitate smoother economic cooperation and attract investment.

Promoting People-to-People Connect

- **Cultural Exchange Programs:** Enhance mutual understanding through art exhibitions, film festivals, and cultural delegations.
- **Educational Collaborations:** Increase student and faculty exchange programs and collaborative research projects.
- **Tourism Promotion:** Promote tourism with joint marketing campaigns and improved visa processes.

Collaboration on Global Issues

- **Climate Change:** Work together on renewable energy projects and sustainable development practices.
- **Maritime Security:** Enhance cooperation on ensuring safe maritime trade routes.
- **Counter-Terrorism:** Strengthen intelligence sharing and joint training programs.

Addressing Geopolitical Sensitivities

- **Transparent Communication:** Establish clear communication channels to prevent misunderstandings and foster mutual trust.
- **Balanced Foreign Policy:** Navigate geopolitical landscapes carefully to enhance bilateral cooperation.

2.2 INDIA NEPAL RELATIONS

*The Prachanda cabinet's decision to put a map showing - **Limpiyadhura, Lipulekh, and Kalapani** - areas administered by India—as part of Nepalese territory on a new currency note has strained the relationship between the two.*

Significance of the relationship

- **Unique and Long-standing Relationship:** India and Nepal share a relationship characterized by deep cultural, historical, and geographical ties, fostering a unique bond between the two nations.
- **Geographical Proximity:** Nepal shares an extensive border stretching over **1,850 km** with **five Indian states:** Sikkim, West Bengal, Bihar, Uttar Pradesh, and Uttarakhand. This proximity facilitates economic interaction and cultural exchange.
- **Indian Diaspora in Nepal** - Approximately 6,00,000 Indians are living/domiciled in Nepal which include businessmen, traders, professionals (doctors, engineers, IT personnel) and laborers.

Key Historical Treaties and Agreements

- **Treaty of Sagauli (1816):** Marked the **end of the Anglo-Nepalese War**, redefining boundaries and establishing the **Kali River as a significant marker**. This treaty, however, made no mention of ridgeline and hence the source of **Kali River** has been a point of contention.

- **Treaty of Peace and Friendship (1950):** This pivotal treaty laid the groundwork for modern bilateral relations, granting rights and privileges that facilitated a porous border and close people-to-people contact. Approximately **8 million Nepalese** reside and work in India, benefiting from and contributing to the socio-economic landscape.



Dimensions of bilateral ties

Military Cooperation

- **Historical Military Ties:** Since 1950, a tradition of awarding the honorary rank of General to each other's Army Chiefs underscores the military camaraderie between India and Nepal.
- **Training and Modernization:** India contributes to the modernization of the Nepali Army through training programs and equipment provision.
- **Gurkha Recruitment:** The Indian Army recruits Gurkha soldiers from Nepal, with approximately 32,000 Gurkhas currently enlisted, reflecting deep-rooted military connections.

Economic Relations

- **Trade Dynamics:** India is Nepal's largest trading partner, with India exporting goods worth USD 8 billion to Nepal and importing goods valued at **USD 840 million from Nepal in the fiscal year 2022-23**.
- **Investments and Aid:** Indian firms significantly contribute to Nepal's economy, representing more than 30% of its total foreign direct investments. Furthermore, India allocated INR 1200 crore in economic assistance for FY 2019-20.

Water Resources Cooperation

- **Shared Water Resources:** The cooperation encompasses numerous rivers flowing from Nepal to India (e.g., Kosi) crucial for irrigation and power generation in both countries.
- **Bilateral Mechanisms:** A robust three-tier mechanism established in 2008 facilitates discussions on water resources management, flood control, and hydropower development, demonstrating effective transboundary water cooperation.

Energy Cooperation

- **Power Exchange:** Since 1971, India and Nepal have engaged in a Power Exchange Agreement to meet border area energy needs using shared transmission infrastructure. India currently supplies approximately 600 MW of power to Nepal.
- **Infrastructure Development:** Notable projects include South Asia's first cross-border petroleum products pipeline from Motihari to Amlekhgunj, inaugurated in 2019, and the completion of additional 132 kV transmission lines in 2017 between Kataiya (India) and Kusaha (Nepal), as well as Raxaul (India) to Parwanipur (Nepal), enhancing the energy connectivity between the two nations.
- **Hydropower Plants:** Upper Karnali Hydropower Project (900 MW), Arun-III Hydropower Project (900 MW), Upper Marshyangdi-2 (600 MW), Trishuli-1 Hydropower Project (216 MW), Budhi Gandaki Hydropower Project (1200 MW) provides mutually beneficial energy security for both the nations.

Educational and Cultural Ties

- **Scholarships:** The Government of India offers around 3000 scholarships annually to Nepalese nationals for various academic levels, reinforcing educational exchanges.

- **Cultural Integration:** Both countries share a profound cultural heritage, highlighted by Hinduism and Buddhism, with significant cultural sites like Lumbini. Multiple MoU support cultural and media cooperation, including partnerships between Sahitya Kala Academy and Nepal Academy, among others.
- **Cultural Institutes:** The Swami Vivekananda Centre for Indian Culture in Kathmandu and the historic Nepal-Bharat Library showcase the depth of cultural engagement.



Major Border Disputes

Dispute Area	Location	Historical Claims	Recent Developments
Limpiyadhura, Kalapani, Lipulekh	Trijunction of India, Nepal, and China in Uttarakhand's Pithoragarh district covering a total area of 372 square kilometres.	Based on the Treaty of Sugauli (1816), which ambiguously identified the Kali River as a boundary. The British era maps (1819 to 1947) show varying origins of the Kali River, complicating the boundary definitions. Nepal's stand - Kali River originates from a stream at Limpiyadhura, north-west of Lipu Lekh. Thus Kalapani, and Limpiyadhura, and Lipu Lekh, fall to the east of the river and are part of Nepal's Dharchula district. India's stand - Kali river originates in springs well below the Lipu-lekh pass, and the Sugauli Treaty does not demarcate the area north of these streams. The administrative and revenue records of the nineteenth century also show that Kalapani was on the Indian side.	2020 - Nepal included these areas in its political map after India inaugurated the strategic road connecting Darchula to Lipulekh Pass. 2024 - Nepal announced the printing of a new Rs 100 currency note featuring a map that includes the Indian territories of Lipulekh, Limpiyadhura, and Kalapani.
Susta Valley	Southern lowlands along the Gandak River, natural border area. (West Champaran district, Bihar)	Historical claims in the Susta Valley are tied to the changing course of the Gandak River, with both nations using historical maps to substantiate their territorial claims as the river alters its path.	Recent initiatives include enhanced surveillance and patrolling by both countries to monitor changes in river paths and secure the claimed territories.

Other major challenges:

- **Rising Influence of China:**
 - **Economic Engagement:** China has significantly increased its presence in Nepal through its Belt and Road Initiative (BRI), funding major infrastructure projects like railways, highways, and hydropower plants.
 - **Debt Trap Concerns:** There is growing concern that the financial support from China could lead to a debt trap for Nepal, affecting its economic sovereignty and potentially complicating its relations with India.
- **Human Trafficking:**
 - **Widespread Issue:** An estimated 100,000–200,000 Nepalese in India believed to have been trafficked.

- **Sex Trafficking:** This form of trafficking is notably severe, with up to 10,000 women and girls trafficked to India annually.
- **Ethnic and Political Issues:**
 - **Madhesi Controversy:** The promulgation of Nepal's new Constitution in 2015 led to significant unrest among the Madhesi, Janajatis, and Tharus, who felt marginalized and excluded from political processes. This has sometimes strained Nepal's internal cohesion and its relations with India, which has a significant Madhesi population across the border.
- **Internal Politics of Nepal:**
 - **Anti-Indian Sentiment:** Domestic politics in Nepal often feature anti-Indian rhetoric, which can flare up due to various issues, potentially disrupting bilateral relations.
 - **Hindrance in Hydropower Cooperation:** Despite Nepal's vast hydro-electric potential of approximately 83,000 MW, vested interests within Nepal have sometimes hindered cooperation on hydropower projects with India, leaving Nepal as a net importer of electricity.
- **Environmental and Resource Management:**
 - **Water Resource Disputes:** Issues around the shared use of water resources for irrigation and power generation remain a concern, requiring careful negotiation and management to ensure equitable and sustainable usage.

Way Forward

Border Dispute Resolution

- **Bilateral Negotiations:** Create an institutional framework at political level to resolve the territorial disputes, specifically concerning Limpiyadhura, Kalapani, Lipulekh, and Susta Valley.
- **Joint Technical Surveys:** Utilize modern mapping and survey techniques to accurately demarcate disputed borders, relying on historical data and international mediation if necessary.

Economic Cooperation

- **Balanced Trade and Investment:** Encourage investments that benefit both economies and address the trade imbalance, ensuring that economic engagements do not lead to dependency or debt traps.

Security and Human Trafficking

- **Enhanced Border Security:** Strengthen border controls and law enforcement collaboration to combat human trafficking, illegal trade, and other cross-border crimes.
- **Community Awareness Programs:** Increase awareness and support networks to prevent trafficking and provide aid to affected populations.

Political Stability and Inclusion

- **Inclusive Political Dialogue:** Support initiatives that foster political inclusion and address grievances of marginalized communities such as the Madhesi, Janajatis, and Tharus.
- **Strengthen Internal Political Frameworks:** Assist in building robust political institutions that can manage internal dissent and promote national cohesion.

2.3 CHINA'S DEBT TO SOUTH ASIAN NATIONS

According to recent reports, debt owed by South Asian nations to China has hit a record level raising significant concerns about the implications for regional autonomy, economic stability, and geopolitical dynamics.

Reasons behind South Asian Nations Turning towards China for Debt

- **Infrastructure Needs:** Urgent requirements for modern infrastructure drive nations towards Chinese loans.
- **Efficiency of Loan Disbursement:** China's ability to provide quick loan approvals and disbursements aligns with the urgent developmental agendas of these nations.
- **Political and Economic Autonomy:** Fewer preconditions from China allow debtor nations to maintain greater autonomy over their domestic policies compared to conditions typically imposed by Western creditors.

- **Geopolitical Strategy:** Developing closer ties with China may help balance relations with other global and regional powers, providing strategic leverage in international platforms.

Debt owed by South Asian Nations to China

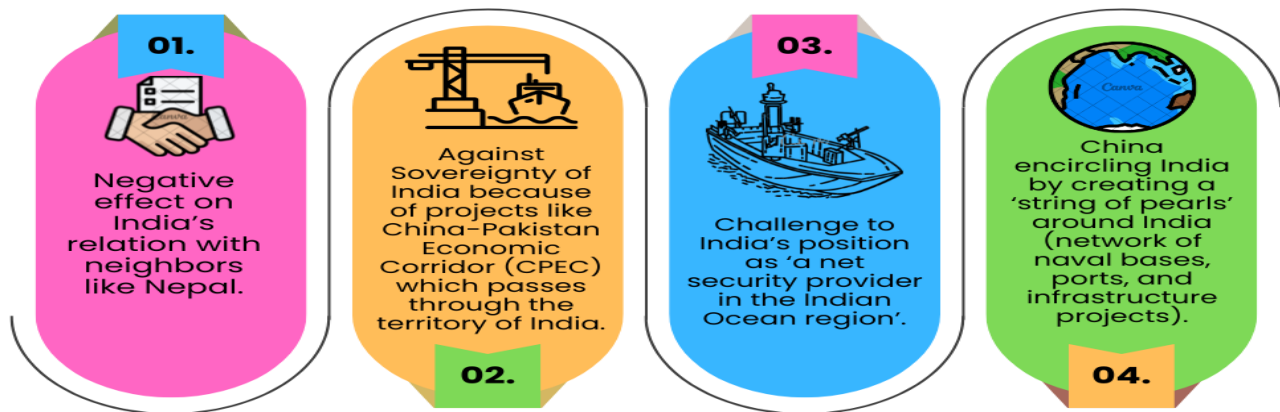
- **Sri Lanka:** Owes nearly 20% of its total external debt to China, totalling around \$8.8 billion.
- **Pakistan:** Holds 30% of its external debt with China, surpassing \$30 billion.
- **Bangladesh, Maldives, and Nepal:** Owe \$6 billion, \$1.2 billion, and \$0.26 billion respectively.

China's Debt-Trap Diplomacy and Strategic and Economic Impacts

- **Predatory Loans:** China offers seemingly attractive loans with opaque terms and high-interest rates, making the repayment difficult.
 - In Sri Lanka, the financing of the **Mattala Rajapaksa International Airport** involved loans with high interest rates and stringent repayment conditions, leading to significant financial strain.
 - Maldives incurred substantial debts for infrastructure projects like the Sinamalé Bridge.
- **Lack of Transparency:** Loan agreements often lack transparency, making it challenging for borrowing nations to assess hidden costs and risks.
 - The **China-Pakistan Economic Corridor (CPEC)** projects are shrouded in secrecy, with complete loan terms undisclosed to the public and parts of the Pakistan government.
 - In Bangladesh, there have been concerns regarding the lack of detailed public disclosures about the terms of Chinese loans for projects like the **Padma Bridge Rail Link**.
- **Unsustainable Projects:** China may prioritize projects that benefit its own strategic interests rather than the long-term economic viability of the borrowing nation.
 - **The Hambantota Port** in Sri Lanka, heavily financed by Chinese loans, was constructed despite concerns about its commercial viability. The port failed to attract sufficient business, leading to Sri Lanka leasing it to China for 99 years to reduce the debt impact.
 - Nepal's investment in the **Pokhara International Airport**, funded by China under the Belt and Road Initiative, is criticized for potential economic unviability, risking a debt trap scenario akin to Sri Lanka's experience.
- **Debt for Assets:** In case of default, China pressures debtor nations to surrender strategic assets or resources.
 - **Tajikistan** (area near **Pamir Mountain range**) reportedly ceded over 1,000 square kilometers of land to China in 2011 as a part of debt settlement.
 - Concerns in the Maldives intensified when it was revealed that unpaid debts could potentially lead to China taking control over strategic assets like the **Male International Airport**, an essential hub for the nation's tourism-driven economy.
- **Economic Vulnerability:** Highly indebted countries become over reliant on China for loan rollovers, limiting their economic policy space. E.g., African nations have renegotiated trade agreements to prioritize Chinese interests due to debt obligations.
- **Geopolitical Leverage:** Debt can be used as leverage to extract concessions on political and security issues. E.g. China secured a strategic military base in Djibouti, due increased Chinese loans and investments in the country.
- **Debt Restructuring Challenges:** China's reluctance to engage in comprehensive debt relief can prolong economic crises. E.g., Venezuela faced delays in obtaining debt relief from China despite severe economic crises, highlighting challenges in restructuring.

- **Erosion of Multilateralism:** By bypassing traditional multilateral institutions like the IMF, China undermines the global economic order and promotes bilateral over multilateral agreements.

CHINA'S DEBT-TRAP DIPLOMACY AND IMPACT ON INDIA



Way Forward for India

- **Countering China's Narrative:**
 - **Security and Growth for All in the Region (SAGAR):** Promotes India's commitment to peace, stability, and prosperity in the Indian Ocean region.
 - **Public Diplomacy Efforts:** Increase efforts in international forums to articulate India's role as a pivotal development partner in South Asia, emphasizing collaborative projects that contrast with China's unilateral approaches.
- **Enhancing Infrastructure and Regional Connectivity:**
 - **Asia-Africa Growth Corridor (AAGC):** Strengthen the development and implementation of the AAGC to enhance economic ties and infrastructural links between Asia and Africa, which serves as a sustainable alternative to China's infrastructure model.
 - **Quadrilateral Security Dialogue (Quad):** Leverage this strategic alliance to promote maritime security, cybersecurity, and critical technology cooperation that supports infrastructure development.
- **Strengthening Economic and Security Alliances:**
 - **Bilateral and Multilateral Engagements:** Enhance economic and security partnerships through both bilateral agreements with neighbours and multilateral engagements through platforms like SAARC and ASEAN.
 - **Military Modernization and Joint Exercises:** Accelerate military modernization programs and increase joint military exercises with allies to ensure readiness and demonstrate commitment to regional security.
- **Leveraging Multilateral Institutions and Soft Power:**
 - **International Financial Collaboration:** Engage more actively with international financial institutions such as the IMF and the World Bank to advocate for fair debt practices and transparent funding mechanisms.
 - **Cultural and Democratic Outreach:** Capitalize on India's rich cultural heritage and democratic values through initiatives like cultural festivals, educational programs, and democratic summits.

2.4 GWADAR PORT

Around seven workers were killed by gunmen at Pakistan's Gwadar in Punjab while they were sleeping at residential quarters near Fish harbour.

About Gwadar port

Location:

- Situated on the Arabian Sea at Gwadar in Balochistan, Pakistan.
- Approximately 120 km southwest of Turbat and 170 km east of Chabahar Port, Iran.
- **533 km from Karachi and about 120 km from the Iranian border.**

Control:

- Administrative control by the Maritime Secretary of Pakistan.
- Operational control by the China Overseas Port Holding Company.

China–Pakistan Economic Corridor (CPEC):

- Prominent feature in CPEC, linking the Belt and Road Initiative and the Maritime Silk Road.

Advantages:

- Significant depth, natural breakwater, and desert climate with minimal seasonal variation.
- **Example:** Compared to Karachi Port, Gwadar offers deeper waters accommodating larger ships.

Chinese Maritime Silk Road:

- Part of the 21st Century Maritime Silk Road.
- **Route:** Chinese coast → Strait of Malacca → Mombasa → Suez Canal → Mediterranean → Upper Adriatic → Central Europe and the North Sea.

Strategic Importance

- **Geostrategic Location:** Situated at the mouth of the Persian Gulf, providing access to key maritime routes; positioned strategically near the Strait of Hormuz, a vital chokepoint for global oil shipments.
- **China-Pakistan Economic Corridor (CPEC):** Central hub for CPEC, facilitating direct access from China's western region to the Arabian Sea; a crucial link in China's Belt and Road Initiative.
- **Alternative Trade Route:** Reduces China's reliance on the Strait of Malacca for oil imports, offering a shorter and potentially safer route for energy supplies.
- **Economic Impact:** Potential to boost Pakistan's economy through increased trade and investment, enhancing infrastructure and creating job opportunities; expected to become a major logistics and transshipment hub, increasing regional trade efficiency.
- **Regional Influence:** Enhances China's presence in the Indian Ocean, countering Indian dominance and strategic influence; strengthens China's maritime strategy and extends its reach in the Indian Ocean Region.
- **Security and Military Presence:** Serves as a strategic military outpost for China, facilitating naval operations and increasing military influence in the region; raises security concerns for neighbouring countries and regional powers due to potential military use.
- **Rivalry with Gulf States:** Competes with ports in UAE and Iran for regional trade dominance, potentially shifting economic power dynamics; Gulf States view Gwadar as a threat to their exclusive economic zones.
- **Economic Diversification:** Provides Pakistan with economic diversification, reducing reliance on traditional trade routes and partners; enhances national infrastructure, including transportation and logistics networks.

Importance of Strait of Malacca

- It is a strategic waterway between Indonesia and Malaysia through which the majority of China's imports pass.
- The narrow waterway also makes the perfect chokepoint from the perspective of India, and should tension between Beijing and New Delhi rise, the Malacca Strait can be blocked easily by India.
- India's natural position in the Indian Ocean, with basing capabilities in the Andaman and Nicobar Islands at the mouth of the strait, would allow its navy to cut it off in the event of a crisis or war with China.
- The vast majority of China's oil imports, from the Persian Gulf, Venezuela and Angola, pass by this route.
- Due to the strategic importance of the waterway, there is fear amongst Chinese officials that India could block the Malacca Strait in case of war.

Challenges for India with China's access to Arabian seas:

- **Protection of Economic Interests:** 80% of India's crude oil and 95% of trade by volume transported via the Indian Ocean. Chinese investments in ports and military installations heighten New Delhi's insecurity.
- **China and the 'String of Pearls' Theory:** Land-border conflicts with Pakistan and China lead to neglected naval capabilities. The Belt and Road Initiative (BRI) increases the perceived encirclement threat with Chinese bases along key maritime routes.
- **Naval Competition:** Increased Chinese naval activity requires India to enhance its naval capabilities and maintain a stronger maritime presence.
- **Regional Influence:** China's economic and military influence in neighbouring countries undermines India's traditional sphere of influence and diplomatic efforts.

India's Response to China's rising influence

Upgrading Maritime Doctrines and Military Capabilities:

- Inaugural naval doctrine in 2004 emphasized freedom of navigation and safeguarding maritime trade routes.
- Updated in 2015 to a more proactive approach of "enhancing net security in India's areas of maritime interest."
- **Shifted from prioritizing 'sea control' to 'sea denial,'** with plans to acquire submarines.
- Prime Minister Modi's 2015 'Security and Growth for All in the Region' (SAGAR) doctrine advocates for a free, open, inclusive, peaceful, and prosperous Indo-Pacific region.

Gaining Influence among Indian Ocean States:

- In February 2024, Prime Minister Modi inaugurated an airstrip, a jetty, and six developmental projects on **Agalega Island, Mauritius**.
- In April 2024, India Ports Global was approved to run operations of **Sittwe Port, Myanmar**.
- Inaugurated new naval base INS Jatayu on Minicoy Island in Lakshadweep.
- Extended over US\$4 billion in assistance to Sri Lanka during its 2022 economic crisis.
- Adani Group joined a consortium to expand Colombo Port's West Container Terminal with US\$550 million from the U.S. International Development Finance Corporation.

Role in Maritime Governance:

- **Indian Ocean Rim Association (IORA)** emerged as a vital platform for maritime security and governance.
- Participates in naval exercises and 'mini-lateral' efforts with countries sharing maritime strategic objectives.

Way Forward

- **Capability Enhancement:** Intensify efforts to bolster maritime capabilities through comprehensive modernization. Invest significantly in naval technology and infrastructure to close the gap with China.
- **Enhancing Cooperation:** Actively cultivate strategic partnerships with small island nations like the Maldives and Sri Lanka. Support littoral states to build trust and cooperation.
- **Strategic Alliances:** Strengthen alliances with nations sharing India's strategic interests to counterbalance Chinese influence. Collaborate closely with Quad countries (USA, Japan, Australia).
- **Economic Initiatives:** Promote regional infrastructure projects to provide alternatives to Chinese investments, boosting economic ties with neighbouring countries.
- **Naval Presence:** Increase naval presence in key areas of the Indian Ocean to ensure maritime security and protect trade routes. Conduct regular patrolling and joint exercises with friendly navies.
- **Technological Advancements:** Invest in cutting-edge naval technologies to improve surveillance, defence capabilities, and operational efficiency. Develop advanced submarines and maritime drones.
- **Diplomatic Engagement:** Strengthen diplomatic efforts to address regional concerns and build a coalition to ensure a free and open Indo-Pacific. Engage in multilateral forums to discuss and address regional security issues.

2.5 IRAN GOVERNMENT STRUCTURE

Iranian President Ebrahim Raisi and his foreign minister died when their helicopter crashed recently.

About Iran's government Structure

- Iran's government structure is a complex system characterized by a **blend of theocratic and democratic elements**
- It was formed following the overthrow of Iran's millennia-long monarchy by the **1979 Iranian Islamic Revolution**.
- Iran is officially known as the **Islamic Republic of Iran**.

Components of Iran's government structure:

Supreme Leader

- The Supreme Leader is the **highest-ranking official in Iran**, with significant influence over all branches of government, including the military and judiciary.
- The Supreme Leader is **appointed by the Assembly of Experts and can only be removed by the same body**.
- Since Iran's Islamic Revolution, there have been only two clerics to hold that position.
- The first was **Ayatollah Ruhollah Khomeini**, who led the Islamic Revolution that overthrew the Shah in 1979. He ruled till 1989.
- He was succeeded by **Ali Khamenei** who ruled since then.

President

- The President of Iran is the **second highest-ranking official in the country**, elected by the public for a four-year term, eligible for re-election once.
- The President acts as the head of government and is responsible for implementing the Constitution and moderating the executive branch, except for matters directly controlled by the Supreme Leader.

- According to Iranian law, if the presidency becomes vacant, the **First Vice President assumes the role temporarily**. A new election must then be held within 50 days to choose a new president.

Majlis (Parliament)

- The Iranian Majlis, or Islamic Consultative Assembly, is a **unicameral body** composed of 290 members elected by the public for four-year terms.
- This legislative body drafts legislation, ratifies international treaties, and approves the national budget.

Assembly of experts

- It consists of 88 mujtahids (Islamic scholars), this body is **elected by the public** and primarily responsible for electing and overseeing the Supreme Leader.
- Members serve eight-year terms and have the authority to appoint or remove the Supreme Leader based on his performance and qualifications.

Guardian council

- **It consists of 12 members:** six clerics appointed by the Supreme Leader and six jurists nominated by the judiciary and approved by the parliament.
- This council has considerable power, including vetting candidates for the Assembly of Experts, presidency, and parliament, and ensuring that legislation complies with Islamic law and the constitution.

Judiciary

- Iran's judiciary is an independent branch that is responsible for implementing Islamic laws and safeguarding the rights of citizens as per the constitution.
- The head of the judiciary is **appointed by the Supreme Leader** for a five-year term and oversees the proper administration of justice.

Expediency council

- Formed to resolve **disputes between the Majlis and the Guardian Council**, the Expediency Council also advises the Supreme Leader on matters of national policy.

- Members of this council are appointed by the Supreme Leader.
- **Revolutionary Guards (IRGC)**
- The **IRGC (Islamic Revolutionary Guard Corps)** is a branch of Iran's military, founded after the 1979 Islamic Revolution to protect the country's Islamic system.
- It also **controls significant segments of the Iranian economy** and has considerable influence in political affairs.

Impact of the Recent Accident

- **The death of the Iranian President** is likely to reopen a succession tussle between hardliners and pragmatists in the country.
- **Hardliners** in Iran are often associated with conservative elements within the Islamic Republic who prioritize **the preservation of the revolutionary values of the 1979 Islamic Revolution**. They are characterized by Strong adherence to Islamic law, Resistance to Western influence, Support for militant groups, Controlled economy.
 - **Pragmatists**, sometimes also referred to as moderates or reformists characterized by Economic Reforms, Social Reforms, and Engagement in international diplomacy, balanced security policies.

2.6 INTERNATIONAL CRIMINAL COURT

The International Criminal Court (ICC) prosecutor is seeking arrest warrants for Israeli and Hamas leaders, including Netanyahu, for alleged war crimes in Gaza and Israel.

About International Criminal Court

- ICC is a permanent international tribunal established to prosecute individuals for the most serious offenses of international concern, **namely genocide, war crimes, crimes against humanity, and the crime of aggression**.
- **Formation:** established by the **Rome Statute**, which came into force on July 1, 2002.
- **HQ:** The Hague, Netherlands.

Key Features of the International Criminal Court:

- **Jurisdiction:** The ICC has jurisdiction over **crimes committed by nationals of signatory states**, or within the territory of signatory states. It can also have jurisdiction if a situation is referred to it by **the United Nations Security Council**.
- **Complementarity:** The court is intended to be complementary to national judicial systems. It can prosecute cases **only if national courts are unwilling or unable to prosecute criminals themselves**.
- **Prosecution of Individuals:** Unlike other international courts, the **ICC prosecutes individuals, not groups or states**.
- **Four Core International Crimes:** The ICC deals primarily with four types of crimes:
 - **Genocide:** Acts committed with intent to destroy, in whole or in part, a national, ethnical, racial, or religious group.
 - **Crimes against humanity:** Widespread or systematic attacks knowingly directed against any civilian population.
 - **War crimes:** Violations of the laws and customs applicable in international armed conflict, and in conflicts **"not of an international character."**
 - **Crime of Aggression:** Acts of aggression which by their character, gravity, and scale, constitute a manifest violation of the United Nations Charter.
- **Investigations and Trials:** The ICC conducts investigations and trials for individuals accused of committing these serious crimes. Trials are conducted by impartial judges from around the world and can result in imprisonment and other penalties.

Example of notable judgement

- **Thomas Lubanga Dyilo**, a warlord from the Democratic Republic of the Congo, was the ICC's first convict. He was found guilty in 2012 of recruiting and using child soldiers during the Ituri conflict in 2002-2003.
- **Judgment:** Lubanga was sentenced to 14 years in prison. His case set a precedent regarding the prosecution of war crimes involving child soldiers.

2.7 FIVE EYES ALLIANCE

The recent media reports in Canada, UK, US and Australian media, all countries part of the Five Eye intelligence alliance, have accused the Indian government of involvement in killing of Bhindranwale Tiger Force (BTF) terrorist Hardeep Singh Nijjar in Canada.

What is the Five Eyes Bloc?

- **Members:** United States, United Kingdom, Canada, Australia, and New Zealand.
- **Formation:** Established through the UKUSA Agreement (1946) between the US and UK, expanded to include the other three members by 1956.
- **Objective:** To share intelligence and collaborate on global security threats.
- **Function:** Enables signal intelligence (SIGINT) cooperation, allowing extensive communication monitoring and data analysis.

Relations of Five Eyes Bloc with India

- **Cooperation:** India and the Five Eyes have collaborated on counter-terrorism efforts, particularly after 9/11.
- **Convergence:** Shared interests in a stable Indo-Pacific region create opportunities for cooperation on issues like maritime security.
- **Divergence:** Differences in priorities exist, with India focusing on countering threats from **Pakistan and Khalistani** extremism, which may not be top priorities for the Five Eyes.
- **Transparency Issues:** The opaque nature of Five Eyes activities can be a source of suspicion for India.

Why are India and Five Eyes Bloc at Odds?

- **Recent Killings:** Allegations by Canada of Indian involvement in the killings of **Khalistani figures like Hardeep Singh Nijjar** in Canadian soil has caused a diplomatic rift.
- **Attempted Attacks:** Five Eyes' focus on individual rights can clash with India's perspective on handling terror suspects, leading to disagreements on how to address potential attacks planned from foreign soil.
- **Double Standards:** India perceives a lack of reciprocity from the Five Eyes in acknowledging threats emanating from Pakistan, a country with close ties to some members.
- **Media Narratives:** Selective media leaks from Five Eyes countries, particularly regarding Indian counter-terrorism operations, raise concerns about potential attempts to undermine India's security apparatus.

Attempts of Five Eyes Bloc to Undermine Indian Security Agencies

- **Source Leaks:** Indian media outlets have reported leaks from Five Eyes sources targeting Indian intelligence operations, potentially jeopardizing ongoing investigations and endangering personnel.
- **Questioning Methods:** Criticisms from Five Eyes countries regarding India's counter-terrorism tactics can be seen as attempts to constrain India's ability to address its unique security challenges.
- **Focus on Human Rights:** The Five Eyes' emphasis on human rights during counter-terrorism operations can be perceived as hindering India's efforts to neutralize immediate threats.
- **Presence of Spies:** US is blamed for employing spies in **India's security agency R&AW** and using underhanded methods like honey traps to compromise Indian officials.

Way Forward

- **Enhanced Communication:** Open and transparent communication channels are crucial to address trust deficits and prevent misunderstandings.
- **Focus on Shared Threats:** India and the Five Eyes should prioritize areas of common concern, like maritime security and countering radicalization, to build trust and cooperation.
- **Respect for Sovereignty:** Acknowledging each other's strategic priorities and respecting national security approaches is essential for a productive partnership.
- **Multipolar Cooperation:** India should explore intelligence-sharing partnerships with other countries to lessen dependence on the Five Eyes Bloc.

2.8 MYANMARS JUNTA

- Myanmar's junta refers to the military government in Myanmar.
- **Power Control:** It seized control of Myanmar following a coup d'état on February 1, 2021 which saw the end of the elected government of the **National League for Democracy (NLD)**, headed "de facto" by Aung San Suu Kyi.
- Kyi served as the State Counsellor of Myanmar, a post created in 2016 equivalent to the Prime minister so that she could lead the government despite being constitutionally ineligible for the presidency.
- The junta is officially known as the **State Administration Council (SAC)** and is led by Senior General Min Aung Hlaing.

Impact

- Since taking power, the junta has implemented stringent controls on civil liberties, including restrictions on protests, press freedoms, and internet access.
- The takeover has led to widespread international condemnation, economic sanctions from Western nations.
- A significant internal resistance movement characterized by protests, civil disobedience, and armed resistance from various ethnic armed organizations and newly formed People's Defense Forces.
- The coup has plunged Myanmar into a deep crisis. Nationwide protests erupted, leading to violent suppression by security forces, with thousands of civilians arrested, displaced and many killed.
- The military government has also faced isolation on the international stage, although it has maintained some support and diplomatic ties, particularly with neighboring countries and other authoritarian regimes.

3 ECONOMY

3.1 INDIA-EFTA TRADE AND ECONOMIC PARTNERSHIP AGREEMENT

India concluded a significant trade deal in March with the European Free Trade Association (EFTA), comprising Iceland, Liechtenstein, Norway, and Switzerland, in March.

India EFTA Trade Deal

- It is signed between-India & EFTA (**four European countries-Iceland, Liechtenstein, Norway, and Switzerland**).
- It uniquely focuses on investment facilitation, diverging from India's recent FTAs that separate trade and investment.
- **Article 7.1(3) (b) of the investment chapter** provides that the EFTA states shall aim to **facilitate generation of one million jobs in India**.
 - An obligation to make an honest endeavor towards achieving a goal, notwithstanding the outcome or the result.
 - **EFTA countries are legally obligated** to make an honest effort to **invest \$100 billion** and generate **one million jobs** in India.
 - **It will create a template** in the ongoing negotiations with the **UK, the EU**, and other countries.

Significance

- **Tariff Reduction and Market Access:** The agreement ensures tariff reductions, enhancing competitiveness and providing greater access for Indian businesses to affluent EFTA markets and vice versa.
- **Efficiency and Trade Volume:** Streamlined customs procedures reduce bureaucratic delays and transaction costs, expediting goods movement and boosting trade volumes, thereby strengthening economic ties.
- **Integration of Human Rights and Sustainable Development:** Integrating a chapter on human rights and sustainable development sets a precedent for future FTAs, promoting ethical trade practices and sustainable growth.
- **Engagement with Developed Nations:** The agreement facilitates increased market entry into India for developed nations, promoting mutual investments and setting a new standard for future trade negotiations.
- **Economic Diversification:** By opening new markets, the agreement helps diversify India's export portfolio, reducing dependence on traditional markets.
- **Investment Facilitation:** Encourages EFTA states to invest \$100 billion and generate one million jobs in India, fostering economic growth and employment.
- **Technology Transfer and Innovation:** Promotes collaboration in technology and innovation between India and EFTA countries, enhancing India's industrial capabilities.
- **Strengthening Bilateral Relations:** Enhances diplomatic and economic relations between India and EFTA member states, fostering long-term strategic partnerships.
- **Template for Future Agreements:** Sets a framework for future trade negotiations with other developed regions, such as the EU and UK, potentially leading to more comprehensive and beneficial trade deals.
- **Boost to SMEs:** Provides small and medium-sized enterprises (SMEs) with greater opportunities to participate in international trade, contributing to economic inclusivity and growth.

About European Free Trade Association (EFTA)

- It is an intergovernmental organization set up for the promotion of free trade and economic integration to the benefit of its four Member States: **Iceland, Liechtenstein, Norway, and Switzerland** – and the benefit of their trading partners around the globe.
- **Origin:** It was founded by the **Stockholm Convention in 1960**.

- **Trade robustness:** In 2021, it was the tenth-largest trader in the world in merchandise trade and the eighth-largest in trade in services. It is also among the most important trading partners in goods and services for the EU.
- **India-EFTA trade:** In 2022, the combined EFTA-India merchandise trade surpassed USD 6.1 billion.
 - The primary imports to the EFTA States consisted of organic chemicals (27.5%). The machinery (17.5%) and pharmaceutical products (11.4%) constituted the main exports to India.

The Trade and Economic Partnership Agreement (TEPA) marks the second such full-fledged FTA signed after India's agreement with the United Arab Emirates.

Investment lessons from the India-EFTA Trade deal:

- **Historical Context:** Early 2000s FTAs with Japan, Korea, Malaysia, and Singapore integrated both trade and investment, including binding investment protection provisions.
- **Trade and Investment Linkage:** Economic theory highlights the interconnection between trade and investment, crucial in a globalised production landscape. FTAs typically include binding rules for both.
- **Decoupled Approach (FTA 2.0):** Recently, India separated international trade law from investment law, focusing on binding trade rules in FTAs with Australia, Mauritius, and the UAE.
- **Bilateral Investment Treaties:** India negotiated separate BITs with countries like the UK and the UAE, treating trade and investment as distinct agreements.
- **Current Developments:** The India-EFTA FTA includes both trade and investment in a single framework, suggesting a potential shift in India's strategy towards a more integrated negotiation approach.
- **Strategic Implications:** This unified framework could indicate a reconsideration of the decoupling strategy, aiming to boost foreign investment by including investment chapters in FTAs.
- **Future Negotiations:** The India-EFTA FTA may serve as a template for future agreements, influencing negotiations with regions like the EU and the UK for more comprehensive economic partnerships.

Proposed FTA 3.0 Framework

- **Comprehensive FTA Policy:** Developing a clear and integrated FTA policy encompassing both trade and investment is crucial for attracting foreign investment and boosting economic growth.
- **Strategic Alignment:** This integrated approach will align India's economic engagements with broader strategic objectives, enhancing global trade relationships.
- **Policy Recommendations:**
 - **Unified Economic Treaties:** India should consider negotiating trade and investment together in FTAs to leverage negotiations effectively.
 - **Broader Investment Issues:** Expanding the scope of negotiations to include investment protection and a robust dispute resolution mechanism could enhance investor confidence.
 - **Environmental and Social Standards:** Incorporate high standards for environmental protection and social responsibility to promote sustainable development.

Issues and challenges

- **Pending Approvals:** The ratification process in the four EFTA countries, especially Switzerland, poses a significant challenge.
- **Current Tariff Dynamics:** Limited benefits for India as the EFTA bloc has low tariff rates and many tariff-free imports.
- **Impact on Exports and Imports:** Boosts EFTA's exports to India, but reciprocal benefits for Indian exports are less pronounced.
- **Agricultural and Sensitive Products:** Excludes key sectors like agriculture; several sensitive Indian products, including dairy, coal, and soya, are not covered.
- **Non-Tariff Barriers:** Regulatory standards and technical barriers in EFTA countries could hinder Indian exports.

- **Competitive Disadvantages:** Indian SMEs might struggle to compete with established EFTA companies in certain sectors.
- **Implementation Challenges:** Effective execution of the agreement requires robust mechanisms and coordination, which could be complex.
- **Political and Economic Stability:** Changes in political or economic conditions in either region could affect the agreement's long-term sustainability.

Way Forward

- **Expedite Ratification:** India and the EFTA states should work collaboratively to overcome bureaucratic and political hurdles, especially with Switzerland, to ensure swift ratification.
- **Effective Implementation:** Post-ratification, setting up robust mechanisms for the effective implementation of the agreement will be crucial to reap the intended benefits.
- **Review Tariff Structures:** India should engage in further negotiations to reassess and possibly reduce tariffs in sectors where it can afford to, without harming local industries, to enhance the reciprocity of the agreements.
- **Simplify Regulations:** Streamlining regulatory standards and simplifying customs procedures can help mitigate non-tariff barriers, facilitating smoother trade flows.
- **Expand Product Coverage:** Including more products under the agreement, especially from sectors like agriculture and sensitive industries, could broaden the scope and deepen the trade relations.
- **Focus on SMEs:** Implement strategies specifically aimed at empowering small and medium-sized enterprises (SMEs) to leverage the FTA, ensuring a broader distribution of benefits.
- **Learning from Experience:** Use the insights gained from the India-EFTA deal to inform future negotiations with other countries and blocs, such as the EU and the UK.

3.2 CAPITAL GAINS TAX

Domestic stock market indices fell sharply after a news report suggested that the government may announce income tax measures, including standardisation of capital gains tax for all assets.

About Capital Gains Tax

- Capital gains tax refers to the tax levied on the profit earned from the sale of capital assets such as stocks, real estate, or other investments.
- **Calculation:** The tax is applied to the **difference between the purchase price (cost basis)** and the selling price of the asset.
- **Types of Capital Gains:**
 - **Short-Term Capital Gains:** These are gains from assets (non-equity) held for less than 36 months (3 years). They are taxed at the individual's applicable income tax rate.
 - **Long-Term Capital Gains:** These are gains from assets (non-equity) held for more than 36 months. The tax rate for long-term gains is typically lower than for short-term gains.
- **Global Norm:** Most countries impose capital gains tax to generate revenue and influence investment behaviour.

Capital Gains Tax in India

- **Current Structure:** India has a differentiated capital gains tax structure for various asset classes.
- The Income Tax Act of 1961 governs capital gains taxation in India.
- **Calculation of Capital Gains -**
- **Equity Shares and Equity-Oriented Mutual Funds:**
 - Short-Term Capital Gains: Gains from assets held for less than 12 months. Taxed at 15%.
 - Long-Term Capital Gains: Gains from assets held for more than 12 months. Taxed at 10% for gains exceeding Rs 1 lakh.
- **Other Assets (e.g., Real Estate, Debt Mutual Funds):**

- **Short-Term Capital Gains:** Gains from assets held for less than 36 months (3 years). Taxed at the individual's applicable income tax rate.
- **Long-Term Capital Gains:** Gains from assets held for more than 36 months. Taxed at 20% with indexation benefit.

Recent Speculations Regarding Government Action

- **Standardisation:** There have been speculations about the government considering a **standardised capital gains tax** across all asset classes.
- **Justification:** This move could simplify the tax system and potentially boost government revenue.
- Critics argue that different asset classes have unique risk profiles and holding periods, so **a one-size-fits-all approach may not be ideal**.
- Investors fear that higher tax rates could **discourage investment and impact market sentiment**.

Possible Impacts of Standardisation of Capital Gains Tax

- **Short-Term Volatility:** If implemented, a standardised tax could lead to short-term volatility in the stock market.
- **Impact on Investors:** A higher tax rate on equities could discourage long-term investments and dampen market sentiment.
- **Focus on Long-Term Investing:** A well-designed reform could encourage long-term investing by offering benefits for holding periods.
- **Overall Market Health:** The ultimate impact on the share market will depend on how the reform is structured and communicated.

Government's Response

- **Denials:** In instances where speculations have caused market fluctuations, the government has denied any immediate plans to rework capital gains tax.
- **Inspiration from Task Force Report:** Discussions around reform often reference recommendations from a **2019 Direct Tax Task Force report**. This report proposed a simplified structure with three asset categories and varying holding periods for long-term capital gains tax benefits.
- **Focus on Budget Decisions:** Ultimately, any changes to capital gains tax would likely be announced during the Union Budget presentation.

Way Forward

- **Transparency and Consultation:** Open communication from the government regarding the proposed tax changes is crucial.
- **Balancing Revenue and Growth:** The government needs to find a balance between generating tax revenue and fostering a vibrant stock market.
- **Phased Implementation:** A phased implementation of any reform, if necessary, could ease the transition for investors.
- **Focus on Long-Term Benefits:** The ultimate goal should be to create a tax system that promotes long-term investment and economic growth.

Base Erosion and Profit Shifting (BEPS)

- Base erosion and profit shifting (BEPS) refers to tax planning strategies **used by multinational corporations (MNCs)** to exploit gaps and mismatches between different countries' tax systems.
- **Base Erosion:** MNCs utilise strategies that reduce their taxable profits in high-tax countries.
- **Profit Shifting:** MNCs shift profits earned in high-tax countries to low-tax jurisdictions with little to no real economic activity.

3.3 AGREEMENT ON AGRICULTURE OF WTO

*Recently the US and Australia have contended that India has provided sugarcane subsidies beyond the limits set out in the **WTO's Agreement on Agriculture (AoA)**, potentially distorting global sugar trade.*

Recent Issue

- **Allegations by US and Australia:** The US and Australia contend that India has provided sugarcane subsidies beyond the limits set out in the **WTO's Agreement on Agriculture (AoA)**. During the period from 2018-19 to 2021-22, India's sugar subsidies allegedly crossed 90% of the value of production, well above the permissible level of 10%.
- **Distortion of Global Trade:** They claim these subsidies make Indian sugar artificially cheaper, harming global sugar prices and impacting their own sugarcane producers.

WTO's Agreement on Agriculture (AoA)

- **Reduced Domestic Support:** The AoA aims to reduce trade-distorting domestic support provided by member countries to their agricultural sectors.
 - **Amber Box:** This includes all domestic subsidies considered to distort production and trade. These subsidies are subject to reduction commitments. Developed countries have a ceiling of 5% of the value of agricultural production, while developing countries have a higher limit of 10%.
 - **Blue Box:** Subsidies that are linked to production-limiting programmes. These are not subject to reduction commitments but must be less trade-distorting than amber box subsidies.
 - **Green Box:** Subsidies that cause minimal or no trade distortion and are not subject to reduction commitments.
- **Market Access Provisions:** The AoA aims to promote fair competition and prevent trade distortions by establishing rules for market access, including tariff reductions and minimum import access commitments.
- **Export Subsidy Restrictions:** The AoA prohibits the use of export subsidies, which are deemed to be particularly trade-distorting and harmful to other countries' agricultural sectors.
- **Special and Differential Treatment:** The AoA recognizes the unique challenges faced by developing countries and provides for special and differential treatment, allowing for greater flexibility in implementing certain provisions.
- **Non-Trade Concerns:** The AoA acknowledges the importance of non-trade concerns, such as food security, environmental protection, and rural development, and allows for measures aimed at addressing these concerns.

Peace Clause

- **Temporary Exemption:** The Peace Clause, introduced in the **Uruguay Round** of trade negotiations, provided a temporary exemption from legal challenges related to domestic support measures for agricultural products.
- **Expiration and Renewal:** The Peace Clause **expired in 2003**, but negotiations are ongoing to renew or modify it, reflecting the evolving needs and concerns of WTO members.
- **Significance for Developing Countries:** The Peace Clause has been particularly important for developing countries like India, as it allowed them to maintain certain subsidy programs without facing legal challenges from other WTO members.
- **Ongoing Negotiations:** The renewal or modification of the Peace Clause is a contentious issue in the ongoing **Doha Round** of trade negotiations, with differing perspectives among WTO members.
- **India invokes peace clause:** India has invoked the **Peace Clause to defend its Sugarcane subsidies**. However, the recent allegations by the US and Australia challenge this protection.

Impacts of the Allegations

- **Potential Trade Retaliation:** If the WTO rules against India, the US and Australia could seek authorization to impose trade sanctions on Indian goods.

- **Market Uncertainty:** The ongoing dispute creates uncertainty for Indian sugar exports and can potentially discourage investments in the sector.
- **Pressure on Sugarcane Farmers:** A potential reduction in subsidies could put pressure on Indian sugarcane farmers' livelihoods.
- **Food Security Concerns:** Sugarcane is a key crop for India, and ensuring its viability is crucial for national food security.

India's Response

- **Dispute of Calculation Methodology:** India contests the methodology used by the US and Australia to calculate subsidy levels.
- **Focus on Food Security:** India argues that its support programs are essential for ensuring food security and supporting millions of farmers.
- **Openness to Negotiations:** India has expressed its willingness to engage in discussions with the US and Australia to find a solution that complies with WTO rules while addressing its domestic needs.
- **Implementing Reforms:** India is undertaking reforms in the sugar sector to improve efficiency and reduce dependence on subsidies.

Criticism of WTO's Policies

- **Bias Towards Developed Nations:**
 - **Disproportionate Benefits:** The AoA benefits developed nations more, allowing them greater flexibility even after subsidy reductions.
 - **Historical Injustice:** Current rules don't address the historical advantages held by developed countries.
- **Inadequate Special and Differential Treatment (SDT):**
 - **Limited Flexibility:** SDT measures are insufficient for the needs of developing countries.
 - **Implementation Challenges:** Limited administrative and financial capacities hinder the full utilisation of SDT provisions.
- **Neglect of Food Security and Rural Development:**
 - **Food Security Concerns:** Strict subsidy rules potentially undermine national food security.
 - **Rural Development:** The AoA does not adequately support rural development and poverty alleviation.
- **Green Box Subsidies:**
 - **Ambiguities and Exploitation:** Vague criteria allow developed countries to provide substantial support, indirectly distorting trade.
 - **Unfair Competition:** Extensive use of green box subsidies by developed countries undermines the competitiveness of developing nations.
- **Export Subsidies and Market Access:**
 - **Unequal Playing Field:** Developed countries have more resources to support their exporters, creating an imbalance.
 - **Market Access Barriers:** Non-tariff barriers and stringent standards imposed by developed countries hinder agricultural exports from developing nations.
- **Dispute Settlement Mechanism:**
 - **Perceived Bias:** The system is seen as favouring developed countries, with developing nations lacking resources for effective defence.
 - **Intimidation and Retaliation:** Threats of dispute settlement and retaliation pressure developing nations into compliance.

Way Forward

Dialogue and Compromise:

- **Negotiated Settlement:** Engaging in constructive dialogue with the US and Australia to address their concerns while protecting India's food security interests is crucial. Finding a mutually acceptable solution will help mitigate the dispute.
- **Bilateral and Multilateral Discussions:** Active participation in both bilateral and multilateral discussions within the WTO framework can help resolve conflicts and build consensus.

WTO Reforms:

- **Fair Dispute Settlement:** Advocating for reforms in the WTO's dispute settlement system to ensure a more balanced and equitable process that considers the needs of developing countries.
- **Addressing Structural Imbalances:** Working towards reducing structural imbalances in the WTO rules that favour developed countries, ensuring fairer competition and support mechanisms for developing nations.

Domestic Reforms:

- **Sector Efficiency:** Implementing reforms in the sugar sector to enhance efficiency and reduce production costs. This could involve modernising farming practices, improving supply chain logistics, and investing in research and development.
- **Diversification:** Encouraging crop diversification to reduce dependency on sugarcane and its associated subsidies, enhancing resilience against market fluctuations.

Rationalising Subsidies:

- **Targeted Support:** Developing targeted support measures that benefit small and marginal farmers without distorting trade. This could include direct income support, investment in rural infrastructure, and other non-trade-distorting measures.
- **Reducing Fiscal Burden:** Policymakers should consider measures to rationalise subsidies to reduce the drain on public finances, freeing up resources for growth and well-being initiatives.

Promoting Sustainable Practices:

- **Sustainable Agriculture:** Encouraging sustainable agricultural practices that increase productivity without excessive reliance on subsidies. This includes adopting eco-friendly farming techniques and promoting the use of renewable resources.
- **Environmental and Social Goals:** Aligning agricultural policies with broader environmental and social goals, such as improving rural livelihoods and protecting natural resources.

Strengthening Food Security Measures:

- **Food Security Programs:** Ensuring that food security programs are robust and capable of supporting the population, particularly in times of crisis.
- **Resilient Supply Chains:** Building resilient supply chains to ensure stable food supplies and reduce the vulnerability of the agricultural sector to external shocks.

Advocating for Inclusive Global Trade Rules:

- **Equitable Rules:** Pushing for the establishment of global trade rules that are inclusive and equitable, giving due consideration to the unique challenges faced by developing countries.
- **Collective Action:** Forming coalitions with other developing nations to collectively advocate for fairer trade practices within the WTO framework.

Fair and Remunerative Price (FRP) of Sugarcane

- FRP is the **minimum price** at which sugarcane is to be purchased by sugar mills from farmers.
- Approved by - **Cabinet Committee on Economic Affairs (CCEA)**
- Recommended by - **Commission for Agricultural Costs and Prices (CACP).**
- The FRP is based on the recommendations of the **Rangarajan Committee** report on reorganising the sugarcane industry

3.4 SMART CITIES MISSION

The Smart Cities Mission (SCM), a flagship government programme, has seen a lacklustre presence in recent poll promises and achievements, reflecting its struggles and limited progress.

About Smart Cities

- Globally, Smart cities were defined as new Silicon valley's built with a strong integration of a network of airports, highways, and other types of communications, a so-called intellectual city with advanced **ICT (Information and Communication Technology)**.
- In Indian Context:** A smart city in India is envisioned to provide core infrastructure, a decent quality of life to its citizens, a clean and sustainable environment, and the application of 'smart' solutions. This involves comprehensive development across physical, institutional, social, and economic dimensions.

About Smart Cities Mission (SCM)

- Launched in 2015 for transforming 100 cities** across India into sustainable and citizen-friendly urban centers.
- Objectives include - Driving Economic Growth, Improving Quality of Life, Encouraging Local Development, and Promoting Innovation.
- Area-Based Development
 - Redevelopment:** Renewal of existing urban areas to improve infrastructure and amenities.
 - Retrofitting:** Upgrading infrastructure in existing areas to make them more efficient and sustainable. E.g. Local Area Development (Ahmedabad).
 - Greenfield Projects:** Development of new urban areas with a focus on sustainability and smart technologies. E.g. New Town, Kolkotta, Naya Raipur, GIFT City.
- Pan-City Solutions:** Implementation of Information and Communication Technology (ICT) solutions across **various sectors such as e-governance**, waste management, water management, energy management, urban mobility, and skill development.
- Competitive Selection Process:** Cities were selected through a competitive process, where they submitted proposals outlining their vision, plans, and strategies for becoming Smart Cities.
- Funding:** It is a Centrally Sponsored Scheme with funding from central government which also requires state governments and urban local bodies (ULBs) to contribute an equal amount for implementing projects.
- Special Purpose Vehicles** at city level for implementing projects.

Core Infrastructure Elements of the Mission

- Adequate water supply
- Assured electricity supply
- Sanitation including solid waste management
- Efficient urban mobility and public transport
- Affordable housing, especially for the poor
- Robust IT connectivity and digitalization
- Sustainable environment
- Safety and security of citizens
- Health and education

Six Fundamental Principles on which the Concept of Smart Cities is based



Current Status of Smart Cities Mission

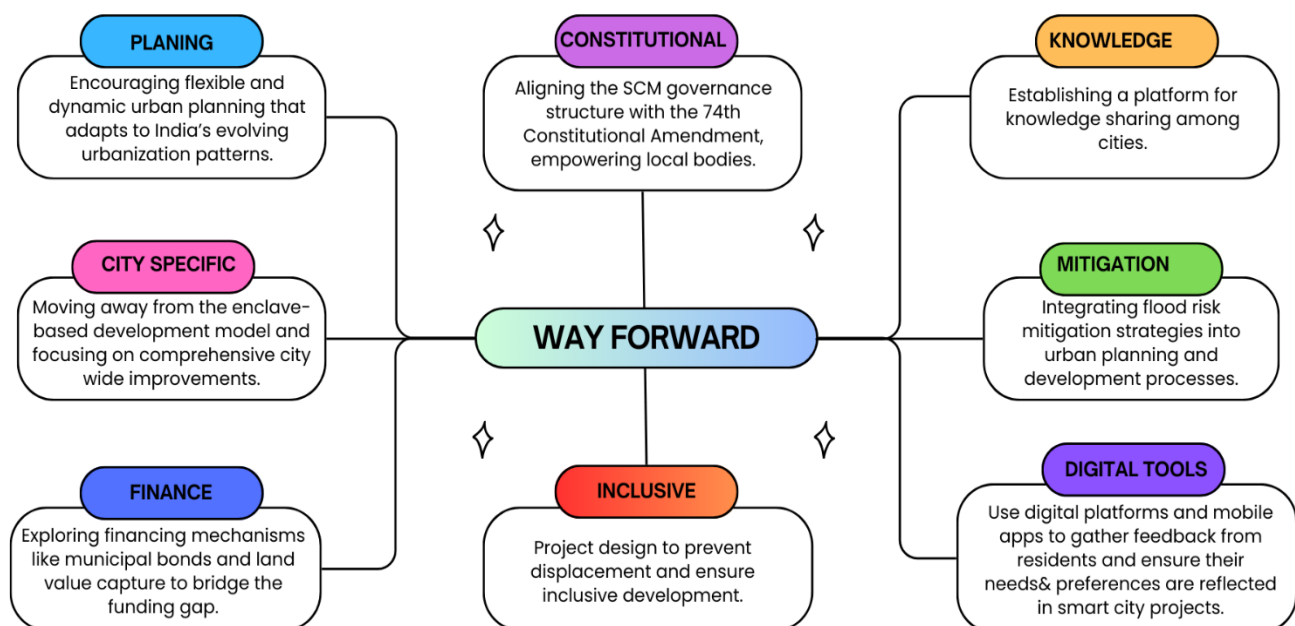
- **Project Progress:** The SCM dashboard indicates that 5,533 projects worth ₹65,063 crore have been completed using SCM grants. An additional 921 projects worth ₹21,000 crore are still ongoing.
- **Funding Shortfall:** The total project outlay for sanctioned projects under the Smart Cities Mission (SCM) has fallen by 16% from the expected ₹2 lakh crore to ₹1,67,875 crore as of April 26.
- **Deadline Concerns:** Around 400 projects undertaken are unlikely to meet the extended deadline of June 2024.
- **Limited PPP Participation:** Only 5% of the funding has come through the Public-Private Partnership (PPP) route, highlighting a low level of private sector involvement.

Challenges Faced by Smart Cities Mission

- **Flawed Selection Process:** The competitive selection of 100 cities did not account for the diverse realities of Indian urban development. The scheme focused on a Western model of static urban planning, neglecting the dynamic nature of Indian urbanization.
- **Exclusionary Approach:** The SCM focused on developing a small portion (less than 1%) of each city, creating an exclusionary approach. E.g., In Chandigarh, Smart City funds were used for a limited area (sector 43) despite the city's larger needs.
- **Insufficient Funding:** The total allocated budget (₹1,67,875 crore) falls far short of the estimated capital expenditure required for Indian cities to be livable by 2030 (\$1.2 trillion).

Governance Mismatch:

- The Special Purpose Vehicle (SPV) model for smart cities clashed with **the 74th Constitutional Amendment regarding local governance**.
- Critics argue the top-down design did not consider the specific needs of smaller cities.
- **Displacement and Disruption:** The focus on project execution led to displacement of vulnerable populations, particularly slum dwellers and street vendors.
- **Public Participation and Inclusivity:** Ensuring citizen participation and inclusivity is often overlooked, leading to a mismatch between implemented solutions and local needs. E.g. Pune's Smart City project has faced criticism for inadequate engagement with slum dwellers and lower-income groups, who feel excluded from the benefits.



3.5 FARM LOAN WAIVER

The recent promise made by Congress with regards to the INDIA bloc government having a permanent commission for farm loan waivers, has rekindled the debate on efficacy of farm loan waivers.

About Farm Loan Waiver

- A farm loan waiver is a **governmental policy decision to write off or cancel outstanding agricultural loans** taken by farmers from banks and other financial institutions.
- **Objective:** The primary objective is to provide debt relief and financial assistance to farmers who are facing distress due to crop failures, natural calamities, or other adverse circumstances.
- **Eligibility Criteria:** The eligibility criteria for farm loan waivers are usually based on factors such as the size of the landholding, the amount of outstanding debt, and the category of farmers (marginal, small, or large).

Process of Loan Waiving

- **Announcement:** The state or central government announces the farm loan waiver scheme, specifying the details such as the target beneficiaries, the amount of debt to be waived, and the timeline for implementation.
- **Verification:** Banks and financial institutions are required to verify the eligibility of farmers based on the criteria set by the government, such as land records, loan documents, and other relevant information.
- **Disbursement:** The government releases funds to the respective banks and financial institutions to compensate for the waived loans, and the accounts of eligible farmers are adjusted accordingly.

History of Loan Waivers

- **The First Central Loan Waiver in 1990:** The first farm loan waiver by the central government came in 1990 under **Prime Minister V.P. Singh's** National Front coalition government.
 - Scope of the Loan Waiver: As per the scheme, loans of up to Rs 10,000 taken by "poor farmers, artisans and weavers" were waived.
 - Fiscal Impact of the Loan Waiver: The final cost to the exchequer was Rs 7,825 crore.
- **The Second Loan Waiver of 2008:** This was announced by Prime Minister Manmohan Singh's UPA-1 regime.
 - **Scope:** For **marginal farmers** with up to 1 hectare land, a 100 per cent waiver on loans **up to Rs 20,000** was provided. For other farmers, there was a 25 per cent waiver up to a maximum of Rs 20,000 per borrower.
 - **Impact:** In total, **Rs 52,000 crore** was allocated for the scheme, covering an estimated 3.7 crore farmers.
- **Loan Waiver Schemes by State Governments:** With **Haryana** pioneering loan waiving by states in 1987, many states like Maharashtra, UP, Kerala, Karnataka etc., have announced their own loan waivers from time to time.

Significance & drivers of Farm Loan Waivers

Debt Alleviation

- Provides critical financial relief to heavily indebted farmers.
- Enables farmers to reset their financial situations and potentially reinvest in their agricultural ventures.

Social Stability

- Addresses severe social issues like farmer suicides and distress migration.
- Helps maintain social peace and reduces the psychological burden on farming communities.

Economic Sustainability

- Supports the agricultural sector, which is pivotal to the economy.
- Ensures food security and underpins rural development.

Political Strategy

- Influences the electoral behaviour of the rural electorate.
- Utilised by political parties to gain support from agricultural communities.

Immediate Financial Relief

- Provides immediate reduction in debt burdens, enabling farmers to focus on farming activities.
- Improves liquidity, allowing for investment in necessary agricultural inputs.

Stimulation of Rural Economy

- Enhances disposable income among farmers, leading to increased spending in rural markets.
- Encourages economic activities and boosts local economies.

Climate Resilience

- Mitigates the financial impact of crop failures due to adverse weather conditions.
- Supports investment in resilient farming practices and infrastructure.

Market Stability

- Cushions farmers against volatile agricultural market prices.
- Provides a more predictable financial environment for farming operations.

Strengthening Financial Systems

- Promotes financial inclusion by encouraging the use of formal credit systems.
- Integrates farmers into the formal financial sector, improving access to other financial services.

Social Welfare

- Enhances overall quality of life for farming families by reducing financial stress.
- Promotes educational and health outcomes in rural areas by freeing up household resources.

Arguments against Farm Loan Waivers

- **Moral Hazard**
- Encourages irresponsible borrowing and lending practices.
- Farmers might expect future waivers, reducing incentives to repay loans.

Fiscal Burden

- Places significant strain on government finances.
- Diverts resources from other crucial sectors such as healthcare and education.

Temporary Solution

- Provides only short-term relief without addressing underlying structural issues in agriculture.

Way Forward-Addressing farm distress through comprehensive strategy

- **Improving Infrastructure:** Invest in better irrigation, storage, and transportation facilities to reduce production costs and post-harvest losses.
- **Crop Insurance Schemes:** Implement robust crop insurance schemes to provide financial protection against natural calamities, pests, and adverse weather conditions.

- Fails to promote sustainable agricultural practices and long-term farmer resilience.

Distortion of Credit Markets

- Banks may become reluctant to lend to farmers, fearing future waivers.
- Can lead to tightening of credit availability and higher interest rates for agricultural loans.

Inequity

- Often benefits only those who have access to formal credit, excluding marginal and tenant farmers who rely on informal sources.
- Can disproportionately favour larger, wealthier farmers over smallholders.

Negative Impact on Agricultural Productivity

- Reduces incentives for farmers to invest in productivity-enhancing technologies and practices.
- Can lead to a culture of dependency on government aid rather than self-reliance.

Economic Inefficiency

- Allocates scarce public resources to debt relief instead of investment in infrastructure, research, and extension services.
- Hinders economic growth by prioritising consumption over investment.

Inflationary Pressures

- Increased government spending on waivers can lead to higher fiscal deficits and inflation.
- Can erode the purchasing power of consumers and hurt the overall economy.

Undermining Financial Discipline

- Weakens the financial discipline of both borrowers and lenders.
- Can lead to a cycle of indebtedness and recurring financial crises in the agricultural sector.

Policy Uncertainty

- Creates uncertainty in the agricultural sector and among financial institutions.
- Discourages long-term planning and investment due to unpredictable policy interventions.

- **Market Reforms:** Promote direct marketing channels and remove intermediaries to secure better prices for farmers.
- **Sustainable Agricultural Practices:** Encourage precision farming, organic farming, and drought-resistant crops to mitigate climate change impacts and improve productivity.
- **Sustainable Solutions:** Focus on long-term solutions such as improving irrigation, promoting sustainable agricultural practices, and strengthening market linkages instead of relying solely on loan waivers.
- **Targeted Assistance:** Design targeted assistance programs like crop insurance and income support measures to provide relief while minimising fiscal burden.
- **Agricultural Reforms:** Implement comprehensive agricultural reforms, including land and market reforms, and promote alternative livelihood opportunities in rural areas.
- **Stakeholder Involvement:** Involve farmers' organisations, agricultural experts, and policymakers in decision-making to design effective and well-targeted interventions.

3.6 PATENT

The patent system faces significant pressure from high application withdrawals, even as approval rates increase.

About patents

- A patent is an exclusive right granted for an invention, which is a product or a process that provides, in general, a new way of doing something, or offers a new technical solution to a problem.
- Patents incentivise innovation by granting inventors exclusive rights to their inventions, encouraging the development of new products and technologies.

Categories	Copyright	Patent	Trademark
Protection	Copyright law preserve expression of ideas rather than the idea themselves. Like artistic work that involves work related to books, painting, music and computer programme	Patent preserve any invention which is innovative and new that in turn give right to inventor to stop others from using such invention	Any word, symbol, logo capable of recognizing a business and differentiate a brand from other is preserve under Trademark
Serves	Usually serves artists and authors.	Usually serves inventors.	Usually serves brands.
Governed under	Governed under, Copyright Act 1957	Governed under, The Patents Act 1970	Governed under, Trademarks Act 1999
Validity	Valid for the lifetime and 60 years after the death of creator.	Valid for 20 years. After which it goes to the public domain.	Valid for 10 years. Is renewable.
Provisional Application	No provisional application required.	A provisional application gets you 12 months of time to file a complete specification, and a priority date claim.	Trademark registration does not include provisional application, but it requires a trademark search.
Rights	Exclusive rights over the copyright are created the moment the authorship creates the work.	Patent registration takes about 2-3 years in all. But the owner can stop anyone else from claiming right over a particular patent the moment he applies for provisional patent.	Once the trademark gets registered the applicant of the mark can claim complete right over the said mark. Registration usually takes 12-18 months.

Patent-Related Treaties

- **Paris Convention (1883):** Applies to industrial property, including patents, trademarks, industrial designs, and more. It was the first major international agreement to protect intellectual works across countries.

- **Patent Cooperation Treaty (PCT):** Allows inventors to seek patent protection in multiple countries by filing a single "international" patent application, which can be filed with the national patent office or the International Bureau of WIPO in Geneva.
- **Strasbourg Agreement:** Establishes the International Patent Classification (IPC), dividing technology into eight sections with around 80,000 subdivisions. This classification aids in retrieving patent documents for prior art searches, crucial for patent authorities and inventors.
- **Patent Law Treaty (PLT):** Adopted in 2000, it harmonises and streamlines formal procedures for patent applications, making them more user-friendly, with specific exceptions for filing date requirements.
- **Budapest Treaty (1977):** Addresses the international patent process for microorganisms. States party to the treaty must recognise microorganisms deposited as part of the patent procedure, eliminating the need for multiple submissions to national authorities

Patent laws in India:

- **The Patents Act, 1970:** It is the legislation that till date governs patents in India. It first came into force in 1972.
- **Nodal agency:** The Office of the Controller General of Patents, Designs and TradeMarks or CGPDTM is the body responsible for the Indian Patent Act.
 - The Patent Office has its headquarters in Calcutta and has branches in New Delhi, Chennai and Mumbai.
- **Term of a Patent:**
 - The term of every patent granted is 20 years from the date of filing of the application.
 - However, for applications filed under the national phase of the Patent Cooperation Treaty (PCT), the accorded term will be 20 years from the international filing date.
- **Patents (Amendment) Rules, 2024**
 - **Reduced timeline for filing a Request for Examination (RFE):** The timeline for filing the RFE is now reduced from 48 months to 31 months from the priority date. The reduced timeline for filing a Request for Examination (RFE) will accelerate the patent examination process.
 - **Introduction of 'Certificate of Inventorship':** To recognise inventors' contributions to patented inventions. As the Indian patent certificate does not identify the inventors, this provision will allow inventors to be identified for their inventions.

Inventions that cannot be Patented in India

- **Chapter II, Section 3 of the Indian Patents Act** stipulates what is not considered an invention under the law and is therefore not patentable in India:
 - Inventions being frivolous or contrary to public order, morality, public health, the environment, etc.
 - Scientific discoveries
 - Mere discoveries of new forms of known substances
 - Methods of agriculture or horticulture
 - Diagnostic, therapeutic and surgical methods for the treatment of humans or animals
 - Plants and animals other than micro-organisms
 - Mathematical or business methods or computer programs per se or algorithms
 - Literary, dramatic, musical or artistic work or any other aesthetic creation
 - Schemes, rules or methods of performing mental acts or methods of playing games
 - Presentations of information
 - Topography of integrated circuits
 - Traditional knowledge
 - Inventions relating to atomic energy.

Advantages of Granting of Patent Rights

- **Primary Incentives:** Patents encourage invention by providing financial rewards, promote public disclosure of new inventions, motivate investment in development and marketing, and encourage improvements upon existing patents.

- **Incentive for R&D:** Patents drive economically efficient research and development by offering protection and financial incentives, crucial for industries like pharmaceuticals.
- **Recognising Inventors:** By giving inventors property rights over their inventions, patents ensure inventors receive financial benefits and recognition, fostering further innovation.
- **Avoiding Secrecy:** Patents ensure public disclosure of innovations, preventing inventors from keeping their inventions secret and thereby benefiting society through shared knowledge.
- **Market Exclusivity:** Patents grant exclusive market rights to inventors, allowing them to recover R&D costs and gain a competitive edge.
- **Economic Growth:** Patents lead to the creation of new industries and jobs, contributing significantly to economic growth.
- **Encourages Investment:** Secure patent rights attract investors, who are more likely to fund projects with protected intellectual property, ensuring their investments are safeguarded.

Challenges in Granting of Patent Rights

- **Hamper Innovation:** Low-quality, redundant, or obvious patents hinder innovation and commercialisation by granting protection to ideas that do not offer significant advancements. This stifles genuine innovation and can lead to a cluttered patent landscape.
- **Restriction of Fundamental Knowledge:** Patents that block the use of fundamental scientific principles can create a "tragedy of the anti-commons." This scenario restricts future innovations to a single firm, preventing broader advancements in the field and limiting collaborative progress.
- **Weak Accountability:** Patents can weaken the public domain by restricting access to information that could otherwise spur further innovation. This reduced availability of shared knowledge can hinder overall technological progress.
- **Overlapping Patents:** Patent thickets, or overlapping sets of patent rights, create legal complexities and increase the difficulty for new entrants to navigate the patent system. This slows down the pace of innovation and can deter investment in new technologies.
- **Hurt Innovation:** Broad patents that cover wide ranges of technology can prevent other companies from commercialising new products, stifling competition and reducing market diversity. This can lead to monopolistic practices and hinder technological advancement.
- **One Size Fits All:** The patent system often applies a uniform approach to diverse industries, failing to accommodate the specific needs and innovation processes of different sectors. This lack of flexibility can result in inefficiencies and suboptimal protection for certain types of innovations.
- **Bureaucratic Inefficiencies:** In India, the patenting process is often slowed by bureaucratic hurdles, including lengthy approval times and procedural complexities. These delays can discourage inventors from pursuing patents and reduce the overall effectiveness of the patent system.
- **Limited Awareness and Resources:** Many inventors and small businesses in India lack awareness about the patenting process and the resources needed to secure and enforce patent rights. This gap in knowledge and support can limit the number of patents filed and weaken the protection of intellectual property.

Way Forward:

- **Ease of Process:** Introduce efficient e-filing of patent services using AI to expedite the application process and promote innovation.
- **Anti-Patent Initiatives:** Promote anti-patent initiatives to prevent misuse and protect intellectual property, ensuring a balance between patent rights and public interest.
- **Social Welfare:** For innovations of public welfare, such as health, the government should provide compensation and relax patent rights to ensure accessibility.
- **Avoid Evergreening:** Implement measures to prevent the evergreening of patents, ensuring that technologies remain affordable and accessible to all.

- **Improve Patent Quality:** Ensure rigorous examination standards to prevent low-quality or obvious patents from being granted.
- **Flexible Patent Policies:** Adapt patent laws to meet the specific needs of different industries.
- **Enhance Public Domain Access:** Balance patent rights with access to fundamental knowledge to support future innovations.
- **Address Patent Thickets:** Manage overlapping patents to reduce legal complexities and facilitate innovation.
- **Increase Awareness and Support:** Provide education and resources for inventors to navigate the patent system effectively.
- **Promote R&D:** Encourage research and development through targeted incentives and support, fostering a robust innovation ecosystem.

3.7 INVESTIGATION INTO CONTAMINATION OF INDIAN SPICES

Countries such as Singapore, Hong Kong and the U.S. have announced an investigation into possible contamination of spice mixes sold by MDH and Everest.

News Details

- At least five countries including **Singapore, Hong Kong and the U.S.** Have announced an investigation into possible contamination of spice mixes sold by top Indian brands, MDH and Everest.
- On the complaints about the presence of **ethylene oxide (EtO)**, a toxic chemical used as a food stabilizer, beyond permissible limits.
- Elevated levels of EtO are also linked with some cancers.
- The Possible reasons for EtO traces found in excess included the **use of non-approved pesticides and processing techniques aimed to reduce microbiological contamination.**

Pesticide ethylene oxide (EtO).

- **Property:** EtO is colourless, flammable and it dissolves easily in water
- **Uses:** Originally intended for sterilizing medical devices.
 - It is used as a chemical in industrial settings, agriculture, and as a sterilizing agent in food products, including spices.
 - It is food fumigant that prevents microbial contamination, including bacteria, virus, and fungi
 - It reduces microbial contamination, and in turn, extends products' shelf life and makes their storage safe.
- **Health Impact:** highly reactive compound, carcinogenic, also be mutagenic if inhaled.
 - The improper and excessive use of EtO may leave behind residues, causing toxic and even carcinogenic compounds to form, thus contaminating the product.
 - One such compound is ethylene glycol, an ingredient found in Indian-made cough syrups which were linked to the deaths of more than 300 children in Cameroon, Gambia, Indonesia and Uzbekistan.
 - Long-term exposure to ethylene oxide is associated with cancers including **lymphoma and leukemia**, some evidence shows.

India's Response

- **The Federation of Indian Spice Stakeholders (FISS):** It assured that EtO was "not a pesticide".
- **The Spices Board of India:** In response it has initiated mandatory testing of products shipped abroad and is reportedly working with exporters to identify the root cause of contamination.
 - **It announced a slew of corrective measures** – including initiating mandatory testing of consignments shipped to Singapore and Hong Kong and gathering technical details and analytical reports from the relevant food and drug agencies.
 - It is also working with exporters whose consignments have been recalled, getting to the root of the issue and **"proposing corrective measures"**.

- **Thorough inspections** at exporter facilities are also underway to ensure adherence with regulatory standards
- **A circular containing guidelines** to exporters on preventing ETO contamination, prepared after detailed discussions with the Indian spice industry has been issued with
 - Measures include voluntary testing of EtO during raw and final stages.
 - EtO treated products to be stored separately.
 - To identify ETO as a hazard and incorporate critical control points in hazard analysis.
 - Exporters are also encouraged to use alternate methods such as steam sterilization or irradiation.

Current Food Safety Issues in India

- **Adulteration and Contamination:** The adulteration and contamination of food products remain pervasive issues in India. These problems are often due to the use of substandard ingredients, unsanitary processing methods, and inadequate quality control procedures, posing significant health risks to consumers.
- **Inadequate Infrastructure:** The infrastructure for food safety monitoring in many Indian regions is insufficient. There is a notable lack of food testing laboratories, skilled personnel, and inspection facilities, which hampers effective food safety enforcement and monitoring.
- **Food Fraud:** The Indian food industry is plagued by various forms of food fraud, including mislabelling, deceptive advertising, and product misrepresentation. Robust regulatory frameworks and stringent enforcement are essential to prevent these practices and protect consumer rights.
- **Small and Unorganised Food Enterprises:** A large proportion of food businesses in India are small and unorganised, making it challenging to enforce food safety standards. This sector requires focused education and capacity-building initiatives to ensure compliance with safety regulations.
- **Globalisation and Imports:** The increasing volume of international trade necessitates rigorous monitoring of imported food products to ensure their safety and quality. Strengthening the inspection processes for imports is critical to prevent substandard or hazardous items from entering the Indian market.
- **Regulatory Enforcement:** Despite existing regulations, the enforcement of food safety laws is often inconsistent. Enhancing the effectiveness of regulatory bodies through better training, resources, and accountability mechanisms is crucial.

Way Forward

- **Building Capability:** Strengthening the capabilities of regulatory authorities is fundamental. This involves substantial investments in both human and technological infrastructure. Key initiatives include:
- **Training Programs:** Implementing comprehensive training programs for food inspectors to ensure they are well-equipped with the latest knowledge and skills.
- **Laboratory Upgrades:** Modernising food testing laboratories with state-of-the-art equipment to enhance their testing and analytical capabilities.
- **New Testing Technologies:** Adopting advanced testing technologies to improve the accuracy and efficiency of food safety assessments.
- **Risk-Based Inspection:** Adopting a risk-based inspection strategy is crucial for optimising resources and ensuring effective enforcement. This approach focuses on:
- **Prioritising High-Risk Goods:** Identifying and prioritising high-risk food products and institutions for inspection to address the most significant threats to food safety.
- **Tailored Enforcement:** Implementing targeted enforcement measures based on the risk assessment, which ensures more efficient use of regulatory resources.
- **Public Awareness Programs:** Educating consumers about food safety regulations, their rights, and the importance of reporting issues is vital. Effective public awareness programs should:
- **Inform Consumers:** Provide clear and accessible information about food safety standards and practices.
- **Encourage Reporting:** Empower consumers to report any food safety concerns, thereby **holding producers and suppliers accountable**.

- **Technology Integration:** Leveraging modern technologies can significantly enhance food safety monitoring. Key technologies include:
- **Block chain:** Implementing Block chain technology to create transparent and tamper-proof records of the food supply chain, facilitating traceability and accountability.
- **Traceability Systems:** Developing comprehensive traceability systems to quickly identify and isolate contaminated or adulterated products, minimising the risk to consumers.
- **Penalties:** Increasing penalties for violations of food safety standards is essential to deter noncompliance. This involves:
- **Stricter Enforcement:** Imposing severe penalties on those who fail to meet food safety regulations to send a strong message about the consequences of noncompliance.
- **Regulatory Reforms:** Updating and strengthening food safety laws to ensure they provide a robust framework for enforcement.
- **Industry Collaboration:** Promoting collaboration among regulatory agencies, industry stakeholders, and consumer organisations can lead to the development of effective solutions. This collaborative approach includes:
- **Stakeholder Engagement:** Encouraging regular dialogue and cooperation between regulators, industry players, and consumer groups to address food safety challenges collectively.
- **Best Practices Sharing:** Facilitating the exchange of best practices and innovative solutions to enhance food safety across the sector.
- **Enhanced Surveillance and Data Analytics:** Implementing robust surveillance systems and utilising data analytics can provide insights into emerging food safety risks. This includes:
- **Continuous Monitoring:** Establishing continuous monitoring systems to detect food safety issues promptly.
- **Data-Driven Decisions:** Using data analytics to inform decision-making and policy formulation, ensuring that interventions are evidence-based and effective.
- **International Collaboration:** Engaging in international collaboration can help India align its food safety standards with global best practices. This involves:
- **Global Partnerships:** Forming partnerships with international food safety organisations to share knowledge and resources.
- **Harmonisation of Standards:** Working towards the harmonisation of food safety standards to facilitate safe trade and protect consumer health globally.

The Spices Board:

- **The Spices Board**, is the flagship organization for the development and worldwide promotion of Indian spices.
- The Board is an international link between the Indian exporters and the importers abroad.
- **Nodal Ministry:** Ministry of Commerce and Industry.
- **Multi-faceted activities:**
 - Promotion of exports of spices and spice products.
 - Maintenance and monitoring of quality of export.
 - Development and implementation of better production methods, through scientific, technological and economic research.
 - Guidance to farmers on getting higher & better quality yields.
 - Provision of financial and material support to growers.
 - Encouraging organic production and export of spices.
 - Facilitating infrastructure for processing and value addition.
 - Registration and licensing of all spice exporters.
 - Assistance for studies and research on better processing practices.

FSSAI

- **Food Safety and Standards Authority of India (FSSAI)** is an autonomous statutory body established under the Food Safety and Standards Act, 2006 (FSS Act).
- **Nodal Ministry:** The Ministry of Health & Family Welfare, Government of India is the administrative Ministry of FSSAI.
- **Headquarters:** Delhi.

3.8 ROLE OF INDIA IN CONTEMPORARY INTERNATIONAL TRADE

The recent moves by central banks to increase the gold component in their foreign exchange reserves, the United States' move to slap tariff hikes on Chinese electric vehicles and other products etc. are pointing towards the emergence of a new warzone in the form of international trade.

Important Determinants of International Trade

- **Comparative Advantage:** A country exports goods and services it can produce more efficiently than others. India's large, skilled workforce fuels its comparative advantage in IT and textiles.
- **Trade Policies:** Government regulations like tariffs and subsidies influence trade flows. India's recent focus on trade liberalization has opened its markets for foreign goods.
- **Infrastructure:** Efficient transportation and communication networks are crucial for smooth trade. India's ongoing infrastructure development projects aim to improve this.
- **Global Trade Agreements:** FTAs (Free Trade Agreements) and RTAs (Regional Trade Agreements) reduce trade barriers between member countries. E.g., ASEAN-India FTA.

India's Role in International Trade

- **Global Export Share:** India is the 20th largest exporter of goods and services globally, accounting for 1.7% of the world's total exports in 2021 (1st Rank: China).
- **Share in Global Merchandise Exports:** India's share in global merchandise exports increased from 0.7% in 2000 to 1.9% in 2021, reflecting its growing importance in international trade (1st Rank: China).
- **Agricultural Exports:** India is a major exporter of agricultural products, with a global share of 2.5% in 2021, ranking 9th among the world's leading agricultural exporters (1st Rank: USA).
- **Services Exports Ranking:** India's services exports account for 3.5% of global services exports, making it the 8th largest services exporter globally (1st Rank: USA).
- **Engineering Goods Exports:** India's engineering goods exports reached \$96.4 billion in 2021-22, contributing significantly to global trade in manufactured goods.
- **Gems and Jewelry Exports:** India has emerged as a major hub for the export of gems and jewelry, accounting for 7.7% of the global market share in 2021 (1st Rank: China).

India's History in International Trade

- **Ancient Maritime Trade:** India was engaged in trade of **spice, silk, gems, jewelry** etc through maritime trade routes with other civilizations since ancient times.
- **Colonial Period:** Trade was primarily dictated by the British Raj, favoring exports of raw materials and imports of finished goods.
- **Post-Independence Focus on Self-Sufficiency:** Import substitution policies aimed at reducing dependence on foreign goods, leading to slower trade growth.
- **Liberalization and Globalization:** Since the 1990s, India has embraced economic reforms, opening its markets and promoting international trade.

- **Focus on Regional Integration:** India actively participates in regional trade agreements like BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical Cooperation) to expand trade with neighboring countries.

International Trade: Emergence of a New Warzone

- **Escalating Tariff Wars:** The **US-China trade conflict** exemplifies how countries use tariffs (taxes on imports) to make their exports cheaper and hurt the other's industries.
 - **Tariff Hike:** US recently slapped tariff hikes on Chinese electric vehicles, electronic products etc.
- **Weaponizing Sanctions:** Geopolitical tensions lead to sanctions (economic penalties) on specific countries, disrupting trade flows and harming businesses.
 - **Sanctions on Import:** US and its allies have imposed trade sanctions on goods from Iran and Russia.
- **Rising Protectionism:** Some developed countries implement protectionist measures like import quotas (limits on imported goods) to shield domestic industries from foreign competition.
- **Currency Manipulation:** Accusations of currency manipulation, where a country weakens its currency to make exports cheaper, can trigger trade disputes.

Impacts on India

- **Rising Import Costs:** Global tariffs and trade wars have led to increased costs for imported goods, raw materials, and intermediate products for Indian manufacturers and businesses.
- **Subdued Export Growth:** Trade tensions and protectionist measures by major economies have dampened global trade volumes, affecting India's export growth. Sectors like pharmaceuticals, agriculture, and textiles have faced increased barriers to entry in certain markets due to higher tariffs and non-tariff measures.
- **Supply Chain Disruptions:** Sanctions and trade restrictions have disrupted global supply chains, impacting India's access to critical components, technology, and raw materials from affected countries. This has led to production delays and increased costs for Indian businesses heavily reliant on imports.
- **Impact on Foreign Investment:** Heightened global trade uncertainties and the risk of further escalation of trade wars have discouraged foreign investors from investing in India, as businesses prefer more stable and predictable trade environments for long-term investment decisions.

India's Role in this Futile War

- **Neutral Player:** Following a non-alignment policy, India has avoided being caught in the US-China crossfire.
- **Championing Multilateralism:** India can advocate for a rules-based multilateral trading system overseen by the WTO (World Trade Organization) to ensure fair trade practices.
- **Building Strategic Partnerships:** India can forge strong trade partnerships with like-minded countries to create alternative trade blocs less susceptible to trade wars.
- **Promoting Regional Trade Agreements:** By actively participating in regional trade agreements, India can diversify its trade partners and reduce dependence on warring nations.
- **Focusing on Domestic Manufacturing:** Strengthening domestic manufacturing capabilities can reduce reliance on imports and make India less vulnerable to trade disruptions.

India's Growth Opportunities in International Trade

- **Digital Economy:** India's booming digital economy presents vast export opportunities in IT services, e-commerce, and fintech.
- **Focus on Innovation:** Fostering a culture of innovation can lead to the development of new exportable products and services.
- **Upgrading Infrastructure:** Investments in infrastructure development will improve logistics efficiency and make Indian exports more competitive globally.
- **Skilling the Workforce:** Focusing on skill development programs will equip India's workforce with the necessary skills to cater to the demands of the global market.

Challenges

- **High Trade Deficits:** In the fiscal year 2023-24, India's trade deficit with China rose to \$85 billion. This could disrupt India's economic stability and undermine India's diplomatic position.
- **Logistics Bottlenecks:** Inadequate infrastructure, such as inefficient ports and transportation networks, can lead to delays and higher costs in trade.
- **Limited Free Trade Agreements:** Compared to developed economies, India has a limited network of free trade agreements, restricting market access for its exports.
- **Non-Tariff Barriers:** Many countries impose non-tariff barriers like stringent product standards that can make it difficult for Indian goods to enter their markets.
- **Geopolitical Challenges:** Regional tensions, protectionism in the West, over-reliance pose external risks.

Way Forward

Diversifying Trade Partners and Products:

- **Strategic Free Trade Agreements (FTAs):** Actively pursue and finalise FTAs with strategic partners, such as the European Union and key ASEAN countries, to reduce trade deficits and enhance market access.
- **High-Value Export Promotion:** Encourage the export of high-value products and services like IT, engineering goods, and pharmaceuticals by providing targeted incentives and support to these sectors.

Ease of Doing Business:

- **Single-Window Clearance System:** Implement a robust single-window clearance system for trade-related approvals to streamline bureaucratic processes and reduce red tape. This will facilitate quicker and more transparent transactions.
- **Regulatory Reforms:** Continuously update and reform trade-related regulations to align with global best practices, ensuring a favourable environment for both domestic and foreign businesses.

Investing in Infrastructure:

- **Modernising Ports and Logistics:** Invest in the modernisation of port facilities and the development of dedicated freight corridors to improve the efficiency of logistics and reduce transportation costs. Specific projects such as the Sagarmala Programme should be accelerated.
- **Digital Connectivity:** Enhance digital infrastructure to support e-commerce and other digital trade platforms, making it easier for Indian businesses to engage in international trade.

Skill Development and Innovation:

- **Vocational Training and Education:** Expand vocational training programmes to equip the workforce with skills in emerging sectors like advanced manufacturing, renewable energy, and IT services. Partner with industry leaders to ensure training aligns with market needs.
- **Support for Startups:** Provide financial and technical support to startups in high-potential export sectors. Establish innovation hubs and incubators to foster a culture of innovation and entrepreneurship.

Addressing Non-Tariff Barriers:

- **International Standards Compliance:** Assist Indian exporters in meeting international product standards through technical assistance and capacity-building programmes. Facilitate partnerships with international certification bodies to ensure compliance.
- **Mutual Recognition Agreements:** Negotiate mutual recognition agreements with key trading partners to reduce the impact of non-tariff barriers and ensure smoother access to foreign markets.

Promoting Regional Trade Agreements:

- **BIMSTEC and SAARC:** Strengthen participation in regional trade agreements like BIMSTEC and SAARC to diversify trade partners and enhance regional cooperation. Promote initiatives that facilitate trade within the region, such as harmonising standards and reducing tariffs.

Enhancing Trade Facilitation Measures:

- **Customs Modernisation:** Implement advanced customs procedures and technologies to expedite the clearance of goods at borders. Invest in training for customs officials to ensure efficient and transparent processing.
- **Trade Information Portals:** Develop comprehensive trade information portals that provide exporters with up-to-date information on tariffs, regulations, and market opportunities in various countries.

3.9 SOVEREIGN LENDING

*According to recent reports, the Asian Development Bank (ADB) has made commitments worth **\$2.6 billion in 2023 to fund India's priority agendas** along with technical assistance.*

About Sovereign Lending

- **Sovereign lending:** It refers to the practice of international financial institutions or foreign governments providing loans or credit facilities to sovereign nations. These loans are typically extended to the central government or national authorities of a country to support various economic and development initiatives.
- **Purpose:** The primary purpose of sovereign lending is to assist countries in financing large-scale infrastructure projects, economic reforms, and social development programs. It aims to promote sustainable **economic growth, poverty reduction, and overall progress in the borrowing nation.**
- **Key Players:** Major players in sovereign lending include multilateral development banks (MDBs) such as the **World Bank, the Asian Development Bank (ADB), and regional development banks, as well as bilateral lending agencies and foreign governments.**

Benefits of Sovereign Lending

- **Financing Growth:** Sovereign lending provides much-needed capital for infrastructure development, a key driver of economic growth and job creation.
- **Technological Advancement:** Access to foreign expertise and technology through loan agreements can accelerate India's technological advancements.
- **Policy Reforms:** Loan conditions often encourage policy reforms that improve transparency, accountability, and project execution efficiency.
- **Global Partnerships:** Sovereign lending strengthens India's ties with international partners, fostering collaboration on various fronts.

Challenges of Sovereign Lending

- **Debt Burden:** Excessive reliance on sovereign lending can increase India's external debt burden, requiring careful fiscal management.
- **Conditionalities:** Loan conditions may impose certain economic or policy reforms that could have unintended consequences.
- **Project Implementation Delays:** Bureaucratic hurdles and delays in project execution can negate the intended benefits of sovereign lending.
- **Sustainability Concerns:** Some loaned projects might have environmental or social sustainability concerns that need to be addressed effectively.

Asian Development Bank (ADB)

- **Establishment:** The Asian Development Bank was founded on December 19, 1966.
- **Headquarters:** Manila, Philippines.
- **Objective:** The ADB's primary objective is to promote economic and social development in its member countries.
- **Members:** ADB has **68 member countries**. Of these, **49 members** are from the Asia-Pacific region, and **19 members** are from outside the region.

Functions

- Providing **loans and grants** for infrastructure development.
- Offering **technical assistance** for capacity building and institutional strengthening.
- Promoting **investment** of public and private capital for development purposes.
- Responding to requests for assistance in **coordinating development policy and plans** of member countries.

Asian Development Bank and India

- **Founding Member:** India was a founding member of ADB in 1966.
- **Shareholder:** India is currently ADB's **fourth-largest** shareholder.
 - Japan 12.751%
 - United States 12.751%
 - China 5.437%
 - India 5.347%
- **Top Borrower:** India has been the top borrower from ADB since 2010.
- **Present Status:** ADB's current sovereign lending in India includes 67 loans worth **\$14.15 billion**.

3.10 INTERNATIONAL BULLION EXCHANGE (IIBX)

Recently, State Bank of India (SBI) became the first trading-cum-clearing member of the India International Bullion Exchange (IIBX) located in GIFT City, Gandhinagar.

About India International Bullion Exchange (IIBX)

- **Located at:** GIFT City (Gujarat International Finance Tech City), **Gandhinagar, Gujarat**.
- **Purpose:** India's first international bullion exchange, facilitating the import of bullion and offering a comprehensive ecosystem for bullion trading and investment.
- **Regulation and Management:** It is governed by the **International Financial Services Centers Authority (IFSCA)**, which oversees financial products, services, and institutions within IFSCs.
- **Functions and Features:** It will facilitate transparent Price Discovery, Responsible Sourcing and Quality Assurance and Standardization.
- **Competitive Edge:** It offers a variety of **products and technologies** at competitive prices compared to both Indian and major global exchanges **like those in Hong Kong, Singapore, Dubai, London, and New York**.

About Bullion

- **Bullion is high-purity gold and silver**, typically stored as bars, ingots, or coins.
- It can occasionally serve as legal tender and is commonly held as reserves by central banks or by institutional investors.

International Financial Services Centres Authority (IFSCA)

- **Legal status:** The IFSCA was established in 2020 under the International Financial Services Centres Authority Act, 2019.

- **Headquartered:** Gandhinagar in the state of Gujarat
- **Function:** It is a unified authority for the development and regulation of financial products, financial services and financial institutions.
- **Prior to the establishment of IFSCA,** the domestic Indian financial regulators, namely, RBI, SEBI, PFRDA and IRDAI regulated the business in the IFSC.

3.11 ZIMBABWE'S ZIG

According to recent reports, authorities in Zimbabwe are undertaking various measures for the publicity of Zimbabwe's sixth national currency (ZiG) in the last 15 years.

About Zimbabwe's ZiG

- Zimbabwe's ZiG stands for "**Zimbabwe Gold**".
- Introduced in April 2024, the ZiG is a new gold-backed currency aimed at re-anchoring price and exchange rate stability and boosting confidence in the local currency.
- The ZiG banknotes come in denominations ranging from 1 to 200.

Reasons for Failure of Currencies in Zimbabwe

- **Fiscal Irresponsibility:** Printing money to cover government **spending fuelled inflation** and eroded trust in the currency.
- **Economic Decline:** Declining production and exports weakened the economy's ability to back the currency.
- **Policy Inconsistencies:** Frequent changes in monetary policy created confusion and discouraged investment.
- **Lack of Public Confidence:** Years of hyperinflation eroded public trust in the government's ability to manage a stable currency.
- **Dollarization:** Reliance on the US Dollar weakened the incentive to maintain a stable domestic currency.

Challenges Faced by the ZiG

- **Limited Trust:** Public skepticism due to past experiences with failed currencies.
- **Dominance of the US Dollar:** The US Dollar remains the preferred currency for many transactions.
- **Unclear Backing:** Transparency regarding the gold reserves backing the ZiG is lacking.
- **Inflationary Pressures:** The underlying economic issues that caused past inflation haven't been fully addressed.
- **Black Market Activity:** The existence of a black market for foreign currency undermines the ZiG's value.

3.12 USE OF FERTILIZERS IN INDIA

Recently, the Union Cabinet approved a subsidy of Rs 60,939.23 crore, which includes support for indigenous fertilizers through a freight subsidy, as well as additional backing for the domestic manufacturing and import of Di-ammonium phosphate (DAP).

Understanding Fertilizers

- **Overview:** Fertilizers are substances or mixtures containing essential nutrients that are applied to soil or plants to promote growth and enhance productivity. Fertilizers can be organic and inorganic.
- **Macronutrients:** These nutrients include primary macronutrients such as nitrogen (N), phosphorus (P), and potassium (K), as well as secondary macronutrients like sulfur (S), calcium (Ca), and magnesium (Mg), and
- **Micronutrients:** **micronutrients** including zinc (Zn), iron (Fe), copper (Cu), manganese (Mn), boron (B), and molybdenum (Mo).

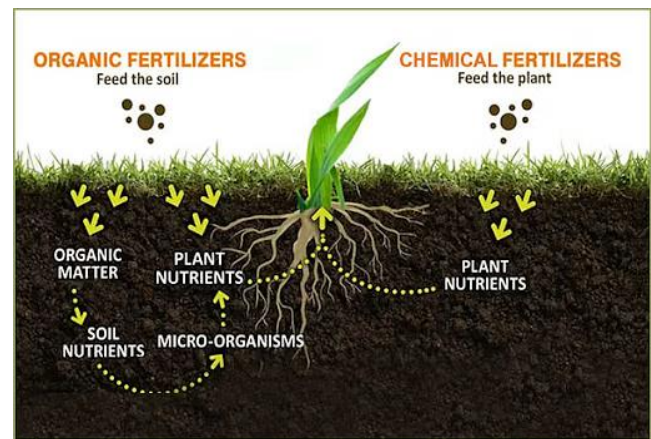
Types and Composition of Fertilizers

- **Organic Fertilizers:** Derived from natural sources like compost, manure, or bone meal, these fertilizers release nutrients slowly, enriching the soil over time.

- **Inorganic Fertilizers:** These synthetic options are produced industrially and provide immediate nutrient availability. They include:

Urea:

- **Role in Nitrogen Supply:** Urea is crucial for nitrogen supply, constituting 82% of nitrogen consumption in India.
- **Market Dominance:** It leads the fertilizer market, accounting for 86% of production, 74% of consumption, and 52% of imports.
- **Subsidies:** Urea receives the most substantial portion of government subsidies, nearly 70% of the total, reflecting its vital role in agricultural production.



Diammonium Phosphate (DAP):

- **Phosphate Consumption:** DAP is the leading phosphate fertilizer, holding 63% of the market in phosphate consumption.
- **Subsidy Scheme:** DAP benefits from the Nutrient Based Subsidy (NBS) scheme, which is designed to ensure balanced nutrient application.

Muriate of Potash (MOP):

- **Import Dependence:** MOP is entirely imported, underscoring India's reliance on international markets for this essential nutrient.
- **Subsidy Scheme:** Like DAP, MOP is also included in the NBS scheme, which helps manage costs and encourages its use despite being fully imported.

Factors influencing the use of fertilizers in India

- **Green Revolution:** The initiative that began in the mid-1960s significantly increased fertilizer use to boost crop yields and continues to influence agricultural practices.
- **Soil Health and Deficiencies:** Variations in soil nutrient content necessitate the use of fertilizers to address specific deficiencies such as nitrogen, phosphorus, and potassium.
- **Government Policies and Subsidies:** Subsidies provided by the government make fertilizers more affordable, encouraging their widespread use to boost agricultural productivity.
- **Agricultural Demand:** Increasing population and food demand drive the need for higher crop yields, which is supported by the intensified use of fertilizers.
- **Technological Advancements:** Innovations in agricultural technology and fertilizer formulations enhance the effectiveness and efficiency of fertilizer use.
- **Climatic Conditions:** Different climate zones across India require tailored fertilizer applications to optimize crop growth. In **Arid zones** (e.g., Rajasthan), fertilizers high in potassium are used to enhance water retention in the soil. In **Humid Tropical Zones** (e.g., Kerala) with high rainfall, slow-release nitrogen fertilizers are preferred to prevent nutrient leaching.
- **Economic Factors:** Fluctuations in fertilizer costs and farmers' economic conditions influence the affordability and usage of fertilizers.
- **Education and Awareness:** Farmers' knowledge about the benefits and proper use of fertilizers impacts their application methods and effectiveness.
- **Market Dynamics and Accessibility:** The availability and distribution of fertilizers affect their usage, with regional disparities influenced by market access.

Critical Issues in Fertilizer Management in India

- **Nutrient Imbalance:** Many Indian farmers do not adhere to the optimal nutrient ratio of 4 parts nitrogen (N), 2 parts phosphorus (P), and 1 part potassium (K). This disproportion not only degrades soil health but also diminishes crop yields, affecting agricultural productivity.
- **Environmental Degradation:** Excessive use of fertilizers leads to eutrophication, a process where runoff containing nutrients like nitrate (NO₃) and phosphate (PO₄) enters water bodies, promoting excessive algae growth. This reduces oxygen levels, endangering aquatic life and disrupting ecosystems.
- **Inefficient Subsidy Distribution:** Despite substantial subsidies aimed at assisting small and marginal farmers, only about 35% of these funds, equivalent to ₹17,500 crores, actually reach them. The complex procedures involved diminish the effectiveness of these subsidies.
- **Dependency on Imported Fertilizers:** India heavily relies on imports for key fertilizer components, including all of its potash, 90% of its phosphatic materials, and 20% of its urea. This high dependency exposes the country to global market fluctuations and potential supply disruptions.
- **Costly Muriate of Potash (MOP):** The high cost of MOP discourages its use among farmers, leading to further nutrient imbalances in the soil, which compromises both crop growth and environmental health.
- **Market Fragmentation and Economic Inefficiencies:** The Indian fertilizer market is highly fragmented, with the top five companies holding just about 28.93% of the market share. This fragmentation reduces market efficiency and stifles competitive pricing.
- **Corruption and Black-Market Issues:** Strict regulatory and subsidy frameworks, particularly for urea, have spurred a black market. Illegal trading disproportionately affects small farmers, reduces corporate efficiencies, and leads to overuse of urea, harming both soil health and human well-being.
- **Inadequate Infrastructure and Logistics:** Challenges in storage and distribution infrastructure further complicate the availability and timely delivery of fertilizers to farmers, especially in remote and rural areas.
- **Lack of Farmer Education:** Insufficient knowledge about the benefits of balanced fertilization and the environmental impacts of improper use results in suboptimal application rates and methods among farmers.

Way Forward:

- **Promoting Balanced Fertilization**
 - **Educational Programs:** Implement widespread educational campaigns to inform farmers about the benefits of using a balanced mix of nutrients tailored to specific crop and soil needs.
 - **Technical Support:** Provide farmers with access to soil testing facilities to help them understand the specific nutrient requirements of their soils, promoting optimal fertilizer usage.
- **Rationalizing Fertilizer Prices**
 - **Adjust Pricing Policies:** Capitalize on fluctuations in global fertilizer prices to adjust domestic Maximum Retail Prices (MRPs) accordingly, making fertilizers more affordable while ensuring that price settings are responsive to international market dynamics.
 - **Subsidy Reforms:** Reevaluate and possibly restructure fertilizer subsidies to ensure that they more effectively target small and marginal farmers and support the use of a wider range of nutrients.
- **Expanding Subsidy Schemes**
 - **Inclusion of Urea in NBS:** Extend the Nutrient-Based Subsidy (NBS) scheme to include urea, promoting its use in a more balanced and environmentally friendly manner.
 - **Enhanced Subsidy Distribution:** Improve the mechanisms for distributing subsidies, ensuring they reach the intended beneficiaries efficiently and reduce opportunities for corruption or misallocation.
- **Strengthening Infrastructure and Access**
 - **Improve Logistics:** Enhance the storage and distribution infrastructure for fertilizers to reduce losses, ensure quality, and facilitate timely access by farmers, particularly in remote areas.
 - **Digital Platforms:** Leverage technology to create platforms for real-time information sharing about fertilizer availability, prices, and optimal use practices.
- **Fostering Sustainable Practices**

- **Promote Organic Alternatives:** Encourage the use of organic fertilizers and integrated nutrient management practices that combine organic and inorganic sources to sustain soil health and reduce environmental impacts.
- **Regulate Usage:** Implement stricter regulations on the overuse of chemical fertilizers to prevent soil degradation and water pollution, promoting sustainable agricultural practices.

3.13 PRODUCTION LINKED INCENTIVE SCHEME (PLI)

The majority of manufacturers qualified under the revised production-linked incentive (PLI) scheme for IT hardware are expected to start production soon.

About the PLI Scheme?

- It is a form of performance-linked incentive to give companies incentives on incremental sales from products manufactured in domestic units.
- **Launch:** March 2020 by the Government of India.
- **Aim:** To boost the **manufacturing sector within the country**.
- **Sectors:** It is given to **14 sectors** (like telecommunication, white goods, textiles, manufacturing of medical devices, automobiles, speciality steel, food products, high-efficiency solar PV modules, advanced chemistry cell battery, drones, and pharma).

Goal:

- To make Indian manufacturers globally competitive
- Attract investment in the areas of core competency and cutting-edge technology.
- Ensure efficiencies, create economies of scale, enhance exports, and make India an integral part of the global supply chain.
- **Importance:** The PLI scheme is part of the larger strategy of the Indian government to bolster the country's manufacturing capabilities and enhance its share in the global economy. The effectiveness of the PLI scheme in attracting investment and promoting sustainable growth in manufacturing will be crucial in determining India's future economic trajectory.

Key Features of the PLI Scheme:

- **Financial Incentives:** Under the PLI scheme, businesses are offered incentives on incremental sales from products manufactured in domestic units. The incentives are provided for a period of five years subsequent to the base year of investment.
- **Sector-Specific Focus:** It enables the micro levels of incentives in the production to increase productivity and job creation in the economy.
- **Encourage Local Production:** The scheme aims to encourage local manufacturing, reduce import bills, improve cost competitiveness, and enhance domestic capacity in various manufacturing sectors.
- **Attract Foreign Direct Investment (FDI):** By offering incentives, the scheme aims to attract more foreign companies to set up production facilities in India, which can help bring advanced technology and foster innovation in Indian manufacturing sectors.
- **Job Creation:** By expanding the manufacturing sector through the PLI scheme, the government aims to create substantial employment opportunities across different levels of the job spectrum.

Objectives of the PLI Scheme:

- **Reduce Dependency on Imports:** By boosting domestic production, the scheme aims to reduce the country's reliance on imports, particularly from countries like China.
- **Increase Exports:** Enhance the export capabilities of India, turning the country into an export-driven economy in specific sectors where it holds competitive advantage.

- **Promote Innovation:** Encourage companies to invest in the latest technologies and production processes to improve their competitiveness on the global stage.

3.14 PERIODIC LABOUR FORCE SURVEY

The 22nd Periodic Labour Force Survey (PLFS), conducted by the National Sample Survey Office (NSSO), provided crucial insights into the urban labor market dynamics in India.

Unemployment Rate Trends

- Marginal decrease in the unemployment rate among individuals aged 15 years and above in **urban areas, from 6.8% in January-March 2023 to 6.7% in the same period of 2024.**
- Female unemployment witnessed a **decline from 9.2% to 8.5%** during the same period, male unemployment experienced a slight uptick, rising to 6.1% in January-March 2024 from 6% in the previous year.
- The LFPR in urban areas for individuals **aged 15 years and above** showed a positive trend, increasing to **50.2% in January-March 2024 from 48.5%** in the corresponding period of the previous year.
- This rise indicates a higher proportion of the urban population actively participating in the labor force, potentially signaling a growing workforce.

Factors Influencing Unemployment

- The rise in the unemployment rate can be attributed to a relative slowing down of activity in the last quarter of the year, leading to layoffs in certain segments such as IT, telecom, and start-ups, particularly **affecting white-collar jobs.**
- Additionally, **blue-collar workers returning to villages to aid in agricultural activities** and a slowdown in construction due to high inventory levels contributed to the uptick in unemployment.

State wise data of Unemployment

- Twelve of 22 states had a higher unemployment rate than the national average.
 - Jammu and Kashmir had the highest unemployment **rate at 11%, followed by Kerala at 10.7% and Rajasthan at 9.6%.**
- The highest rise in the unemployment rate was witnessed by Punjab,
 - Where unemployment rose 1.3 percentage points to 7.7% from 6.4% in the previous quarter.
- **Himachal Pradesh**, on the other hand, witnessed a 3.2 percentage point drop in unemployment to 9.1% in Q4FY24.
- Delhi had the lowest unemployment rate at 1.8%, followed by Karnataka at 4.1%--home to India's tech capital Bengaluru.
- In terms of female unemployment, 11 of 22 states had double-digit unemployment.
 - Delhi and Haryana had the lowest unemployment rate for women in urban areas.

Methodology and Definitions

- The PLFS, initiated in April 2017, provides quarterly estimates of labor force indicators, including the unemployment rate and LFPR.
- The survey employs the **Current Weekly Status (CWS)** approach to identify unemployed individuals, considering those who did not work for even one hour during the week but were available for at least one hour.
- **Labour Force Participation Rate (LFPR) Definition:** The Labour Force Participation Rate (LFPR) as defined by the **National Sample Survey Office (NSSO)** as the percentage of the population **aged 15 years** and older who are either employed or actively seeking employment.

3.15 MERCHANDISE TRADE DEFICIT

As per the data released by the commerce and industry ministry, India's merchandise trade gap widened to a five-month high of \$19.1 billion in April 2024.

About Trade Deficit

- **Trade Deficit:** A situation where a country's imports exceed its exports is called a trade deficit. India incurs a trade deficit when the total value of goods it imports is higher than the total value of goods it exports.
- **Trade Surplus:** Conversely, a trade surplus occurs when a country exports more than it imports.

Types of Trade

- **Merchandise Trade:** This refers to the import and export of physical goods like machinery, textiles, oil, and agricultural products.
- **Services Trade:** This involves the import and export of intangible services like IT, tourism, education, and healthcare. India has a surplus in services trade, which helps offset some of the merchandise trade deficit.

About Merchandise Trade

- **Focus on Goods:** Merchandise trade deals with the physical movement of commodities across international borders.
- **Impact on Economy:** A healthy balance between exports and imports is desirable for economic stability. Exports generate foreign currency, promote domestic production, and create jobs.

Recent Update: Rising Merchant Trade Deficit

- **Widening Gap:** In April 2024, India's merchandise trade deficit reached a four-month high of \$19.1 billion. This signifies a significant increase compared to \$14.44 billion in April 2023.
- **Export Stagnation:** Merchandise exports rose marginally by 1% compared to April 2023, indicating a lack of substantial growth.
- **Import Surge:** On the other hand, merchandise imports witnessed a strong rise, driven by factors like increased gold and oil imports.

Causes of this Deficit

- **Global Slowdown:** The slowdown in global economic growth, particularly in developed economies, has impacted India's exports. Weaker global demand reduces overseas orders for Indian goods.
- **Geopolitical Issues:** Geopolitical tensions and conflicts like the **Ukraine war disrupt global supply chains** and increase the price of commodities like oil, leading to a rise in import costs.
- **Domestic Factors:** Dependence on certain imports like **crude oil and lagging domestic production** in some sectors can also contribute to the trade deficit.

Possible Impacts

- **Current Account Pressure:** A wider trade deficit puts pressure on the current account, which reflects the overall flow of goods, services, and investment.
- **Job Market Challenges:** Increased imports can lead to **job losses in domestic industries** that struggle to compete with cheaper foreign goods.
- **External Debt Vulnerability:** To finance the trade deficit, India may need to borrow more from foreign investors. This can increase external debt and make the economy more vulnerable to external shocks like changes in global interest rates.
- **Depreciation of Rupee:** Persistence of trade deficit can lead to a depreciation of the rupee, making imports more expensive and potentially triggering **inflation**.

Way Forward

- **Boosting Exports:** Policies to incentivize manufacturing, improve export competitiveness, and diversify export markets can help bridge the gap.
- **Promoting Domestic Production:** A focus on import substitution by encouraging domestic production of key commodities like oil can reduce reliance on imports.

- **Focus on Services Exports:** India's strength in services exports like IT and tourism should be leveraged further to generate foreign currency earnings.

3.16 DIVIDEND FROM RBI

According to a recent report the Central government is likely to earn Rs 75,000-85,000 crore as dividends from the Reserve Bank of India (RBI) in the current financial year.

Who Receives Dividends?

- The **Reserve Bank of India (RBI)** doesn't directly pay dividends to individual investors or the general public.
- Instead, RBI transfers a surplus amount of its profit to the **Government of India** as a dividend.

What is Dividend?

- A dividend is a **distribution of a company's profit** to its shareholders.
- When a company generates profit, it can reinvest some of it back into the business for growth, but it can also choose to share a portion with its shareholders as a reward for their investment (this is called a dividend).

How is the Dividend Amount Determined?

- The surplus amount transferred by RBI is determined by its **board** after considering a number of factors to ensure the bank's long-term financial health. These factors include:
- **Current and projected capital requirements:** RBI needs to maintain a certain level of capital reserves to cover potential risks and losses. The dividend amount is decided after ensuring these reserves are adequately funded for future needs.
- **Adequacy of financial provisions:** RBI may have set aside funds for specific purposes, like pension liabilities for its employees or contingencies related to currency management. The dividend is declared only after such provisions are deemed sufficient.
- **Economic environment and future profitability:** The overall economic situation and RBI's expected future earnings are also considered. A strong economy with healthy banking sector performance could lead to a higher dividend.

Recent Speculations Regarding Government Action

- **Past:** In the **fiscal year 2022-23**, RBI transferred a **surplus of Rs 87,416 crore** to the government. This indicates a healthy financial position of the bank.
- **Present:** The government expects a similar or slightly higher dividend (**around Rs 1.02 lakh crore**) for the **fiscal year 2024-25**. This projection might be revised based on the actual economic performance during the year.

3.17 STANDALONE PRIMARY DEALERS

RBI allows standalone primary dealers to tap foreign currency funding.

What is a Primary Dealership?

- A **primary dealer** is a firm that buys government securities directly from a government, with the intention of reselling them to others.
- **So it acts as a market maker of government securities.**
- The government may regulate the behavior and number of its primary dealers and impose conditions of entry.
- Primary Dealers can also be referred to as Merchant Bankers to Government of India as only they are allowed to underwrite primary issues of government securities other than RBI.

What are Standalone Primary Dealers?

- Standalone primary dealers are either subsidiaries of scheduled commercial banks or entities incorporated abroad or those incorporated under the Companies Act and registered as non-banking financial companies.
- A master direction on the functioning of the standalone primary dealers was issued by the RBI in 2016.

Functions of Standalone Primary Dealers.

- **Primary Dealers can also be referred to as Merchant Bankers to Government of India** as only they are allowed to underwrite primary issues of government securities other than RBI who have since shed this role.
- Stand-alone Primary dealers PDs are allowed the following activities as core activities:
 - Dealing and underwriting in Government securities.
 - Dealing in Interest Rate Derivatives.
 - Providing broking services in Government securities.
 - Dealing and underwriting in Corporate / PSU / FI bonds/ debentures.
 - Lending in Call/ Notice/ Term/ Repo/ CBLO market.
 - Investment in Commercial Papers.
 - Investment in Certificates of Deposit.
 - Investment in Security Receipts issued by Securitization Companies/ Reconstruction Companies, Asset Backed Securities (ABS), Mortgage Backed Securities (MBS).
 - Investment in debt mutual funds where the entire corpus is invested in debt securities.

Benefits of Foreign Currency Funding

- **Expansion of the sources of funding:** To expand the sources of funding for standalone primary dealers (SPDs), the Reserve Bank of India has allowed them to borrow in foreign currency as this will allow them to tap the potential of investment from overseas and will be attracted by sovereign guarantee.
- **Investment Inflows:** Billions of dollars' worth of investments is expected to flow into the Indian G-Sec market due to inclusion of Indian government bonds in the indices like Global EM Bond Index and the Bloomberg Emerging Market (EM) Local Currency Government Index.
- **Liquidity support:** So far, SPDs could borrow funds from call/notice/term money market, repo (including CBLO) market, inter-corporate deposits, FCNR (B) loans, and commercial paper and non-convertible debentures. They are also eligible for liquidity support from the bank.
- **Strengthen the infrastructure in G-Sec market:** It will strengthen the infrastructure in G-Sec market to make it vibrant, liquid and broad based; ensure development of underwriting and market making capabilities for G-Sec outside the RBI and improve secondary market trading system.

3.18 THE NATIONAL SAVINGS CERTIFICATE (NSC)

- **NSC is a fixed-income investment scheme** that can be opened with any post office branch.
- **Initiative by** the Government of India and encourages subscribers – mainly small to mid-income investors – to invest **while also saving on income tax.**
- **Term:** NSC comes with a fixed maturity period of five years.
- **Limits:** There is no maximum limit on the purchase of NSCs

NSC Eligibility Conditions that must be Met to Invest in NSCs

- **Entity:** Hindu Undivided Families (HUFs), Trusts, Private and Public Limited Companies (PLCs) are not permitted to invest in NSC.
- **Residency:** The person must be an Indian citizen.
 - **Non-Resident Indians (NRIs)** are not permitted to invest in NSC.
- **Age:** An individual who is more than **10 years of age.**

Features & benefits of NSC

- **Fixed income:** Currently, the scheme is generating a guaranteed return at the rate of 7.7% for investors. The returns offered by NSC have generally been higher than FDs.
- **Tax saver:** As a government-backed tax-saving scheme, can claim up to Rs.1.5 lakh under the provisions of Section 80C of the Income Tax Act, 1961.

- **Start small:** Invest as low as **Rs.1,000 (or multiples of Rs 100)** as an initial investment and **increase the amount when feasible**.
- **Interest rate:** Currently, the rate of interest is 7.7% p.a. for Q1 FY 2024-25, which the government revises every quarter. It gets compounded annually but will be payable at maturity.
- **Maturity period:** The maturity period is **five years**.
- **Access:** Can purchase this **scheme from any post office** by submitting the necessary documents and undergoing the KYC verification process. Also, it is easy to transfer the **certificate from one post office branch to another**.
- **Loan collateral:** Banks and NBFCs accept NSC as collateral or security for secured loans.
- **Nomination:** **The investor can nominate** a family member (even a minor) so that they can inherit it in the unfortunate event of the investor's demise.
- **Corpus after maturity:** Upon maturity, investors **will receive the entire maturity value**. Since there is **no TDS on NSC payouts**, the subscriber should **pay the applicable tax on it**.
- **Premature withdrawal:** Generally, one cannot exit the scheme early. However, they accept it in exceptional cases like the death of an investor or if there is a court order for it.

3.19 CIRCUIT BREAKERS

- The term "**circuit breaker refers**" to an **emergency-use regulatory measure** that temporarily halts trading on an exchange.
- **Objective:** Circuit breakers attempt to **curb panic-selling and can also be triggered on the way up with manic-buying**.
 - It effectively limits **how much a stock's value can fall in a single day/trading session, resulting in a more stable market overall**.
- **The National Stock Exchange** has implemented index-based market-wide circuit breakers with effect from July 02, 2001, based on **SEBI Circular dated June 28, 2001**.

How it Works

- A circuit breaker functions in the trading world the same way it does **for electrical circuits in a home**.
- **Circuit breakers function automatically** by stopping trading when prices hit predefined levels in exchanges.
 - The index-based market-wide circuit breaker system applies at **3 stages of the index movement**, either way viz. **at 10%, 15% and 20%**.
 - These circuit breakers, when triggered bring about a **coordinated trading halt in all equity and equity derivative markets nationwide**.
 - The market-wide circuit breakers are triggered by movement of either the **BSE Sensex or the Nifty 50, whichever is breached earlier**.

3.20 OPEN NETWORK FOR DIGITAL COMMERCE (ONDC)

About ONDC

- On December 31, 2021, ONDC was incorporated as a private sector, non-profit (Section-8) company.
- It is a company whose network enables the display of products and services from all participating e-commerce platforms in search results across all apps on the network.
 - E.g. - if both Amazon and Walmart's Flipkart integrate their platforms with ONDC, a user searching for a Bluetooth headset on Amazon would also see results from Flipkart on the Amazon app.
- **Objective:** To promote an open platform for all aspects of **e-commerce retail**, facilitating small retailers' expansion in the digital marketplace by fostering democratized **digital commerce**.
- It was incubated by the **Department for Promotion of Industry and Internal Trade (DPIIT) at the Quality Council of India**.

Benefits

- **Seller** - Get an equal opportunity to compete with large market players and become discoverable online.
- **Buyers** - Enjoy a seamless shopping experience from a wide assortment of products across categories in a single checkout experience.
- **Tech Companies** - Rapid adoption of products and services and achieving scale in go-to-market efforts.
- **FinTech** - Provide credit and financing solutions to all entities engaged in e-commerce.
- Providing smaller players with a level playing field.

Challenges & opportunities

- While major e-commerce giants such as Amazon and Flipkart have yet to fully integrate with ONDC, the platform's ability to reach tier III and smaller cities remains an appealing prospect.
- The government also needs to make sure that **ONDC complies with the Information Technology Act, 2000**, and the emerging Personal Data Protection Bill.

3.21 GENERALIZED SYSTEM OF PREFERENCES (GSP)

- It is a unilateral scheme whereby custom duty preferences or concessions are granted by developed countries to export of specified products from developing countries.
 - There is no need for developing countries to provide reciprocal customs duty preferences for the developed country.
- The GSP was adopted at **United Nation Conference on Trade and Development (UNCTAD)** in New Delhi in 1968 and was instituted in 1971.
- **Purpose:** It is a scheme that allows vulnerable developing countries to pay lower tariffs on their exports to the EU.
- **Aim:** The GSP aims to help **boost the economies of the countries in question**, reducing poverty and creating jobs.

Types of GSP

- **Standard GSP:** Tariffs for goods imported from a developing country are reduced or suspended. However, this does not apply if a country has been classified by the **World Bank as a high or upper-middle income country for 3 consecutive years** immediately before the EU updates the list of beneficiary countries;
- **GSP+ (an incentive scheme)** — even lower tariffs for countries which ratify and implement **27 specified international conventions covering human and labor rights, environment and good governance**.
- **Everything But Arms (EBA) for least developed countries (LDCs)** — full tariff and quota-free imports for all goods from UN-defined LDCs, except for arms.
- **Suspension:** The EU may temporarily suspend the scheme where, for example, a developing country violates human and labor rights conventions, engages in unfair trading practices or does not respect customs controls (**e.g. allows the export or transit of illegal drugs**).
- In 2019, **the US government has withdrawn its GSP (Generalized System of Preferences) benefits to India**.

3.22 FIXED INCOME FUNDS

- Fixed income funds are mutual funds that invest primarily in bonds or other debt securities.
- They aim to provide investors with returns mainly through interest income and, to some extent, capital appreciation.
- These funds are generally considered less risky compared to equity funds, making them an appealing option for conservative investors seeking stable returns.
- Fixed income funds play a crucial role in the **financial market by providing capital to entities** like governments, municipalities, and corporations.
- These funds enable these entities to finance projects, manage cash flow, or refinance existing debts.

Types of Fixed Income Funds

- **Government Securities Funds:** Invest in government bonds and are considered low risk.
- **Corporate Bond Funds:** Invest in bonds issued by corporations; risk varies based on the creditworthiness of the companies.
- **Municipal Bond Funds:** Focus on bonds issued by state and local governments; often offer tax-free interest income.
- **Dynamic Bond Funds:** Managers actively change the portfolio composition based on interest rate movements.

Risks

- **Interest Rate Risk:** Bond prices inversely correlate with interest rates; if rates rise, bond prices fall.
- **Credit Risk:** The risk that an issuer will default on their payments.
- **Reinvestment Risk:** The risk of having to reinvest income at lower rates in a declining interest rate environment.

Regulatory Environment

- In India, fixed income funds are **regulated by the Securities and Exchange Board of India (SEBI)**, which ensures transparency and safety in these investments.
- SEBI **mandates detailed disclosures regarding the risks, initial and recurring expenses, and the investment process of these funds.**

3.23 HYBRID ANNUITY MODEL

- **Model:** Hybrid Annuity model is a mix of the **EPC (engineering, procurement and construction)** and **BOT (build, operate, transfer) models.**
- **Funding:** In this model the project cost is shared by the government and the private player in a ratio of 40:60, respectively.
- **Purpose:** HAM addresses the necessity for a more efficient financial mechanism for road development.
- **Construction and Collection details:**
 - As per this model private players are responsible to construct and hand over the roads to the government which will collect the toll.
 - Private players are paid a fixed sum of economic compensation (**called 'annuity'**) by the government for a fixed tenure.
 - The private player which **demand the lowest annuity (in bidding) gets the contract.**
 - It distributes risk between developers and the government, with the government's 40% contribution **reducing overall debt and enhancing project returns.**
 - Projects where the government seeks to leverage private sector expertise and resources while retaining control over key aspects of the project are ideal candidates for HAM.

Challenges in NH Construction

- **Execution Pace Decline:** NH construction speed is expected to decrease from 34 km/day in FY24 to 31 km/day in FY25 (a 7-10% annual decline), primarily due to an influx of mid-level developers post-March 2020.
- **HAM Model Setbacks:** HAM projects encounter delays, with approximately one-third experiencing delays of 4-6 months, while others await 'appointed dates' for over a year, leading to cost overruns and hindered execution.
- **Regulatory and Financial Concerns:** Regulatory uncertainty and financial obstacles exacerbate delays.
- **RBI draft guidelines:** Recent RBI draft guidelines on project financing, raising equity requirements for HAM projects, have potentially dampened developer interest.
- **Provisioning:** The significant increase in provisioning requirements during the construction phase - from 0.4 to 5% - may reduce developer participation in the medium term.

Way Forward

- To address Hybrid Annuity Model challenges, it is essential to streamline regulatory processes, enhance financial frameworks, and ensure timely approvals.
- **Developing alternative funding** options and reducing bureaucratic hurdles will attract more developer participation and improve the pace and efficiency of national highway projects in India.

3.24 FINANCIAL SERVICES AND INSTITUTIONS BUREAU (FSIB)

About Financial Services & Institutions Bureau

- It's a government body set up under the Department of Financial Services (DFS), Ministry of Finance.
- The Financial Services Institutions Bureau was established on July 1, 2022, by the Central Government which replaced the **Banks Board Bureau (BBB)**.
- **Primary Role:** The FSIB is tasked with recommending candidates for whole-time directors (WTD) and non-executive chairpersons (NEC) on the Boards of financial services institutions.

Structure

- FSIB would be headed by a chairman, a central government nominee.
- The board would comprise the Secretaries of the DFS, the chairman of IRDAI, and a deputy governor of the RBI.
- Additionally, it will have three part-time members who are experts in banking and three more from the insurance sector.

Function of FSIB

- **To advise the Government on matters relating to appointments**, transfer or extension of term of office and termination of services of the said directors.
- To advise the Government on the desired management structure at the Board level for Public Sector Bank, Public financial institution and Public Sector Insurers.
- To advise the government on the performance appraisal system and code of conduct and ethics for the directors.
- To ensure suitable training and development programmes for management in PSBs, FIs and PSIs.
- To help institutions for developing **business strategy and raising capital plan**.

3.25 GOLD ETF

- **Gold ETF is an exchange-traded fund (ETF)** that primarily tracks the domestic physical gold price.
- Gold ETF is a **commodity-based Mutual Fund** that invests in assets like gold
 - It is passive investment instruments that are based on gold prices
- ETFs trade on the **cash market of the National Stock Exchange**, like any other company stock.
 - It can be bought and sold continuously at market prices.
- Gold ETFs are units representing physical gold which may be in paper or dematerialised form
 - One Gold ETF unit is **equal to 1 gram of gold** and is backed by physical gold of very high purity.
- An investor invests in stocks instead of the actual metal, and once it is traded, they are **credited with the unit's equivalent in cash instead of actual gold**.

Exchange-traded fund (ETF)

- An exchange-traded fund (ETF) is a **pooled investment security** that can be bought and sold like an individual stock.
- ETFs can be structured to track anything from the price of a commodity to a large and diverse collection of securities.
- ETF share **prices fluctuate all day** as the ETF is bought and sold; this is different from mutual funds, which only trade once a day after the market closes.
- ETFs offer low expense ratios and fewer broker commissions than buying the stocks individually

4 SCIENCE AND TECHNOLOGY

4.1 GENE THERAPY

According to a recent report, a girl from the U.K. had her hearing restored with the help of gene therapy.

About Gene Therapy

- Gene therapy is a medical technology that aims to produce a therapeutic effect by manipulating gene expression or altering the biological properties of living cells.
- **Objective:** The goal is to fix or compensate for **disease-causing genetic changes** by introducing new genetic material or modifying existing genes.
- **Historical Context:** The **first successful nuclear gene transfer in humans occurred in 1989**, and since then, over 2,900 clinical trials have been conducted.

Mechanism of Gene Therapy

- **Altering Genetic Code:** Gene therapy works by altering the genetic code to recover the functions of critical proteins. Proteins are essential for cell function and tissue structure.
- **Gene Transfer Techniques:**
 - **Gene Augmentation:** Introducing a normal copy of a gene to replace a faulty or missing gene. (e.g., treatment of inherited retinal diseases)
 - **Gene Inhibition:** Inactivating a disease-causing gene that is not functioning properly. (e.g., silencing genes in cancer therapy)
 - **Suicidal Gene Therapy:** Introducing a different gene that helps the cell function normally despite genetic alterations. (e.g., suicide genes in cancer treatment)
 - **Genome Editing:** Using tools like **CRISPR-Cas9 to directly modify existing DNA in cells**. (e.g., correcting genetic mutations in cystic fibrosis)

Types of Gene Therapies

- **Somatic Cell Gene Therapy:**
 - Corrects defects in somatic cells (non-reproductive cells) or provides RNA molecules to treat or prevent genetic diseases.
 - Useful for inherited mutations or mutations caused by environmental factors.
- **Germline Gene Therapy:**
 - Corrects defects in egg or sperm cells to prevent hereditary diseases in future offspring.
 - Aims to alter the genetic makeup of future generations.
- **Delivery Methods:**
 - **Viral Vectors:** Modified viruses (e.g., retroviruses, adenoviruses, adeno-associated viruses) deliver genetic material into cells.
 - **Non-Viral Vectors:** Liposomes, transposons, and naked DNA can also be used.

Possible Applications

- **Genetic Disorders:** Holds promise for treating diseases like **cystic fibrosis, hemophilia, and sickle cell anemia**. (e.g., hemophilia B treatment using AAV vectors)
- **Cancers:** Can be used to target cancer cells directly or boost the immune system to fight them. (e.g., CAR-T cell therapy for leukemia)
- **Infectious Diseases:** Can help combat viruses like HIV by altering immune cell responses. (e.g., gene editing in T-cells to resist HIV infection)
- **Neurological Disorders:** Being explored for treating Parkinson's disease, Huntington's disease, and Alzheimer's disease. (e.g., gene therapy for spinal muscular atrophy)

Benefits of Gene Therapy

- **Potential for Cures:** Unlike traditional treatments that manage symptoms, gene therapy has the potential to cure genetic diseases at the root cause.
- **Long-Term Effects:** Gene therapy can offer long-lasting or even permanent effects by correcting the underlying genetic defect.
- **Specificity:** This approach can target specific cells or tissues, minimizing side effects on healthy parts of the body.
- **Personalized Medicine:** Gene therapy can be tailored to individual patients' genetic profiles for a more personalized treatment approach.

Recent Case: A Groundbreaking Success

- The recent use of gene therapy in the UK for a young girl named Opal marks a significant milestone in medical history:
- **Pioneering Treatment:** Opal became the first person in the world to receive a specific gene therapy for deafness caused by a mutation in the OTOF gene.
- **Restoring Hearing:** The therapy successfully delivered a functional copy of the OTOF gene to her right ear, enabling her to hear sounds within weeks.
- **A Brighter Future:** This breakthrough offers immense hope for children with similar genetic hearing loss, potentially improving their communication and quality of life.

Global Initiatives

- **United States:** The US has launched the **Collaboration on Gene Therapies Global Pilot**. This initiative aims to harmonize regulations for cell and gene therapies across various countries' authorities.
- **China:** China has emerged as a major player in gene therapy. One example is **Cansino Biologics**, a Chinese company, that's developing a **gene therapy for COVID-19 vaccination**.
- **United Kingdom:** In 2022, it became the first country to approve a gene therapy for **hemophilia A**, demonstrating its commitment to advancing this field.
- **India:** India has conducted the first human clinical trial of gene therapy for Hemophilia A (FVIII deficiency) at Christian Medical College (CMC) Vellore.

Challenges

- **Delivery Difficulties:** Delivering therapeutic genes safely and efficiently to the target cells remains a hurdle. **Viral vectors, commonly used**, can trigger immune responses or integrate into unintended locations in the genome.
- **Off-Target Effects:** Gene therapy techniques need further refinement to ensure precise delivery and expression of the **therapeutic genes** only in the desired cells. Unintended effects on other cells can lead to unforeseen complications.
- **Long-Term Effects:** Gene therapy is a relatively new field, and the long-term effects on patients are still under investigation. Monitoring patients for potential side effects that may emerge years after treatment is crucial.
- **Cost and Accessibility:** Developing and manufacturing gene therapies can be expensive, making them potentially inaccessible to a large portion of the population. Efforts are underway to reduce costs and ensure equitable access to this transformative treatment.

Way Forward

- **Expanding Applications:** As research progresses, gene therapy has the potential to treat a wider range of conditions beyond genetic diseases, e.g., cardiovascular, metabolic, and autoimmune disorders. In India, focus areas include thalassemia and inherited metabolic disorders.
- **Accessibility and Cost:** Efforts must be made to make gene therapy affordable and accessible. This involves streamlining production processes, reducing costs of vectors, and developing cost-effective delivery methods. India's biotech sector is focusing on indigenous development to lower costs and improve accessibility.

- **Public Education:** Increasing public awareness and education is crucial to address concerns and encourage acceptance. Educational campaigns involving healthcare professionals, patients, and the general public are essential. In India, leveraging mass media and digital platforms to disseminate information about gene therapy can shape public perception.
- **International Collaboration:** Global collaboration in research and regulatory frameworks can accelerate development and responsible use of gene therapy. Sharing knowledge, resources, and best practices helps harmonize standards and expedite approvals. India is participating in international consortia and forging partnerships with global leaders to enhance research capabilities and regulatory frameworks.
- **Strengthening Regulatory Frameworks:** Developing robust regulatory frameworks ensures the safety and efficacy of gene therapy products. India is refining its guidelines to keep pace with advancements, including setting up specialized review boards and fast-tracking approvals for promising therapies.
- **Ethical Considerations and Oversight:** Addressing ethical considerations involves rigorous oversight to prevent misuse, ensuring informed consent, and safeguarding patient interests. India is updating ethical guidelines to address gene therapy challenges and protect vulnerable populations.
- **Research and Development Funding:** Increasing funding for R&D is crucial. Governments, private sectors, and philanthropic organizations need to invest more. In India, initiatives like the Biotechnology Industry Research Assistance Council (BIRAC) provide funding and support to biotech startups working on gene therapy.
- **Infrastructure Development:** Building state-of-the-art infrastructure for research, clinical trials, and manufacturing is critical. This includes setting up specialized labs, bioreactors, and clean rooms. India is investing in creating biotechnology hubs and centers of excellence.
- **Training and Capacity Building:** Training healthcare professionals and researchers in the latest techniques ensures successful implementation. India is focusing on capacity building through specialized training programs, workshops, and collaborations with global institutions.

4.2 X CHROMOSOME REVIVAL AND INCREASE IN AUTOIMMUNE DISEASE

Scientists have recently found a molecular link between altered X-chromosome inactivation and autoimmune diseases.

About Chromosomes

- **Structural Units:** Chromosomes are thread-like structures located in the nucleus of cells, composed of DNA (deoxyribonucleic acid) and proteins called histones.
- **Number:** Humans have 23 pairs of chromosomes, resulting in a total of 46 chromosomes.
- **Structure:** Each chromosome consists of two identical strands of DNA, known as chromatids, which are tightly coiled around histone proteins.
- **Types:** There are two types of chromosomes in humans: sex chromosomes (X and Y), which determine biological sex, and 22 pairs of autosomes, which are not involved in sex determination.

Functions of Chromosomes

- **Gene Storage:** Chromosomes house genes, the fundamental units of heredity, which carry the instructions for all biological functions.
- **Protein Production:** Genes on chromosomes provide the blueprint for synthesising proteins, essential building blocks of cells and tissues.
- **Regulation of Cellular Activities:** Chromosomes regulate critical processes such as growth, development, and metabolism by controlling gene expression.
- **Cell Division:** Chromosomes replicate before cell division to ensure each daughter cell receives a complete set of genetic information, maintaining genetic continuity.
- **Inheritance:** Chromosomes transfer genetic material from parents to offspring, determining inherited traits and characteristics.

- **Genetic Variation:** Processes like recombination and mutation in chromosomes contribute to genetic diversity, essential for evolution and adaptation.
- **Sex Determination:** Sex chromosomes (X and Y) determine an individual's biological sex, influencing the development of male or female characteristics.
- **DNA Repair and Maintenance:** Chromosomes are involved in DNA repair mechanisms, ensuring the integrity and stability of genetic material.
- **Disease Susceptibility:** Variations and mutations in chromosomes can affect susceptibility to certain diseases and the ability to resist health conditions.

Inactivation of the X chromosome

- **Dosage Compensation:** To balance the difference in X chromosome numbers between males (one X and one Y) and females (two Xs), one X chromosome in females is inactivated through a process called X-chromosome inactivation (XCI), ensuring equal gene expression across sexes.
- **Random Inactivation:** This inactivation occurs randomly, with either the maternal or paternal X chromosome being inactivated in each cell, leading to a mosaic pattern of gene expression in females.
- **Formation of Barr body:** The inactivated X chromosome condenses into a compact structure known as a Barr body, which can be observed in the nucleus of female cells.
- **Skewed Inactivation:** Occasionally, inactivation may be non-random, favoring one X chromosome over the other. This skewed inactivation can affect gene expression patterns and may be linked to certain genetic disorders and diseases.

Autoimmune Diseases

- **Immune System Malfunction:** Autoimmune diseases occur when the immune system mistakenly attacks healthy tissues in the body.
- **Common Examples:** Lupus, rheumatoid arthritis, and multiple sclerosis are some of the many autoimmune diseases.
- **Predominantly Affects Females:** Women are more susceptible to autoimmune diseases compared to men.
- **Possible Reasons:** The X chromosome and its inactivation process are thought to play a role in this increased susceptibility.

Link Between X-Chromosome Inactivation and Autoimmune Diseases

- **Gene Expression Imbalance:** Disruptions in XCI can lead to the unequal expression of genes on the X chromosome, potentially triggering an autoimmune response.
- **Escape from Silencing:** Some genes on the inactive X chromosome might escape silencing, leading to an overproduction of proteins that could contribute to autoimmunity.
- **Skewed Inactivation:** Altered or skewed X-chromosome inactivation patterns have been observed in some autoimmune diseases, particularly in women.
- **Research Focus:** Understanding the link between XCI and autoimmunity could lead to the development of better diagnostic tools and potential therapies.

Comprehensive Strategy for Handling Autoimmune Diseases

Prevention and Awareness

- **Public Education:** Increase awareness about autoimmune diseases, their symptoms, and risk factors through public health campaigns.
- **Genetic Counselling:** Provide genetic counselling for individuals with a family history of autoimmune diseases to inform them about potential risks and preventive measures.

- **Lifestyle Interventions:** Encourage healthy lifestyle choices, such as a balanced diet, regular exercise, stress management, and avoiding environmental triggers that may contribute to the development of autoimmune conditions.

Early Diagnosis and Screening

- **Routine Screening:** Implement routine screening programs for high-risk populations to detect autoimmune diseases early.
- **Advanced Diagnostic Tools:** Develop and utilize advanced diagnostic tools and biomarkers to identify autoimmune diseases at an early stage.
- **Healthcare Access:** Improve access to healthcare services, ensuring timely diagnosis and intervention for those at risk or showing early signs of autoimmune diseases.

Effective Treatment Options

- **Personalized Medicine:** Tailor treatment plans to individual patients based on their specific disease type, severity, and genetic profile.
- **Medication Management:** Optimize the use of immunomodulatory drugs, corticosteroids, and biological therapies to manage symptoms and control disease progression.
- **Multidisciplinary Care:** Establish multidisciplinary care teams, including rheumatologists, immunologists, dietitians, and mental health professionals, to provide comprehensive care for patients.

Research and Innovation

- **Funding for Research:** Increase funding for research into the underlying mechanisms of autoimmune diseases, potential triggers, and new treatment options.
- **Clinical Trials:** Encourage participation in clinical trials to test new therapies and improve existing treatments.
- **Collaboration:** Foster collaboration between research institutions, healthcare providers, and pharmaceutical companies to accelerate the development of innovative treatments.

Policy and Healthcare System Strengthening

- **Health Policy:** Advocate for policies that support research funding, improve access to healthcare, and provide coverage for essential treatments and therapies.
- **Healthcare Training:** Enhance training programs for healthcare professionals to improve the diagnosis, management, and treatment of autoimmune diseases.
- **Integrated Care Models:** Promote integrated care models that ensure coordinated and continuous care for patients with autoimmune diseases.

4.3 SPACE TOURISM

Gopi Thotakura, an India-born aviator and commercial pilot, recently became the first Indian space tourist.

News in Detail

- **Spacecraft:** The spacecraft belonged to the privately owned **Blue Origin Company**.
- **Flight Details:** The whole journey, from takeoff to landing lasted only about ten minutes, during which the spacecraft attained a maximum height of about **105 km from the Earth**.

Concept of Space Tourism

- **Space Travel:** Space travel begins at about 100 km altitude from Earth, after crossing the **Karman line**.
 - **Karman Line:** It is an imaginary boundary line separating the Earth's atmosphere from outer space.
- **A new frontier of travel:** Space tourism allows civilians to experience the wonders of space for leisure purposes. This includes witnessing the Earth's curvature, experiencing weightlessness, and enjoying celestial vistas.
- **Beyond the government domain:** Traditionally, space exploration was the domain of government space agencies. Space tourism marks a shift, with private companies offering spaceflight experiences which will attract investments.

Types of Space Tourism

- **Suborbital flights:** Offering a taste of space, suborbital flights take passengers just beyond the Earth's atmosphere for a few minutes of weightlessness and breathtaking views. Companies like Blue Origin and Virgin Galactic are pioneers in this domain.
- **Orbital Space Tourism:** Orbital space tourism involves traveling to Earth's orbit, allowing tourists to experience weightlessness and witness the breathtaking views of our planet from space. SpaceX's Crew Dragon missions are a prime example.
- **Space Station Tourism:** Space station tourism involves visiting orbiting space stations, such as the International Space Station (ISS), where tourists can experience life in microgravity and participate in various scientific experiments.
- **Lunar tourism:** This futuristic concept envisions lunar landings, allowing tourists to walk on the Moon's surface. Companies like Blue Origin are already making plans.
- **Interplanetary adventures:** While still far off, advancements in propulsion technology could pave the way for space tourism ventures to Mars and beyond.

Global Space Tourism Efforts

- **Private Companies Leading the Way:** Private companies like **SpaceX, Blue Origin, and Virgin Galactic** are at the forefront of the space tourism industry, developing advanced rocket systems and spacecraft to make space travel accessible to the general public.
- **Government Initiatives:** Governments around the world, including the **Indian Space Research Organization (ISRO)**, are actively supporting and encouraging space tourism initiatives, recognizing their potential for scientific advancements and economic growth.
- **International Collaborations:** International collaborations between space agencies and private companies are fostering the growth of the space tourism industry, facilitating knowledge-sharing, technology transfer, and joint ventures.
- **Regulatory Frameworks:** Efforts are underway to establish comprehensive regulatory frameworks and safety standards to ensure the responsible and sustainable development of the space tourism

Global Prospects of Space Tourism

- **Economic Opportunities:** Space tourism holds immense economic potential, creating new markets, generating employment, and driving innovation in related industries, such as hospitality, entertainment, and education.
- **Inspiring Scientific Curiosity:** By offering first-hand experiences of space exploration, space tourism can inspire scientific curiosity and encourage more individuals to pursue careers in science, technology, engineering, and mathematics (STEM) fields.
- **Advancing Space Technology:** The development of space tourism will spur advancements in space technology, leading to improvements in areas such as propulsion systems, life support systems, and reusable spacecraft.
- **Promoting International Cooperation:** Space tourism can foster international cooperation and collaboration, as nations work together to develop and regulate this emerging industry, promoting peaceful exploration of space.

Prospects for India

- **ISRO's vision:** The Indian Space Research Organisation (ISRO) has expressed interest in space tourism. **IN-SPACE**, a commercial arm of ISRO, is expected to play a key role in this endeavour.
- **Technological prowess:** India's proven track record in cost-effective space missions positions it well to become a major player in the space tourism industry.
- **Skilled workforce:** India boasts a large pool of skilled engineers and scientists, a valuable asset for developing the technology needed for space tourism.

- **Emerging space ecosystem:** A growing private space industry in India is fostering innovation and attracting investments, creating a fertile ground for space tourism.

Challenges of Space Tourism

High Costs

- **Development and Infrastructure:** The costs associated with developing specialized equipment, spacecraft, and infrastructure are extremely high, making space tourism accessible only to the wealthy elite.
- **Operational Expenses:** The ongoing costs of maintenance, fuel, and staffing for space missions further drive up prices.

Safety Concerns

- **Launch and Re-entry Risks:** Ensuring the safety of space tourists during launch and re-entry is paramount, requiring rigorous safety protocols and advanced technology to manage potential risks.
- **Health Risks:** Space travel poses health risks such as exposure to radiation, effects of microgravity on the body, and potential psychological impacts from confined spaces.

Environmental Impact

- **Rocket Emissions:** Rocket launches generate significant emissions, contributing to air pollution and climate change. Sustainable practices and cleaner technologies are needed to mitigate these impacts.
- **Space Debris:** Increased space activity raises concerns about space debris, which can pose hazards to both space missions and Earth's orbital environment.

Regulatory Challenges

- **International Regulations:** Establishing comprehensive and internationally accepted regulations for the space tourism industry is complex, requiring collaboration among nations to ensure safety, environmental protection, and innovation.
- **Liability and Insurance:** Defining liability and insurance frameworks for space travel incidents is challenging, necessitating clear legal guidelines and international agreements.

Technological Limitations

- **Innovation Pace:** Rapid technological advancements are needed to make space travel safer, more efficient, and more accessible, which requires substantial investment in research and development.
- **Reliability of Systems:** Ensuring the reliability and durability of spacecraft systems over multiple missions is critical to maintaining safety and reducing costs.

Economic Viability

- **Market Demand:** Sustaining a profitable market for space tourism depends on creating enough demand among wealthy individuals and eventually lowering costs to attract a broader customer base.
- **Economic Disparities:** High costs may exacerbate economic disparities, limiting space tourism to the affluent and excluding lower-income individuals.

Ethical and Social Issues

- **Access Inequality:** The exclusivity of space tourism raises ethical concerns about access inequality and the potential for societal divisions.
- **Cultural Impact:** The commercialization of space could influence cultural perceptions of space exploration, shifting the focus from scientific discovery to luxury experiences.

Way Forward

Investment in Research and Development

- **Advance Technology:** Increasing investment in research and development is crucial for creating safer, more affordable, and sustainable space tourism. This includes innovations in spacecraft design, propulsion systems, and safety measures.
- **Sustainable Solutions:** Focus on developing eco-friendly technologies to reduce the carbon footprint of rocket launches and mitigate the environmental impact of space travel.

- **Health and Safety:** Invest in understanding and mitigating the health risks associated with space travel, such as radiation exposure and the effects of microgravity on the human body.

Public-Private Partnerships

- **Collaborative Efforts:** Encourage partnerships between governments, space agencies, and private companies to speed up the development of space tourism. These collaborations can combine resources, expertise, and drive innovation.
- **Government Support:** Government backing in terms of funding, infrastructure, and policies can significantly help private companies make space tourism a reality.
- **Infrastructure Development:** Develop spaceports, launch facilities, and other necessary infrastructure through public-private collaborations to support the growing demand for space tourism.

International Cooperation and Regulations

- **Global Standards:** Strengthen international cooperation and create a strong regulatory framework to ensure the responsible growth of the space tourism industry. This includes setting global safety standards, liability rules, and environmental guidelines.
- **Environmental Responsibility:** Promote international agreements to address the environmental impacts of space tourism, such as managing space debris and controlling emissions.
- **Legal Framework:** Establish clear legal guidelines for space tourism activities, including liability, insurance, and property rights in space.

Education and Awareness

- **Public Engagement:** Raise awareness and interest in space tourism by educating the public about its benefits. This can be done through outreach programs, public lectures, and media campaigns.
- **Inspiring Future Generations:** Encourage young people to pursue careers in space-related fields through educational initiatives, scholarships, and STEM (Science, Technology, Engineering, and Mathematics) programs, building a skilled workforce for the growing space industry.
- **Community Involvement:** Involve local communities in space tourism initiatives to build public support and understanding, and to create opportunities for economic development at the local level.

Economic Viability

- **Market Development:** Develop strategies to make space tourism economically viable by creating a sustainable business model that can eventually lower costs and broaden access.
- **Diversification of Services:** Explore different types of space tourism experiences, such as suborbital flights, orbital stays, and lunar missions, to attract a wider customer base.
- **Investment Incentives:** Provide incentives for private investment in space tourism, such as tax breaks, grants, and subsidies to encourage the growth of the industry.

Environmental Stewardship

- **Eco-Friendly Technologies:** Prioritise the development of environmentally friendly propulsion systems and other technologies that minimise the ecological impact of space travel.
- **Sustainable Practices:** Implement sustainable practices in all aspects of space tourism operations, from launch to waste management, to reduce the environmental footprint.
- **Space Debris Management:** Develop and enforce policies for the management of space debris to protect the space environment for future generations.

Health and Safety Standards

- **Robust Safety Protocols:** Establish and maintain rigorous safety protocols for all stages of space travel, from launch to re-entry.
- **Health Monitoring:** Develop comprehensive health monitoring and support systems for space tourists to ensure their well-being before, during, and after their trips.
- **Emergency Preparedness:** Ensure that all space tourism operators have robust emergency response plans in place to handle any potential incidents or accidents.

4.4 55 CANCRI

Scientists have recently discovered a rocky planet, 55 Cancri e, beyond our solar system with an atmosphere detected by the James Webb Space Telescope.

About 55 Cancri

- **Binary Star System:** 55 Cancri, located roughly 41 light-years away in the constellation Cancer, is a binary system.
 - **Sun-like Star:** The primary star, 55 Cancri A, is a K-type star, slightly cooler and less massive than our Sun.
 - **Red Dwarf Companion:** The secondary star, 55 Cancri B, is a fainter red dwarf star.
- **Planetary System:** Five known exoplanets orbit **55 Cancri A** - 55 Cancri b, c, d, e, and f. These planets have designations like Galileo, Brahe, Lipperhey, Janssen, and Harriot.

Exoplanets

- **Beyond Our Solar System:** Exoplanets are planets that orbit stars outside our own solar system.
- **Detection Methods:** Most exoplanets are detected indirectly, using methods like the **transit method and the radial velocity method and gravitational microlensing**. Only in rare cases, exoplanets can be directly imaged by powerful telescopes.
- **Compositional Diversity:** Exoplanets come in a variety of sizes and compositions, ranging from gas giants larger than Jupiter to super-Earths and rocky planets.
- **Potential for Habitability:** One of the primary goals of exoplanet research is to find Earth-like planets that could potentially support life as we know it.

55 Cancri e

- **Sun-like Star System:** 55 Cancri e, also known as **Janssen**, resides in the 55 Cancri system, roughly 40 light-years away.
- **Super-Earth Classification:** This exoplanet falls under the category of "super-Earth," meaning it's significantly larger and more massive than Earth but smaller than Neptune.
- **Tight Orbit:** Unlike Earth's year-long orbit, 55 Cancri e races around its star in a mere 18 hours, scorched by the star's intense heat due to its incredibly close proximity.

Features of 55 Cancri e

- **Size and Mass:** 55 Cancri e has a radius approximately 1.9 times that of Earth and a mass around 8 times greater, placing it in the category of super-Earths, a class of planets with masses between Earth and Neptune.
- **Density and Composition:** With a density similar to Earth's, 55 Cancri e is believed to have a rocky composition, and it may have a solid surface, but its extreme temperatures likely prevent the formation of liquid water.
- **Surface Conditions:** Due to its close proximity to its parent star, 55 Cancri e experiences scorching surface temperatures **of around 2,000°C (3,632°F)**, making it inhospitable for life as we know it.
- **Tidal Locking:** 55 Cancri e is likely tidally locked, meaning one side of the planet always faces the star, creating extreme temperature differences between the day and night sides of the planet.

Significance of the Discovery

- **Paving the Way for Super-Earth Studies:** 55 Cancri e opened doors for further research on super-Earths, a class of exoplanets potentially abundant in the galaxy.
- **Understanding Planetary Formation:** Studying 55 Cancri e's extreme environment helps us understand how planets form and evolve in close proximity to their stars.
- **Refining Detection Methods:** The discovery of 55 Cancri e pushed the boundaries of exoplanet detection techniques, paving the way for finding even smaller and closer planets.
- **Fueling the Search for Habitable Worlds:** By studying planets unlike our own, we gain valuable insights into the potential diversity of planetary systems and the possibility of finding Earth-like planets elsewhere.

Other Habitable Planets like Earth

- **Kepler-186f:** This exoplanet, located about 500 light-years away, resides in the habitable zone of its star, meaning it could potentially have liquid water on its surface, a crucial ingredient for life as we know it.
- **Kepler-452b:** Kepler-452b is a super-Earth exoplanet orbiting a Sun-like star in the habitable zone, and it is slightly larger than Earth and is believed to have a rocky composition.
- **Proxima Centauri b:** The closest exoplanet to Earth (at just over 4 light-years away), Proxima Centauri b is tidally locked to its red dwarf star. However, some models suggest it could harbor a thin atmosphere and potentially support life in its **tidally locked zone**.
- **TRAPPIST-1 System:** This system boasts seven Earth-sized planets orbiting a cool, ultra-low-mass star. While most are likely tidally locked, some might have conditions suitable for liquid water on their surfaces, making the TRAPPIST-1 system a prime target in the search for habitable exoplanets.

International Programmes to discover Habitable Planets

- **NASA's Kepler and TESS Missions:** The Kepler Space Telescope and its successor, the Transiting Exoplanet Survey Satellite (TESS), are NASA missions dedicated to discovering exoplanets using the transit method, and have contributed significantly to the growing catalog of confirmed exoplanets.
- **European Southern Observatory (ESO):** The ESO operates several ground-based telescopes, including the **Very Large Telescope (VLT)**, which have been instrumental in the detection and characterization of exoplanets, and is also involved in the development of future exoplanet missions, such as the **Extremely Large Telescope (ELT)**.
- **Habitable Exoplanet Observatory (HabEx):** HabEx is a proposed NASA mission that aims to directly image and characterize exoplanets, with a focus on finding potentially habitable worlds, and would be capable of detecting biosignatures in the atmospheres of Earth-like exoplanets.
- **Atmospheric Remote-sensing Infrared Exoplanet Large-survey (ARIEL):** ARIEL is a planned European Space Agency (ESA) mission designed to study the atmospheres of a large sample of exoplanets, including those within the habitable zone, and will help characterize the atmospheric composition and potential habitability of these worlds.

James Webb Space Telescope

- **Overview:** The James Webb Space Telescope (JWST) is **NASA's** premier infrared **space observatory** and the successor to the Hubble Space Telescope, launched in December 2021 and currently operating in an orbit around the Sun.
- **Associated Space Agencies:** A collaborative effort between **NASA, the European Space Agency (ESA), and the Canadian Space Agency (CSA)**.
- **Objective:** To observe the universe primarily in the infrared spectrum, peering further back in time than Hubble and studying the formation of the first stars and galaxies.
- **Collaboration with Other Missions:** JWST will work in tandem with other exoplanet missions, such as TESS and the Hubble Space Telescope, to provide complementary observations and data.

4.5 LUMYN

Newgen Software has recently unveiled LumYn, First Gen AI-powered platform for banks.

About LumYn

- Newgen Software, a leading global provider of low-code digital transformation platforms, has announced the launch of LumYn.
- **World's First Gen AI-powered Hyper-personalization Platform:** LumYn leverages the power of **Generative AI (GenAI)** to personalize customer experiences in the banking sector to an unprecedented degree.

- **Focus on Growth Intelligence:** It goes beyond basic personalization by analyzing vast customer data sets to understand individual needs, behaviors, and financial goals in real-time.
- **Tailored Banking Solutions:** LumYn translates these insights into actionable recommendations, enabling banks to offer customized products, services, and financial guidance to each customer.

Mechanism of LumYn

- **Conversational AI:** LumYn incorporates advanced conversational AI features, allowing business users to interact with customer data (transactions, behavior, interactions) through natural language. This simplifies data analysis and identification of customer needs.
- **Predictive Analytics:** The platform utilizes sophisticated predictive models to anticipate customer requirements and proactively suggest relevant financial products or services.
- **Data Transparency:** LumYn prioritizes data security and transparency. It provides clear explanations of the AI models used, ensuring customer trust and regulatory compliance.
- **Customizable AI Models:** Banks can build and train custom AI models within LumYn to address specific business challenges and cater to unique customer segments.

Features of LumYN

- **Smart Data Wrangling:** LumYn efficiently gathers and organizes vast amounts of customer data from various sources, making it readily available for analysis.
- **Actionable Customer Insights:** The platform goes beyond raw data by providing actionable insights that banks can leverage to tailor their offerings and marketing strategies.
- **Real-time Customer Understanding:** LumYn continuously monitors customer behavior and preferences, allowing banks to adapt their interactions in real-time.
- **Pre-built AI Models:** LumYn comes equipped with a library of pre-built AI models, enabling banks to get started quickly and leverage the power of AI without extensive development efforts.

Generative AI (Gen AI)

- Generative AI refers to **artificial intelligence models** and systems that can generate new content.
- **Learning from Existing Data:** Generative AI models are trained on massive datasets of text, images, code, or music. By analyzing these patterns and relationships, the AI learns the underlying structures and principles.
- **Content Creation:** Once trained, Generative AI can generate entirely new and original content that closely resembles the data it was trained on. This could be anything from writing realistic dialogue to composing music in a specific genre.
- **Based on Deep Learning and Neural Networks:** Generative AI models are built on deep learning architectures, particularly neural networks, which enable them to learn patterns and relationships from training data.
- **Constant Improvement:** As Generative AI models are exposed to more data and are further refined, their ability to create high-quality, realistic, and creative content continues to improve at an impressive rate.

4.6 NANCY GRACE ROMAN SPACE TELESCOPE

NASA's Nancy Grace Roman telescope will hunt for primordial black holes from the Big Bang era.

- **Named after NASA's** first chief astronomer, the 'mother of the Hubble Space Telescope,'
- **Designed and Developed By:** NASA
- **Launch date:** The mission is set to launch in late 2026.
- **Primary Goal:** Investigate dark energy, dark matter, and exoplanets.
 - This observatory will also be able to **block starlight to directly see exoplanets and planet-forming disks**, complete a statistical census of planetary systems in our galaxy

- **Wide-Field Instrument:** Equipped with a wide-field camera that can capture images 100 times larger than the Hubble Space Telescope.
- **Advanced Optics:** Includes a 2.4-meter primary mirror and state-of-the-art instruments to capture high-resolution images.
- **Exoplanet Exploration:** The Roman Coronagraph Instrument: on NASA's Nancy Grace Roman Space Telescope will help pave the way in the search for habitable worlds outside our solar system
- **Scientific Objectives:** Dark Energy and **Dark Matter will map the distribution of dark matter and study the acceleration of the universe's expansion.**

4.7 NEURAL PROCESSING UNITS (NPU)

Apple launched the M4 chip with the iPad Pro. Its key feature includes a 16-core Neural Engine

About Neural Processing Units (NPUs)

- They are part of the semiconductors specifically designed to handle the computational demands of artificial neural networks (ANNs) and deep learning algorithms, which enable AI **features such as generating text or images.**
 - A neural network is essentially a type of machine learning algorithm that mimics the human brain for **processing data.** **Examples of NPUs** - Apple Neural Engine, Google TPU (Tensor Processing Unit)
- In most consumer-facing gadgets such as smartphones, **laptops, and tablets, the NPU** is integrated within the main processor, **adopting a System-on-Chip (SoC) configuration.**

Application

- NPU is highly capable for **handling machine learning operations** that form the basis for AI-related tasks, such as
 - **Speech recognition,**
 - **Natural language processing,**
 - **Photo or video editing processes like object detection etc.**

How is NPU different from CPU and GPU?

- **Computing:** CPUs employ a sequential computing method, issuing one instruction at a time.
 - **NPU harnesses parallel computing** to simultaneously execute numerous calculations. This parallel computing approach results in **swifter and more efficient processing.**
- **Graphic Processing Units, or the GPUs:** These **have parallel computing capabilities** and have integrated circuits embedded to carry out AI workloads, but they are generally meant for handling other processes, such as graphic rendering and resolution up scaling.

4.8 WEST NILE VIRUS

At least 10 confirmed West Nile cases and two suspected deaths have been reported in Kerala.

About West Nile Virus (WNV)

- The West Nile Virus Disease (West Nile Fever) is a **mosquito-borne disease** caused by a **flavivirus.**
- **Transmission:** Infected mosquitoes transmit the virus to humans when they bite. Birds serve as natural hosts for WNV.
- **Geographic Distribution:** WNV is found in Africa, Europe, the Middle East, North America, and West Asia.

Mechanism

- **Mosquito Transmission:** Mosquitoes become infected by feeding on birds with circulating WNV in their blood.
- **Salivary Glands:** The virus eventually reaches the mosquito's salivary glands.
- **Human Infection:** When infected mosquitoes bite humans, the virus may be injected, leading to possible illness.

- **Host Immune Response:** In humans, the virus can cause inflammation and potentially lead to neurological complications, depending on the host's immune response.

History of the Virus

- **First Identification:** WNV was first isolated in the **West Nile district of Uganda in 1937**, during a research study on a viral encephalitis outbreak in humans.
- **Global Spread:** The virus remained relatively localized until the late 1990s when it began spreading to new regions, **including North America, Europe, and parts of Asia.**
- **Indian Scenario:** In India, the first human case of WNV was reported in 1952 from Mumbai. Since then, sporadic cases have been reported from various states, with outbreaks occurring in recent years.

Symptoms and Impact

- **Asymptomatic Infections:** Most WNV infections in humans are asymptomatic, with approximately 80% of infected individuals showing no symptoms.
- **Mild Symptoms:** In around 20% of cases, mild symptoms like fever, headache, body aches, nausea, vomiting, and rash may occur.
- **Neurological Complications:** In less than 1% of cases, severe neurological complications like encephalitis (inflammation of the brain), meningitis (inflammation of the membranes surrounding the brain and spinal cord), or acute flaccid paralysis can develop.
- **Risk Factors:** Older adults and individuals with weakened immune systems are at higher risk of developing severe neurological complications.

Treatment

- **Supportive Care:** There is no specific antiviral treatment for WNV infection. The primary approach is supportive care, including pain relievers, managing fever, and ensuring adequate hydration.
- **Hospitalization:** In severe cases involving neurological complications, hospitalization may be required for supportive treatment, including intravenous fluids, respiratory support, and prevention of secondary infections.
- **Prevention:** The most effective strategy is prevention through **mosquito control measures**, personal protective measures (e.g., using insect repellents, wearing protective clothing), and promoting public awareness.

4.9 EXTRAPULMONARY TUBERCULOSIS (EPTB)

According to recent reports the public health challenge of extra-pulmonary TB (EPTB) may be larger than our current estimates.

About EPTB

- **Non-Pulmonary Manifestation:** Extra pulmonary tuberculosis (EPTB) refers to tuberculosis (TB) infection occurring outside the lungs.
- **Prevalence:** It accounts for a significant portion, **20% to 40% according to studies**, of all active TB cases in India.
- **Cause:** Like pulmonary TB, EPTB is caused by the **bacteria Mycobacterium tuberculosis (MTB).**
- **Transmission:** While not directly contagious through coughing like pulmonary TB, EPTB can spread through close contact with bodily fluids from infected sites.

Sites Commonly Affected by EPTB

- **Lymph nodes:** Lymph node involvement, particularly in the neck, is a frequent presentation of EPTB in India.
- **Pleural space:** Pleural effusion, fluid accumulation around the lungs, is another common manifestation.
- **Meninges:** TB meningitis, affecting the brain and spinal cord membranes, is a severe form of EPTB.
- **Bones and joints:** Osteoarticular TB, impacting bones and joints, is a significant concern due to potential disability.

Impacts

- **Impact on Body:** EPTB can lead to organ damage, disability, and even death if left untreated.
- **Healthcare burden:** The rise of EPTB cases puts a strain on healthcare systems with complex diagnosis and extended treatment needs.
- **Social stigma:** Misconceptions surrounding TB can lead to social stigma for EPTB patients, hindering timely diagnosis and adherence to treatment.
- **Economic impact:** EPTB can lead to lost productivity and income due to illness and disability, impacting individuals and families.
- **Potential for Drug Resistance:** Delayed diagnosis and inadequate treatment can contribute to the development of drug-resistant forms of EPTB, further complicating management and control efforts.

Diagnosis

- **Microbiological and Molecular Tests:** Diagnosis of EPTB relies on **microbiological tests**, such as acid-fast bacilli (AFB) smear microscopy and molecular techniques like nucleic acid amplification tests (NAATs).
- **Imaging Techniques:** Imaging techniques like computed tomography (CT) and magnetic resonance imaging (MRI) play a crucial role in detecting EPTB.

Treatment

- **Standardized Anti-TB Drug Regimens:** Treatment of EPTB typically involves standardized anti-tuberculosis drug regimens, similar to those used for **pulmonary tuberculosis**, but with potential modifications based on the site of involvement and drug susceptibility patterns.
- **Surgical Interventions:** In some cases, surgical interventions may be required as an adjunct to medical treatment, depending on the site and severity of EPTB.

Challenges

- **Underreported and Underdiagnosed:** EPTB is often underreported and underdiagnosed due to a lack of awareness, limited diagnostic facilities, and misdiagnosis as other conditions.
- **Lack of Awareness and Surveillance:** There is a general lack of awareness about EPTB among healthcare providers and the public, leading to inadequate surveillance and reporting of cases.
- **Limited Diagnostic Facilities:** Many regions in India lack access to advanced diagnostic facilities, such as molecular testing and imaging techniques, which are crucial for accurate diagnosis of EPTB.
- **Coexisting with other Conditions:** The presence of other diseases and conditions like **HIV, diabetes, and malnutrition** can further complicate the diagnosis and management of EPTB cases in India.

Way Forward

- **Strengthening Healthcare Infrastructure:** Investing in infrastructure and training healthcare workers for EPTB diagnosis and management is vital.
- **Community Engagement:** Public awareness campaigns can address stigma and encourage early healthcare seeking for suspected EPTB symptoms.
- **Improving Nutrition:** Addressing malnutrition through targeted interventions can strengthen immune responses and reduce EPTB risk.
- **Combating Drug Resistance:** Surveillance for drug resistant EPTB strains and effective treatment protocols are crucial for preventing outbreaks.

4.10 CAENORHABDITIS ELEGANS

Researchers have found that after consuming disease-causing bacteria, Caenorhabditis elegans offspring demonstrated inherited avoidance behaviour for up to four generations.

About Caenorhabditis Elegans

- It is a free-living, **transparent nematode** approximately 1 mm in length.
- **Habitat:** Found in temperate soil environments.
- **Genus:** Type species of its genus, with a name derived from Greek and Latin roots (caeno-, rhabditis, and elegans).
- **Characteristics:** Unsegmented pseudocoelomate with no respiratory or circulatory systems.
- **Usage:** The roundworm *Caenorhabditis elegans* is also called “**the worm**” because of its widespread use in research to understand neuronal and molecular biology.
- **Genome Mapping:** It was the **first multicellular organism to have its full genome sequenced and neural wiring mapped**.
- **Lifespan:** *C. elegans* grows within 3-5 days from a fertilized egg to a millimeter-long adult, and it has informed profound insights into the human body, as well as biology more broadly.

Research Discovery

- **Information Passing:** After consuming disease-causing bacteria, the *Caenorhabditis elegans* passed on the learned avoidance behavior to their progeny for up to four generations, mediated by small RNA molecules (sRNA).
- **Role of sRNA:** *Pseudomonas vranovensis* bacteria produce sRNA, altering the worm’s feeding behavior. sRNA is ingested by worms, influencing gene expression and behavior, a process known as RNA interference.
- **Implications and Speculation:** These findings raise intriguing questions about the potential for similar **transgenerational behavioral modifications in humans**.
- It also provokes exploration into whether **microbial RNA can influence human behavior and inheritance**, potentially reshaping our understanding of genetics and behavior.
- **Nobel Recognition:** Contributions from studies on *C. elegans* were acknowledged with **Nobel Prizes in 2002, 2006, and 2008**.

About DNA and RNA

- DNA and RNA are fundamental components of genetic information transfer within cells.

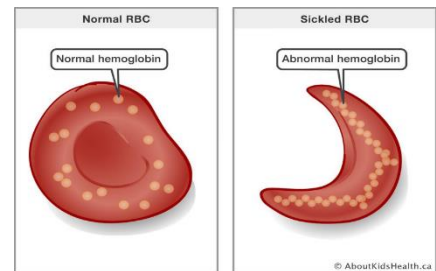
DNA	RNA
DNA is Deoxyribonucleic Acid	RNA is ribonucleic acid
It is made up of Adenine, guanine, cytosine, and thymine	It is made up of Adenine, guanine, cytosine, and uracil
Very stable structure	Comparatively less stable structure
Less prone to mutations	More easily prone to mutations
Present in Nucleus and mitochondria.	Present in the Cytoplasm, ribosomes, and nucleus
It is Self-replicating.	Most of the RNA is dependent on DNA for its synthesis.
It is the genetic material of most organisms and helps in the transfer of information from one generation to another.	It is most essential component during protein synthesis .
3 forms of DNA are B-DNA, A-DNA and Z-DNA.	3 types of RNA are found: m-RNA, r-RNA and t-RNA.
Contains a Deoxyribose sugar	Contains a ribose sugar

4.11 SICKLE CELL ANEMIA

According to recent reports, availability of subpar treatment options is the main reason for the persistence of sickle cell disease.

About Sickle Cell Anemia

- **Genetic Disorder:** Sickle cell anemia is a hereditary blood disorder in which the red blood cells become sickle or crescent-shaped due to the presence of an abnormal form of hemoglobin, called hemoglobin S.
- **High Prevalence in India:** Sickle cell anemia is prevalent in several parts of India, particularly in the tribal populations of central and western India, including states like Chhattisgarh, Gujarat, Maharashtra, and Odisha.
- **Chronic Condition:** It is a chronic condition that affects individuals from birth, causing various health complications throughout their lives.
- **Autosomal Recessive Inheritance:** Sickle cell anemia is an autosomal recessive disorder, meaning that an individual must inherit two sickle cell genes, one from each parent, to develop the condition.



Causes

- **Genetic Mutation:** The primary cause of sickle cell anemia is a mutation in the HBB gene, which provides instructions for producing the beta-globin protein, a component of hemoglobin.
- **Abnormal Hemoglobin:** The mutated gene leads to the production of an abnormal form of hemoglobin, known as **hemoglobin S**, which causes the red blood cells to become sickle-shaped.
- **Malaria Resistance:** The sickle cell trait is believed to have persisted in certain populations due to its potential to provide some resistance against malaria, a prevalent disease in tropical regions.
- **Consanguineous Marriages:** The high prevalence of sickle cell anemia in certain Indian communities is attributed to the practice of consanguineous marriages, which increases the chances of inheriting the mutated gene from both parents.
 - **Consanguineous marriage:** Consanguineous marriage or cousin marriage is a type of interfamilial union, defined as the marriage between two blood-related individuals who are second cousins or closer

Symptoms

- **Anemia and Fatigue:** Individuals with sickle cell anemia often experience chronic anemia, which can lead to fatigue, weakness, and shortness of breath.
- **Pain Crises:** One of the most severe symptoms is the recurrent episodes of excruciating pain, known as vaso-occlusive crises, caused by the blockage of blood vessels by sickled red blood cells.
- **Increased Susceptibility to Infections:** Sickle cell anemia impairs the immune system, making individuals more susceptible to infections, particularly in the lungs, kidneys, and bones.
- **Organ Damage:** The condition can lead to organ damage, including stroke, acute chest syndrome, and organ failure, due to the reduced oxygen supply caused by the sickled red blood cells.

Government Initiatives to Facilitate Pilgrimage

- **Medications:** Medicines like Hydroxyurea that Reduces pain and Voxelator that Improves blood flow are used.
- **Blood Transfusions:** Regular blood transfusions may be necessary to manage severe anemia and prevent complications, particularly in cases of acute chest syndrome or stroke.
- **Antibiotics and Pain Management:** Antibiotics are prescribed to treat infections, while pain medications, such as opioids and anti-inflammatory drugs, are used to manage pain crises.

- **Bone Marrow Transplantation:** In severe cases, a bone marrow transplant from a compatible donor may be considered as a potential cure for sickle cell anemia, but it carries significant risks and is typically reserved for patients with severe complications.
- **Gene Editing:** Gene editing technologies like **CRISPR** are being viewed as future solutions to genetic diseases.

CRISPR

- **Genetic Editing:** CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) is a revolutionary gene-editing technology that has the potential to treat genetic disorders like sickle cell anemia at the molecular level.
- **Correcting Mutations:** CRISPR can be used to correct the specific genetic mutation responsible for sickle cell anemia, potentially curing the condition or reducing its severity.
- **Clinical Trials:** Several clinical trials are underway to evaluate the safety and efficacy of CRISPR-based therapies for sickle cell anemia, with promising results reported in early-stage studies.
- **Ethical Considerations:** While CRISPR holds immense potential, it also raises ethical concerns regarding germline editing, off-target effects, and equitable access to these advanced therapies.

Challenges

- **Limited Awareness:** Despite its prevalence, there is a lack of awareness about sickle cell anemia in many parts of India, leading to delays in diagnosis and treatment.
- **Access to Healthcare:** Access to specialized healthcare facilities and treatments for sickle cell anemia is limited, especially in rural and remote areas.
- **Stigma and Discrimination:** Individuals with sickle cell anemia often face social stigma and discrimination, affecting their quality of life and access to education and employment opportunities.
- **Financial Burden:** The lifelong management of sickle cell anemia can impose a significant financial burden on families, particularly those with limited resources.

Way Forward

- **Newborn Screening:** Implementing widespread newborn screening programs can help identify infants with sickle cell anemia early, enabling prompt treatment and management.
- **Genetic Counseling:** Providing accessible genetic counseling services can help couples understand the risks of having a child with sickle cell anemia and make informed decisions.
- **Awareness Campaigns:** Conducting awareness campaigns at the national and community levels can help dispel myths, reduce stigma, and promote early diagnosis and treatment.
- **Access to Healthcare:** Improving access to specialized healthcare facilities, particularly in rural and tribal areas, is crucial for effective management of sickle cell anemia.

4.12 EXPANDED PROGRAMME ON IMMUNIZATION (EPI)

The year 2024 commemorates 50 years since the launch of the Expanded Programme on Immunization (EPI) by the World Health Organization (WHO) in 1974.

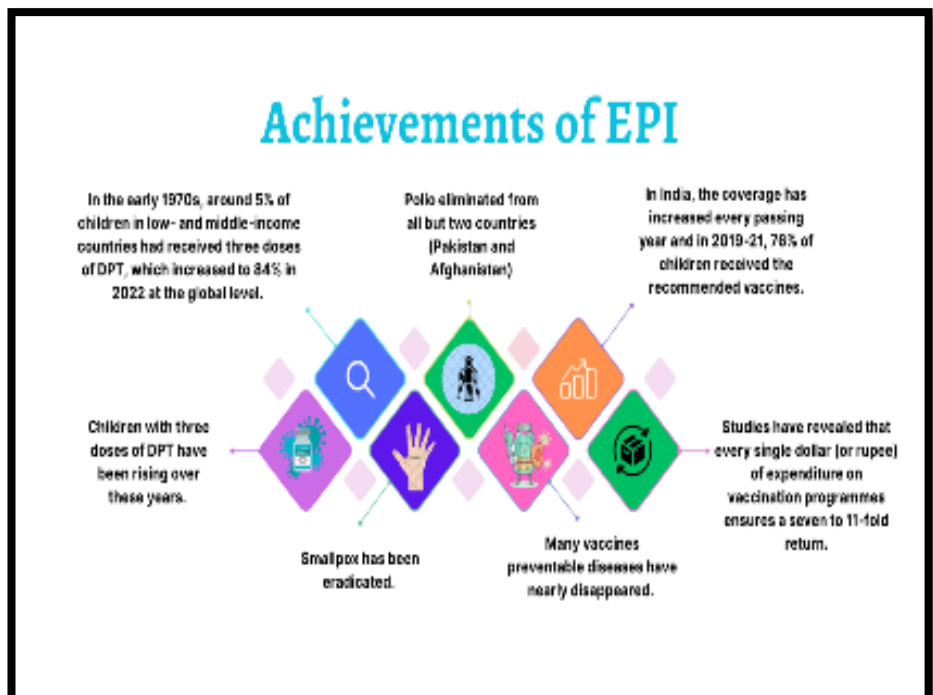
What is EPI?

- The Expanded Programme on Immunisation was initiated by the **World Health Organisation in 1974**, leveraging the global momentum from the successful eradication of smallpox. Its primary goal is to ensure universal access to essential life-saving vaccines for children across the globe.
- **Goal:** To provide universal access to life-saving vaccines, ensuring that every child, irrespective of their location or socioeconomic status, benefits from essential immunisations.
- **Background:** Conceived in the aftermath of the smallpox eradication, EPI aims to utilise similar strategies to combat a variety of preventable diseases.

- **Launch:** The initiative was launched by the World Health Organisation in 1974, reflecting a global commitment to child health and disease prevention.
- **Aim:** While initially focused on children, EPI's scope has broadened to safeguard individuals of all ages through a comprehensive approach to immunisation.
- **Impact:**
 - **Global Reach:** EPI has established a framework for national immunisation programmes in every country, illustrating its widespread adoption and implementation.
 - **Public Health Success:** Recognised as one of the most successful public health interventions, vaccines under EPI have significantly reduced mortality rates and improved quality of life globally.

History of EPI

- The EPI was introduced as the eradication of smallpox virus was on the horizon, and a need to leverage the then immunization infrastructure and a trained workforce was recognised to expand the benefit of available vaccines.
- At that time EPI focused on protecting all children against six childhood illnesses, including tuberculosis, diphtheria, tetanus, pertussis, polio, and measles.
- Today, this number has grown to **13 universally recommended vaccines across the life course, and 17 additional vaccines with context dependent recommendations.**
- India launched the EPI in 1978, which was later **renamed as the Universal Immunization Programme (UIP) in 1985.**



Challenges

- **Covid Supply Chain shock:** UNICEF's 'The State of the World's Children' report revealed a concerning trend: for the first time in more than a decade, the childhood immunization coverage had declined in 2021 due to the prevalent virus.
- **Still Few Left:** In 2022, globally, an estimated 14.3 million children were zero dose (did not receive any recommended vaccine) while another 6.2 million children were partially immunized due to a variety of factors.
- **Persisting Inequalities:** There are persisting inequities in coverage by geography, socio-economic strata and other parameters, which demand urgent interventions so that absolute equality in coverage can be achieved.
- **Resentment:** There has been historic resentment in the public due to misconceptions regarding vaccines although it has almost been countered.

Way forward

- **Prioritizing Children:** considering that children are most vulnerable from vaccine-preventable diseases, they have rightly been prioritized for vaccination.
- **Last mile Delivery:** It must be ensured that not even a single child is left unvaccinated and loses his primary right of a safe future.

- **Increasing Vaccine Coverage:** Diseases that are preventable with vaccines are increasingly becoming common in the adult population. Therefore, it becomes imperative that government policies **now focus on the vaccination of adults and the elderly, as well, as is happening in many countries**
- **Free Coverage:** The National Technical Advisory Group on Immunization (NTAGI) had also recommended that vaccines for all age groups should be made available as free at the government facilities.
- **Combating Myths:** The prevailing myths and misconceptions about vaccines must be proactively addressed to tackle vaccine hesitancy. The government must consider the help of professional communication agencies to dispel myths (and in a layperson's language and with the use of social media).
- **Increasing Awareness:** Various professional associations of doctors, community medicine experts, family physicians and pediatricians should work to increase awareness about vaccines.

Universal Immunization Programme (UIP)

- It is a vaccination programme launched by the Government of India in 1985.
- It became a part of the Child Survival and Safe Motherhood Programme in 1992 and is currently one of the key areas under the National Health Mission since 2005.
- **The programme now consists of vaccination for 12 diseases-**
 - Tuberculosis,
 - Diphtheria,
 - Pertussis (Whooping Cough),
 - Tetanus,
 - Poliomyelitis,
 - Measles,
 - Hepatitis B,
 - Rotaviral Gastroenteritis,
 - Japanese Encephalitis,
 - rubella,
 - pneumonia (haemophilus influenzae type B) and
 - Pneumococcal diseases (pneumococcal pneumonia and meningitis).
- The cost of all the vaccines are borne entirely by the Government of India.
- It targets 3.04 crore pregnant women and 2.7 crore newborns annually
- It is the most cost-effective public health intervention, largely responsible for reduction of vaccine preventable diseases and, thus, contributing to decrease in India's
 - Under 5 mortality rate from 45 per 1000 live births in 2014 to 35 per 1000 live births in 2019
- **The stated objectives of UIP are:**
 - To rapidly increase immunization coverage.
 - To improve the quality of services.
 - To establish a reliable cold chain system to the health facility level.
 - Monitoring of performance.
 - To achieve self-sufficiency in vaccine production.

Mission Indradhanush (MI)

- **Launch:** It was launched in December 2014.
- **Aim:** To increase full immunization coverage to **90% through focus on unvaccinated** and partially vaccinated children and pregnant women in pockets of low immunization coverage in high risk and hard to reach areas.
- **IMI 5.0:** Intensified Mission Indradhanush 5.0 (IMI 5.0) campaign with special focus on improvement of Measles and Rubella vaccination coverage, will conclude all three rounds on 14 October 2023.
 - IMI 5.0 is being conducted across all the districts in the country and includes children up to 5 years of age

- Over 34 lakh children and 6 lakh pregnant women were administered vaccine doses during the first 2 rounds of IMI 5.0 campaign across the country
- A total of 5.06 crore children and 1.25 crore pregnant women have been cumulatively vaccinated till date under Mission Indradhanush since 2014

4.13 THE NASA-ISRO SYNTHETIC APERTURE RADAR MISSION

The NISAR (The NASA-ISRO Synthetic Aperture Radar) satellite will be able to monitor tectonic movements accurately.

About NISAR

- **Project:** It is a joint project between NASA and ISRO to co-develop and launch a dual-frequency synthetic aperture radar on an Earth observation satellite.
- **Type:** This is a Synthetic Aperture Radar satellite with two bands.
 - **S-band and**
 - **L-band.**
- **Payloads manufacturer:** The S-band payload has been made by the ISRO and the L-band payload by the U.S.
- **Antenna:** The U.S. will contribute the large deployable antenna.
- **Launch:** It will be launched in 2024 using a GSLV Mk II rocket from the Satish Dhawan Space Centre.
- **Orbit:** The orbit will be a sun-synchronous, dawn-to-dusk type.
- **Life:** The planned mission life is three years.
- **Cost Share:** ISRO's share of the project cost is about ₹788 crore (US\$99 million), and NASA's share is about US\$808 million.

Capabilities:

- **Uses:** It will be **used for remote sensing**, to observe and understand natural processes on Earth.
- **Swath:** As it has a large deployable antenna with an 18-meter diameter, **it has a very high swath.**
- Coverage: It can fully cover the earth in approximately 14 to 15 days, in radar.
 - **It measures accurately and gives repetitive, full coverage of the earth two times a month.**
- **Resolution:** It can monitor various aspects in very high resolution.
- **Accuracy:** It can monitor the tectonic movements **to centimeter accuracy.**
- **Uses:**
 - It can do **measurement** of water bodies.
 - It can look at water stressing on the earth, wherever there is deficiency of water.
 - It can ground-penetrate to a certain depth.
 - **It can monitor the vegetation** cover and snow cover.
 - It is capable of a lot of observation and this data will be available to both India and the U.S.
 - It will reveal **information** about the evolution and state of Earth's crust.
 - It will help scientists better understand our planet's natural processes and changing climate, and aid future resource and hazard management.
- It will study the water-stressing, **climate change-related issues, agricultural changes through patterns, yield, desertification** and continental movements precisely with respect to annual water cycle movements.

4.14 XENOTRANSPLANTATION

According to recent reports, the first recipient of a modified Pig Kidney Transplant (Xenotransplant) in the US, has passed away around two months after the surgery was carried out.

About Xenotransplantation

- **Xenotransplantation** is any procedure that involves the transplantation, implantation or infusion into a human recipient of either:
 - **Live cells, tissues, or organs from a nonhuman animal source, or**

- **Human body fluids, cells, tissues** or organs that have had ex vivo contact with live nonhuman animal cells, tissues or organs.
- **Meaning:** Derived from Greek "**xenos**" meaning - **foreign**. Thus it refers to transplanting foreign (animal) cells, tissues, or organs into humans.
- **Purpose:** It aims to address the critical shortage of human organs available for transplantation.
- **Experimental Nature:** Xenotransplantation is still experimental and allowed only in extremely rare and serious cases.

Procedure involved in Xenotransplantation

- **Genetic Modification:** Pigs are genetically engineered to remove specific genes that can trigger immune rejection and introduce human genes to promote better compatibility with the human body.
- **Organ Harvesting:** Organs or tissues are carefully harvested from the genetically modified pigs under sterile conditions.
- **Immunosuppression:** Patients receiving xenotransplants undergo immunosuppressive therapy to prevent rejection of the animal organ or tissue.
- **Monitoring and Follow-up:** Patients are closely monitored for signs of rejection, infection, and potential transmission of zoonotic diseases.

Reasons for using Pigs for Xenotransplantation

- **Physiological Similarities:** Pigs have similar organ sizes, anatomy, and physiology to humans, making them suitable candidates for xenotransplantation.
- **Breeding Capabilities:** Pigs have a short gestation period and produce large litters, making them an efficient source for organ and tissue harvesting.
- **Ethical Considerations:** The use of pigs for xenotransplantation is generally considered more ethically acceptable than the use of primates or other animals closely related to humans.
- **Established Research:** Extensive research has been conducted on pig-to-human xenotransplantation, providing a solid scientific foundation for further advancements.

Benefits of Xenotransplantation

- **Increased Organ Availability:** Xenotransplantation offers an unlimited supply of organs, potentially saving more lives.
- **Treatment Beyond Organ Transplants:** Cell and tissue transplants can address diseases like diabetes and Parkinson's.
- **Improved Quality of Life:** Patients with end-stage organ failure can benefit from extended and improved conditions.
- **Potential for Disease Cure:** Research may lead to breakthroughs in treating various serious conditions.

Challenges associated with Xenotransplantation.

- **Immune Rejection:** The human body's immune system may still recognize the animal organ as foreign and reject it.
- **Infection Risk:** The potential transmission of unknown animal viruses to humans needs thorough investigation.
- **Ethical Concerns:** The use of animals as organ sources raises ethical concerns about animal welfare.
- **Long-Term Effects:** The long-term effects of xenotransplantation on the recipient's health are still unknown.

Way Forward

- **Rigorous Research:** Extensive research is needed to overcome immunological challenges and ensure the safety of xenotransplantation.
- **Ethical Guidelines:** Clear ethical guidelines are crucial to address animal welfare concerns and ensure responsible use of animals.

- **International Collaboration:** Collaborating with international research organizations and regulatory bodies can facilitate the sharing of knowledge, best practices, and the establishment of global standards for xenotransplantation.
- **Regulatory Framework:** A robust regulatory framework needs to be established to govern xenotransplantation practices in India.

4.15 GOLDENE

For the first time, researchers at Linköping University, Sweden, have created Goldene, a free-standing sheet of gold that is only one atom thick.

- **Goldene - Goldene is a 2-dimensional allotrope of gold.**
- **Features -**
 - **Ultra-Thinness:** Goldene consists of a **single layer of gold atoms**, making it incredibly thin and lightweight.
 - **Semiconductor Behavior:** While bulk gold is an excellent conductor, Goldene behaves as a semiconductor due to its single-atom thickness.
 - **High Tensile Strength:** Goldene has extremely high tensile strength.
- **Potential Applications -**
 - **Catalyst:** Goldene's unique properties could make it an excellent catalyst for chemical reactions.
 - **Light Sensing Devices:** Its ability to capture light in novel ways might find applications in sensors and optoelectronics.
 - **Nanotechnology:** Goldene could be integrated into nanoscale devices and components.
 - **Water purification:** Goldene could be used to extract impurities from water.
- **How it was created -** Scientists at Sweden's Linköping University, used a technique similar to creating **graphene**.
 - They sandwiched an atomic layer of silicon between layers of titanium carbide.
 - By adding gold on top of this sandwich, the gold atoms diffused into the structure and exchanged places with the silicon, creating a trapped atom-thick layer of gold.

Allotrope

- An allotrope is a **different form of the same element**, like diamond and graphite being both pure carbon.
- These forms arise because the element's atoms are bonded together in unique ways.
- Allotropes can have surprisingly different properties despite being the same element.

Graphene

- It is a one-atom-thick sheet of carbon atoms arranged in a hexagonal lattice.
- Synthesis - 2004
- Synthesised by - **Andre Geim and Konstantin Novoselov** (later awarded a Nobel Prize for their work).

4.16 COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH (CSIR)

In a step towards energy saving, CSIR has introduced 'Wrinkles Achhe Hain (WAH) campaign.

About CSIR

- **Leading R&D Organization:** CSIR is India's largest government-funded research and development (R&D) organization.
- **Established in 1942:** CSIR was founded in September 1942 as an autonomous body under the Department of Scientific and Industrial Research (DSIR), Ministry of Science and Technology

Objectives

- **Fostering Scientific Growth:** CSIR's primary objective is to promote, guide, and coordinate scientific and industrial research in India.

- **Industrial Development:** It aims to translate scientific discoveries into practical applications for industrial development and economic prosperity.
- **Intellectual Property:** CSIR is a pioneer in India's IP movement, with a strong patent portfolio.

Functions

- **Research Institutes:** CSIR operates a vast network of over 37 research institutes spread across India. These institutes specialize in diverse scientific fields like aerospace, chemicals, oceanography, and more [CSIR India].
- **Innovation and Development:** CSIR actively promotes innovation and technological development through collaborative research with academia and industries.
- **Human Resource Development:** It fosters a skilled scientific workforce by providing fellowships, training programs, and managing the prestigious Joint CSIR-UGC National Eligibility Test (NET) for scientific aspirants [CSIR UGC NET]

Wrinkles Acche Hai (WAH) Campaign

- As part of its commitment to environmental conservation, CSIR launched the **WAH campaign**.
- Staff members are encouraged to wear **non-ironed clothes** on Mondays as a symbolic fight against climate change.
- The initiative aims to raise awareness about **energy saving and climate change**, and individual contributions to global efforts.

4.17 METEOR SHOWER

The Eta Aquariid meteor shower will be best visible to countries such as Indonesia and Australia in the Southern Hemisphere.

What is a Meteor Shower?

- A meteor shower is a celestial event in which a number of meteors are observed to radiate, or originate, from one point in the night sky.
- These meteors are caused by streams of cosmic debris called meteoroids entering Earth's atmosphere at extremely high speeds on parallel trajectories
- A meteor shower occurs when Earth passes through the debris left behind by a comet.
- When this happens, the bits of comet debris, most no larger than a grain of sand, create streaks of light in the night sky as they burn up in Earth's atmosphere.
- Bits of debris which enter Earth's atmosphere are called meteors.

What is Meteoroid, Meteor and Meteorite?

- **Meteoroid** - Meteoroids are small fragments of rock or iron that orbit the Sun.
- **Meteor** - When a **meteoroid** enters Earth's upper atmosphere, it heats up due to friction with the air. The heat causes gasses around the meteoroid to glow brightly, creating a meteor.
 - Meteors are often called "**shooting stars**" or "**falling stars**" because of the bright trail of light they leave behind as they pass through the sky.
- **Meteorite** - Most meteoroids burn up in the atmosphere, but some survive and strike Earth's surface. These are the meteorites.
- **Comet** - A comet is a large object composed of **dust, rock and ice**, and orbits around the Sun in a highly elliptical orbit which can, in some cases, take **hundreds of thousands of years to complete**.
 - Comets are like frozen time capsules, preserving material from the early **solar system's formation**.
 - When a comet approaches the Sun, its ice and dust vaporize into a **glowing head** that can be larger than a planet

- Comets have **long, streaming tails that stretch millions of miles** behind them due to sunlight and solar wind pushing dust and gas away.

Eta Aquariid Meteor Shower

- Eta Aquariid is an annual meteor shower associated with **Halley's Comet**.
- When does it occur?** - It occurs from late April to early May.
- The Eta Aquariid meteor shower is known for its **rapid speed**. This makes for long, glowing tails which can last up to several minutes.
- Eta Aquariid meteors can be better observed from the **Southern Hemisphere** compared to the Northern Hemisphere.

Halley's Comet

- It returns to the inner solar system roughly every **76 years**.
- The last visible appearance was in **1986**, and it won't be visible again until **2061**.
- Discovered by** - **Edmond Halley**.

4.18 WEST NILE FEVER

*The Kerala government on May 7 said **West Nile fever cases** have been reported from **Thrissur, Malappuram and Kozhikode** districts of the State.*

About West Nile Fever

- Virus:** West Nile fever is an infection by the West Nile virus.
- Discovery:** The virus was discovered in Uganda in 1937, and was first detected in North America in 1999.
- Vector:** It is typically spread by the Culex species of mosquitoes.
- It is usually spread by mosquitoes that become infected when they feed on infected birds, which often carry the disease.
- Transmission Causes:** Rarely the virus is spread through blood transfusions, organ transplants, or from mother to baby during pregnancy, delivery, or breastfeeding but it otherwise does not spread directly between people.
- Vaccine:** There is no human vaccine.
- Treatment:** There is no specific treatment for the disease; pain medications may reduce symptoms.

Symptoms

- In about 80% of infections people have few or no symptoms.
- About 1 in 5 people who are infected develop a fever with other symptoms such as headache, body aches, joint pains, vomiting, diarrhea, or rash.
- Most people with febrile illness due to West Nile virus recover completely, but fatigue and weakness can last for weeks or months.
- Serious symptoms in a few people:** About 1 in 150 people who are infected develop a severe illness affecting the central nervous system such as encephalitis (inflammation of the brain) or meningitis (inflammation of the membranes that surround the brain and spinal cord).
- Recovery:** Recovery may take weeks to months. The risk of death among those in whom the nervous system is affected is about 10 percent.

4.19 MAGNETIC RESONANCE IMAGING (MRI)

About MRI

- MRI is a non-invasive imaging technology that produces three-dimensional detailed anatomical images without using damaging radiation.

- **Principle:** It relies on the behavior of protons in water molecules within living tissues when exposed to strong magnetic fields and radiofrequency energy.
- **Purpose:** MRI is commonly used for disease detection, diagnosis, and treatment monitoring.
- **Nobel Prize:** Paul Lauterbur and Peter Mansfield were awarded the Nobel Prize in Medicine for their work on MRI.

Mechanism of MRI

- **Magnetic Fields:** MRI scanners employ powerful magnets that create a strong magnetic field. This field forces protons in the body to align with it.
- **Radiofrequency Pulses:** When a radiofrequency current is pulsed through the patient, the protons become stimulated and spin out of equilibrium, straining against the magnetic field.
- **Energy Detection:** After turning off the radiofrequency field, MRI sensors detect the energy released as the protons realign with the magnetic field.
- **Tissue Differentiation:** Physicians differentiate various tissue types based on these magnetic properties

Applications of MRI

- **Brain Imaging:** Examining brain tumors, stroke damage, and abnormalities like multiple sclerosis.
- **Musculoskeletal Imaging:** Detecting ligament tears, muscle injuries, and bone fractures.
- **Cancer Detection:** Identifying tumors in various organs and assessing their extent.
- **Abdominal Imaging:** Examining the liver, kidneys, pancreas, and other abdominal organs for abnormalities.
- **Spinal Imaging:** Diagnosing spinal cord injuries, herniated discs, and other spinal issues.

Advantages of MRI

- **Superior Soft Tissue Contrast:** MRI provides better differentiation between fat, water, muscle, and other soft tissues compared to CT scans.
- **No Ionizing Radiation:** Unlike X-rays and CT scans, MRI does not expose patients to ionizing radiation.
- **Safe for Vulnerable Populations:** MRI is safe for pregnant women, babies, and individuals sensitive to radiation.
- **Clear Images:** Extremely detailed images of soft-tissue structures are achievable with MRI.

Challenges

- **Heating Risk:** Radiofrequency energy can lead to body heating, especially during long MRI examinations.
- **Claustrophobia:** Some patients find the MRI scanner uncomfortably small.
- **Implants and Devices:** Safety hazards exist for patients with implants or external devices.
- **Cost:** MRI scans are often more expensive than other imaging techniques.

4.20 QUARKS

Recently, scientists have reported that the insides of most massive neutron stars are made of an unusual state of matter called quark matter.

About Quarks

- Quarks are **elementary particles** (they do not appear to have any substructure,) that experience the strong nuclear force and are **constituents of composite particles called hadrons**.
- Because nuclear forces are very strong, quarks are always tightly bound to each other and are not free, even in the vacuum of empty space.
- Quarks are further held together by another set of particles called **gluons**.
- **Charge and Mass:** Quarks have fractional electric charges of **either $+2/3$ or $-1/3$ times the elementary charge**.

- **Types of Quarks:** six types of quarks: **up, down, charm, strange, top, and bottom**. Each quark flavor has a corresponding antiparticle known as an antiquark. (The up and down quarks are the lightest and most stable, forming the protons and neutrons in an atomic nucleus).
- Quarks have **not been directly observed but theoretical predictions** based on their existence have been confirmed experimentally.
- **Quantum chromodynamics:** It predicts that at **sufficiently high (by all means extreme) energies, nuclear matter can become 'deconfined'** to create a new phase of matter in which quarks don't have to exist in clumps. (**Large Hadron Collider:** a state of matter called a **quark-gluon plasma**)
- According to the **Big Bang theory, the universe was filled with this plasma** before the particles clumped and formed the first blobs of matter.

4.21 SYNCHROTRON

- China is about to complete its High Energy Photon Source (HEPS) facility in Huairou Science City in Beijing.
- It will be **the brightest Synchrotron Radiation (SR) source and first fourth-generation synchrotron facilities in the world.**

About Synchrotron

- A synchrotron is a **large circular machine**, the size of a football field.
- It is a **type of particle accelerator that produces high-energy (produces highly intense beams of light, known as synchrotron radiation.**
- It accelerates electrons to **near-light speeds** and guides them in a circular path, causing them to **emit synchrotron radiation.**

How Synchrotrons Work

- **Particle Acceleration:** Electrons are accelerated to nearly the speed of light using a linear accelerator (linac) and then injected into a circular accelerator (storage ring).
- **Magnetic Fields:** Powerful magnets bend and focus the electron beam along the circular path, causing the electrons to emit synchrotron radiation.
- **Synchrotron Radiation:** This radiation spans a broad spectrum, from infrared to X-rays, and is characterized by its high brightness and intensity.

Notable Synchrotron Facilities

- **European Synchrotron Radiation Facility (ESRF) in France**
- **Advanced Photon Source (APS) in the USA**
- **Spring-8 in Japan**
- **NanoTerasu in Japan**

Applications

- **Material Science:** Analyzing the structure of materials at the atomic or molecular level, helping in the development of new materials.
- **Biology and Medicine:** Imaging biological specimens, studying protein structures, and developing medical treatments.
- **Chemistry:** Investigating chemical reactions and properties of substances.
- **Physics:** Conducting fundamental research on the properties of matter and energy.

4.22 LANCET - 3 DRONE

- The Lancet-3 is a type of loitering munition, also known as a **kamikaze drone**, developed by the **Russian defense company ZALA Aero**, which is part of the **Kalashnikov Group**.
- Loitering munitions are designed to **hover or loiter around a target area for a period**, allowing for precise strikes once a target is identified.
- These drones combine the capabilities of **both unmanned aerial vehicles (UAVs) and guided missiles.**

Key Features and Capabilities

- **Functionality:** It is equipped with an **onboard warhead and can autonomously engage** (targets using onboard sensors and artificial intelligence) **targets** without requiring direct control once it is launched.

- **Warhead:** It carries a **high-explosive warhead** which detonates on impact.
- **Range and Endurance:** This drone typically has a significant range and can loiter in the target area for an extended period, increasing the **likelihood of hitting a high-value target**.
- **Deployment:** Lancet-3 can be deployed from various platforms, **including ground, naval, or aerial systems, providing flexibility in military operations**.
- **Applications:** It is primarily used for engaging **fortified positions, radar stations, artillery, and other high-value military assets**. The ability to **loiter and strike precisely** makes it particularly useful in modern.

4.23 CUBESAT

- On May 25, **NASA** launched one of two climate satellites, **known as CubeSats, aboard Rocket Lab's Electron rocket** from Māhia, New Zealand.
- These satellites are a **part of the PREFIRE (Polar Radiant Energy in the Far-InfraRed Experiment) mission**.

About Cubesat

- CubeSats are **small, cube-shaped satellites**, each measuring about 10 cm x 10 cm x 10 cm and weighing **no more than 1.33 kg**.
- **Developed by:** These were initially developed in **1999 by California Polytechnic State University** and Stanford University primarily as educational tools.
- **Role:** They have evolved into instruments for scientific research, technology demonstrations, and commercial use due to their cost-effectiveness and compact size.
- **Modularity and Flexibility:** CubeSats come in units called **"1U"** and can be scaled up to configurations like **1.5U, 2U, 3U, 6U, and 12U** by combining multiple units.
 - This modularity allows them to accommodate various scientific instruments within a compact space.
- **Technical Components:** Typically equipped **with solar panels, communication systems, and instruments** such as cameras and sensors, CubeSats are designed for a range of tasks from Earth observation to advanced scientific experiments.

Mission Objectives:

- **Climate Change:** Investigate heat radiated from Earth's Polar Regions into space and its impact on climate.
- **Greenhouse effect:** Improve understanding of the greenhouse effect at the poles and its implications for climate change.
- Enhance climate and ice models to predict changes in sea level, weather, snow, and ice cover in a warming world.

About PREFIRE Mission

- Jointly developed by NASA and the University of Wisconsin-Madison.
- It aims to investigate and comprehend the intricate dynamics of heat emissions from Earth's Polar Regions, specifically focusing on the Arctic and Antarctica.
- CubeSats: PREFIRE employs shoebox sized CubeSats (90cm*120cm), each measuring around 6U (6 units), equipped with advanced instrumentation to facilitate data collection. The two satellites will be placed in a near-polar orbit (a type of low Earth orbit) at an altitude of about 525 kilometers.
- Thermal Infrared Spectrometers (TIRS): Each CubeSat is outfitted with a Thermal Infrared Spectrometer, meticulously engineered to measure far-infrared radiation emitted by the Polar Regions.

4.24 THE LAUNCH VEHICLE MARK-3

- The Launch Vehicle Mark-3 was previously referred to as the **Geosynchronous Satellite Launch Vehicle Mark III**.
- It is a **three-stage medium-lift launch vehicle** developed by the **Indian Space Research Organization (ISRO)**.

- 1st stage (Solid propellant)
- 2nd stage (Liquid propellant)
- 3rd stage (cryogenic propellant)
- Primarily designed to launch communication satellites into geostationary orbit, it is also due to launch crewed missions **under the Indian Human Spaceflight Programme**.
 - **Geostationary orbit** is a circular orbit 35,785 km (22,236 miles) above **Earth's Equator** in

which a satellite's orbital period is equal to Earth's rotation period.

- **Famous LVM3 launches:**

- CARE, India's space capsule recovery experiment module, Chandrayaan-2, Chandrayaan-3 and It will be used to carry Gaganyaan.

4.25 KAWASAKI DISEASE

- **Kawasaki disease (KD) or Kawasaki syndrome**, is a disease that can cause serious complications, including swelling of parts of the heart and other blood vessels.
 - Kawasaki disease tends to affect **the coronary arteries**, which carry blood to the heart muscle.
- **Cause:** The exact cause of KD remains unknown, but it is believed to result from an **abnormal immune response** to an infection or environmental trigger in genetically **susceptible individuals**.
- **Prevalence:** KD is most common in **children under 5 years**
- **Symptoms:**
 - A fever greater than 102.2 degrees Fahrenheit (39 degrees Celsius) for five or more days and the child has at least four of the following symptoms.
 - A rash on the main part of the body or in the genital area.
 - An enlarged lymph node in the neck.
 - Very red eyes without a thick discharge.
 - Red, dry, cracked lips and a red, swollen tongue.
 - Swollen, red skin on the palms of the hands and the soles of the feet. Later the skin on fingers and toes peels.
 - Other symptoms might include Belly pain, Diarrhea, Fussiness, Joint pain, Vomiting
- Kawasaki disease was first described in 1967 in **Japan by Tomisaku Kawasaki**. The first cases outside of Japan were reported in 1976 in Hawaii.
- **Treatment:** It typically combines a mixture of antibodies given through your veins (intravenous immunoglobulin) and aspirin.

4.26 PARKINSON'S DISEASE

- It is a progressive neurological disorder that affects movement and often includes tremors, stiffness, and difficulty with balance and coordination.
- **Impacts:** The disease primarily impacts dopaminergic neurons in the brain, which are crucial for controlling movements.
 - As these neurons die, symptoms worsen.
- Parkinson's is also associated with the formation of Lewy bodies—protein aggregates primarily composed of **alpha-synuclein (SNCA)**
- **Treatment:** Currently, there is no treatment to slow or halt Parkinson's disease. Available drugs

can't slow disease progression, can treat only certain symptoms.

- Drugs like Levodopa, effective initially, generally become ineffective over the years, necessitating higher doses and leading to adverse effects.

About Synuclein alpha (SNCA) proteins:

- It is a mysterious protein which is present in healthy cells.
- It is notorious for its involvement in age-related neurodegenerative diseases.
- **Features of SNCA:**
 - It is abundant in neurons, especially in **dopaminergic neurons**.

- It is found **near the nuclei of these cells** and at the junctions between two neurons.
- It's capable of **misfolding as well as forming filamentous structures**.
- Unlike most other proteins, which take up predictable three-dimensional structures, SNCA can fold in multiple ways. Misfolded proteins don't function correctly.

Recent study

- **The research identified two types of SNCA aggregates:**
 - one that damages the structural integrity of cell nuclei and
 - Another that aids in degrading misfolded proteins.
- In these two the former are related to diseased states while the latter is important for healthy cells.
- **Over time, these Two SNCA Populations in the Cells:** one was around the nuclei, shapes like filaments tens of micrometers long, and much like Lewy bodies.
- The other population was also around the nuclei but as much smaller clumps called aggresomes.
- Such aggresomes are formed when cells localize misfolded proteins into a small bunch (like collecting the trash in a corner) for further processing.
- This discovery highlights the importance of a balance between these two forms in managing the disease.

4.27 CATATUMBO LIGHTNING

- **Meteorological Phenomenon:** Catatumbo lightning is a unique phenomenon characterized by nearly **continuous lightning flashes**.
- **Location:** It occurs over the mouth of the **Catatumbo River at Lake Maracaibo** in northwestern **Venezuela**.
- **When does it occur:** The lightning occurs when a mass of storm clouds form at a high altitude over the lake, creating lightning storms.
 - Catatumbo lightning typically occurs **during the night**.
- **Duration:** Its duration spans approximately **10 hours**, starting after sunset.
 - It occurs for about 300 nights per year in the exact same location.
- **Geographical Extent:** The lightning can be seen from as far as 400 kilometers (250 miles) away and has been observed from space by astronauts on the International Space Station.
- **Other Names:** Everlasting Storm, Maracaibo Beacon.

Scientific Explanation

- **Air Mass Interaction:**
 - Catatumbo lightning results from the interaction of warm, moist air and cooler air masses.
 - The convergence of these air masses generates electrical potential.
- **Topography and Wind Patterns:** The unique geography of Lake Maracaibo enhances the phenomenon. The prevailing wind patterns play a crucial role in sustaining the lightning.
- **Ionization and Charge Separation:**
 - As air rises over the lake, it cools and condenses, releasing latent heat.
 - This process leads to ionization and charge separation, resulting in lightning.

Significance

- **Cultural Symbol:** Catatumbo lightning is part of the cultural identity of the region. It features in local folklore, art, and literature.
- **Tourism Attraction:** The lightning attracts tourists who want to witness this natural spectacle.
- **Ecological Impact:** The lightning provides nutrients to the surrounding ecosystem through **nitrogen fixation** which is essential for plant growth and aquatic life.

4.28 OXYTOCIN

- **Oxytocin, also known as the 'love hormone'**, is a hormone secreted by the pituitary glands of mammals during sex, childbirth, lactation or social bonding.
- **Hormones are chemicals that coordinate different functions** in the body by carrying messages through blood to organs, muscles and other tissues.
- **Released by:** hypothalamus makes oxytocin, but the posterior pituitary gland stores and releases it into the bloodstream.
 - **Hypothalamus is the part of the brain** that controls functions like blood pressure, heart rate, body temperature and digestion.
 - **Pituitary gland is a small, pea-sized endocrine gland located** at the base of the brain below the hypothalamus.
- **Synthetic Oxytocin:** Healthcare providers use synthetic (manufactured) forms of oxytocin — Syntocinon and Pitocin to induce labor in childbirth if it hasn't started naturally or to strengthen contractions.
 - **Administered by:** It is administered either as an injection or a nasal solution.
- Healthcare providers also use synthetic oxytocin to speed up delivery of the placenta and reduce the risk of heavy bleeding (postpartum hemorrhage).

Function of Oxytocin

- The two main physical functions of **oxytocin are to stimulate uterine contractions in labor and childbirth** and to stimulate contractions of breast tissue to aid in lactation after childbirth.
- Oxytocin also acts as a chemical messenger in the brain and has an important role in many human behaviors and social interactions, including:
 - **Sexual arousal**
 - **Recognition**
 - **Trust**
 - **Romantic attachment**
 - **Parent-infant bonding**

4.29 LIQUID NITROGEN

- Liquid nitrogen is **colorless, odorless, flavorless, non-toxic** and an extremely cold element.
- **The temperature of liquid nitrogen** is -195.79°C (77 K ; -320°F). This is the boiling point of nitrogen.
 - **Below this temperature, nitrogen forms a solid**, while above its boiling point, nitrogen exists as a gas.
- **Freezing food** for storage and transportation
- Protecting samples from oxygen exposure, source of dry nitrogen gas, Branding livestock
- **Molecular gastronomy**
- Cooling materials to make them easier to fracture or machine.
- Preserving biological samples
- Cooling superconductors, vacuum pumps, and other equipment
- Cryotherapy, such as wart removal
- Quick-freezing water in pipes for plumbing

Liquid Nitrogen Facts

- Liquid nitrogen is **diatomic nitrogen, N₂**. For this reason, it's often called LN₂.
- It looks much like boiling water.
- It has a low viscosity. In other words, it readily flows.
- Polish physicists Zygmunt Wróblewski and Karol Olszewski were the **first to liquefy nitrogen on April 15, 1883**.
- It is **produced by fractional distillation of liquid air**.

Liquid Nitrogen Risks

- **Health Impact:** It can cause frostbite, poses an asphyxiation risk, and can cause containers to burst.
 - It has a **large expansion ratio on evaporation**. Even a small volume of liquid nitrogen can cause oxygen deficiency in the body.
 - **It can damage the lips, tongue, throat, lungs, and stomach** and may cause lesions or burn tissues.

Liquid Nitrogen Uses

- **Oxidizing:** Oxygen can **accumulate around a liquid nitrogen container**, leading to oxidation of materials. Organic substances may **violently oxidize**.

4.30 HEPATITIS A

- **Hepatitis A outbreak in Kerala:** 12 deaths so far, 4 districts on alert
- The hepatitis A virus (HAV) is **transmitted through ingestion of contaminated food and water or through direct contact with an infectious person**.
 - **Unlike hepatitis B and C**, hepatitis A does **not cause chronic liver disease** but it can cause debilitating symptoms and rarely fulminant hepatitis (acute liver failure), which is often fatal.
- **Occurrence:** It occurs **sporadically and in epidemics worldwide**, with a tendency for cyclic recurrences.
 - HAVs **persist in the environment and can withstand** food production processes routinely used to inactivate or control bacterial pathogens.
- **Geographical distribution:** Infection is **common in low- and middle-income** countries with poor sanitary conditions and hygienic practices, and most children (90%) have been infected with the hepatitis A virus **before the age of 10 years**.
- **Transmission:** It is transmitted primarily by the **faecal-oral route**; that is when an uninfected person ingests food or water that has been contaminated with the faeces of an infected person
- **Symptoms:** The **incubation period** of hepatitis A is **usually 14–28 days**.
 - Symptoms of hepatitis A range from mild to **severe and can include fever, malaise, loss of appetite, diarrhea, nausea, abdominal discomfort, dark-coloured urine and jaundice (a yellowing of the eyes and skin)**.
 - Not everyone who is infected will have all the symptoms.
- **Treatment:** There is **no specific treatment for it**. Recovery from symptoms following infection may be slow and can take several weeks or months.
- **Prevention:** **Improved sanitation**, food safety and immunization are the most effective ways to combat hepatitis A.
 - A safe and effective vaccine is available to prevent hepatitis A.

5 ENVIRONMENT AND GEOGRAPHY

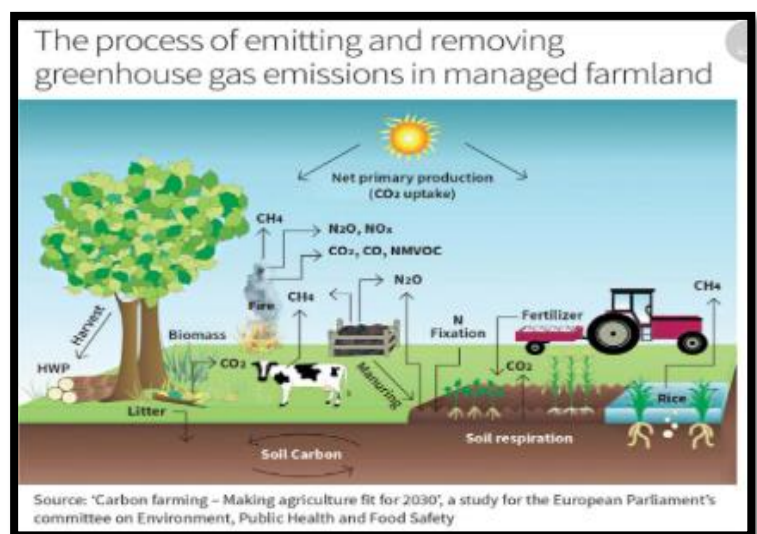
5.1 CARBON FARMING

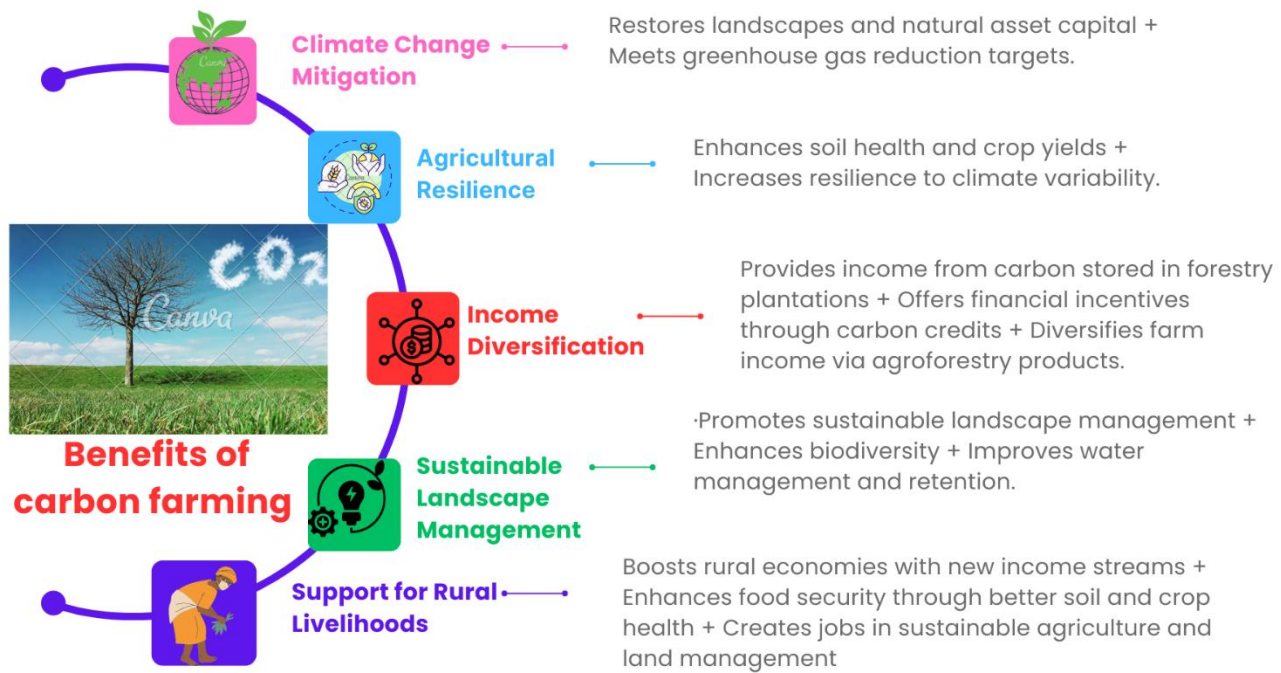
About Carbon Farming

- **Definition:** Carbon farming is a comprehensive **approach to optimize carbon capture on working landscapes**. It involves implementing practices that **increase the rate at which CO₂ is removed** from the atmosphere and stored in plant material and soil organic matter.
- **Combines Key Concepts:** Carbon farming integrates **regenerative agricultural practices** that restore ecosystem health while improving agricultural productivity and soil health.
- **Mitigates Climate Change:** Enhances carbon storage in agricultural landscapes and reduces greenhouse gas emissions.
- **Ease of Adoption:** The practice is adaptable across various agro-climatic zones.
- **Additional Benefits:** Ameliorates soil degradation + Addresses water scarcity + Helps manage challenges related to climate variability.

Methods of carbon farming

- **Rotational Grazing:** This simple yet effective method involves **periodically moving livestock to different pasture areas**, allowing grasses to recover and sequester more carbon. E.g., Implemented successfully in Australia to improve pasture health and soil carbon levels.
- **Agroforestry:** Integrates trees and shrubs with crops and livestock. Practices such as **silvopasture** (combining forestry and grazing) and **alley cropping** (growing crops between rows of trees) enhance biodiversity and carbon sequestration while diversifying farm income. E.g., **silvopasture in Brazil combines cattle grazing with tree planting**.
- **Conservation Agriculture:** Involves techniques like zero tillage, crop rotation, cover cropping, and crop residue management (stubble retention and composting). These practices minimize soil disturbance, enhance soil organic content, and are particularly beneficial in areas with intensive agricultural activities. E.g., **Zero tillage in India's wheat-rice cropping system**.
- **Integrated Nutrient Management:** Promotes soil fertility and reduces emissions by using **organic fertilizers and compost**. This approach optimises nutrient use efficiency and improves soil health. E.g., integrated nutrient management in the Philippines improves soil fertility and crop yields.
- **Agro-Ecology:** Utilizes practices such as **crop diversification and intercropping**, which improve ecosystem resilience, enhance biodiversity, and support sustainable agriculture. E.g., Crop diversification and intercropping in Kenya's smallholder farms.
- **Livestock Management:** Strategies include rotational grazing, **optimising feed quality, and managing animal waste**. These practices reduce methane emissions and increase carbon storage in pasture lands. E.g., Improved feed quality and waste management in European dairy farms.
- **Land Restoration:** Encompasses a variety of techniques aimed at **rehabilitating degraded lands, enhancing their capacity to sequester carbon** and support sustainable agriculture. E.g., Land restoration projects in Ethiopia's Tigray region.





Challenges to Carbon farming

Effectiveness Variability:

- Depends on geographical location, soil type, crop selection, water availability, biodiversity, and farm size + Needs optimal land management practices, policy support, and community engagement.
- Regions with long growing seasons, sufficient rainfall, and good irrigation **are most suitable + high potential in regions with adequate rainfall and fertile soil.**

Environmental Constraints:

- Hot and dry areas face challenges due to limited water availability + Water scarcity restricts plant growth and carbon sequestration.
- Fast-growing trees and deep-rooted grasses may not suit arid environments.

Financial Barriers:

- High initial costs for implementing carbon farming practices.
- Small-scale farmers in developing countries like India may lack resources + require financial assistance for sustainable land management.

Awareness and Knowledge Gaps:

- Many farmers lack understanding of carbon farming and its benefits.
- High input costs and concerns about yield impact discourage adoption.

Policy and Administrative Challenges:

- Requires supportive policies and clear regulations.
- Complex certification procedures and high administrative costs are barriers.

Personal and Community Interests:

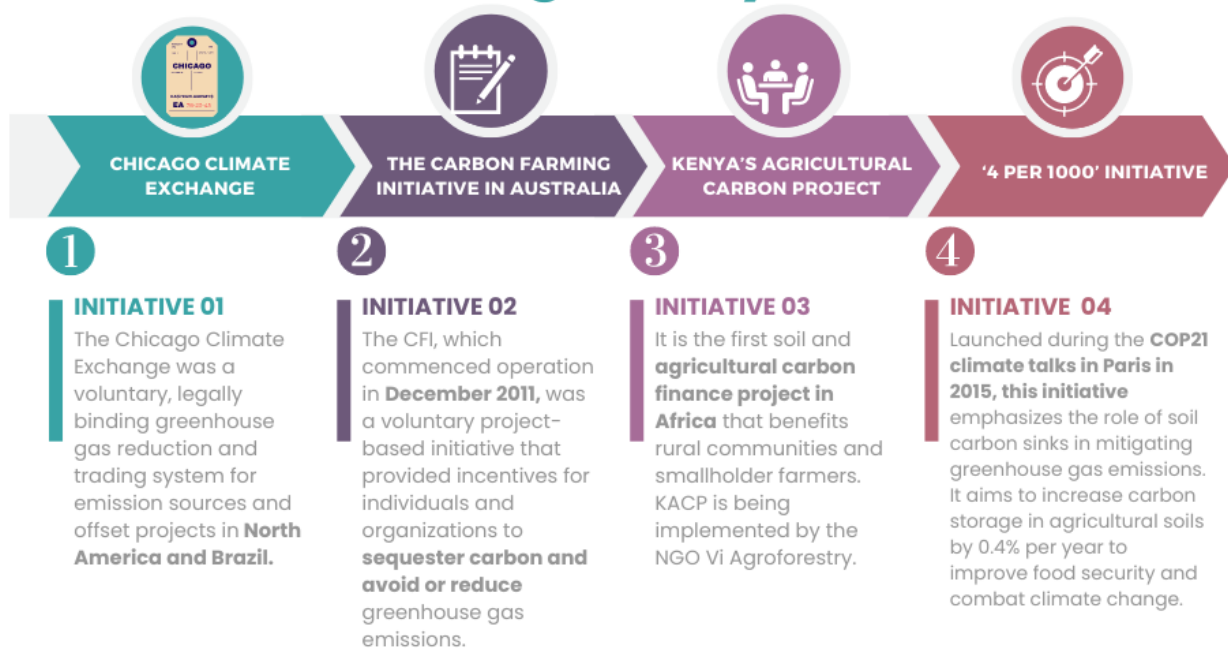
- Adoption influenced by landholders' personal interests and management abilities.
- Community engagement and collaboration are essential but challenging.

Other Barriers:

- Lack of approved methods and procedures.
- High administrative expenses.
- Technological barriers due to limited access to appropriate technology and infrastructure.



Notable carbon farming initiatives globally



prepp IAS

Way Forward

Education and Awareness

- Implement farmer training programs + Use media for information dissemination.
- Increase awareness about the benefits and practices of carbon farming among farmers and communities.

Financial Support

- Provide subsidies and grants + Improve access to credit for farmers. Develop carbon credit systems to incentivize farmers by providing additional income through environmental services.

Policy and Regulation

- Develop supportive policies and establish clear certification standards.
- Ensure adequate policy support to create an enabling environment for carbon farming adoption.

Technological Advancement

- Invest in R&D for improved techniques + Promote digital tools for monitoring.
- Support grassroots initiatives and pioneering agrarian research to demonstrate the viability of carbon sequestration practices.

Community and Collaboration

- Engage local communities in planning + Foster multi-stakeholder collaboration.
- Encourage collaborative efforts to address challenges such as limited awareness and technological barriers.

Climate Change Mitigation

- Promote climate-resilient and emission-reducing agricultural practices.
- Leverage the potential of agro-ecological practices to generate economic benefits and provide climate services.

5.2 CLIMATE CHANGE AND HUMAN RIGHTS

The European Court of Human Rights found the Government of Switzerland guilty of violating the rights of a group of women senior citizens.

What is Climate Change?

- Climate change refers to long-term shifts in temperatures and weather patterns.
- Human Activities: Since the 1800s, human activities have been the main driver of climate change, primarily due to the burning of fossil fuels.
- Impacts: The consequences of climate change now include intense droughts, water scarcity, severe fires, rising sea levels, flooding, melting polar ice, catastrophic storms, and declining biodiversity that ultimately violates Human right.

How does Climate change Impact Human Rights?

Human Right	Impact of Climate Change
Right to Health	Increased spread of infectious diseases due to warmer climates; heat-related illnesses and exacerbated respiratory disorders due to more frequent heat waves.
Right to Water and Sanitation	Reduced availability of fresh water due to altered precipitation patterns and glacier melting; increased risk of water contamination from flooding.
Right to Food	Decreased agricultural productivity from altered climatic conditions affecting temperature and rainfall, leading to food insecurity; impact on fisheries due to warmer and acidifying oceans.
Right to Housing and Adequate Living Standards	Destruction of infrastructure and homes by more intense natural disasters like hurricanes, floods, and wildfires; threats from sea-level rise to coastal and low-lying communities.
Right to Life and Security	Displacement and increased conflict potential due to resource scarcity; heightened vulnerability of certain populations (e.g., the elderly, ethnic minorities).
Right to Self-Determination	Disruption of the habitats and traditional lifestyles of indigenous communities, affecting their cultural practices and land management.
Right to Education	Disruption of education through destruction of school infrastructure and economic strains that divert children into labour markets instead of schools.

Recent Updates: Increased Realization of Human Rights against Climate Change

- **European Court Ruling:** The European Court of Human Rights found the Government of Switzerland guilty of violating the rights to **life** for failing to take adequate steps to mitigate climate change.
 - This landmark ruling signifies a growing recognition of the human rights dimension of climate action.
- **UN Resolutions:** The UN Human Rights Council has adopted resolutions recognizing the right to a healthy environment as a fundamental human right.
 - This strengthens the legal framework for holding governments accountable for climate inaction.
- **National Level Actions:** Several countries are incorporating the **right to a healthy environment into their national constitutions**, further emphasizing the importance of environmental protection for human well-being.

- **Rise in Climate Litigation:** There's a growing trend of individuals and communities suing governments and corporations for climate inaction, highlighting the human rights implications of climate change.

Right against Climate Change: A Fundamental Right in India

- **Landmark Judgement:** The Supreme Court of India, in *M K Ranjitsinh & Ors versus Union of India* case, has ruled that the right to a healthy environment, free from the adverse effects of climate change, is a fundamental right under Article 21.
- **Expansion of Rights:** The Supreme Court has expanded the ambit of Articles 14 and 21 of the fundamental right, ruling that people have the right to be free from the adverse effects of climate change.
- **Constitutional Obligation:** This judgement places a constitutional obligation on the Indian government to take effective measures to combat climate change and protect the environment.
- **Empowering Citizens:** The judgement empowers citizens to hold the government accountable for its actions (or inaction) on climate change.

Challenges

- **Implementation Gap:** There's a significant gap between recognizing the human rights impacts of climate change and effectively implementing solutions.
- **Balancing Interests:** Striking a balance between addressing **climate change** and ensuring **economic development**, particularly for developing countries, remains a challenge.
- **Expensive Technologies:** Environment- friendly technologies are often more expensive than regular technologies which works as a deterrent to their adoption.
- **Lack of Awareness:** Raising public awareness about the human rights dimensions of climate change is crucial for mobilizing public support for climate action.

Way Forward

- **Stronger Policies:** National and international policies need to be strengthened to address climate change while protecting human rights.
- **Climate Finance:** Developed countries must fulfill their commitments to provide financial assistance to developing countries for adaptation and mitigation efforts.
- **Community Participation:** Meaningful participation of communities most affected by climate change in decision-making processes is essential.
- **Education and Capacity Building:** Investing in education and capacity building initiatives to empower communities to adapt to climate change is crucial.

The European Court of Human Rights

- **Establishment:** in 1959, based in **Strasbourg**, France.
- **Jurisdiction and Role:** It is an international court of the Council of Europe which interprets the European Convention on Human Rights (ECHR). Its task is to ensure that state parties respect the rights and guarantees set out in the Convention and its Additional protocols.

5.3 ARMoured SAILFIN CATFISH

CSIR-Centre for Cellular and Molecular Biology (CCMB) scientists find armoured sailfin catfish has spread to 60% of water bodies of Eastern Ghats.

About:

- It is a **freshwater tropical fish** in the armored catfish family (Loricariidae).
- **Common Names:** Armoured sailfin catfish, sailfin pleco and Amazon sailfin catfish.
- **Invasive Species:** Classified as **invasive in many regions outside its native range**.
 - Its unique appearance and its ability to clean algal growth in tanks and aquaria but its population has grown exponentially, and this was realised through a unique 'eDNA-based quantitative PCR assay'
 - **Environmental DNA or eDNA is DNA** that is collected from a variety of environmental samples such as soil, seawater, snow or air, rather than directly sampled from an individual organism.

**Physical Characteristics**

- **Appearance:** Recognized by its bony plates covering the body and a distinctive sail-like dorsal fin.
- **Size:** Can grow up to 70 cm (27.5 inches) in length.

Habitat and Distribution

- **Native Range:** Originally from South America, particularly the Amazon River Basin.
- **Introduced Range:** Now found in various countries across Asia, North America, and other regions due to the aquarium trade.

Behavior and Ecology

- **Diet:** Primarily **herbivorous**, feeding on **algae**, **detritus**, and plant matter.

- **Habitat:** Prefers slow-moving or standing water bodies like **rivers, lakes, and ponds**.

Environmental Impact

- **Impact on Ecosystems:** Can cause significant ecological damage by altering habitats, outcompeting native species, and contributing to erosion through burrowing activities.

Management and Control

- **Control Measures:** Physical removal and habitat management in infested areas.
- **Invasive species management:** It directly help the survival of native and economically important fishes

5.4 PEREGRINE FALCON

Loss of habitat has led to the falcons moving into Urban Areas and abundant food and safe shelter helping them to survive and thrive

About Peregrine Falcon

- **Scientific Name:** Falco peregrinus
- **IUCN status:** Least Concern
- **Physical Characteristics:** Females are typically larger than males, a trait common among birds of prey.
- **Habitat:** Open landscapes like grasslands, tundra, and meadows (rare in tropical areas)
 - Builds nests on cliff faces and within crevices.
- **Ecological Role:** Serve as apex predators, crucial for maintaining the balance of prey populations, especially pigeons and doves.
- **Threats:** Use of the pesticide DDT, which led to thinning of their eggshells.

5.5 MONSOON CROAKS

The recent Monsoon Croaks Bioblitz initiative by KFRI (Kerala Forest Research Institute) ropes in public to monitor Kerala's frogs.

About Monsoon Croaks Bioblitz

- **Citizen Centric Project:** This four-month initiative (June 1 - September 30) relies on public participation. People of all ages can contribute by documenting frogs they encounter in their backyards or local areas.

- **Documenting Frogs:** Using the **iNaturalist app**, participants can upload pictures of frogs and tadpoles, or record their voices. This data is crucial for scientists to understand frog distribution and abundance.
- **Contributing to Global Knowledge:** All observations submitted become part of the Global Biodiversity Information Facility (GBIF), a publicly accessible database that informs conservation efforts worldwide.

History

- **Origin:** The Centre for Citizen Science and Biodiversity Informatics (CCSBII) at **Kerala Forest Research Institute (KFRI)** launched the Monsoon Croaks BioBlitz in **2023**.
- **Addressing the Need:** There's a significant lack of data on Kerala's frog species. This project aims to bridge this gap by engaging the public to gather information.
- **Building on Success:** The 2023 program generated valuable data and garnered significant participation. The 2024 edition aims to expand this success.

Benefits of Monsoon Croaks BioBlitz

- **Improved Data Collection:** Citizen Science data fills critical gaps in frog distribution and abundance information, informing conservation strategies.
- **Public Engagement:** The program fosters a sense of community involvement in conservation and empowers citizens to become stewards of their environment.
- **Education and Awareness:** The project raises public awareness about the importance of frogs and the threats they face.
- **Global Collaboration:** Data collected contributes to global amphibian conservation efforts.

Environmental Significance of Frogs

- **Natural Pest Control:** Frogs are voracious insect eaters, helping to control mosquito populations and other insects that can damage crops and spread diseases.
- **Indicators of Ecosystem Health:** The presence and abundance of frogs reflect the health of a wetland ecosystem. Their decline can signal environmental degradation.
- **Part of the Food Chain:** Frogs are a vital food source for birds, snakes, and other animals, maintaining a balanced ecosystem.
- **Cultural Significance:** Frogs are featured in Indian folklore and mythology, symbolizing prosperity and renewal. Their presence is seen as a sign of a healthy environment.
- **Present Situation:** **41% of the world's frogs are on the IUCN Red List** of endangered species.

Conservation Efforts

- **Habitat Protection:** Conservation efforts focus on protecting wetlands and creating corridors for frog movement between fragmented habitats.
- **Captive Breeding Programs:** Breeding programs for endangered species help maintain populations and reintroduce them to suitable habitats.
- **Raising Awareness:** Initiatives like Monsoon Croaks BioBlitz educate the public about the importance of frogs and how individuals can contribute to their conservation.
- **Policy Advocacy:** Supporting policies that protect wetlands and regulate pollution can create a more frog-friendly environment.

5.6 KANWAR LAKE

Kanwar Lake, locally known as 'Kabartal' which is Bihar's only wetland of international importance Kanwar Lake under the Ramsar Convention lies neglected and is on the brink of drying up.

About Kanwar Lake

- **Location:** Northern Bihar, covering the Indo-Gangetic plains.
- **Type:** Asia's largest freshwater oxbow lake.
- **Formation:** Created by the meandering of the Gandak River, a tributary of the Ganga.

- **Importance:**
 - **Biodiversity:** Home to over 50 fish species.
 - **Migratory Stopover:** Key resting and refueling spot for 58 migratory waterbirds along the Central Asian Flyway.
 - **Ramsar:** wetland of international importance
 - **Critical Species:** Inhabited by five critically endangered species including:
 - **Vultures:** Red-headed vulture (*Sarcogyps calvus*), white-rumped vulture (*Gyps bengalensis*), Indian vulture (*Gyps indicus*).
 - **Waterbirds:** Sociable lapwing (*Vanellus gregarius*), Baer's pochard (*Aythya baeri*).
- **Threats:** Water management activities such as drainage, water abstraction, damming, and canalization pose significant threats.

Ramsar Convention

- **Purpose:** To preserve the ecological character of wetlands of international importance.
- **Date Signed:** 2nd February 1971.
- **Location:** Named after Ramsar, the Iranian city where the treaty was signed.
- **Ramsar Sites:** Locations chosen for conservation are given the tag 'Ramsar site'.
- **India's Ramsar Sites:** There are currently 75 Ramsar sites in India.

5.7 GLOBAL REPORT ON INTERNAL DISPLACEMENT (GRID) 2024

Global Report on Internal Displacement 2024 (GRID-2024) released by the Geneva-based Internal Displacement Monitoring Centre (IDMC) states that the number of internally displaced people (IDPs) rose to 75.9 million, up from 71.1 million in 2022.

About the Report

- **Main causes:** Disasters caused 56% of all internal displacement in 2023, while conflicts and violence caused the remaining 44%.
- **Displacement due to disasters:** 75.9 million in 2023, up from 71.1 million in 2022.
 - Disasters caused displacement in 148 countries and territories, with significant events across six continents.
 - **E.g. 40% increase in disaster displacements** due to weather-related events like floods and storms during the prolonged La Nina period.
 - **7.7 million with one-fourth caused by earthquakes.**
- **Displacement due to conflict:** 68.3 million people in 2022-2023.
 - **Main Contributors:** Sudan, Syria, the Democratic Republic of the Congo (DRC), Colombia, and Yemen host nearly half of the world's IDPs.
- **Historical Trend:** Since 2018, weather-related disasters have been displacing more people than conflict and violence.

Regional Insights: South Asia

- **South Asia:** Including India, reported its lowest internal displacements since 2018 with 3.7 million displacements, of which 3.6 million were due to disasters.
 - This reduction is linked to the onset of **El Nino, which resulted in below-average rainfall during the monsoon and a weaker cyclone season.** However, floods and storms continued to cause significant displacements.

About Internal Displacement Monitoring Centre (IDMC)

- It is the leading source of information and analysis on internal displacement.
- It defines internal displacement as "the number of forced movements of people within the borders of their country recorded during (a) year".
- It was set up in 1998 at the request of **the international community to fill an important knowledge gap on the global scale and patterns of internal displacement.**
- It is part of **the Norwegian Refugee Council (NRC)**, an independent, non-governmental humanitarian organization.

- It plays a unique role as a global monitor and evidence-based advocate to influence policy and action by governments, UN agencies, donors, international organisations and NGOs.
- IDMC's GRIDis the official repository of data and analysis on internal displacement.

5.8 INDIAN OCEAN DIPOLE

According to two Australian weather agencies, the Positive Indian Ocean Dipole (also called Indian Nino) may re-emerge in the second half of 2024.

About Indian Ocean Dipole (IOD)

- **The Indian Ocean dipole is defined** as the difference in sea surface temperatures (SSTs) between the Eastern and Western regions of the Indian Ocean.
- **Occurrence:** The IOD is a recurring climate pattern in the Indian Ocean. An average of four positive-negative IOD events occur during each 30-year period.
- **Duration:** Each IOD event lasts around six months.

- **Phases:** It cycles between three phases: positive, negative, and neutral.
- **Scope:** IOD phases influence rainfall patterns across India, Southeast Asia, Africa and Australia.

IOD: The Indian Niño

- The IOD shares similarities with El Niño (ENSO) in the Pacific Ocean.
- Both involve sea surface temperature fluctuations and impact global weather.
- IOD is regional (Indian Ocean) and generally less powerful than El Niño.

ENSO (El Niño Southern Oscillation)

- ENSO is a climate phenomenon that originates in the **tropical Pacific Ocean**.
- **Features:** It involves variations in sea surface temperatures (SST) and atmospheric pressure patterns.
- **Global Impact:** ENSO significantly impacts global weather and climate.

Positive IOD

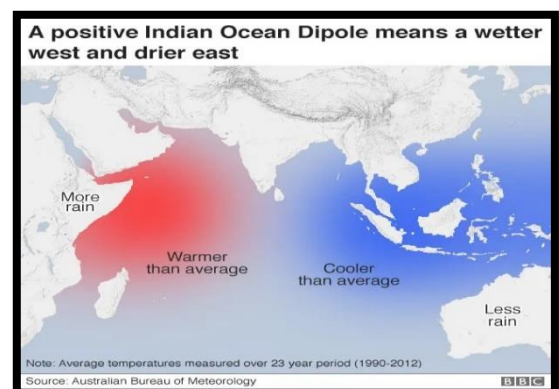
- During a positive IOD, the western Indian Ocean experiences greater-than-average sea-surface temperatures.
- This leads to greater precipitation in the western Indian Ocean region.
- Simultaneously, waters in the eastern Indian Ocean cool, causing droughts in adjacent land areas of Indonesia and Australia.

Benefits of Positive IOD

- A positive IOD can bring above-normal rainfall, replenishing water resources and supporting agriculture.
- It can also enhance fisheries productivity in some areas due to favorable ocean conditions.
- A positive IOD is often associated with stronger monsoons.

Challenges

- Positive IOD can disrupt normal weather patterns globally.
- It may result in floods in Western Africa and India, and droughts in parts of Indonesia and Australia.



5.9 CYCLONE REMAL

Cyclone Remal is set to impact the **Bay of Bengal region**, specifically targeting West Bengal's **Sagar Islands** and the adjacent **Khepupara region in Bangladesh**.

About Cyclone Remal

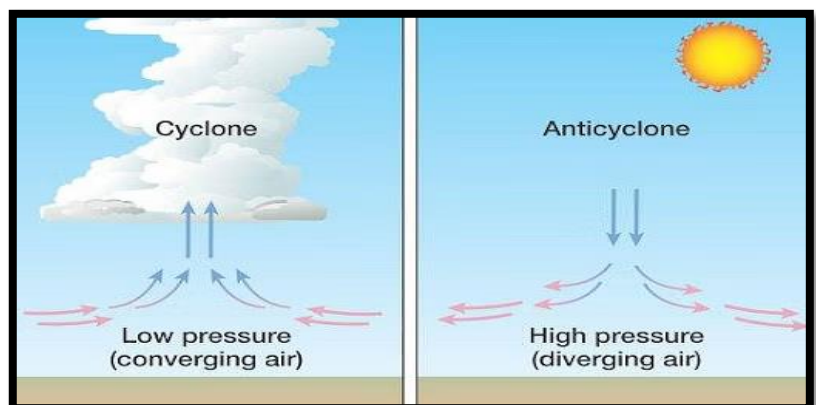
- **Formation and Path:** A low-pressure area over the Bay of Bengal has intensified into a cyclonic storm, named Cyclone Remal.
- **The name "Remal":** Its meaning is 'sand' in Arabic, was chosen by Oman according to the standard convention of naming tropical cyclones in the region.
- **Impact Zones:** Cyclone Remal will affect several regions, bringing heavy to very heavy rainfall: West Bengal, Odisha, Northeast India, Mizoram, Manipur, Nagaland, Tripura, and Assam.

Tropical Cyclones

- Tropical cyclones are rapidly rotating storm systems characterized by a low-pressure center, strong winds, and heavy rain.
- In the northern hemisphere, cyclones rotate anticlockwise, while in the Southern Hemisphere, they rotate clockwise.
- **Cyclogenesis** is the process of cyclone formation and intensification.
- They are known as hurricanes in the Atlantic and Northeast Pacific, typhoons in the Northwest Pacific, and cyclones in the South Pacific and Indian Ocean.

Essential Conditions for Formation

- A large area of the sea surface with a **temperature above 27° C.**
- **The Coriolis force is present.**
- **The vertical wind speed varies slightly.**
- **A weak low-pressure area** or low-level-cyclonic circulation that already existed.
- **Above the sea level system**, there is a higher divergence.



Naming of Cyclone:

- To enhance cyclone warning and disaster mitigation in the North Indian Ocean region, the WMO established the **Panel on Tropical Cyclones (PTC) in 1972.**
- **Initially, the PTC included eight countries:** Bangladesh, India, Maldives, Myanmar, Pakistan, Sri Lanka, Oman, and Thailand.
- During its 2000 session in Muscat, Oman, the PTC decided to start naming tropical cyclones in the Bay of Bengal and the Arabian Sea.
- In 2018, the PTC expanded to include Iran, Qatar, Saudi Arabia, the United Arab Emirates, and Yemen.
- In April 2020, a new list of 169 cyclone names—13 from each of the 13 countries—was released.

Sagar Island

- It is the westernmost island of the Ganges-Brahmaputra delta, West Bengal state, northeastern India.
- It lies at **the mouth of the Hugli (Hooghly) River**, an arm of which separates it from the mainland to the east.

5.10 SEA ANEMONE

*Scientists flag mass sea anemone bleaching off **Agatti island**.*

- **Nature:** Sea anemones are a group of predatory marine invertebrates' aquatic animals constituting the order Actiniaria having an ability to sting.
- **Nomenclature:** Because of their colorful appearance, they are named after the Anemone, a terrestrial flowering plant.
- **Kingdom:** Animalia
- **Phylum:** Sea anemones are classified in the phylum Cnidaria, class Anthozoa, subclass Hexacorallia.
- **Related to:** As cnidarians, sea anemones are related to corals, jellyfish, tube-dwelling anemones, and Hydra. Unlike jellyfish, sea anemones do not have a medusa stage in their life cycle.
 - The medusa stage is a **mobile and reproductive phase** of some cnidarians, such as jellyfish.
- **Habitat:** They are found from the tidal zone of all oceans to depths of more than 10,000 meters (about 33,000 feet).
 - Some live in **brackish water**.
 - The **colorful Tealia** are found in temperate regions.
 - They are the largest, most numerous, and most colorful in warmer seas.

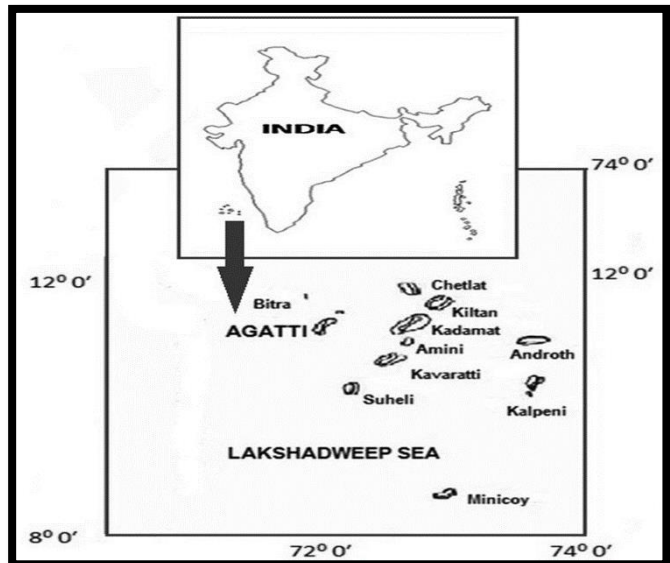


Coral bleaching

- Warmer water temperatures can result in coral bleaching.
- When water is too warm, **corals expel the algae (zooxanthellae)** living in their tissues causing the coral to turn completely white. This is called coral bleaching.
- When a coral bleaches, it is not dead.

Agatti Island

- It is a 7.6 km long island, situated on a **coral atoll called Agatti atoll** in the Union Territory of Lakshadweep.
 - Kavaratti is the capital of the UT of Lakshadweep.



5.11 UNITED NATIONS FORUM ON FORESTS

India participated in the 19th Session of the United Nations Forum on Forests (UNFF) held at the UN headquarters in New York from May 6 to 10.

About United Nations Forum on Forests (UNFF)

- **Organizational type:** It is a high-level intergovernmental body policy forum.
 - It is also a **Regulatory body**, Advisory board.
- **Membership:** The forum includes all
 - United Nations member states and permanent observers,
 - The UNFF Secretariat,
 - The Collaborative Partnership on Forests,
 - Regional Organizations and Processes and Major Groups.

- **Formation:** It was established on 18 October 2000.
 - The UNFF was **established as part of a new international arrangement on forests.**
- **Parent organization:** United Nations Economic and Social Council.
- **Milestones**
 - The first UN Forest Instrument in 2007,
 - **The Global Forest Financing Facilitation Network (GFFFN)** in 2015, and
 - Adoption of the **first UN Strategic Plan for Forests 2030** and its six Global Forest Goals in 2017
- **India is a founding member of UNFF.**

Principal functions

- **Forest management:** To facilitate implementation of forest-related agreements and foster a common understanding on sustainable forest management.
- **Policy Input:** To provide for continued policy development and dialogue among Governments, international organizations, including major groups, as identified in **Agenda 21** as well as to address forest issues in a holistic, comprehensive and integrated manner.
- **Enhancement of corporation:** To enhance cooperation as well as policy and programme coordination on forest-related issues.
- **International cooperation:** To foster international cooperation and to monitor, assess and report on progress of the above functions and objectives.

Collaborative Partnership on Forests

- **The Collaborative Partnership on Forests (CPF):** It is an innovative voluntary interagency partnership on forests that was established in April 2001 in response to an invitation issued in the resolution 2000/35 by the Economic and Social Council of the UN (ECOSOC) that established the International Arrangement on Forests and the UN Forum on Forests (UNFF).
- **Composition:** The Partnership is currently composed of fifteen international organizations, institutions and secretariats that have substantial programmes on forests.

United Nations strategic plan for forests 2017–2030

- The plan was adopted by **the UN Economic and Social Council on 20 April 2017,**
- The Strategic Plan features a set of **six Global Forest Goals and 26 associated targets** to be reached by 2030, which are voluntary and universal.
- It includes a target to increase forest area by **3% worldwide by 2030, signifying an increase of 120 million hectares,** an area over twice the size of France.

5.12 INDIAN OCEAN BASIN-WIDE (IOBW) INDEX

Researchers have found a potential link between anomalies in sea-surface temperatures in the Indian Ocean and the intensity of dengue epidemics globally.

About IOBW Index

- The IOBW Index represents the average sea-surface temperature variations across the tropical Indian Ocean.
- **Indicator:** It serves as a crucial climate indicator, capturing the regional temperature anomalies in this vast oceanic region.
- **Calculation:** It is calculated as the average of the sea surface temperature anomalies in the region bounded by 20°N to 20°S latitude and 40°E to 120°E longitude.
- **Significance in Atmospheric Studies:** The IOBW index is an important indicator used in atmospheric and climate studies, as it reflects the overall thermal conditions of the Indian Ocean basin, which can influence weather patterns and climate variability in the surrounding regions.

- **Monitoring Tool:** The index serves as a monitoring tool for scientists and meteorologists to track and understand the changes in sea surface temperatures in the Indian Ocean, which can have far-reaching impacts on regional and global weather patterns.

Relation between IOBW Index and Dengue Outbreaks

- **Temperature and Dengue Transmission:** Researchers have found a potential link between anomalies in sea-surface temperatures in the Indian Ocean and the intensity of dengue epidemics globally.
- **Mechanism:** Warmer sea surfaces are linked to changes in global weather patterns that can create conditions more favorable for mosquito breeding and dengue transmission.
- **Seasonal Peaks:** Dengue incidence exhibits seasonal peaks, with the Northern Hemisphere experiencing outbreaks between July and October, and the Southern Hemisphere between February and April.
- **Predictive Modeling:** By analyzing historical data on the IOBW index and dengue outbreaks, researchers have developed predictive models that can help anticipate the risk of dengue epidemics in different regions based on the observed sea surface temperature anomalies.

5.13 SEMAL TREES

- **Other names:** It is also known as the silk cotton tree and *Bombax Ceiba*.
- **Characteristics:**
 - It is a large, **fast-growing tree native to India**.
 - It is known for its distinctive, spiky red flowers and its fluffy seed pods, which contain a cotton-like substance that was once used for stuffing pillows and mattresses.
 - The tree is prized for its ornamental value and is often grown in parks and gardens.
- **Ideal location for placement:** The best location for a Semal tree is one that provides the tree with plenty of sunlight, well-draining soil, and enough space to grow.
- **Ideal season to grow:** A distinct dry season.

Ecological and Medicinal Importance

- **Biodiversity Support:** The semal tree plays a crucial role in supporting local biodiversity.
 - The rock bees nestle on its branches because the tree's spikes keep its predator, the sloth bears, away.
 - Larvae of the moth *Bucculatrix crateracma* feed on its leaves.
 - The golden-crowned sparrow weaves the lining of its nests with white cotton from its seeds.
 - The *Dysdercus* bugs, the Indian crested porcupine, Hanuman langurs, and some other species feast on the nectar in its flowers.
 - material for the golden-crowned sparrow to weave nests.
- **Medicinal Uses:** Every part of the tree, from its roots to its bark and gum, holds medicinal properties valuable to both humans and animals.

Cultural Significance

- **Tribal Connections:** The semal tree holds a special place in the lives of local tribal communities, such as the Garasia and Bhil tribes, providing essential resources like food, fodder, and materials for crafting instruments and utensils.
 - Members of tribal communities consume the tree's reddish root for food during the monsoons.
- **Mythological Importance:** During the festival of Holi, the semal tree's branches are traditionally used as the central pillar for the Holika Dahan bonfire, symbolizing the victory of good over evil.

Threats and Conservation Challenges

- **Overexploitation:** Significant numbers of semal trees are cut annually for use in Holi celebrations, which has led to a drastic reduction in their population in southern Rajasthan.

- A paper reported that around 1,500-2,000 trees or branches of semal were cut, debarked, and ignited during Holi in the Udaipur district in that year.
- **Legal and Environmental Impact:** The unregulated cutting of these trees for commercial purposes violates multiple forest conservation laws and poses a severe threat to the local ecosystem.
 - The cutting violates a panoply of laws, from the Rajasthan Forest Act 1953 to the Forest (Conservation) Act 1980.

Conservation Efforts

- **Awareness and Education:** Initiatives like the 'Semal Conservation Mission' aim to educate the public about the importance of preserving this valuable species.
- **Government and Community Action:** Efforts are needed from both governmental bodies and local communities to enforce existing laws and promote sustainable practices that can help protect the semal tree.

5.14 FLAMINGOS

The Bombay Natural History Society (BNHS) recently conducted its last Flamingo Walk of this season.

About Flamingos

- **Feathered Marvels:** Flamingos are distinctive wading birds known for their vibrant pink plumage, stilt-like legs, and unique beak shape.
 - These birds belong to the **Phoenicopteridae family** and are found in various parts of the world, including India.
- **Indian Flamingo Species:** India is home to two species of flamingos:
 - The Greater Flamingo (*Phoenicopterus roseus*) and
 - The Lesser Flamingo (*Phoeniconaias minor*).

Migration Patterns:

- Flamingos are migratory birds, and their movements are primarily driven by the availability of suitable **feeding grounds and breeding sites**.
- In India, flamingos migrate from regions like the Rann of Kutch in Gujarat to wetlands in states like Rajasthan, Tamil Nadu, and Maharashtra.
- **Ecological Importance:** Flamingos play a crucial role in maintaining the balance of wetland ecosystems by feeding on algae, brine shrimp, and other aquatic organisms.
 - Their presence is an indicator of a healthy wetland environment and contributes to the overall biodiversity of the region.

Conservation Status

IUCN Status

- The Lesser Flamingo is classified as "**Near Threatened**".
- The Greater Flamingo has a "**Least Concern**" status.
- **Legal Protection:** In India, flamingos are protected under Schedule IV of the Wildlife Protection Act of 1972, which prohibits their hunting, capture, or trade.
- **Conservation Efforts:** Organizations like the Bombay Natural History Society (BNHS) work on wetland conservation, habitat restoration, and raising awareness about the importance of flamingos.
- **Bird Sanctuaries:** Several wetlands and bird sanctuaries, such as the Thol Lake Wildlife Sanctuary in Gujarat, have been established to conserve flamingo habitats.

Challenges

- **Habitat Loss:** The rapid urbanization and industrialization in India have led to the degradation and loss of wetland habitats, posing a significant threat to flamingo populations.

- **Disturbance and Poaching:** Despite legal protection, flamingos are still vulnerable to disturbance from human activities near their breeding and feeding grounds. Poaching for feathers, meat, and eggs also remains a concern in some areas.
- **Climate Change:** Rising sea levels and extreme weather events can alter wetland conditions, making them unsuitable for flamingo populations.
- **Other Challenges:** Activities like encroachment, water diversion, and pollution have a detrimental impact on these sensitive ecosystems.

Bombay Natural History Society (BNHS)

- **Formation:** Founded in 1883, the BNHS is India's premier wildlife research and conservation organization. They play a pivotal role in flamingo conservation.
- **Research and Advocacy:** BNHS conducts research on flamingo populations, migration patterns, and threats they face. They also advocate for wetland conservation policies.
- **Habitat Restoration:** BNHS works on restoring degraded wetlands and creating new ones, providing safe havens for flamingos and other wetland-dependent species.
- **Raising Awareness:** Through educational programs and events like the Flamingo Walk, BNHS raises public awareness about the importance of flamingos and wetland conservation.

Flamingo Walk by BNHS

- **Experiencing Nature:** The BNHS Flamingo Walk offers a unique opportunity for people to observe these magnificent birds in their natural habitat.
- **Guided Exploration:** Experts lead the walk, providing insights into flamingo behavior, ecology, and the challenges they face.
- **Connecting with Nature:** The walk fosters a connection with nature and inspires participants to become stewards of the environment.
- **Conservation in Action:** By participating in the Flamingo Walk, people contribute to conservation efforts by supporting BNHS's work.

Flamingo City

- **Location:** Rann of Kutch
- **Coined by:** Dr. Salim Ali, India's renowned ornithologist, coined the term "Flamingo City" for the breeding site where he counted half a million flamingoes.
- **Importance:** This site is critical for their survival and migration across the subcontinent.

5.15 NATIONAL GREEN TRIBUNAL

The NGT warned cricket associations to detail their water usage for ground maintenance and compliance with a 2021 order on groundwater extraction by May-end.

About NGT

- The NGT is a specialized judicial body in India established under the National Green Tribunal Act, 2010 has primary purpose of handling cases related to environmental issues and disputes.
- The NGT has jurisdiction over matters concerning the enforcement of environmental laws, conservation of natural resources, and the prevention and control of environmental pollution

Structure of NGT

- The Tribunal comprises of the Chairperson, the Judicial Members and Expert Members. They shall hold office for **term of five years** and are **not eligible for reappointment**.
- The Chairperson is appointed by the Central Government in consultation with Chief Justice of India (CJI).

- A Selection Committee shall be formed by central government to appoint the Judicial Members and Expert Members.
- There are to be least 10 and maximum 20 full time judicial members and Expert Members in the tribunal.

Power and Jurisdiction

- NGT has jurisdiction over all civil cases involving substantial questions relating to environment (including enforcement of any legal right relating to environment).
- Apart from original jurisdiction side on filing of an application, NGT also has appellate jurisdiction to hear appeal as a Court (Tribunal).
- **NGT is not bound by the procedure laid down under the Code of Civil Procedure 1908**, but shall be guided by principles of 'natural justice'.
- While passing any order/decision/ award, it shall apply the principles of sustainable development, the precautionary principle and the polluter pays principle.
- An appeal against order/decision/ award of the NGT lies to the Supreme Court, generally within ninety days from the date of communication.
- The NGT deals with civil cases under the seven laws related to the environment, these include: The Water (Prevention and Control of Pollution) Act, 1974, The Water (Prevention and Control of Pollution) Cess Act, 1977, The Forest (Conservation) Act, 1980, The Air (Prevention and Control of Pollution) Act, 1981, The Environment (Protection) Act, 1986, The Public Liability Insurance Act, 1991 and The Biological Diversity Act, 2002.

5.16 AIR QUALITY INDEX

Recently Delhi's quality touched 300 points, a very poor category due to highly unfavourable meteorological conditions.

About Air Quality Index (AQI)

- The Air Quality Index (AQI) is a standardized way of measuring and communicating **air pollution levels**.
- **How does it work:** It simplifies complex air quality data into a single number between **0 and 500**, allowing one to easily understand current air pollution levels.
- **Duration:** AQI works on a **24-hour average**.
- **Unit:** Its unit is micrograms per cubic meter.
- **Launch:** Under the **Swachh Bharat Abhiyan**, the National Air Quality Index was launched in **September 2014 in New Delhi** to measure India's air quality index.

Pollutants Tracked by AQI

- **Particulate Matter (PM_{2.5} and PM₁₀):** Fine particles suspended in the air.
- **Nitrogen Dioxide (NO₂):** Emitted from vehicles and industrial processes.
- **Sulfur Dioxide (SO₂):** Released from burning fossil fuels.
- **Ozone (O₃):** Formed due to chemical reactions in the atmosphere.

- **Carbon Monoxide (CO):** Produced by incomplete combustion.
- **Ammonia (NH₃):** Commonly from agricultural activities.

Air Quality Index Categories

- **Good (0–50)** - Minimal Impact
- **Satisfactory (51–100)** - May cause minor breathing difficulties in sensitive people.
- **Moderately polluted (101–200)** - May cause breathing difficulties in people with lung disease like asthma, and discomfort to people with heart disease, children and older adults.
- **Poor (201–300)** - May cause breathing difficulties in people on prolonged exposure, and discomfort to people with heart disease
- **Very Poor (301–400)** - May cause respiratory illness in people on prolonged exposure. Effect may be more pronounced in people with lung and heart diseases.
- **Severe (401–500)** - May cause respiratory issues in healthy people, and serious health issues in people with lung/heart disease. Difficulties may be experienced even during light physical activity.

Monitoring Agency

- In India, the **Central Pollution Control Board (CPCB)** monitors air quality across various cities.
- The CPCB provides real-time data and issues advisories based on AQI levels.

5.17 GREEN STEEL

India is considering the prospect of mandating procurement of green steel among auto-mobile companies.

About Green Steel

- Green steel refers to steel produced using renewable energy sources and innovative technologies that minimize carbon footprint.
- This contrasts with traditional methods that rely heavily on fossil fuels, leading to significant greenhouse gas emissions.

Manufacturing Process

- **Solar Park Scheme: Electric Arc Furnace (EAF) with Increased Scrap Usage:** EAFs rely on electricity to melt scrap steel, significantly reducing emissions compared to coal-based methods. India, with a large existing steel infrastructure, can leverage EAFs by increasing scrap usage.
- **Hydrogen-based Direct Reduction:** This method uses hydrogen (ideally green hydrogen produced from renewable sources) to extract iron from ore, eliminating carbon emissions entirely. While still in its early stages, it holds immense potential for the future.
- **Molten Oxide Electrolysis (MOE):** MOE uses electricity to reduce iron oxide to pure iron. By avoiding carbon-intensive processes, it contributes to lowering emissions.

Benefits of Green Steel

- **Reduced Carbon Footprint:** Green steel production significantly lowers greenhouse gas emissions, contributing to India's climate change goals.
- **Enhanced Brand Image:** Companies using green steel can showcase their commitment to sustainability, attracting environmentally conscious consumers.
- **Increased Exports:** Green steel is gaining traction globally, and Indian manufacturers can tap into this growing market.

Challenges

- **Higher Production Costs:** Green steel technologies are currently more expensive than traditional methods.
- **Renewable Energy Dependence:** Large-scale production of green steel necessitates a robust and reliable renewable energy infrastructure in India.
- **Policy and Infrastructure Support:** Government policies and infrastructure development are crucial for incentivizing green steel production and overcoming initial cost hurdles.

Recent Proposal

- Indian policymakers have proposed mandating a certain percentage of green steel usage in car manufacturing. This initiative could:
- **Drive Innovation:** The mandate could incentivize Indian steel companies to invest in green steel technologies.
- **Reduce Emissions:** Green cars would contribute significantly to lowering the automotive industry's carbon footprint.
- **Align with Global Trends:** This move would align India with the global shift towards sustainable transportation solutions.

European Car Market: A Case Study

- **Stringent Emission Regulations:** The European car market has strict emission regulations, pushing car manufacturers to explore green materials like steel.

- **Investments in Green Steel Production:** European steel companies are actively investing in green steel production facilities to meet the growing demand from carmakers.
- **Collaboration between Industries:** The European market is witnessing strong collaboration between car manufacturers and steel producers to develop and implement green steel solutions.

Way Forward

- **Government Support:** Government initiatives like subsidies and tax breaks can incentivize investments in green steel technologies.
- **Research and Development:** Fostering research and development in green hydrogen production and EAF technology is crucial for cost reduction.
- **Collaboration:** Collaboration between steel producers, automakers, and renewable energy companies can accelerate the green steel transition.
- **Phased Implementation:** Policymakers should consider step by step implementation of such reforms in order to let the manufacturers adjust to the new regime.

5.18 CLOUD-SEEDING

The Supreme Court recently told the Uttarakhand government that rain gods or cloud-seeding would not douse the forest fires that had claimed five lives in the State.

About Cloud-Seeding

- Cloud seeding is a **weather modification technique** that aims to increase rainfall by introducing substances into clouds.
- These substances, known as **cloud-seeding agents**, enhance the formation of ice crystals or water droplets within the clouds, leading to increased chances of rainfall or snowfall.

Mechanism of Cloud Seeding

- **Targeting the Right Clouds:** Cloud seeding works best with clouds containing supercooled water droplets (water droplets below freezing but remaining liquid).
- **Introducing Ice Nuclei:** **Silver iodide or dry ice** particles are dispersed into these clouds.
- **Enhancing Precipitation:** The introduced particles provide a surface for supercooled droplets to freeze, forming larger ice crystals. These heavier ice crystals collide with other droplets, growing larger and eventually falling as rain.

Benefits of Cloud Seeding for India

- **Combating Droughts:** By increasing rainfall, it can alleviate water scarcity in drought-prone regions.
- **Improved Water Management:** Increased rainfall can improve water tables and reservoir levels, leading to better water management for agriculture, hydropower generation, and domestic use.
- **Economic Benefits:** Droughts cause significant economic losses in India. Cloud seeding, if successful, can help mitigate these losses by ensuring better crop yields and water availability.
- **Hail Prevention:** By modifying cloud conditions, cloud seeding helps prevent hail damage to sensitive areas.

Challenges associated with Cloud Seeding

- **Limited Effectiveness:** The effectiveness of cloud seeding is still under debate. Success depends on various factors like cloud type, wind patterns, and atmospheric conditions.
- **Uncertain Impact:** It's challenging to isolate the impact of cloud seeding from natural rainfall patterns. More research is needed to determine its true effectiveness.
- **Environmental Concerns:** There are concerns about the potential unintended consequences of cloud seeding on weather patterns and ecosystems.

Examples of Cloud Seeding

- **Internationally:** Cloud seeding programs are operational in many countries, including the United States, China, and Israel.
 - These programs have shown mixed results, highlighting the ongoing debate about their effectiveness.
- **India:** The **Indian Meteorological Department (IMD)** has been conducting cloud-seeding operations in different parts of the country to enhance rainfall.
 - States like **Tamil Nadu, Karnataka, and Maharashtra** have undertaken cloud seeding initiatives during droughts.
 - The **Indian Institute of Tropical Meteorology (IITM)** has also been involved in cloud seeding research.

Way Forward

- **Continued Research:** Further research is crucial to assess the effectiveness of cloud seeding in the Indian context. This includes studying the impact on specific regions and cloud types.
- **Developing Protocols:** Based on research findings, India can develop standardized protocols for cloud seeding operations. This will ensure efficient implementation and data collection.
- **Public Awareness:** Raising public awareness about cloud seeding, its benefits, and limitations is essential. This will foster informed discussions and decision-making.

Indian meteorological Department (IMD)

- The Indian Meteorological Department (IMD) is an agency under the **Ministry of Earth Sciences** of the Government of India.
- **Formation:** Established in 1875, the IMD is the national weather service of India.
- **Objective:** The primary objective of the IMD is to provide meteorological observations, forecasts, and warnings for India.
- **Functions:**
 - Collects weather data from a vast network of observation stations across India and even Antarctica.
 - Analyzes weather patterns and issues weather forecasts for various timescales, from short-term to long-term.
 - Provides warnings for severe weather events like cyclones, heatwaves, and floods.
 - Conducts research in meteorology and seismology to improve forecasting accuracy.
- **HQ:** The IMD headquarters are located in **New Delhi**. It also has regional offices in Chennai, Mumbai, Kolkata, Nagpur, Guwahati, and New Delhi.

5.19 PESTICIDE RESIDUE LEVEL

Recently, the **Food Safety and Standards Authority of India (FSSAI)** allowed higher pesticide residue levels in herbs, spices from **0.01 mg/kg to 0.1 mg/kg** in certain cases.

FSSAI's Decision

- If pesticides are registered with the agriculture ministry but lack **Maximum Residue Limits (MRLs)** for spices in Indian regulations, they'll follow **global Codex Alimentarius Commission standards**, as per the order.
- This ensures consistent standards for pesticide residues on spices.
- An expert from the scientific advisory committee recommended the move and said that even **at higher 0.1 mg/Kg it is a trace amount** and unlikely to harm human health.
- Given inherent toxicity and environmental dispersion, strict oversight is vital for pesticide production, distribution, and use.

What is Pesticide Residual Level?

- Pesticide residue is defined by the World Health Organization as “any substance or mixture of substances in food for man or animals resulting from the use of a pesticide and includes any specified derivatives, such as

degradation and conversion products, metabolites, reaction products, and impurities that are considered to be of toxicological significance.”

Harmful Impacts of Pesticides

- **Older, cost-effective pesticides like DDT and lindane can persist in soil** and water for years, prompting bans by signatories of the 2001 Stockholm Convention.
- Insecticides are typically more toxic to humans than herbicides.
- **Large pesticide exposures can lead to acute poisoning or long-term health issues, including cancer and reproductive problems.**
- Pesticides contribute significantly to **self-poisoning fatalities**, particularly in low- and middle-income nations.

Codex Alimentarius Commission

- **The Codex Alimentarius Commission (commonly referred to as Codex)** is the body established to develop food standards under the Joint FAO/WHO Food Standards Programme has its headquarters in Rome.
- It coordinates input from almost 185 member countries to develop and endorse the standards that comprise the international food code.

Food Safety and Standards Authority of India (FSSAI)

Aspect	Details
Formation and Legal Basis	Formed under the Food Safety and Standards Act, 2006 , replacing earlier acts like the Prevention of Food Adulteration Act, 1954, Fruit Products Order, 1955, Meat Food Products Order, 1973.
Ministry	Operates under the Union Ministry of Health and Family Welfare.
Mandate	Regulates the manufacture, storage, distribution, sale, and import of food articles; establishes standards to ensure food safety.
Structure and Organization	Comprises 22 members including a Chairperson, with one-third of the members being women.
Functions	Setting Food Safety Standards: Power to lay down regulations and implement safety standards. Food Testing Accreditation: Guidelines for accrediting food testing labs. Inspecting Authority Powers: Officers can inspect any food-related premises. Food Safety Research: R&D in food safety standards, adopting international standards. Identifying Threats: Collect data on food consumption, contamination, and emerging risks.

5.20 SOLAR STORMS

A violent solar flare was observed recently serving as a grave reminder of the impact that solar storms can have on Earth.

About Solar Storms

- **Plasma Eruptions:** Solar storms are intense bursts of electromagnetic radiation and charged particles, primarily protons and electrons, emitted from the Sun's surface.
- **Flares & Coronal Mass Ejections (CMEs):** Two key components of solar storms are solar flares and CMEs.
 - **Solar Flares** - Sudden bursts of radiation.
 - **CME** - Massive clouds of charged particles.
- **Natural Phenomena:** They are natural phenomena that occur as part of the Sun's activity cycle, with increasing frequency during periods of maximum solar activity, which typically occurs every 11 years.

Sun's Atmosphere

- **Photosphere:** The photosphere is the visible surface of the Sun, where sunspots and other features can be observed.
- **Chromosphere:** The chromosphere is a thin layer above the photosphere, where solar flares often originate, and it appears as a reddish ring during total solar eclipses.
- **Corona:** The corona is the outermost layer of the Sun's atmosphere, extending millions of kilometers into space, and is where CMEs are formed and propagated.
- **Magnetic Field:** The Sun's magnetic field plays a crucial role in shaping and structuring the solar atmosphere, influencing the solar activity and the generation of solar storms.

Origin

- **Solar Cycle:** The Sun undergoes an 11-year cycle of activity, with periods of high and low solar storms.
- **Sunspots & Magnetic Fields:** Sunspots, cooler and darker regions on the Sun's surface, are linked to intense magnetic activity. These tangled magnetic fields can erupt, triggering solar storms.
- **Plasma & Charged Particles:** The Sun's outer atmosphere, the corona, is made of hot, ionized gas called plasma. Solar storms accelerate these charged particles towards Earth.

Aurora

- An **aurora** (also known as the **northern lights** or **southern lights**) is a natural light display in Earth's sky.
 - **Location:** It appears predominantly in high-latitude regions around the Arctic (aurora borealis) and Antarctic (aurora australis).
 - **Cause:** Auroras result from charged particles (solar wind) from the Sun colliding with Earth's atmosphere.
 - **Impact of Solar storms:** Intense solar storms enhance auroras by energizing air molecules in Earth's upper atmosphere.
- **Unpredictable Nature:** While scientists can monitor solar activity, predicting the exact intensity and trajectory of solar storms remains a challenge.

Impact of Solar storms

- **Power Grid Disruptions:** Powerful solar storms can induce currents in power grids, overloading transformers and causing widespread blackouts.
- **Communication Network Outages:** Satellites crucial for communication can be damaged by radiation from solar storms, disrupting internet and mobile connectivity.
- **GPS Navigation Errors:** The accuracy of GPS navigation systems can be compromised by geomagnetic storms, impacting air travel, disaster response, and other applications.
- **Increased Radiation Exposure:** Astronauts on missions and airline passengers in high-altitude flights may be exposed to harmful radiation during solar storms.

Challenges

- **Prediction and Monitoring:** Accurately predicting and monitoring solar storms remains a significant challenge due to the complex dynamics of the Sun's magnetic field and the associated phenomena.
- **Infrastructure Resilience:** Ensuring the resilience of critical infrastructures, such as power grids, communication systems, and space-based assets, against the effects of solar storms is a major challenge.
- **Astronaut Safety:** Protecting astronauts during space missions and ensuring their safety from the radiation and other hazards posed by solar storms is a key concern.
- **Economic Impact:** The potential economic impact of severe solar storms on various industries, including aviation, telecommunications, and energy sectors, can be significant and requires effective mitigation strategies.

Way Forward

- **Strengthening Power Grids:** Upgrading power grids with surge protection and redundancy can minimize damage from induced currents.
- **Satellite Shielding:** Developing satellites with better shielding against radiation can ensure communication continuity during solar storms.
- **Alternative Navigation Systems:** Exploring alternative navigation systems less reliant on GPS can provide backup options.
- **International Cooperation:** Continued international collaboration is vital for sharing data, developing mitigation strategies, and conducting joint research.

ISRO's Aditya L1 Mission

- **Mission Objective:** The Aditya-L1 mission will place a spacecraft at the first Lagrange point (L1), a point where the Sun's and Earth's gravitational forces balance out.
- **Uninterrupted View:** This vantage point provides an unobstructed view of the Sun, allowing for continuous monitoring of its activity.
- **Early Warning System:** Aditya-L1 will provide critical data for developing an early warning system for solar storms in India.
- **Technological Leap:** This mission will be a significant leap forward for India's space research and its ability to counter the threat of solar storms.

5.21 LIGDUS GARVALE

- **Ligdus garvale:** It is a newly discovered species in Kodagu district of spiders belonging to the genus *Ligdus*.
 - It has been named *Ligdus garvale* after the village where it was found.
 - *Ligdus garvale* represents just the second recorded occurrence of the *Ligdus* genus in 129 years.
- **Family:** It is part of the **Salticidae family**, commonly known as jumping spiders.
- **Size:** The Garvale jumping spider measures approximately 0.2 inches in length.
- **Features:** It has eight legs, eight eyes, and a body covered with fine pale hairs.



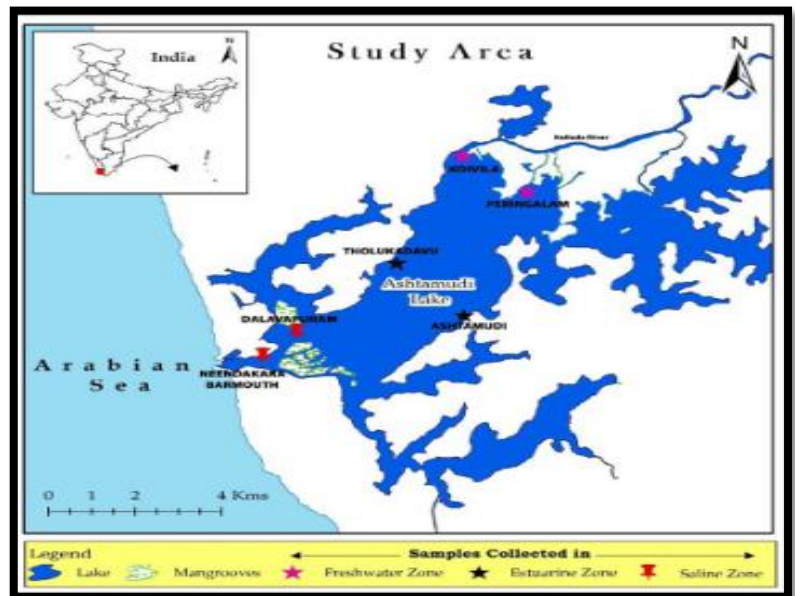
5.22 SEA OTTERS

- **Scientific name:** *Enhydra lutris*
- **IUCN Status:** Endangered
- **Class:** Mammal
- **Order:** Carnivore (have a diverse diet that includes sea urchins, crabs, clams, mussels, and fish).
- **Sea otters:** They are marine mammals known for their dense fur and playful behavior
- **Habitat:** North Pacific Ocean, particularly in the waters off Alaska, British Columbia, Washington, California, and Russia.
 - They **prefer coastal environments**, including rocky shores and kelp forests
 - They are diurnal, meaning they are active during the day and rest at night.
- They are known for their use of tools; sea otters will use rocks to break open hard-shelled prey.
 - **Other animals who use tools:** Chimpanzees, Dolphins and Galapagos Islands finch use cactus spines to dig grubs out of holes.

- **Reproduction:** Females reach sexual maturity at about four years of age, Gestation lasts about six months, including a period of delayed implantation, and usually results in the birth of a single pup.

5.23 ASHTAMUDI LAKE

- **Location:** Kollam District of the Indian state of Kerala.
- **Nature:** It is an estuary lake.
 - An estuary refers to a **coastal body of water** which is **partially enclosed by** having a river or a stream, or several of them flowing into an estuary while **at the same time having a free link to the ocean or the sea.**
- **Shape:** It is a large palm-shaped (octopus-shaped) unique wetland ecosystem.
- **Named "Ashtamudi":** Because it has eight branches or channels, which flow out from the lake.
- It was designated a **Ramsar Wetland** in **2002**.
- **River discharge:** Kallada River is a major river discharging into the Ashtamudi Lake.



5.24 INDIA METEOROLOGICAL DEPARTMENT ALERT COLOR CODE

The IMD has four color codes:

	NO SEVERE WEATHER EXPECTED Keep up to date with latest forecast
	BE AWARE Remain alert and keep up to date with latest forecast
	BE PREPARED Remain vigilant, keep up to date with latest forecast and take precautions where possible
	TAKE ACTION Remain extra vigilant, keep up to date with latest forecast. Follow orders and any advice given by authorities and be prepared for extraordinary measures

Terms:

- **Short range:** The Short-range forecast is forecast valid for a period up to 3 days.
- **Medium range:** The medium range forecast is valid for 3 to 10 days.

India Meteorological Department

Mandate

- **Establishment:** It was established in 1875.
- To take meteorological observations and to provide current and forecast meteorological information

- It is the National Meteorological Service of the country and the principal government agency in all matters relating to meteorology and allied subjects.
- **Nodal Ministry:** Ministry of Earth Sciences.
- **Headquarter:** Mausam Bhavan, Lodhi Road, New Delhi, India
- **There are 6 Regional Meteorological Centre:** Each under a Deputy Director General with headquarters at Mumbai, Chennai, New Delhi, Calcutta, Nagpur and Guwahati.
- It is also one of the six Regional Specialised Meteorological Centres of the World Meteorological Organisation
- for optimum operation of weather-sensitive activities like agriculture, irrigation, shipping, aviation, offshore oil explorations, etc.
- To warn against severe weather phenomena like tropical cyclones, norwesters, dust storms, heavy rains and snow, cold and heat waves, etc., which cause destruction of life and property.
- To provide meteorological statistics required for agriculture, water resource management, industries, oil exploration and other nation-building activities.
- To conduct and promote research in meteorology and allied disciplines.

5.25 EUCALYPTUS TREE

- The Kerala government issued an order allowing the Kerala Forest Development Corporation (KFDC) to plant eucalyptus trees.
 - **The KFDC was established on January 24, 1975**, as part of a **dynamic production forestry enterprise**.
- Environmentalists protested the decision saying the move would adversely affect forests and heighten human-animal conflicts in future.

About Eucalyptus tree

- Evergreen trees that are native to Australia.
- **Family:** Belong to the Myrtaceae family and are known for their rapid growth and distinctive aroma.
- **Features:**
 - **Eucalyptus leaves** are generally **long, narrow, and aromatic, containing oil glands**.
 - The flowers of the eucalyptus tree have **no petals**; instead, they have numerous fluffy stamens that may be white, cream, yellow, pink, or red.

Ecological Benefits:

- The water use of a Eucalyptus plantation has been found to be **785 liters/kg** of total biomass, which is **one of the lowest if compared** with tree species such as Acacia (1,323 litres/kg), **Dalbergia** (1,484 litres/kg) and agricultural crops such as **paddy rice (2,000 litres/kg)** and **cotton (3,200 litres/kg)**.
- Well-known for their adaptations to **fire-prone environments**. Many species have thick, **fire-resistant bark**.
- **Most eucalyptus species have a root depth of 1.5-2.0 metre** and its root system is more specifically adapted to **using rain-fed soil moisture**.
- **Essential Oils:** Extracted from the leaves, is used in pharmaceuticals, **antiseptics**, its oil is rich in an antiseptic called cineole.
- **Cineole kills bacteria** that cause bad breath, dental decay, and periodontitis.



5.26 L'HOEST'S MONKEY

- **Names:** It is also known as the mountain monkey.
- **Habitat:** It is a guenon found in the upper eastern Congo basin (mainly in eastern Democratic Republic of Congo (DRC), Burundi, Rwanda, and western Uganda)
 - They mostly live in **mountainous forest areas** in small, female-dominated groups.
 - They have a dark coat and can be **distinguished by a characteristic white beard**.
- **Lifespan:** In the wild, their lifespan is unknown, but in captivity one individual lived to be 24 years old.
- **Food:** Primarily an herbivore, which will mostly eat fruit, mushrooms, herbs, roots, and leaves. However, it will also occasionally eat eggs, lizards, and small birds.
- **Behavior:** Diurnal and most active in the early morning and the late afternoon.
- **Conservation status (IUCN): Vulnerable**



5.27 ORCA

- **Names:** The orca is also known as killer whale (the name was given by ancient sailors who saw them preying on large whales).
- **Class:** Mammalia
- **IUCN status:** Data Deficient
- **CITES:** Appendix II

Key Facts about ORCA:

- **Family:** Orcas are the largest member of the dolphin family.
- **Habitat:** They are found in diverse marine environments, from Arctic to Antarctic regions to tropical seas.
- **Size:** A male orca can be nearly ten meters in length and weigh 10,000kg.
- **Tooth:** It is a toothed whale that is the largest member of the oceanic dolphin family.
- **Ecotypes:** Different kinds of orcas are called "ecotypes". They hunt specific prey and live in different parts of the world.
- **Diet:** Diverse diet including a variety of fish, sharks, rays, and marine mammals such as seals.
- **Lifespan:** Female orcas are thought to live to 80 years of age or more.
- **Swimmers:** Orcas are extremely fast swimmers and have been recorded at speeds of up to 54 kph. A wild orca pod can cover over 160 kilometers a day, foraging and socializing.
- **Threats:** Hunted in some countries, such as Greenland.



5.28 IBERIAN LYNX

- The Iberian lynx population reached 2,021 individuals in 2023 in the Iberian Peninsula compared to 1,668 the previous year, according to the census carried out annually by the European Life Project for the conservation of this animal.
- This census was developed by the Lynx Connect project and is coordinated by the **Andalusian Junta**, bringing together several autonomous communities and Portugal.

Appearance

- The Iberian lynx is of medium size and is smaller than the similar Eurasian lynx, which also has a characteristically bobbed tail, a spotted coat, long legs, and a muscular body.
- Males are larger than females, both having prominent whiskers, a characteristic "beard" encircling their face

Geographical Distribution:

- Iberian lynxes used to be widespread throughout the south of France and the Iberian Peninsula.
- Today they reside in Andujár-Cardena and Doñana National Park in the Spanish autonomic region of Andalusia.



Habits:

- **Iberian lynxes are solitary and nocturnal**, with most activity around sunset, the time when prey is the most active.
- During winter, these lynxes may become diurnal for a period of time.

Food preference:

- Iberian Lynxes are carnivores and eat mainly small mammals, particularly rabbits, and birds.

Status

- **IUCN: Endangered**
- **CITES: Appendix I (CITES)**

6 SOCIETY AND SOCIAL JUSTICE

6.1 ORGAN DONATION AND TRANSPLANTATION IN INDIA

According to the Union Health Ministry, inadequate identification and certification of brain stem death cases are significantly limiting the rate of organ donations in India, despite the existence of many potential donors.

About Organ donation and transplantation

- Organ donation involves giving an organ or tissue to another person who needs a transplant.
- Transplantation is the medical procedure where the donated organ or tissue is surgically placed into the recipient's body.
- **Types of Organ Donation**
 - **Deceased Donation:** This occurs when organs are retrieved from a person who has been declared brain dead. It is the primary source of organs for transplantation in many countries, including India.
 - **Living Donation:** This involves a living person donating an organ or part of an organ, such as a kidney or a portion of the liver, to a recipient. Living donations can significantly increase the organ supply and often result in better outcomes for recipients.

Significance of Organ Donation & Transplantation

- **Saving Lives:** One donor can save up to eight lives through organ donation and enhance many more through tissue donation.
- **Improving Quality of Life:** Recipients often experience significant improvements in their health and quality of life, enabling them to return to normal activities.
- **Advancing Medical Knowledge:** Organ donation contributes to medical research, helping to advance knowledge and treatment options for various conditions.
- **Reducing Healthcare Costs:** Successful organ transplants can reduce the long-term healthcare costs associated with chronic organ failure, such as dialysis for kidney patients.
- **Emotional and Psychological Impact:** The act of donating organs can provide a sense of closure and solace to the donor's family, knowing that their loved one's organs have saved lives.

Current Status & statistics in India

- **Long Waitlist:** There's a vast gap between organ availability and the number of patients waiting for transplants. Over 5 lakh people in India need organ transplants, but only a few thousand donations happen annually.
- **Organ Transplants Performed:** According to the latest data from NOTTO, over 10,000 organ transplants, including kidney, liver, heart, and lung transplants, were performed in India in 2022.
- **Living vs Deceased Donors:** While both living and deceased donor programs exist, deceased donor programs are more prevalent. However, there's a need to increase awareness about living donor options for kidneys.
- **Regional Variations:** Organ donation rates vary significantly across states. Southern states tend to have higher rates compared to the north and east.
- **Leading States:** States like Tamil Nadu, Telangana, and Maharashtra have emerged as leaders in organ transplantation.
- **Kidney Transplants:** Kidney transplants account for the largest share of organ transplants in India, followed by liver and heart transplants.

Regulatory Framework

Challenges Related to Organ Donation

Myth and Misinformation

- **Transplantation of Human Organs and Tissues Act (THOTA):** This act, enacted in 1994, governs organ donation and transplantation in India and aims to regulate the removal, storage, and transplantation of human organs and tissues.
- **National Organ and Tissue Transplant Organization (NOTTO):** Established in 1994, NOTTO is a national-level organization responsible for promoting organ donation and coordinating organ procurement and distribution.
- **State-Level Organizations:** Each state in India has its own organ transplant organizations, such as the Organ Transplant Coordination Committees, which implement the THOTA and NOTTO guidelines at the state level.
- **Organ Donor Registries:** Several states have established organ donor registries to facilitate the process of organ donation and allocation.
- **Accreditation and Licensing:** Transplant centers and medical professionals involved in organ transplantation are required to obtain accreditation and licenses from the respective state and national authorities.
- **New Transplant Centers:** The government announced plans to establish new organ transplant centers in various states to improve access and address the growing demand for organ transplantation.
- **Cross-Border Organ Sharing:** In April 2023, India and Sri Lanka signed an agreement to facilitate cross-border organ sharing and transplantation between the two countries.

- **Deterrents:** Misconceptions about organ harvesting, bodily disfigurement, and religious prohibitions deter potential donors and their families from consenting to donations.
- **Cultural Resistance:** Cultural beliefs and traditions can hinder organ donation efforts, even though many major religions support the practice.

Lack of Awareness

- **Limited Knowledge:** A widespread lack of awareness about the benefits and process of organ donation significantly reduces the number of registered donors.
- **Professional Education Deficits:** Both the general public and healthcare professionals often lack sufficient information about organ donation, necessitating enhanced training programs.

Infrastructure and Resources

- **Healthcare System Limitations:** The healthcare system often lacks trained personnel and adequate facilities for organ procurement, preservation, and transplantation surgeries.
- **Resource Distribution:** There is an uneven distribution of transplant centers and resources across the country, with many rural and remote areas lacking access to transplantation services.

Organ Trafficking and Commercialization

- **Illegal Trade:** Despite regulatory efforts, illegal trade and commercialization of organs remain significant challenges, undermining public trust and exploiting vulnerable populations.
- **Regulatory Enforcement:** Stronger enforcement of existing laws and severe penalties for those involved in organ trafficking are necessary to curb these activities.

Poor Identification of Donors

- **Brain Death Certification:** The inadequate identification and certification of brain death cases significantly reduce the number of potential organ donors. Improved protocols and training for medical staff are required to enhance donor identification.

Shortage of Organs

- **High Demand, Low Supply:** The demand for organ transplants far exceeds the supply, leading to long waitlists and increased mortality rates among patients in need.

Affordability and Accessibility

- **High Costs:** The high cost of organ transplantation procedures and post-transplant care limits accessibility for many individuals, making it crucial to develop financial support systems to make transplants more affordable.
- **Economic Barriers:** Socioeconomic disparities further restrict access to transplantation services, necessitating policies to ensure equitable access regardless of financial status.

Follow-up and Post-Transplant Care

- **Long-term Care:** Ensuring proper follow-up care and adherence to post-transplant treatment regimens can be challenging, which is essential to prevent complications and graft rejection .

Policy and Regulation

- **Legal Frameworks:** While India has a robust legal framework, including the Transplantation of Human Organs & Transplantation Act (THOTA), enforcement and implementation at the ground level remain inconsistent.

Way Forward

Increase Public Awareness

- **Extensive Awareness Campaigns:** Implement nationwide campaigns using diverse media platforms such as television, radio, print, and social media to educate the public about the benefits of organ donation and address prevalent myths and misconceptions.
- **Community Engagement:** Collaborate with community leaders, religious figures, and influencers to promote positive attitudes towards organ donation and tackle cultural and religious barriers.

Strengthen Healthcare Infrastructure

- **Develop More Transplant Centres:** Invest in establishing more transplant centers across the country, particularly in under-served rural and remote areas, to ensure wider accessibility.
- **Improve Existing Facilities:** Upgrade current medical facilities with advanced equipment for organ retrieval, preservation, and transplantation. This includes enhancing ICU capabilities for identifying brain death cases.

Enhance Medical Training and Protocols

- **Training for Healthcare Professionals:** Provide comprehensive training for doctors, nurses, and other healthcare workers on organ donation procedures, brain death identification, and communication strategies with donor families.
- **Standardize Protocols:** Develop and implement standardized protocols for organ donation and transplantation across all hospitals to ensure consistency and efficiency in the process.

Implement Robust Regulatory Frameworks

- **Strict Enforcement of Laws:** Strengthen the enforcement of existing laws like THOTA to prevent illegal organ trade and ensure ethical practices in organ transplantation.
- **Establish Clear Guidelines:** Create clear, transparent guidelines for the allocation of organs to ensure fairness and build public trust in the system.

Promote Financial Accessibility

- **Subsidize Transplant Costs:** Develop financial support mechanisms, such as subsidies and insurance schemes, to make organ transplantation procedures affordable for individuals from all socioeconomic backgrounds.
- **Eliminate Registration Fees:** Remove any fees associated with registering as an organ donor or recipient to encourage participation and streamline the process.

Leverage Technology

- **Centralized Data Systems:** Develop integrated, nationwide databases for donor and recipient information to streamline the matching process and ensure efficient organ allocation.
- **Innovative Solutions:** Invest in research and development of new technologies and techniques for organ preservation and transplantation, including regenerative medicine and artificial organs.

Policy and Legislative Reforms

- **Mandatory Brain Death Declaration:** Mandate the declaration of brain death in all hospitals with intensive care units to increase the number of potential donors.
- **Uniform National Policies:** Implement a 'One Nation, One Policy' framework for organ donation and transplantation to eliminate disparities between different states.

6.2 UN GENDER ADVOCACY AWARD

Major Radhika Sen has been honored with the 2023 UN's Military Gender Advocate Award for her exceptional efforts in promoting gender equality and women's empowerment during her deployment.

About UN's Military Gender Advocate Award

- **Given By:** The United Nations Department of Peace Operations.
- **Given For:** Recognizing outstanding contributions of individual military peacekeepers in promoting gender equality and women's empowerment during UN peacekeeping missions.

Radhika Sen's Achievements in Congo

- **Fostering Community Engagement:** Major Sen led initiatives to build trust and cooperation between the peacekeeping force and local communities, particularly women and girls.
- **Empowering Women:** She played a key role in empowering women by organizing workshops on leadership skills, income generation, and protection from violence.
- **Promoting Education:** Major Sen's efforts also focused on increasing access to education for girls in the region.
- **Championing Women's Participation:** She actively encouraged women's participation in peacebuilding dialogues and decision-making processes.

History of UN's Military Gender Advocate Award

- **Established in 2016:** The award recognizes the growing importance of gender mainstreaming in UN peacekeeping operations.
- **First Recipient:** Major Aichatou Ousmane Issaka, a Nigerien officer who served the mission in Mali (MINUSMA) won the United Nations Military Gender Advocate of the Year Award 2016.
- **Indian Laureates:** India has had a strong presence with Major Suman Gawani (2019) and Major Radhika Sen (2023) being honoured.

Significance of the Award

- **A Beacon of Hope:** The award serves as a powerful symbol of the crucial role women peacekeepers play in conflict resolution and peacebuilding.
- **Inspiring Future Generations:** It inspires young women in India and around the world to consider careers in peacekeeping and gender advocacy.
- **Encouraging Gender Integration:** The award highlights the need for continued efforts to integrate gender perspectives into all aspects of UN peacekeeping operations.
- **Showcasing Indian Expertise:** Major Sen's recognition reinforces India's expertise and leadership in deploying gender-sensitive peacekeeping missions.

UN Peacekeeping Operations

- **Introduction:** UN peacekeeping is an essential instrument developed by the organisation to help countries torn by conflict create the conditions for lasting peace.
- **Multidimensional Focus:** Peacekeeping has evolved beyond just monitoring ceasefires. Today's missions protect civilians, support elections, promote human rights, and help rebuild war-torn societies.
- **Consent-Based Deployment:** UN peacekeepers can only be deployed with the consent of the parties involved in the conflict. This ensures cooperation and reduces the risk of becoming part of the fighting.
- **Composition:** Over 125 countries contribute troops, police, and civilian personnel.
- **Current Operations:** As of now, there are 11 peacekeeping operations led by the Department of Peace Operations.

Democratic Republic of Congo (DRC)

- **Introduction:** The Democratic Republic of Congo (DRC) is a vast country located in central Africa. It is the second-largest country in Africa by area and has a population of 105 million people.
- **Resource Rich:** The DRC has abundant natural resources, including minerals such as cobalt, copper, diamond, gold, and coltan.
- **Present Situation:**
 - **Political Instability:** The DRC has been grappling with political instability and violence for decades.
 - **Armed Conflicts and Insecurity:** The eastern regions of the DRC, particularly the provinces of North Kivu and Ituri, are plagued by armed conflicts involving various rebel groups, militia, and foreign forces.
 - **Humanitarian Crisis:** The ongoing conflicts, combined with poverty, lack of infrastructure, and disease outbreaks, have created a severe humanitarian crisis in the DRC.
 - **Economic Challenges:** Despite its mineral wealth, the DRC's economy remains fragile due to corruption, mismanagement, and lack of infrastructure.

6.3 NEP'S 4-YEAR DEGREE PLAN

The Karnataka government has abandoned the NEP's four-year degree plan and returned to the traditional three-year format.

About National Education Policy (NEP)

- The National Education Policy (NEP), introduced in 2020, aims to overhaul India's education system. Here's a breakdown of its key features-
 - **Holistic Education:** NEP emphasizes holistic development, integrating physical, intellectual, emotional, and social aspects of learning. Expect subjects like yoga and entrepreneurship alongside traditional academics.
 - **Multiple Entry/Exit Points:** NEP proposes a flexible learning structure with exit options after each year. Students can earn a certificate after Year 1, a diploma after Year 2, a degree after Year 3, and an honors degree after Year 4.
 - **Focus on Foundational Literacy & Numeracy:** NEP prioritizes strong foundational skills in reading, writing, and mathematics in early childhood education.
 - **Multilingualism:** NEP encourages multilingualism, with mother tongue or regional languages as the medium of instruction in primary education.

NEP's 4-year Degree Plan benefits:

- **Increased Flexibility:** The 4-year degree offered greater flexibility with a multi-disciplinary approach. Students could pursue a major with a minor in a different field, or opt for vocational training alongside their degree.
- **Enhanced Skill Development:** The additional year aimed to equip graduates with industry-relevant skills through internships and project-based learning.
- **Alignment with Global Standards:** A 4-year degree would bring India's education system closer to international norms, potentially facilitating student mobility for higher studies abroad.
- **Optional Implementation:** The 4-year degree was not mandatory. States could choose to implement it or stick with the existing 3-year degree structure.

Recent Developments in Karnataka

- **Karnataka Scraps the 4-Year degree Plan:** The Karnataka government, under a new administration, scrapped the 4-year degree plan.
- **Reverts to 3-Year Plan:** Karnataka has decided to revert from the recommended four-year degree programme to the traditional three-year degree programme.
- **Continuation for Existing Students:** The 3-year system applies to new admissions from 2024-25 onwards. Students already enrolled in the 4-year program can continue their studies under the existing structure.

Reasons for Scrapping the 4-year Degree Plan

- **Financial Burden:** The extended degree could potentially increase the financial burden on students and their families, especially those from underprivileged backgrounds.
- **Teacher Training:** Implementing the 4-year plan effectively required extensive teacher training for the new pedagogy and multi-disciplinary approach.
- **Curriculum Development:** Developing a well-rounded curriculum with industry-aligned skills and integrating vocational training needed careful planning and time.
- **Standardized Exams:** Integrating the 4-year system with existing standardized entrance exams for higher education needed to be addressed.

Way Forward

- **Balancing Duration:** Considering a flexible approach where students can choose between 3-year and 4-year programs.
- **Training and Development:** Equipping faculty members with the necessary skills and knowledge to effectively deliver the 4-year degree program requires extensive training and professional development initiatives.
- **Infrastructure Upgrades:** Implementing the 4-year degree plan will require significant infrastructure upgrades, including classrooms, laboratories, and other facilities.
- **Stakeholder Engagement:** Gaining acceptance and support from students and parents for the 4-year degree plan will be key.

6.4 KUDUMBASHREE PROGRAMME

Kudumbashree, Kerala's poverty eradication and women empowerment program, marks 26 years of impactful service.

About Kudumbashree Programme

- **Formation:** Kudumbashree is the poverty eradication and women empowerment programme implemented by the State Poverty Eradication Mission (SPEM) of the Government of Kerala in 1998.
- The name Kudumbashree in Malayalam language means '**prosperity of the family**'.
- Its formation was in the context of the devolution of powers to the Panchayat Raj Institutions (PRIs) in Kerala. Its democratic leadership, and support structures helped to empower women.
- It was recognized as the State Rural Livelihoods Mission (SRLM) under the National Rural Livelihoods Mission (NRLM) by the Ministry of Rural Development (MoRD), Government of India, in 2011.

Structural framework

- **Kudumbashree's three-tier structure comprises Neighbourhood Groups (NHGs), Area Development Societies (ADS), and Community Development Societies (CDS),** fostering decentralized governance and grassroots participation.

Some of the initiatives under the Kudumbashree

- **Micro Enterprise promotion and development among women,**
- **Collective farming** in which women are aggregated by forming small farming groups of 4-5 members,
- **Marketing intervention,**
- **Community Kitchen** for nutrition enhancement,
- **Solid Waste Management** through Haritha Karma Sena led by women

6.5 VIRTUAL TOUCH

The Delhi High Court has recently said that besides educating minors about good and bad touch, schools, colleges and other stakeholders should also teach them about the dangers of 'virtual touch'.

About Virtual Touch

- **Good Touch:** Good Touch refers to forms of physical contact that are appropriate, consensual, and respectful, such as hugs, high-fives, or handshakes. These types of touch are generally considered acceptable and non-threatening.
- **Bad Touch:** Bad Touch refers to any form of physical contact that is inappropriate, non-consensual, or violates personal boundaries. This can include sexual abuse, molestation, or any unwanted physical contact of a sexual nature.
- **Virtual Touch:** It refers to **online interactions** that can make a person feel violated or unsafe, even though there's no physical contact. This can include sexually suggestive messages, graphic content, or online harassment.

Components of Virtual Touch Education

- **Appropriate Online Behavior:** Teaching minors how to behave responsibly online, including respecting others' boundaries and avoiding harmful interactions.
- **Recognizing Warning Signs:** Helping minors identify predatory behavior, scams, and potential dangers online.
- **Privacy Settings and Boundaries:** Educating them about the importance of privacy settings and setting healthy boundaries.
- **Critical Thinking Skills:** Encouraging critical thinking to assess the credibility of online contacts and safeguard personal information.
- **Court's Emphasis:** The Delhi High Court emphasized the need for **educational programs, workshops, and conferences** that cover not only traditional concepts of good and bad touch but also the emerging concept of virtual touch and its potential dangers.

Need of Educating Minors about Virtual Touch

- **Cyber Threats:** Minors are increasingly exposed to online platforms, where risks include cyberbullying, online harassment, and exploitation.
- **Empowerment:** Educating minors about virtual touch empowers them to make informed decisions, protect their privacy, and stay safe online.

Government Laws on Protection of Minors

- **POCSO Act 2012:** The Protection of Children from Sexual Offences Act, which addresses sexual offenses against minors.
- **The Information Technology Act, 2000:** It deals with cybercrimes and online safety.
- **The Indian Penal Code (IPC)** provisions related to obscenity and sexual offenses

Protection of Children from Sexual Offences Act (POCSO ACT)

- **POCSO Act 2012:** The POCSO Act, 2012 is a comprehensive legal framework designed to protect children from sexual offenses.
- **Definition of Child:** Anyone under 18 years of age is considered a child under POCSO.
- **Gender Neutral:** Both boys and girls can be victims and offenders under the Act.
- **Offences Covered:** POCSO defines various sexual offences with varying degrees of severity, including penetrative sexual assault, sexual harassment, and pornography involving a child.
- **Special Courts:** The Act mandates setting up Special Courts for faster trial of POCSO cases.
- **Punishments:** POCSO prescribes stringent punishments for offenders, with terms ranging from a few years to life imprisonment depending on the severity of the offense.
- **Victim Protection:** The Act prioritizes the well-being of the victim. It ensures sensitive handling of cases, including provisions for witness protection and victim compensation.
- **Special Procedures:** POCSO outlines procedures for reporting offenses, recording evidence, and conducting investigations that are child-friendly and minimize trauma for the victim.

6.6 INTERNATIONAL WORKERS DAY

Recently International Workers Day was celebrated all across the world.

- **Date:** International Workers' Day, commonly referred to as **May Day or International Labour day**, is celebrated annually on May 1st.
- **Global Observance:** May Day is observed in more than 80 countries, including India, Cuba, China, and others. In most countries, May Day is a national holiday.
- **Promotes workers' rights and opportunities for fair treatment** and safe working conditions.
- **Theme of 2024:** To ensure workplace safety and health amidst climate change.

Origin

- On **May 1st, 1886**, labor unions in the United States initiated a strike advocating for an eight-hour workday. This event marked a pivotal moment in labor history.
- **Chicago protests:** Unfortunately, the strike led to tragic events on **May 4th, 1886**, at **Chicago's Haymarket Square**. A peaceful rally turned violent when a bomb exploded, resulting in casualties among civilians and police officers.
- **Second International:** Inspired by the Chicago protests, the **Second International, a socialist organization**, declared May 1st as International Labour Day in **1889**.

India's Experience

- **First Celebration:** In **1923**, India witnessed its first May Day celebrations in **Chennai**, organized by the **Labour Kisan Party of Hindustan** led by Comrade **Singaravelar**

International Labour Organisation (ILO)

- **ILO (International Labour Organization):** UN agency promoting social justice & decent work.
- **Formation:** Founded under the **League of Nations in 1919**.
- Became the **first specialized UN agency in 1946**.
- **Objective:** Fair treatment, safe working conditions, & rights for all workers.
- **Members:** 187 members.
- It is the only **tripartite U.N. agency** that brings together governments, worker & employer representatives.
- **HQ:** Geneva, Switzerland.

6.7 WORLD MIGRATION REPORT 2024

- **Released By:** The International Organisation for Migration (IOM).
 - **Since 2000**, IOM has been producing its **flagship world migration reports every two years**.
 - The World Migration Report has been produced in line with **IOM's Environment Policy and is available online only**.
- **Finding of the report:** In 2022, **India, Mexico, China, the Philippines and France** were the top five remittance recipient countries.
 - **India received over USD 111 billion in remittances in 2022**, the largest in the world, becoming the **first country to reach and even surpass the USD 100 billion mark**.
 - Mexico was the second-largest remittance recipient in 2022, a position it also held in 2021 after overtaking China.
 - India, Pakistan and Bangladesh, rank among the **top ten recipients of international remittances in the world**.
 - Pakistan and Bangladesh were the **sixth and eighth largest international remittance recipients in 2022**, receiving nearly USD 30 billion and USD 21.5 billion respectively.
 - **A large number of migrant workers from the sub region**, Southern Asia receives some of the largest inflows of remittances globally.
 - The Gulf States remain **significant destinations for migrant workers** from around the world

- The report added that nearly 18 million or 1.3 per cent of the total population, **India is also the origin of the largest number of international migrants** in the world
- **India came in 13th as the destination country for immigrants**, with 4.48 million
- India – United Arab Emirates, India – US, India – Saudi Arabia and Bangladesh – India were among the top 10 international country-to-country migration corridors

7 SECURITY

7.1 PROJECT 75I AND NAVY'S UNDERWATER PLANS

The Indian Navy's mega submarine deal under Project-75I, estimated to cost upwards of ₹43,000 crore, has moved to the evaluation stage with compliance checks of the two bids received.

About Project 75I

- **Objective:** To procure six conventionally powered (diesel-electric) attack submarines (SSK) for the Indian Navy.
- **Make in India Initiative:** Submarines will be built at selected Indian shipyards, Mazagon Dock Limited (MDL) and Larsen & Toubro (L&T), incorporating technology transfer.
- **Indigenous Content:** The Request for Proposal (RFP) mandates 45% indigenous content for the first submarine, increasing to 60% by the sixth.
- **Capabilities:** These submarines will include:
 - Anti-surface warfare
 - Land-attack capabilities
 - Air-independent propulsion (AIP)

Bidding Contenders:

- **Navantia Spain:** Offering the S-80 Plus submarine, partnered with L&T Shipbuilding.
- **German ThyssenKrupp Marine Systems (TKMS):** Offering the Type 214 submarine, with some reports suggesting the Type 218, partnered with MDL.

Selected Indian Shipyards:

- Larsen & Toubro Shipbuilding
- Mazagon Dock Shipbuilders Limited

Navy's underwater plans

- To counter regional threats, particularly from China, the Indian Navy has a comprehensive modernisation plan for its underwater fleet.

Key Projects:

- **Project 75 Alpha:**

Challenges in India's submarine capabilities:

- **Fleet Size:** The Indian Navy operates 16 submarines compared to China's 56, requiring at least 24 for effective regional control.
- **Ageing Fleet:** The German Shishumar and Russian Sindhughosh classes, over 30 years old, are technologically outdated.

- **Goal:** Procure six new nuclear-powered attack submarines (SSN).
- **Design and Build:** By the Directorate of Naval Design, built at the Shipbuilding Centre in Visakhapatnam.
- **S5 Class (SSBN):**
 - **Description:** Nuclear-powered ballistic missile submarines under development.
 - **Specifications:** Expected to be twice as large as the Arihant-class, with production starting by 2027.
 - **Capabilities:** Armed with twelve to sixteen K6 SLBMs with multiple independently targetable reentry vehicles (MIRVs).
- **Chakra III (Akula Class):**
 - **Agreement:** A \$3 billion deal with Russia for leasing another Akula-class nuclear-powered attack submarine.
 - **Timeline:** Expected delivery by 2025, serving as a stopgap before the Project 75 Alpha SSNs are operational.
- **Project-76 Class:**
 - **Description:** First fully indigenous conventional diesel-electric submarines with AIP.
 - **Status:** Design phase ongoing.
- **Midget Submarines:**
 - **Construction:** Two 150-tonne midget submarines to be built by Hindustan Shipyard Limited for ₹2,000 crore.
 - **Purpose:** Used by MARCOS for special operations.

- **Budgetary Constraints:** Financial limitations and project delays impede modernisation efforts.
- **Lack of SSNs:** The Indian Navy does not currently operate nuclear-powered attack submarines (SSNs); INS Chakra returned to Russia in 2021.
- **AIP Systems:** No submarines in the fleet are equipped with AIP, which extends underwater endurance. DRDO's AIP system faced certification issues and was not implemented in the Scorpene-class.
- **Operational Availability:** Frequent maintenance and overhauls of ageing submarines reduce operational availability and readiness.
- **Technological Advancements:** The pace of technological advancements in submarine warfare, including stealth and weapon systems, outstrips current capabilities.
- **Training and Manpower:** Insufficient training infrastructure and skilled personnel to operate and maintain advanced submarine systems.
- **Strategic Coordination:** Need for better integration and coordination between naval strategy and broader national security objectives, particularly in joint operations with other branches of the armed forces.
- **Supply Chain Issues:** Dependence on foreign suppliers for critical components can cause delays and vulnerabilities, emphasizing the need for robust domestic supply chains.
- **Cybersecurity Threats:** Increasing cybersecurity threats to naval assets require enhanced defensive measures to protect sensitive submarine systems and data.

Significance of Submarine:

- **Nuclear Triad:** Submarines form a critical component of the nuclear triad, providing a three-pronged military force structure (land-launched missiles, nuclear submarines, strategic aircraft).
- **Second Strike Capability:** Ensures retaliatory nuclear capability post-attack, crucial for deterrence.
- **Area Denial:** Prevents enemy reconnaissance and blocks naval formations, denying entry to large assets like aircraft carriers.
- **Control over Maritime Areas:** Enables dominance through surprise missile attacks, known as area dominance.
- **ISR Capabilities:** Submarines provide Intelligence, Surveillance, and Reconnaissance through silent, sustained underwater operations.
- **Projection of Naval Power:** Enhances India's regional influence, deterring adversaries and protecting national interests.
- **Asymmetric Warfare:** Submarines can engage in asymmetric warfare, disrupting enemy supply lines and creating strategic uncertainty.
- **Economic Security:** Protects maritime trade routes, ensuring economic security by preventing blockades and piracy.
- **Psychological Impact:** The mere presence of submarines in a region can have a significant psychological impact on adversaries, acting as a powerful deterrent.
- **Technological Edge:** Submarines equipped with advanced technology demonstrate a country's technological capabilities and innovation in defence.
- **Sovereignty and Influence:** Strengthens national sovereignty by asserting control over maritime territories and projecting influence in international waters.

Way Forward:

- **Submarine vs. Aircraft Carrier Debate:** Recognise distinct roles—submarines for stealth and surprise, carriers for force projection. Balance investment in both platforms.
- **Avoid Overruns:** Implement robust project management to prevent time and cost overruns, ensuring timely and budget-compliant delivery.
- **Enhanced Training:** Invest in training facilities and programmes to develop skilled personnel for submarine operations.

- **Domestic Production:** Strengthen domestic manufacturing capabilities to reduce reliance on foreign suppliers and enhance supply chain resilience.
- **Technological Upgrades:** Continuously upgrade submarine technology to keep pace with advancements in stealth, propulsion, and weaponry.
- **Strategic Integration:** Improve coordination between naval and broader defence strategies to enhance operational effectiveness and joint capabilities.
- **Cybersecurity Measures:** Implement stringent cybersecurity protocols to safeguard submarine systems against digital threats.

7.2 INDIAN DEFENCE UNIVERSITY

The changing nature of wars in the modern context has once again sparked the debate on immediate implementation of the plan to set up an Indian Defence University.

Concept of Indian Defence University (IDU)

- **Vision** - The IDU is envisioned as a teaching and affiliating university focused on defence-related education and research.
- **Objective** - It aims to develop competencies in National Security Studies, Defence Management, Defence Technology, and other allied areas.
- **Think Tank**- By serving as a think tank, the IDU will contribute to policy formulation and strategic thinking

Need of IDU

- **Modern Warfare:** The nature of warfare has evolved, demanding officers with expertise beyond traditional combat skills, as seen in the increasing use of cyber warfare and drones.
- **Strategic Planning:** A centralised university can nurture strategic thinkers who understand complex geopolitical landscapes, similar to the role played by institutions like the Royal College of Defence Studies in the UK.
- **Technological Integration:** The IDU can bridge the gap between military strategy and technological advancements in warfare, akin to the integration seen in Israel's IDF.
- **Global Outlook:** Interaction with international military institutions through the IDU can broaden perspectives and enhance global cooperation.

Committees Related to IDU Formation

- **Early Proposals (1967):** Initially proposed by the Chiefs of Staff Committee.
- **Kargil Review (1999):** Kargil conflict underscored the need for improved inter-service coordination.
- **Subrahmanyam Committee (2010):** Recommended establishing the IDU.
- **Naresh Chandra Committee (2012):** Reiterated the need for the IDU and proposed a detailed roadmap.
- **Shekatkar Committee (2016):** Emphasised urgency and professional competence enhancement

Present Status

- As of now, there is no functioning Indian Defence University.
- **Cause of Delay:** The establishment of the IDU has faced significant delays due to various factors, including bureaucratic hurdles, lack of consensus among stakeholders, and resource allocation challenges
- **Defence Universities in Pakistan:** Pakistan has already established two universities for its armed forces which offer various programs in defence and strategic studies.
- **Defence Universities in China:** China has more than 60 well-established defence universities, such as the National Defence University and the National University of Defence Technology, which provide advanced education and research in military sciences.

Benefits of IDU

- **Holistic Education:** Combines military training with social sciences, technology, and strategic studies (e.g., National Defence University in the USA).
- **Joint Training:** Promotes inter-service coordination and understanding (e.g., Joint Services Command and Staff College in the UK).
- **Military Innovation:** Hub for research and development in military strategies and technologies (e.g., National University of Defence Technology in China).
- **Policy Formulation:** Contributes to national security policy and strategy development (e.g., RAND Corporation's impact on US policy).
- **Leadership Development:** Prepares future military leaders with advanced education and training (e.g., Harvard Kennedy School's influence on leadership skills).
- **International Cooperation:** Facilitates military diplomacy and cooperation through international partnerships and exchanges (e.g., NATO Defence College fostering international military cooperation).
- **Enhanced Defence Capabilities:** Improves overall defence capabilities through integrated and specialised training (e.g., UK's Defence Academy's impact on operational readiness).
- **Civil-Military Relations:** Strengthens civil-military relations by fostering mutual understanding and collaboration (e.g., USA's National War College promoting civil-military integration).

Challenges

- **Resource Allocation:** Securing adequate funding and resources for establishing and running the IDU will be crucial.
- **Faculty Development:** Building a qualified faculty with expertise in both military and academic domains is essential.
- **Curriculum Design:** Developing a comprehensive curriculum that balances theoretical knowledge with practical military training requires careful planning.
- **Inter-Service Integration:** Overcoming potential resistance from individual services to integrate training and resources will be necessary.

Way Forward

- **Political Prioritisation:** Strong political will and commitment are essential to expedite the establishment of the IDU.
- **Inter-Service Cooperation:** The armed forces must collaborate and break down service silos to ensure the IDU's success.
- **Global Benchmarking:** Learning from established Defence Universities abroad can help create a world-class institution in India.
- **Long-Term Vision:** The IDU should be envisioned as a long-term project that continuously evolves to meet the future needs of the Indian military.
- **Resource Allocation:** Secure sustained funding through public-private partnerships, international collaborations, and government allocations.
- **Policy Influence:** Position the IDU as a key contributor to national security policy and strategy development.

7.3 PIRACY IN INDIAN OCEAN

In light of escalating safety apprehensions among Indian seafarers subsequent to the recent assaults on merchant vessels traversing critical maritime zones like the Red Sea and the Strait of Hormuz, India presented three documents during the 111th Session of the International Maritime Organization's (IMO) Legal Committee.

What is Piracy?

- Piracy is an act of robbery or criminal violence by ship or boat-borne attackers upon another ship or a coastal area.

Historical Context

- **Ancient Times:** Notable incidents of piracy trace back to ancient times, with infamous pirates such as Henry Every and Blackbeard.
- **Colonial Era:** European colonial powers' competition for trade routes led to clashes with local maritime communities, fostering piracy as a means of resistance and opportunism.
- **20th Century:** Despite the decline of colonial empires, piracy persisted and evolved into a transnational criminal enterprise.

Significance of the Indian Ocean for Global Trade and Maritime Activities

- **Strategic Importance:**
 - Connects major economies of Asia, Africa, the Middle East, and Europe.
 - Hosts crucial maritime chokepoints like the Strait of Hormuz, Bab el-Mandeb, and Malacca Strait.
- **Facilitates Global Trade:**
 - Enables transportation of goods, energy resources, and raw materials.
 - Handles a significant portion of global trade traffic.

Recent Piracy Incidents in the Indian Ocean

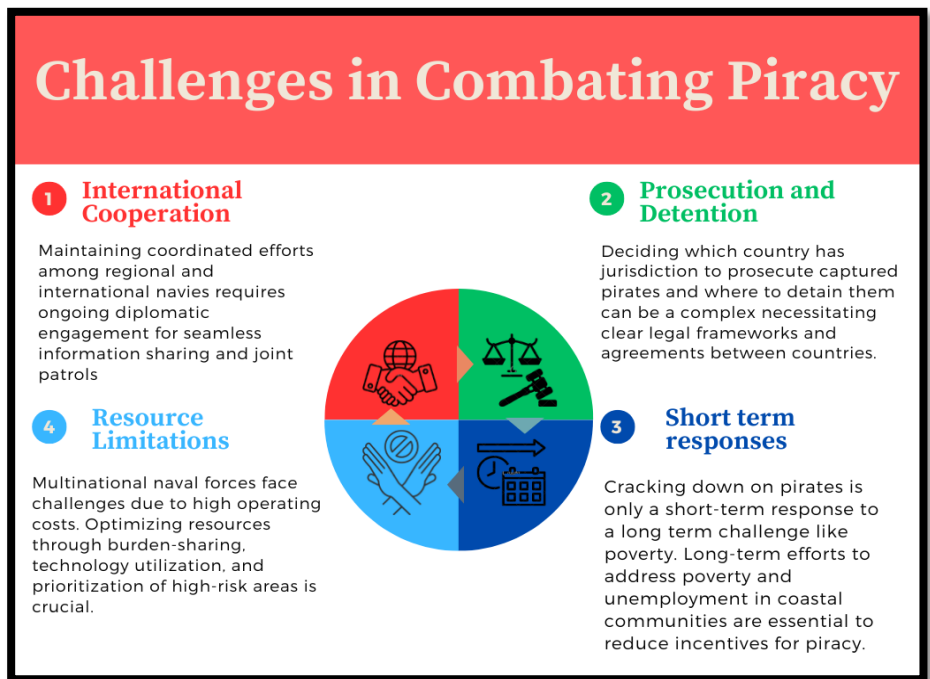
- **MV Islander Hijacking (2024):** In February 2024, the Palau-flagged vessel MV Islander caught fire after a suspected drone attack in the Gulf of Aden.
 - The **Indian Navy conducted a 40-hour rescue operation** to secure the vessel and its crew from Somali pirates.
- **Handymax Bulk Carrier Boarding (2023):** In 2023, a Handymax bulk carrier was boarded and **hijacked by Somali-based pirates** about 700 nautical miles east of **Bosaso in Somalia**.
- **Liberian-flagged Bulk Carrier Attacks:** In 2024 pirates attacked the Liberian-flagged bulk carrier **Lila Norfolk**.
- **Rise in Piracy Incidents:** In 2023, piracy and armed robbery in the Indian Ocean Region (IOR) witnessed a **20% jump**, with 194 incidents recorded compared to 161 in 2022.

Factors driving Piracy

- **Poverty and Unemployment:** Widespread poverty in Somalia drives unemployed individuals to piracy for survival. For instance, the collapse of the central government in the 1990s contributed to lawlessness, fostering pirate groups along the Somali coast.
- **Weak Governance and Political Instability:** In the Gulf of Guinea, weak governance and political instability in Nigeria and Cameroon fuel piracy. This is evident in the corruption, inadequate law enforcement, and presence of armed groups exacerbating maritime insecurity.
- **Maritime Disputes and Territorial Conflicts:** Territorial disputes between India and Sri Lanka over fishing rights in the Palk Strait occasionally lead to piracy incidents. The lack of resolution perpetuates maritime insecurity, enabling pirate exploitation.
- **Geographical Factors:** The Malacca Strait's congested lanes and Indonesia's archipelago provide hiding spots for pirates. Consequently, porous coastlines and inadequate surveillance allow pirates to operate with impunity.
- **High Value Cargo and Shipping Routes:** The hijacking of MV Faina off Somalia in 2008 underscores the vulnerability of high-value cargo. Notably, ransom demands for its release highlight piracy's lucrative nature.
- **Armed Conflict and Militancy:** Yemen's civil war and armed militias create a volatile environment conducive to piracy. For example, the Houthi insurgency in the Red Sea region leads to sporadic attacks on vessels.
- **Technological Advancements and Globalization:** Pirates' use of GPS and satellite communications enhances precision targeting. Moreover, globalization facilitates the movement of illicit goods, increasing incentives for piracy.
- **Ransom Payments and Criminal Networks:** The hijacking of MV Maersk Alabama in 2009 highlights the profitability of piracy. Consequently, criminal networks facilitate ransom negotiations, perpetuating the piracy cycle.

National Measures to Stop Piracy

- **Increased Naval Presence:** India has deployed warships and maritime patrol aircraft to strengthen surveillance and deterrence in the piracy-prone areas, such as the Gulf of Aden, Arabian Sea, and Bay of Bengal.
- **Participation in Multinational efforts:** India actively participates in information sharing initiatives with regional and international partners to track pirate activity such as the **Combined Task Force 150 (CTF 150)** and the **Combined Task Force 151 (CTF 151)**, which are dedicated to counter-piracy operations in the region.
- **Capacity Building:** India assists other littoral states in developing their maritime security capabilities through provision of equipment, technology transfers, and training programs for naval personnel, coast guard units, and law enforcement agencies in neighbouring countries.
- **Anti-Maritime Piracy Bill:** In December 2022, India's Parliament passed the Anti-Maritime Piracy Bill, enabling authorities to take action against piracy on the high seas following the spirit of *SUA Convention*.
- **Regional cooperation:** Through platforms such as the **Indian Ocean Naval Symposium (IONS)** and bilateral agreements with neighbouring countries, India collaborates on intelligence sharing, joint exercises, and coordinated patrols to combat piracy and other maritime threats.



International Measures

- **United Nations Convention on the Law of the Sea (UNCLOS):**
 - UNCLOS, adopted in 1982, is a comprehensive framework governing the rights and responsibilities of states in the world's oceans.
 - Part VII of UNCLOS specifically addresses maritime piracy, outlining the legal definition of piracy, the jurisdictional rights of states to combat piracy, and the obligations of states to cooperate in suppressing piracy.
- **International Maritime Organization (IMO) Conventions:** The IMO has adopted several conventions and protocols aimed at combating piracy and enhancing maritime security:
 - **International Ship and Port Facility Security (ISPS) Code:** The ISPS Code, implemented in 2004, establishes standards for the security of ships and port facilities to prevent acts of terrorism and piracy.
 - **SUA Convention:** The Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation, adopted in 1988 and amended in 2005, addresses acts of piracy, terrorism, and other unlawful activities against maritime navigation.
 - **STCW Convention:** The International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers, adopted in 1978 and amended in 2010, sets minimum standards for the training and certification of seafarers, including measures to enhance maritime security awareness.
- **UN Security Council Resolutions:**
 - The UN Security Council has issued several resolutions addressing piracy off the coast of Somalia and in the Gulf of Guinea. These resolutions authorize international naval operations, sanctions regimes, and legal frameworks to combat piracy and related maritime crimes.

- Examples include UNSC Resolutions 1816 (2008), 1846 (2008), 1851 (2008), and 2056 (2012), which authorize naval patrols, prosecution of pirates, and regional capacity-building efforts.
- **Regional Agreements and Initiatives:** Regional organizations and agreements play a crucial role in addressing piracy in specific maritime regions:
 - The Djibouti Code of Conduct, adopted in 2009, is a regional agreement among **East African and Indian Ocean states** to enhance maritime security, including measures to combat piracy and armed robbery against ships.
 - The **Yaoundé Code of Conduct**, adopted in 2013, is a similar regional agreement among Central and West African states to enhance maritime security in the Gulf of Guinea region.
- **Organizations like the Regional Cooperation Agreement on Combating Piracy and Armed Robbery at Sea in Asia (RECAAP)** foster collaboration among Indian Ocean states
- **The Combined Maritime Forces (CMF):** A multinational coalition of navies. It patrols key shipping lanes to deter and respond to piracy.
- **Piracy Prosecution Model:** It is a legal framework developed by the United Nations Office on Drugs and Crime (UNODC).
 - It facilitates the prosecution of suspected pirates captured at sea by allowing **prosecuting states to handle cases domestically**, ensuring accountability and cooperation among regional states.

Way Forward

- **Strengthening International Cooperation:** This could involve sharing intelligence, conducting joint naval patrols, and collaborating on legal prosecution of pirates. Countries could work together under the framework of international law to ensure that pirates are brought to justice.
- **Enhancing Maritime Security:** Measures such as increasing naval presence in piracy-prone areas, utilizing advanced technology for surveillance, and implementing on board security measures on ships can be effective.
- **Addressing Root Causes:** Tackling the root causes of piracy, like **poverty, unemployment, and political** instability in coastal regions, is also crucial. Investment in the economic development of these regions, provision of alternative livelihoods for potential pirates, and strengthening governance structures can help in this regard.
- **Raising Awareness and Building Capacity:** Education and awareness campaigns, along with training on maritime law and security, can be instrumental in achieving this.

International Maritime Organization (IMO)

- It is a United Nations' specialized agency.
- **Formation:** The IMO was established following an agreement at a UN conference held in Geneva in 1948
- **Headquarters:** The IMO is headquartered in London, United Kingdom.
- **Objective:** The primary purpose of the IMO is to develop and maintain a comprehensive regulatory framework for shipping.
- **Member States:** As of 2024, the IMO has 176 Member States and three Associate Members.
 - India is a **member** of IMO.

United Nations Office on Drugs and Crime (UNODC)

- **Formation: 1997.**
- **Headquarters:** The UNODC is headquartered in Vienna, Austria.
- **Purpose:** The primary purpose of the UNODC is to make the world safer from drugs, organized crime, corruption, and terrorism.
- **Member States:** As of 2024, the UNODC has 176 Member States and three Associate Members.
 - India is a **member** of UNODC.

7.4 DIGITAL ARREST

Following increasing reports of “digital arrests” by cybercriminals posing as law enforcement officers, the central government has collaborated with **Microsoft to block more than 1,000 Skype IDs** used for online intimidation, blackmail, and extortion.

About Digital Arrest

- **'Digital arrest':** It refers to a form of cybercrime where criminals pose as law enforcement officers to intimidate, blackmail, or extort victims.
 - These cybercriminals typically call potential victims, claiming they are involved with illegal goods, drugs, fake passports, or other contraband items.

Common Tactics Used by Cybercriminals

- **Phone Calls, Use of Fake Identities:** Cybercriminals call victims, alleging involvement in illegal activities and demanding money for a 'compromise' and closure of the case.
- **Targeting Relatives and Friends:** Criminals may contact the victim's relatives or friends, claiming the victim is involved in a crime or accident and is in their custody.
- They use pictures or identities of police personnel to appear authentic.
- **Digital Confinement:** In some cases, victims are forced to stay visible on Skype or other video conferencing platforms until the criminals' demands are met.
- **Fake Studios:** Criminals use studios resembling police stations or government offices and wear uniforms similar to law enforcement agencies.

Actions by the Central Government

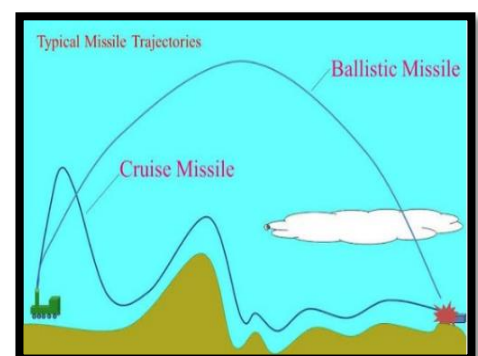
- **Collaboration with Microsoft:** The central government, in collaboration with Microsoft, has blocked over 1,000 Skype IDs used for these criminal activities. This effort aims to curb online intimidation, blackmail, and extortion.
- **Role of Intelligence Agencies:** Intelligence agencies have identified these incidents as part of an organized online economic crime racket run by cross-border crime syndicates.
- **Blocking IDs and SIM Cards:** I4C, under the Ministry of Home Affairs, has blocked Skype IDs, SIM cards, mobile devices, and "mule" accounts used by cybercriminals.
- **Supporting Police Investigations:** I4C provides input and technical support to state and union territory police forces to identify and investigate these cases.
- **Public Awareness Campaigns:** I4C has posted infographics and videos on social media platforms like Cyberdost, X (Twitter), Facebook, and Instagram to raise awareness.
- **Report the Incident:** Immediately report the incident on the cybercrime helpline 1930 or at <http://www.cybercrime.gov.in>.

7.5 BULAVA MISSILE

- **The Bulava missile:** It is also known as the RSM-56 Bulava.
 - **Type:** It is a submarine-launched ballistic missile (SLBM) developed by Russia.
 - **Purpose:** It is a key component of Russia's strategic nuclear forces, designed to enhance the country's second-strike capability and ensure a credible deterrent against potential aggressors.

Key Features

- **Range:** It has a maximum range of 8,300 km.



- **Capability:** MIRV (**Multiple Independently Targetable Reentry Vehicle**) capable payload of up to 10 multiple independently targetable reentry vehicles capable of delivering nuclear warheads to different targets.
- **Payload:** The missile has a **launch mass** of about **36.8 tonnes** and a throw weight of 1,150 kg.
- **Guidance System:** Inertial navigation system with satellite navigation update.

7.6 INDIAN COAST GUARD

- **The Indian Coast Guard (ICG)** is the maritime law enforcement and search and rescue agency of India.
- **Jurisdiction:** Its jurisdiction extends over the territorial waters, contiguous zone and exclusive economic zone of India.
- **Establishment:** It was established in 1977 on the recommendations of the Rustamji Committee, under the chairmanship of Khusro Faramurz Rustamji.
- **Nature:** It is a statutory body under the Coast Guard Act, 1978.
- **Parent ministry:** It operates under the Ministry of Defence.
- **Headquarter:** Coast Guard Headquarters (CGHQ) is located New Delhi, India
- **Aim:** To provide non-military maritime services to the nation.
- Missions of Indian Coast Guard
- **Safety and protection of artificial islands**, offshore terminals, and other installations
- Protection and assistance to fishermen and mariners at sea
- **Preservation and protection of marine** ecology and environment including pollution control.
- Assistance to the Department of Customs and other authorities in anti-smuggling operations
- **Law enforcement:** Enforces maritime laws in territorial as well as international waters concerning smuggling, illegal fishing, and narcotics.
- **Scientific data collection and support**

7.7 LIBERATION TIGERS OF TAMIL EELAM (LTTE)

- **The Ministry of Home Affairs (MHA)** has extended the ban imposed on LTTE for five years.
- **The ban is under the anti-terror law**, the Unlawful Activities (Prevention) Act.
- The LTTE was last banned on May 14, 2019. A UAPA tribunal upheld the ban on November 21, 2019.

About LTTE

- **Based:** The LTTE was a Tamil militant organization that was **based in northern and eastern Sri Lanka**.
- **Leader:** Its leader was **Velupillai Prabhakaran**.
- **Objective:** It fought to create an **independent Tamil state called Tamil Eelam** in the northeast of Sri Lanka.
- **Against:** In response to violent **persecution and discriminatory policies against Sri Lankan Tamils**

by the Sinhalese-dominated Sri Lankan Government.

- **Assassinations:** It is accused of a number of high-profile assassinations, including former **Indian Prime Minister Rajiv Gandhi in 1991** and **Sri Lankan President Ranasinghe Premadasa in 1993**.
- **Status:** The LTTE has been **designated as a terrorist organization by 33 countries**, including the **European Union, Canada, the United States, and India**.

7.8 CENTRAL INDUSTRIAL SECURITY FORCE

- **Establishment:** The Central Industrial Security Force came into existence in 1969.

Works:

- It was constituted to provide integrated security cover to **certain sensitive public sector undertakings**.

- The CISF also protects **important government buildings, iconic heritage monuments and the Delhi Metro.**
- **The CISF security umbrella includes India's most critical infrastructure facilities like nuclear installations, space establishments, airports, seaports, power plants etc.**
- **It also plays a major role in Disaster Management.**
- **The CISF has a 'Fire Wing' which helps during fire accidents in Industries where the CISF is on guard.**
- **Constituting instrument:** It was set up under an Act of the Parliament of India which is "The Central Industrial Security Force Act, 1968."
- **Administrative Control:** The Central Industrial Security Force (CISF) is a federal police organization in India under the Ministry of Home Affairs.
- **Nature:** It is one among the Central Armed Police Forces (CAPF).
- **Headquarters:** It is headquartered in New Delhi.
- **Extended Role:** CISF also provides consultancy services to private industries as well as other organizations within the Indian government.
- **Structure:** The CISF is headed by an Indian Police Service officer with the rank of Director-General, assisted by an IPS officer in the rank of Addl. Director-General.
 - The force is divided into Nine Sectors (Airport, North, North-East, East, West, South, Training, South-East, Central) and also has a Fire Service Wing.

7.9 SMART MISSILE SYSTEM

- **SMART (Supersonic Missile Assisted Release of Torpedo) is a hybrid system,** made up of a long-range missile carrier that can travel at supersonic speed and a lightweight torpedo as payload for anti-submarine warfare (ASW) role.
- It is a canister-based, long-range supersonic anti-submarine missile **developed by the Defence Research and Development Organisation (DRDO)** for the Indian Navy.
- It carries an **advanced Light Torpedo "Shyena"** to target submarines from standoff distances.
- It has a **range of 643 km (400 mi) carrying a lightweight torpedo of range 20 km (12.5 mi)** with 50 kg high explosive warhead.
- It uses **two-way data link connected** to airborne or ship based submarine detection and identification systems.
- It can be launched **from a surface ship or a truck-based coastal battery.**

7.10 CHINA'S THIRD AIRCRAFT CARRIER FUJIAN

- Fujian is the third aircraft carrier of the Chinese navy and the first of the Type 003 class launched in 2022. (named after Fujian province of China.)
- It is a super carrier (displacement of 80000 tons) with electromagnetic catapults for launching aircraft
- It is **China's first CATOBAR ("Catapult Assisted Take-Off Barrier Arrested Recovery")**
- It is a super carrier with a displacement of 80000 tons with electromagnetic catapult.
- It will join Liaoning (Type 001) and Shandong (Type 002) in the carrier fleet.

China is the second country after the US to field a supercarrier with this technology. The Indian Navy operates two aircraft carriers **INS Vikramaditya**, a **refurbished Russian carrier** commissioned in 2013, and the **INS Vikrant**, an **indigenously designed** and built carrier commissioned in September 2022.

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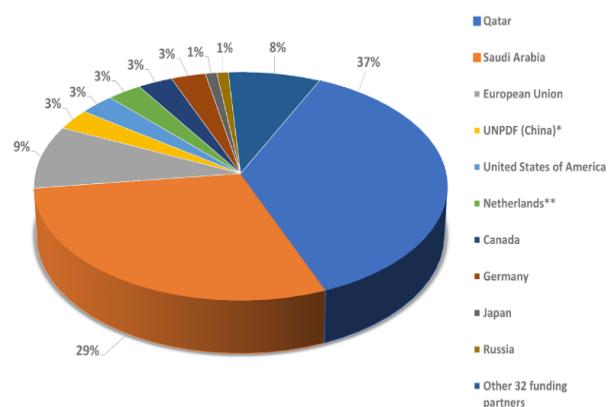
7.11 INTER-SERVICES ORGANISATIONS (COMMAND, CONTROL & DISCIPLINE) ACT, 2024

- **Notification:** The act has been notified through a Gazette Notification to be enforced with **effect from May 10, 2024.**
- **Purpose:** The Act **empowers Commanders-in-Chief and Officers-in-Command of ISOs to exercise control over Service personnel, serving under them, for effective maintenance of discipline and administration, without disturbing the unique service conditions of each individual Service.**
- **Powers under it:** The Act will empower the **Heads of ISOs and pave the way for expeditious disposal of cases, avoid multiple proceedings and will be a step towards greater integration & jointness among the Armed Forces personnel.**
- **Aim:** To bolster **effective command, control and efficient functioning of Inter-Services Organisations (ISOs)**, the bill was passed by both the Houses of Parliament during the Monsoon Session of 2023.
- **President's assent:** The Bill received the assent of the President on **August 15, 2023.**

7.12 UN COUNTER TERRORISM TRUST FUND

- **Established in:** The Fund was established in 2009 by the Secretary-General and transferred to UN office of counter Terrorism UNOCT
 - UNOCT created in 2017 following General Assembly resolution 71/291
- **Donar Entity:** Governments, inter-governmental and non-governmental organizations, private institutions and individuals.
 - Contributions may be unearmarked or earmarked for one of UNOCT's global programmes or specific initiatives.
- **Utility of Fund:** provide technical assistance and capacity building support to Member States through global, regional and national projects around the world delivered by the **United Nations Counter-Terrorism Centre (UNCCT)** and the **Special Projects and Innovation Branch (SPIB).**
- **Top Contributor:** Qatar, Saudi Arabia and European Union

UNOCT cumulative pledges since inception of the UN Trust Fund for Counter-Terrorism in 2009, and other allocations



* Allocation from the UN Peace and Security Sub-Fund of the EOSG
 ** In addition, in-kind contribution provided by the Netherlands (valued at \$11.5 million in 2018) and Hungary (\$1.1 million in 2021-2022)

Top Contributor

8 HISTORY AND CULTURE

8.1 VIRUPAKSHA TEMPLE

The Archaeological Survey of India (ASI) will soon begin the restoration work of the collapsed saalu mantapa or the pavilion of the Virupaksha temple in Hampi.

Virupaksha Temple:

- **Location:** It is **Hindu temple located in Hampi**, an ancient village in Karnataka state in southern India.
- **Hampi:** 14th-century city was the **capital of the great Vijayanagar empire** and reached its **zenith under the ruler Krishnadevaraya (reigned 1509–29)**.
- **Timeline:** The temple was constructed in the **7th century CE**
- **Chief Deity:** The Virupaksha temple, Hampi is dedicated to **Lord Shiva and his consort Pampa**.
- **Unique Feature:** The temple's stones carry masonry marks referring to orientation and location, which **suggests that they were dressed and shaped at their source before being brought** to the current location.



Architecture:

- **Deity:** It was built facing east, with a square garbha griha (sanctum) containing a Shiva Linga and surrounded by a covered circumambulatory path (pradakshina patha).
- **Antarala:** It is in front of the sanctum containing two small shrines with images of Ganesha and Parvati, in her Durga form as Mahishasuramardini, killing the buffalo demon.
- **The external Nandi pavilion:** This as well as the mantapa and antechamber, are oriented east-west.
- **The third storey is the simplest**, with only parapet kutas and a kuta roof with kudas on each face - a structure common in later Dravidian architecture Hindu temples.
- **Kailash pot:** The temple is crowned by a kalasha-like pot, which is used in festivals, social ceremonies, and personal rituals such as weddings.

8.2 BADRINATH TEMPLE

The doors of the Badrinath temple in the Garhwal Himalayas in Uttarakhand were opened for devotees recently, marking the beginning of the pilgrimage season.

About Badrinath Temple

- **Location:** The Badrinath Temple (Badrinarayan Temple) is located in Chamoli district in Uttarakhand.
 - At an elevation of around 3,100 meters lying between the Nar and Narayana mountain ranges on the banks of the Alaknanda river.
- **Significance:** It holds immense spiritual significance for Hindus.
- **Established by:** Sage Adi Shankaracharya in the 8th century
- **Principal Deity:** The temple is dedicated to Lord Vishnu.
- **Architecture:** The temple's architecture is a magnificent example of North Indian temple design- Nagara style, with intricate carvings and a striking blend of stone and wood.
- **Accessibility:** The temple remains open for six months each year (from May to October) and becomes inaccessible during winter due to heavy snowfall.

Cultural Significance

- Badrinath is considered one of the holiest Hindu shrines.
- The temple is also one of the 108 Divya Desams dedicated to Vishnu.
- It is one of the sites of the Char Dham Yatra in Uttarakhand.

Char Dham Yatra

- **Destination:** The Char Dham consists of four sacred pilgrimage destinations: **Yamunotri, Gangotri, Kedarnath, and Badrinath.**
- **Travel Hub:** These shrines collectively draw many pilgrims each year, making them the most important hubs of religious travel in Northern India.
- **Moksha:** The journey to these four Dhams is believed to purify the soul and lead to salvation (moksha).

Char Dham Project

- **Introduction:** The Char Dham Project is a significant infrastructure initiative underway in Uttarakhand, India. It aims to improve connectivity to the four revered Char Dham pilgrimage sites: Badrinath, Kedarnath, Gangotri, and Yamunotri.
- **Enhanced Connectivity:** The project focuses on widening and improving nearly 900 kilometers of national highways connecting the Char Dham sites. This will significantly reduce travel time, making the pilgrimage more accessible and less strenuous for devotees, especially those facing physical limitations.
- **Strategic Importance:** Beyond religious significance, the improved roads will serve as crucial feeder routes for the India-China border. This enhances national security by ensuring smoother movement of troops and supplies to border areas.
- **Environmental Concerns:** The project has faced criticism regarding its environmental impact. Construction activities may lead to deforestation and increased strain on fragile Himalayan ecosystems. To mitigate this, efforts are being made to minimize forest cutting and implement stricter environmental regulations.
- **Boosting Tourism:** Improved infrastructure is expected to attract a larger number of pilgrims and tourists to the region. This can provide a much-needed economic boost to Uttarakhand, creating job opportunities and promoting local businesses.

Government Initiatives to Facilitate Pilgrimage

- **Improved Infrastructure:** The government is actively working on developing infrastructure along the Char Dham route. This includes building better roads, bridges, and rest houses for pilgrims.
- **Medical Facilities:** Ensuring pilgrim well-being, medical facilities are being established along the route to address any health concerns that may arise during the high-altitude journey.
- **Yatra Registration:** To streamline the yatra process and ensure pilgrim safety, online registration systems have been implemented for some routes.

Adi Shankaracharya

- **Birth:** Adi Shankaracharya was born in Kalady, present-day Kerala, around the 8th century CE.
- **Philosophical Contributions:**
 - **Advaita Vedanta:** Adi Shankaracharya is best known for propagating Advaita Vedanta, a non-dualistic philosophy.
 - **Maya and Brahman:** He emphasized that the material world (maya) is an illusion, and the ultimate reality is the Brahman (universal consciousness).
 - **Commentaries:** His commentaries on ancient texts, such as the Brahma Sutras, the Upanishads, and the Bhagavad Gita, are revered by scholars and seekers alike.
- **Establishment of Mathas:** He established four mathas (monasteries) at strategic points across the country – Dwarka, Puri, Sringeri, and Kanchipuram.

- **Moksha:** Adi Shankaracharya emphasized both bhakti yoga (devotion) and jnana yoga (knowledge) as paths to salvation.

8.3 KADAR TRIBE

- **Found in:** Indigenous to the dense forests of the Western Ghats they inhabit the hilly border regions between Cochin in Kerala and Coimbatore in Tamil Nadu.
- **Social structure:** Their social structure is relatively egalitarian, with collective decision-making processes led by the elders.
- **Demography and Distribution:** As of the early 21st century, the Kadar population is estimated to be around 2,000 individuals.
- **Status:** This tribe is recognized as a Particularly Vulnerable Tribal Group (PVTG) in Kerala, they do not hold the same status in Tamil Nadu.

Occupation

- Traditionally, the Kadars have served as specialized collectors, gathering honey, wax, sago, cardamom, ginger, and umbrella sticks and do not practice agriculture.
- These items are then traded with merchants from the plains.
- However, in recent years, many Kadar men have taken up work as laborers to supplement their incomes, adapting to the changing economic landscape while maintaining their traditional skills and knowledge.
- Their primary source of sustenance is rice, which they obtain through trade or wages, rather than relying on the food they gather themselves.

Challenges and Adaptations

- The transition from a forest-based economy to wage labor has introduced new economic and social vulnerabilities.
- Access to education and healthcare remains limited, though government and NGO initiatives aim to address these gaps.

8.4 YANADI TRIBES

- **Status:** The Yenadis also spelled Yanadi are one of the Scheduled tribes of India.

- **Found in:** They live in Andhra Pradesh in Nellore, Chittoor and Prakasam districts.
 - They used to live on Sriharikota, which later became the launch site for ISRO.
 - Yenadis are **the largest tribal group in Andhra Pradesh.**
- **Language:** The Yanadi speak a dialect of Telugu.
- **Subgroups:** The tribe is divided among three subgroups: the Manchi Yanadi, Adavi Yanadi, and Challa Yanadi.
- **Political organization:** Each Yanadi habitat invariably consists of a traditional village council (Kula Panchayat) for settling the disputes.
- **Religion:** They propitiate some village deities like Poleramma, Chenchamma, Mahalakshamma etc.
 - They worship **Hindu Gods and Goddesses like Venkateswara**, Vinayaka also celebrate Hindu festivals such as Sankranthi, Ugadi, Dasara etc.,

8.5 DAWOODI BOHRA COMMUNITY

- **The Dawoodi Bohra community** is a sect within the Ismaili branch of Shia Islam, recognized for its unique cultural identity. They trace their roots back to Gujarat, India, and follow the spiritual leadership of the Da'i al-Mutlaq.
- **Language and Education:** Dawoodi Bohras speak Lisan al-Dawat, a dialect of Gujarati infused with Arabic elements. The community places a strong emphasis on both secular and religious education.
- **Distinctive Dress:** Members of the community are easily identifiable by their distinctive attire. Men typically wear a white three-piece outfit, while women don the 'rida', a colorful form of hijab.
- **Global Presence:** The Dawoodi Bohras have a significant global footprint, with communities in the United States, United Kingdom, East Africa, and the Middle East, contributing to these regions' economies and cultures.
- **Community Service:** Community service is a core tenet of their faith. Dawoodi Bohras engage in various charitable activities, including food drives

and health camps, showcasing their commitment to social welfare and philanthropy.

8.6 ARVINDAKSHAN MARAR



- Kelath Aravindakshan Marar was an Indian Chenda artist from the Thrissur district of Kerala.
- He was part of the percussion ensembles of the Thrissur Pooram for four and a half decades.
- The **Chenda** is a cylindrical percussion instrument originating in the state of Kerala.

8.7 THRISSUR POORAM

- It is an annual Hindu temple festival held at the **Vadakkunnathan Temple in Thrissur** every

year on the Pooram day (the day when the moon rises with the Pooram star in the Malayalam Calendar month of Medam)

- The festival was initiated by **Raja Rama Varma, also known as Sakthan Thampuran, the Maharaja of Cochin (1790–1805)**.
- A ceremony where ten temples in and around Thrissur come together to pay obeisance to Lord Shiva at the **Vadakkunnathan Temple**.
- Kodiyettam (flag hoisting ceremony), percussion ensemble, elaborate elephant processions, firework displays.
- It is the largest and most famous of all poorams in India. It promotes '**inclusivity**' as it has grown to encompass all religious and cultural strains of Kerala. Muslim and Christian communities also participate.
- Majestic elephants adorned in traditional attire and traditional orchestra music are part of the festival.
- The **Arattupuzha Pooram** was the biggest festival in Kerala before **Thrissur Pooram**.

9 INSTITUTION IN NEWS

9.1 DRUGS CONTROLLER GENERAL OF INDIA

DCGI calls for strict reporting of side-effects related to medical devices.

New Details

- **The Drugs Controller General of India (DCGI)** has called for timely reporting of adverse events related to medical devices and directed all medical device license holders and manufacturers to report any adverse events related to life-saving medical equipment on the government's **Materiovigilance Programme of India (MvPI) platform**.

About DCGI

- **DCGI is the head of department** of the Central Drugs Standard Control Organization of the Government of India responsible for approval of licenses of specified categories of drugs such as blood and blood products, IV fluids, vaccines, and sera in India.
- **Nodal Ministry:** Comes under the Ministry of Health & Family Welfare.
- **Function:** Sets standards for manufacturing, sales, import, and distribution of drugs in India

The Central Drugs Standard Control Organisation (CDSCO)

- CDSCO under Directorate General of Health Services, Ministry of Health & Family Welfare, Government of India is the National Regulatory Authority (NRA) of India.
- **Headquarters: Located at FDA Bhawan, Kotla Road, New Delhi.**
- It has nine zonal offices, seven sub zonal offices, eighteen Port offices.
- **Responsibilities:** The Drugs & Cosmetics Act, 1940 and rules 1945 have entrusted various responsibilities to central & state regulators for regulation of drugs & cosmetics.
- **It is responsible for,**
 - Approval of Drugs,
 - Conduct of Clinical Trials,
 - Laying down the standards for Drugs,
 - Control over the quality of imported Drugs in the country and
 - Coordination of the activities of State Drug Control Organizations by providing expert advice with a view to bringing about uniformity.

Materiovigilance Programme of India (MvPI) platform

- **Launched by:** Ministry of health and family welfare, Government of India on July 6, 2015 to monitor the safety of medical devices in the country.
- **Technical support:** For MvPI, Indian Pharmacopoeia Commission (IPC) functions as National Coordination Centre (NCC) since 2018.
 - **Central Drugs Standards Control Organization (CDSCO)**, New Delhi, supports MvPI with experience of functioning as National regulator.
- **Objectives:** MvPI aims to collect data on medical device related adverse events systematically and scientifically analyze them to aid in regulatory decisions and recommendations on safe use of medical devices.
 - It monitors medical device-associated adverse events (MDAE)
 - **Create awareness among healthcare professionals** about the importance of MDAE reporting in India and to evaluate the benefit-risk ratio of medical devices.
 - MvPI generates independent, evidence-based recommendations on the safety of medical devices.

9.2 SPICE BOARD OF INDIA

Hong Kong and the U.S. announced an investigation into possible contamination of spice mixes sold by MDH and Everest?

News in Details:

- **The complaints cite the presence of ethylene oxide**, a toxic chemical used as a food stabilizer, beyond permissible limits.
- **The U.S. Food and Drug Administration (FDA)**, which has previously rejected food and spice imports from India

Pesticide ethylene oxide (ETO).

- **Property:** ETO is a colorless, flammable and It dissolve easily in water
- **Uses:** Originally intended for sterilizing medical devices.
 - It is used as a chemical in industrial settings, agriculture, and as a sterilizing agent in food products, including spices.
 - It is food fumigant that prevents microbial contamination, including bacteria, virus, and fungi
 - It Extends products' shelf life and makes their storage safe.
- **Health Impact:** highly reactive compound, carcinogenic, also be mutagenic if inhaled.

Spices Export:

- China, U.S. U.A.E, Bangladesh and Thailand are the top importers of all species and spice mixes originating from India.

The Spices Board:

- **The Spices Board** is the flagship organization for the development and worldwide promotion of Indian spices.
- The Board is an international link between the Indian exporters and the importers abroad.
- **Nodal Ministry:** Ministry of Commerce and Industry.
- **Multi-faceted activities:**
 - Promotion of exports of spices and spice products.
 - Maintenance and monitoring of quality of export.
 - Development and implementation of better production methods, through scientific, technological and economic research.
 - Guidance to farmers on getting higher and better quality yields
 - Provision of financial and material support to growers.
 - Encouraging organic production and export of spices.
 - Facilitating infrastructure for processing and value addition
 - Registration and licensing of all spice exporters.
 - Assistance for studies and research on better processing practices

FSSAI

- **Food Safety and Standards Authority of India (FSSAI)** is an autonomous statutory body established under the Food Safety and Standards Act, 2006 (FSS Act).
- **Nodal Ministry:** The Ministry of Health & Family Welfare, Government of India is the administrative Ministry of FSSAI.
- **Headquarters:** Delhi.

9.3 WORLD HEALTH ASSEMBLY

The Seventy-seventh session of the World Health Assembly will convene under the banner of "All for Health, Health for All." Scheduled to run from 27 May to 1 June.

About World health Assembly (WHA)

- **Global Health Policy Setting Body:** The WHA is the decision-making body of the World Health Organization (WHO).

- **Established in 1948:** The WHA was created alongside the WHO in the wake of the devastation caused by World War II.
- **Composition:** It is composed of health ministers from WHO's 194 member states.
- **Annual Meeting:** The WHA assembles every year in May at Geneva, Switzerland.
- **Objective:** The primary objective of the WHA is to determine the policies of the WHO, ensuring its activities align with global health priorities.

Functions

- **Policy Direction:** The WHA sets the WHO's overall direction, approving health programs and endorsing global health strategies.
- **Financial Oversight:** It supervises the WHO's financial policies and approves its proposed budget.
- **Director-General Appointment:** The WHA appoints the Director-General, who leads the WHO's Secretariat.
- **Monitoring and Evaluation:** The WHA monitors the implementation of health policies and programs, evaluating their impact and making necessary adjustments to enhance their effectiveness.

Significance

- **Eradication of Smallpox:** A notable achievement is the global eradication of smallpox, achieved through WHO programs guided by the WHA. The WHA spearheads the fight against infectious diseases like HIV/AIDS, tuberculosis, and malaria.

9.4 DELHI DEVELOPMENT AUTHORITY (DDA)

- **Type:** The **Delhi Development Authority (DDA)** is a statutory body established under the Delhi Development Act, 1957.
- **Jurisdiction:** It is under the jurisdiction of the Ministry of Housing and Urban Affairs, Government of India.
- **Operating area:** It works within the area of National Capital Territory of Delhi, India.
- **Aim:** It aims to "promote and secure the development of Delhi".
- **Responsibility:** It is responsible for planning, development and construction of housing projects, commercial lands, land management as well as providing public facilities like roads, bridges, drains, underground water reservoirs, green belts etc.
- **Role:** DDA has played a vital role in the orderly-yet-rapid development of Delhi. The city has become the residence of choice for more than 11 million people.

9.5 SUPREME COURT BAR ASSOCIATION (SCBA)

- Senior advocate Kapil Sibal was elected as the president of the **Supreme Court Bar Association (SCBA)**.
- **Comprises:** The Supreme Court Bar Association is an Indian bar association, comprising the practicing lawyers of the Supreme Court of India.
- **Legal Status:** Registered under the "**Societies Registration Act-XXI of 1860**".
- **Established:** in 1951.
- **Role:** It plays a crucial role in upholding constitutional values such as democracy, the rule of law, and the independence of the judiciary.
- **HQ:** New Delhi

Objective

- Upholding, maintaining and consolidation of the constitutional values of democracy, rule of law and independence of Judiciary.
- To promote and maintain high standards of profession among members of the Bar.

9.6 UN PEACEKEEPING

- United Nations Peacekeeping helps countries torn by conflict to create the conditions for lasting peace. It comprised civilian, police, and military personnel.
- Founded 1945
- Active personnel 81,820
- They are also known as blue helmets.

Principles

- UN Peacekeeping is guided by three basic principles:
 - Consent of the parties.
 - Impartiality.
 - Non-use of force except in self-defense and defense of the mandate.
- **Awards:** United Nations Peacekeeping awarded the Nobel Peace prize "for preventing armed clashes and creating conditions for negotiations."

9.7 NATIONAL TIGER CONSERVATION AUTHORITY

- **It is a statutory body under the Ministry of Environment, Forest, and Climate Change (MoEFCC).**
- The **National Tiger Conservation Authority (NTCA)** has been constituted under section 38 L (1) of Wildlife (Protection) Act, 1972 as amended in 2006.

The objectives of NTCA are:

- Providing statutory authority to Project Tiger so that compliance of its directives becomes legal.
- Fostering accountability of Center-State in management of Tiger Reserves, by providing a basis for MoU with States within our federal structure.
- Providing for an oversight by Parliament.
- Addressing livelihood interests of local people in areas surrounding Tiger Reserves.

NTCA Members:

- **Chairperson:** The Minister in charge of the Ministry of Environment and Forests.
- **Vice-Chairperson:** The Minister of State in the Ministry of Environment and Forests.
- **Members:** Three members of Parliament of whom two shall be elected by the House of the People and one by the Council of States; and other members.

Power & Functions

- **As prescribed under section 38O (1) and (2) of the Wildlife (Protection) Act, 1972, as amended in 2006** are as under:
 - **Approval:** To approve the tiger conservation plan prepared by the State Government
 - **Evaluation:** Evaluate and assess various aspects of sustainable ecology and disallow any ecologically Unsustainable land use such as, mining, industry, and other projects within the tiger reserves
 - **Laying norms:** lay down normative standards for tourism activities and guidelines for project tiger from time to time for tiger conservation in the buffer and core area of tiger reserves and ensure their due compliance.
 - **Addressing man wild conflicts:** Measures for addressing conflicts of men and wild animal and to emphasize on co-existence in forest areas outside the National Parks, sanctuaries, or tiger reserve.
 - **Provide information:** On protection measures including future conservation plan.
 - **Coordination:** Approve, coordinate research and monitoring on tiger, co-predators, prey habitat, related ecological and socio-economic parameters, and their evaluation
 - **Critical support:** Ensure critical support including scientific, information technology and legal support for better implementation of the tiger conservation plan.

Tiger Reintroduction Plan in Cambodia

- India is likely to send four tigers to Cambodia by November-December to help reintroduce the big cats into its forests.
 - **According to the World Wildlife Fund (WWF)**, conservationists in Cambodia declared tigers "functionally extinct" in 2016.
 - Cambodia's last tiger was seen on a camera trap in the eastern **province of Monduliri in 2007**.

9.8 NEWSPACE INDIA LIMITED

- **Agency:** NewSpace India Limited (NSIL) is a Public Sector Undertaking (PSU) of the Government of India and under the Department of Space (DoS).
- **Parent Agency of (DoS) - Prime Minister's Office**
- **Commercial arm:** It is the *commercial arm of ISRO*.
- **Responsibility:** It is responsible for producing, assembling and integrating the launch vehicle with the help of an industry consortium.
- **Establishment:** It was established on 6 March 2019 under the administrative control of the Department of Space (DoS) and the Company Act 2013.
- **Objective:** The main objective of NSIL is to scale up private sector participation in Indian space programmes.
- **Mandate**
 - Owning satellites for Earth Observation and Communication applications and providing space-based services
 - Building satellites and launching them as per demand
 - Providing Launch Services for satellite belonging to customer
 - Building launch vehicles through Indian Industry and launch as per satellite customer requirement
 - Space based Services related to Earth Observation and Communication satellites on commercial basis
 - Satellite building through Indian Industry
 - Technology Transfer to Indian Industry

Major Business Areas

- Building Launch Vehicles Through Indian Industry
- Launch Services
- Satellite Building And Ground Segment Establishment
- Satellite Based Services
- Technology Transfer

10 PLACES IN NEWS

10.1 GREAT PYRAMID OF GIZA

Archaeologists in Egypt have discovered a mysterious "anomaly" beneath the pyramids at the Giza necropolis buried beneath the Western Cemetery of the pyramid complex.

About Pyramid of Giza

- **Location:** Giza plateau, west of the Nile River, Egypt.
- **Construction Materials:** Mainly limestone and granite.
- **The Giza necropolis:** It is home to the Great Pyramid, the Pyramid of Khafre, the Pyramid of Menkaure, and the Great Sphinx, and dates to around 4,000 years.
- The designations of the pyramids—**Khufu, Khafre, and Menkaure**—correspond to the kings for whom they were built.
- **Built By:** Pyramid complexes are believed to have been built during the Fourth Dynasty of the Old Kingdom of ancient Egypt, between 2600 and 2500 B.C.
- One of the Seven Wonders: The only remaining structure of the Seven Wonders of the Ancient World
- **New finding:** The research notes that the Western Cemetery of the Giza Pyramid Complex is densely populated with ancient tombs, except for an area of about 94,722 square feet which has no above-ground structures.
- However, using ground-penetrating radar (GPR) and electrical resistivity tomography (ERT), the team of archaeologists located two previously unreported underground chambers beneath this area.



10.2 STRAIT OF GIBRALTAR

- *Yacht sinks after latest incident involving orcas in strait of Gibraltar.*

Strait of Gibraltar

- **The Strait of Gibraltar:** It is the channel connecting the Mediterranean Sea with the Atlantic Ocean, lying between southernmost Spain and northwesternmost Africa.
 - It is the only place where water from the **Atlantic Ocean mixes** with water from the Mediterranean Sea.
 - **A strait is defined as a narrow water body** bordered by landmasses that connects two larger water bodies.
 - Straits can be formed due to the movement of tectonic plates or by the fracture of an isthmus.
- **Geographical location:** The Strait is about 58 km long and has a width of about 13 km at its narrowest point between Morocco's Point Cires and Spain's Point Marroquí.
- **Formation:** Geological studies have revealed that the Strait was formed due to the northward movement of the African Plate towards the European Plate.
 - **As water flows into and out of the Mediterranean, two currents** are formed in the strait. An upper layer of Atlantic water flows eastward into the sea over a lower layer of saltier and heavier Mediterranean water flowing westward into the ocean, known as the Mediterranean Outflow water.
- **Trade Route:** It is a key passage for international maritime trade, connecting the Atlantic trade routes with the Mediterranean.



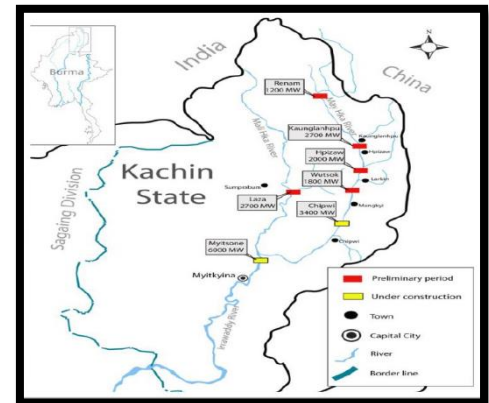
- **Strategic significance:** It acts as a chokepoint for the ships that move into or out of the Mediterranean Sea.
- **Important port on the Strait of Gibraltar:** Moroccan port of Tanger-Med, near Tangier.
- BirdLife International has recognized the Strait of Gibraltar as an Important Bird Area, as several migratory birds use this strait every year to migrate

10.3 MYITSONE DAM PROJECT

Myanmar's current junta announced the revival of the Myitsone Dam project suspended in 2011 by a previous junta due to substantial public opposition citing huge potential environmental damage and minimal local benefits.

Project Overview

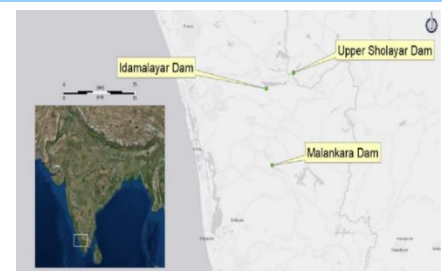
- **Dam Location:** Northern Kachin State, Myanmar
- **River:** Irrawaddy (Ayeyawady River)
- **Primary Investor:** Collaboration with China's State Power Investment Corporation's (SPIC) **Yunnan International Power Investment Company.**
- **Power Export:** Approximately 90% to China
- Had the dam been completed according to plans in 2017 it would have been the fifteenth largest hydroelectric power station in the world.



10.4 MALANKARA DAM

Power generation at Moolamattom has increased to reduce the Idukki reservoir water level before the southwest monsoon. Subsequently, the storage in the Malankara dam has also been increased.

- **Constructed across:** Malankara dam is a gravity dam constructed across Thodupuzha River (tributary of the Muvattupuzha River) for irrigation purposes.
 - The dam is constructed to make use of the tail water from the **Moolamattom power house.**
- The project is run under the **Muvattupuzha Valley Irrigation Project.**
- **Location:** Idukki district, Kerala, India (Gravity dam, 1989)



10.5 NEW CALEDONIA

France Declares Emergency In New Caledonia As Protests Rage.

About New Caledonia:

- **Location:** New Caledonia is an overseas territory of France in the southwest Pacific Ocean.
- **Jurisdiction:** In 1853, it was annexed by France and has been controlled by it since then.
 - Its citizens have French nationality.
 - They can vote for the president of France.
 - They have the right to vote in elections to the European Parliament.
 - In 1998, the Nouméa Accord was signed between France and New Caledonia for granting limited autonomy to the island.
- France initially used it as a penal colony for exiling its prisoners, similar to how neighboring Australia was used by the British.
- **Parts:** The archipelago, part of the Melanesia subregion, includes the main island of Grande Terre, the Loyalty Islands, the Chesterfield Islands, the Belep archipelago, the Isle of Pines, and a few remote islets.
- **European Union:** New Caledonia is one of the European Union's Overseas Countries and Territories (OCTs), but is not part of the European Union.

Current Protests:

- The protests followed a recent Bill in the French parliament, aimed at giving voting rights to French residents who have lived in New Caledonia for more than 10 years.
 - The Bill was passed and now awaits presidential assent.

Referendum for independence:

- In 1998, the **Nouméa Accord** was signed between France and New Caledonia for granting limited autonomy to the island.
- Till date three referendums have been held in the area in 2018, 2020 and 2021 on the question of independence.
 - In all three cases, the majority voted against independence.
- However, out of the 270,000 people inhabiting the island 41% Melanesian Kanaks and 24% people of European origin (mostly French).
 - The Kanaks generally favor independence,
 - while European-origin groups and other immigrants want French rule to continue.



10.6 METTUR DAM

Water storage level in Mettur Dam remains low this year, farmers have been told to refrain from planting the short-term kuruvai paddy crop and cultivate long-term samba cultivation to align with northeastern monsoon

About Mettur Dam

- **Construction Year:** Built in 1934.
- **Geographical Significance:** Located in a gorge at the point where the Kaveri River enters the plains in Mettur, Salem District, Tamil Nadu.

Role in Agriculture

- **Irrigation Capacity:** Provides water for 271,000 acres (110,000 hectares) of farmland.
- **Benefitted Districts:** Salem, Erode, Namakkal, Karur, Tiruchirappali, and Thanjavur.
- **Agricultural Development:** Transforms these areas into fertile agricultural lands essential for growing rice, sugarcane, pulses, and vegetables.

Power Generation

- **Hydroelectric Facility:** Houses the Mettur Hydroelectric Power Station, established in 1937.
- **Power Output:** Generates 32 megawatts of hydroelectric power.
- **Additional Energy Source:** Includes a thermal power plant to bolster the region's energy supply.

Environmental and Recreational Benefits

- **Creation of Stanley Reservoir:** Supports aquatic life and provides water for drinking and industrial purposes.
- **Recreational Area:** Features a park with lawns and fountains, enhancing local tourism and providing community space.
- **Cultural Aspect:** Hosts the Muniappan/Aiyandar statue, adding a cultural and religious dimension to the area.

Challenges and Management

- **Sedimentation and Maintenance:** Continuous management is needed to handle sedimentation and maintain aging infrastructure.

- **Water Management:** Balancing the needs between agricultural, industrial, and drinking purposes is crucial, especially during droughts and floods.

Future Prospects and Upgrades

- **Infrastructure Improvement:** Plans to upgrade the dam to improve efficiency and reduce environmental impact are ongoing.
- **Sustained Role:** Ensures that Mettur Dam continues to serve as a vital resource for the region.

10.7 PRAVARA RIVER

- **Origin:** The Ratangad Hill in the Western Ghats, specifically near the village of Bhandardara.
- **Course:** The river travels approximately 208 kilometers before it merges with the Godavari River.
- **Tributaries:** Mula River and the Adhala River are notable tributaries.
- The Bhandardara Dam, also known as the Wilson Dam, is a notable structure on the Pravara River, constructed in 1910.
 - **Arthur Lake** is a reservoir created by a dam.
- **Irrigation and Agriculture:** Essential for irrigation (especially canal irrigation) in the Ahmednagar district.

10.8 MOUNT IBU

- Recently, Indonesia's Ibu volcano erupted
- **Location:** It is a stratovolcano, located on the remote island of Halmahera of North Maluku Province, Indonesia.
 - A stratovolcano is a tall volcano shaped like a cone, formed by various layers of materials such as volcanic ash, hardened lava, pumice, and tephra.
 - Stratovolcanoes are steep and have periodic explosive and effusive eruptions, although some have calderas, which are collapsed craters.
- Indonesia, a vast archipelago nation, experiences frequent seismic and volcanic activity due to its position on the Pacific "Ring of Fire", a horseshoe-shaped series of seismic fault lines around the Pacific Ocean.



10.9 LAKE HURON

- **Lake Huron**, one of the five Great Lakes of North America.
- Great Lakes: Superior, Michigan, Huron, Erie, and Ontario
 - These are the largest group of freshwater lakes in the world.
- Lake Huron is the world's third largest freshwater lake, after Lake Superior and Lake Victoria.
- Great five lakes are interconnected bodies of water straddling the US-Canada border that drain into the Gulf of St Lawrence in the North Atlantic through the St Lawrence River.
 - The US-Canada border passes through Lakes Superior, Huron, Erie, and Ontario.
- **Lake Michigan lies entirely in the US.**
- Lakes Michigan and Huron are sometimes considered as a single water body; taken together, they are the world's largest freshwater lake by surface area.
- Manitoulin Island is the world's largest freshwater island that is located in Lake Huron.



Lake Baikal:

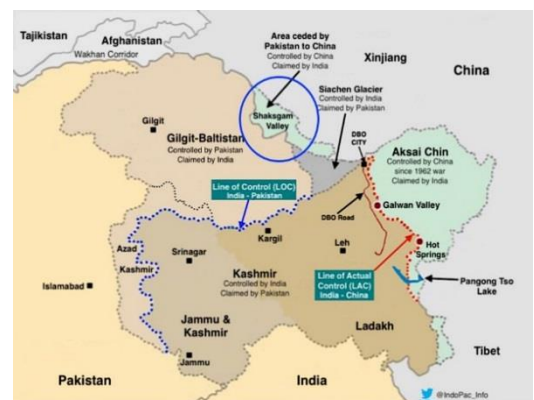
- **Location:** Situated in south-east Siberia, the 3.15-million-ha.
- **Specific features:** Lake Baikal is the oldest (25 million years) and deepest (1,700 m) lake in the world.
 - It contains **20% of the world's total unfrozen freshwater reserve**.
- **It is also known as the 'Galapagos of Russia'**, its age and isolation have produced one of the world's richest and most unusual freshwater faunas.

10.10 KHARKIV REGION

- Russian forces attempted an armored ground invasion of Ukraine's northeastern Kharkiv region with artillery and guided aerial bombs.
- **Location:** Kharkiv, a city, northeastern Ukraine. It lies at the confluence of the Uda, Lopan, and Kharkiv rivers.
 - It is adjacent to the Donets Basin coalfield.
 - It is second largest city of Ukraine.
- **Commercial significance:** It is a communications center, it is a large rail junction, Kharkiv is also a node on the trunk highway system of Ukraine and Russia, with highways to Moscow, to Kyiv and western Ukraine, to Zaporizhzhya and Crimea
- Kharkiv is one of the most important cultural and educational centers of Ukraine.

**10.11 SHAKSGAM VALLEY**

- The Shaksгам tract is also known as the **Trans-Karakoram Tract**.
- Most of the tract is composed of the Shaksгам Valley.
- It used to be a part of the **Baltistan region in Jammu and Kashmir**.
- It is bounded by the Kunlun Mountains in the north, and the Karakoram peaks to the south, including Broad Peak, K2 and Gasherbrum, on the southeast it is adjacent to the highest battlefield in the world on the Siachen Glacier.
- It was under the **control of Pakistan since 1947 after the tribal Invasion**.
- In the **1963 Sino-Pakistan Agreement**, Pakistan recognized **Chinese sovereignty over the area and gifted it to China**.
- Under the treaty of accession of J&K the entire territory was accessed to India by Maharaja of jammu and kashmir.

**10.12 POLAVARAM PROJECT**

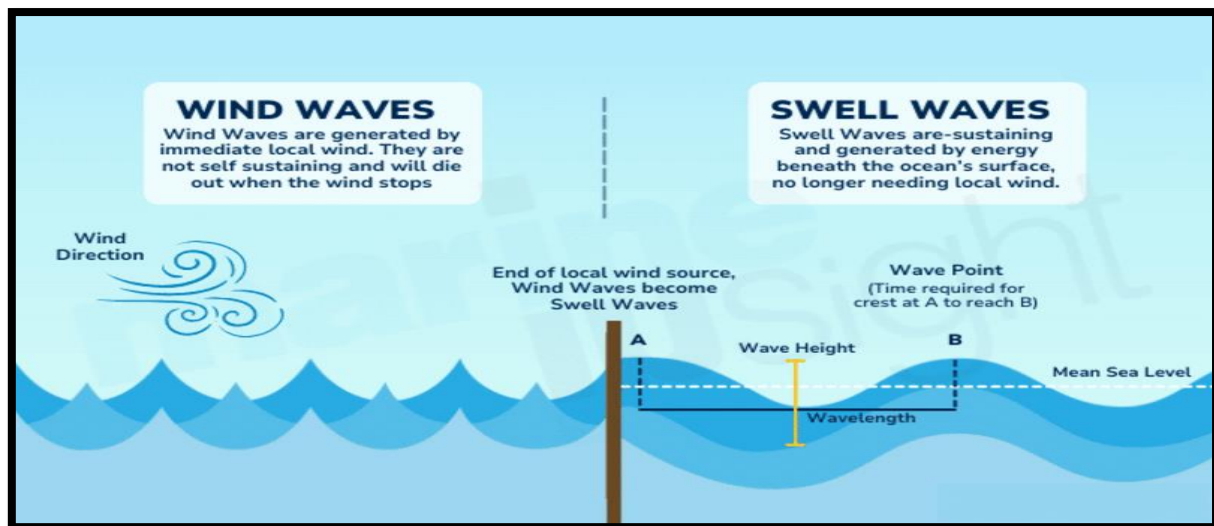
- It is an under construction multi-purpose irrigation project on the **Godavari River in the Eluru District and East Godavari District in Andhra Pradesh**.
- The project has been accorded National project status by the Central Government of India.
- Its back water spreads into parts of Chhattisgarh and Odisha States approx 115 km on Sabari River side.
- The reservoir covers **the Papikonda National Park**.
- In the future it can be used for the projects like
 - Godavari **Penna River linking**

- Godavari **Krishna River linking**
 - To avoid surplus water flowing in the seas and storing it for the use of water deficit regions.
- Dispute between Andhra Pradesh, Telangana, Odisha and Chhattisgarh is there in the water sharing and the matter is before Supreme court.

11 DISASTER MANAGEMENT

11.1 SWELL SURGE

- Swell surge is a series of mechanical waves that propagate along the interface between water and air under the predominating influence of gravity.
- **Swell is energy that has been transferred into the sea by wind.**
- The longer and stronger the wind blows (like a hurricane) the more energy that is transferred and so larger the swell.
- This energy then propagates from where it is created out into the ocean, much like ripples in a pond.



INCOIS Warning

- An 'Orange' warning issued by **Indian National Centre for Ocean Information Services (INCOIS)** for coastal regions of multiple states due to rough seas and swell surges.
- **Origin:** The ongoing surge initiated on April 26 in the **southern Atlantic Ocean**, spanning approximately 10,000 km, slowly moving but covering vast distances.

Factors Driving Wave Intensity:

- Winds interacting with sea surfaces create friction, amplifying wave size and intensity. Besides currents, winds can trigger sea waves of varying heights and intensities.
- When strong winds blow across the calm sea water surface, friction is created between air and water.
- This then leads to an increase in the wave's surface area, and thus its size. As waves get formed with rougher surfaces, winds find it easier to push waves of higher intensity to long distances.