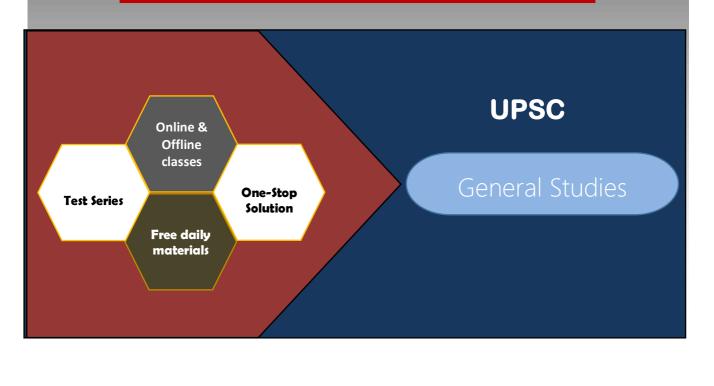**V | VISHNU I A S**

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GS 1 : Heritage, culture ,Geography of the World and Society

1. **Delhi HC upholds Ban on Sapinda Marriages: Legal Insights**

- The Delhi High Court recently dismissed a challenge to the constitutionality of Section 5(v) of the Hindu Marriage Act, 1955 (HMA), which prohibits sapinda marriages among Hindus unless custom permits.
- The court's decision affirms the legal restrictions on such marriages and emphasizes the importance of regulating marital choices.

For Aspirants with Sociology Optional, this article is of immense importance under: "Systems of Kinship- Family, household, marriage" in both Paper I and Paper II.

Understanding Sapinda Marriages

- **Definition**: Sapinda marriages involve individuals closely related within specified degrees, as per Section 3(f)(ii) of the HMA.
- **Prohibition**: The HMA prohibits sapinda marriages within a certain range of lineal ascent, ensuring that marriages do not occur between individuals with a common lineal ascendant within the defined limits.

Legal Framework

- **Void Marriages**: Sapinda marriages that violate Section 5(v) and lack an established custom permitting them are declared void, meaning they are considered invalid from the outset.
- **Customary Exception**: The sole exception to this prohibition arises when both parties' customs permit sapinda marriages, as defined in Section 3(a) of the HMA.
- **Custom Criteria**: To qualify as a custom, it must be continuously observed, uniform, reasonable, and not opposed to public policy, gaining legitimacy among Hindus in a particular area or community.

Grounds for Challenging the Law

- **Constitutional Challenge**: The petitioner contended that Section 5(v) violated the right to equality under Article 14 of the Constitution by requiring proof of custom for sapinda marriages.
- **Lack of Proof**: The woman argued that sapinda marriages exist even without documented custom, and the consent of both families validated the marriage.

High Court's Decision

- **No Established Custom**: The Delhi HC found no stringent proof of an established custom supporting sapinda marriages, which is crucial under the law.
- **Regulation of Marriages**: The court upheld the idea that the choice of a marriage partner can be subject to regulation.
- **No Violation of Equality**: The petitioner failed to provide compelling legal grounds to challenge the prohibition against sapinda marriages on grounds of violating the right to equality.

International Perspectives

- **European Laws**: In several European countries, laws related to incestuous relationships are less stringent compared to India, allowing marriages between consenting adults.
- **Examples**: France, Belgium, Portugal, and Italy have different laws regarding incestuous relationships and marriages.
- **US Laws**: In the United States, incestuous marriages are banned in all 50 states, but some states allow incestuous relationships between consenting adults.

Conclusion

- The Delhi HC decision reaffirms the legal framework regulating sapinda marriages in India and emphasizes the importance of established customs in permitting such unions.
- It also highlights the differing legal approaches to incestuous relationships and marriages in various countries.

2. Civil society under siege, in India

- The article discusses the threats faced by India's civic space, particularly organizations fighting against communalism. Emphasizes the importance of protecting constitutional freedoms.

Key Highlights:

- Constitutional freedoms are under siege in India's diverse and vibrant civil society.
- Organizations actively fighting communalism are facing severe attacks, affecting their funding and leadership.

- The state employs various instruments, including legal charges, amendments to laws, and tax-related measures, to curb civic space.
- Impact is significant on organizations supporting minority, Dalit, Adivasi rights, and equity promotion.

Key Challenges:

- High-intensity attacks leading to financial constraints and imprisonment for leaders of certain NGOs.
- Shrinking civic space even for neutral or non-communal organizations.
- Utilization of legal instruments like money laundering charges and investigations to intimidate NGOs.
- Amendments to laws, such as the FCRA, restricting access to foreign funds for NGOs.
- Intimidation of domestic donors through tax-related provisions.

Key Terms/Phrases:

- Civic space
- Constitutional freedoms
- Anti-communal
- NGOs (Non-Governmental Organizations)
- FCRA (Foreign Contribution Regulation Act)
- Money laundering charges
- Civic mobilization
- Secularism
- Adivasi rights
- Human rights causes

Key Quotes/Statements:

- "The last bastion and ray of hope for India's democracy is its civic space."
- "The scale of attack on organizations actively fighting against communalism is alarming."
- "The state employs a range of instruments to limit the civic space of various organizations."

Key Examples and References:

- Amnesty International, Centre for Equity Studies, Citizens for Justice and Peace, among others, facing severe attacks.
- Greenpeace transitioning from high-intensity attacks to a lower level.

Key Facts/Data:

- Amendments to the FCRA in 2010 and 2020 impacted around 18,000 NGOs between 2015 and 2022.
- The 2020 amendments to the Income-Tax Act make renewals of NGO certificates mandatory every five years.
- The Central Bureau of Investigation (CBI) is empowered to investigate NGOs under the FCRA.

Critical Analysis:

- The article presents a critical analysis of the state's tactics to limit civic space, affecting organizations fighting against communalism.
- It highlights the severity of attacks and the broader impact on democratic values.

Way Forward:

- Strengthening opposition and regional leaders who take a clear secular position.
- Mobilizing anti-communal and progressive civic space to safeguard democracy.
- Advocating for the protection of constitutional freedoms and reviewing stringent laws impacting NGOs.
- Raising awareness about the importance of civic space in preserving India's democracy.

3. Warli Paintings

An exhibition in Delhi recently showcased the rich **Warli art**, representing the **daily life** and traditions of **tribal communities** in **Maharashtra**.

Warli Paintings:

- The Warli Paintings features exuberant **geometric patterns** inspired by **nature**, such as **circles** for the **sun** and **moon**, **triangles** for trees and mountains, and **squares** for sacred enclosures.
- Their origin dates back to 2500-3000 BCE.
- Originating from the **Sahyadri Mountains** in Maharashtra, Warli was traditionally practiced by **Suvasinis**, **women** of the **Warli tribe**.
- They were initially done on the **walls** of **village huts**, using natural materials like rice paste and cow dung for the base.

- The **Mashe family** is one of the prominent group of artists, who are often associated with this art.
- They serve the social function of **recording** important events and transmitting **local stories** visually.

Features:

- The **themes** of Warli paintings revolve around the daily life and rituals of the Warli tribe, depicting scenes like farming, hunting, and festivals.
- They depict rural life, tribal customs, and traditions, using minimalistic geometric patterns like triangles, circles, and lines.
- Traditionally, Warli paintings are done on a **red** or **ochre background**, using **white pigment** made from a mixture of rice paste and water.
- The artists use a bamboo stick chewed at the end to create fine lines and intricate patterns.

Evolution of Warli Art:

- Until the **1970s**, Warli art focused on **joyous occasions** like marriages and was confined to mud house walls.
- Access to paper sheets enabled artists to transition Warli from **ritualistic paintings** to **secular picturization**.
- It now reflects **social injustices** and **power imbalances**, enabling artists to express personal and social predicaments.

About the Warli Tribe:

- The Warli Tribe is an indigenous **Adivasi community** that resides in the **mountainous** and **coastal areas** of **Maharashtra**, **Gujarat**, and surrounding regions in India.
- They have a **unique art form**, which is characterized by **simple**, **geometric patterns** depicting scenes from daily life, nature, and rituals.
- They traditionally follow an **agrarian lifestyle**, relying on **farming** and **animal husbandry** as their primary occupation.
- They grow crops like rice, millet, and pulses.
- They follow **animistic** beliefs, worshiping a **mother goddess** named **Palaghata**.
- They generally speak a language called **Varli**, which belongs to the southern zone of the **Indo-Aryan languages**.
- They also make a musical instrument called **Tarpa** out of **bamboo**, which is native to the community.
- They perform the **Tarpa dance** during festivals and new harvest, in which both men and women participate.

4. Dense Fog in North India

Dense fog covered the better part of north India during the last days of December and the 1st couple of days of 2024.

Fog

- **A fog –** It is a **collection of small droplets of water** produced when evaporated water has cooled down and condensed.
- It is nothing but a thick cloud, but very close to the earth's surface.

- **Conditions for a thick fog**
  - Lower temperatures
  - Abundant moisture near the surface
  - Higher humidity
  - The process by which it cools
- Fog materialises whenever there is a temperature disparity between the ground and the air.

What are the different types of fog?

- **Radiation Fog –** It forms when all solar energy exits the earth and allows the temperature to meet up with the dew point and the best condition is when it had rained the previous night.
- **Precipitation Fog –** It forms when rain is falling through cold air which is common with a warm fronts but it can occur with cold fronts as well only if it's not moving too fast.
- Cold air, dry at the surface while rain is falling through it evaporates and causes the dew point to rise and this saturation forms fog.
- **Advection Fog –** It forms from surface contact of horizontal winds and can occur with windy conditions.
- When cool moisture on the ground comes in contact with the warm, moist winds, it cause the air blowing in to become cool and then dew point rises and creates high humidity and forms fog.
- **Steam Fog –** It forms during the fall season on any lake due to the difference in rate of cooling and interactions between the upper cold air and relatively warmer lake.
- **Upslope Fog –** It forms adiabatically, as moist winds blow toward a mountain, it up glides and this causes the air to rise and cool.
- The cooling of the air from rising causes to meet up with the dew point temperature and so fog forms on top of the mountains.

- **Valley Fog –** It forms in the valley when the soil is moist from previous rainfall.
- As the skies clear solar energy exits earth and allow the temperature to cool near or at the dew point.

Valley fog is so dense that sometimes it is called as **tule fog.**

- **Freezing Fog –** It occurs when the temperature falls at 32°F (0°C) or below, it produces drizzle and these tiny droplets freeze when they come into contact with an object.
- **Ice Fog –** It is **only** seen in the polar and artic regions.
- Temperatures at 14 F (-10°C) is too cold for the air to contain super-cooled water droplets so it forms small tiny ice crystals.

What is the situation of fogging in northern India?

- During Indian winters, the fog is created when the temperature drops at night and in the early morning, condenses on aerosols present in the atmosphere.
- **Vulnerable regions –** The **entire Indo-Gangetic plains**
- **Favourable conditions –** It is due to presence of
  - Low temperatures
  - Low wind speed
  - Moisture availability
  - Plenty of aerosols
- **Moisture incursion –** It can happen once a **Western Disturbance,** a precipational pattern that brings rain to north India during winter months moves across northern parts.
- Sometimes, it can happen from the Arabian Sea also.
- **Effect of fogging –** Fog disrupting the lives of people in North India with the condition of poor visibility.
- It impacts air travel and land transportation
- It also increases the pollution.
  - Recently, Delhi experienced an increase in pollution levels, with an AQI rating of "severe."

GS 2 : Polity, Governance, International Relations

1. High Child Marriages in West Bengal

A recent study published in the Lancet noted overall decrease in child marriage in India except 4 States.

Key findings of the Lancet report

- **India – 1 in 5 girls** are still married below legal marriage age.
- **Skewed achievements –** Some States have achieved dramatic decreases while other states like West Bengal have struggled.
- **Bihar (16.7%), West Bengal, Uttar Pradesh, and Maharashtra** accounted for more than half of the total headcount burden of child marriages in girls.
- **West Bengal –** It has the largest absolute increase in headcount representing an increase of 32.3% in headcount with over 5,00,000 more girls getting married as children.

What is situation of child marriage in West Bengal?

- **Statistics –** The National Family Health Survey-5 (NFHS-5) carried out in 2019-20, points out that the women aged 20-24 years who were married before the age of 18 years **remains one of the highest in the country at 41.6% same as NFHS- 4**.
- The all-India figure of women aged 20-24 years getting married before they turn 18 is pegged at 23.3%.
- **Policy interventions –** 2 schemes were introduced to curb child marriages situations in the state.
    - **Rupashree Prakalpa –** A **cash incentive scheme** for marriage of girls who are above legal marriage age in India.
    - **Kanyashree Prakalpa -** A **conditional cash transfer scheme** aimed at incentivising the schooling of all teenage girls between the ages of 13 and 18, and simultaneously discouraging child marriage.

- **Challenges –** Cash incentives and existing laws have failed to check child marriages in West Bengal.
- **Poverty** forces the family to continue with the custom of child marriage.
    - Murshidabad, economically poorer district of the State, has one of the highest numbers of child marriages.

- A significant population of the State go out to work **(migration)** in other States and they don't want to leave unmarried daughters at home.
- Despite high literacy, the incidence of child marriage is also disproportionately high in some districts.
  o For example, the Purba Medinipur district with over 88% literacy rate has the highest incidence of child marriage of more than 57.6% as per NFHS- 5.
- Certain families avail cash benefits of both the schemes to organise marriage of girls, sometimes soon after cashing in on the school scheme.
- Lower number of cases registered under Prohibition of Child Marriages Act, 2006 due to the lack of awareness.
  o In 2021, West Bengal registered only 105 cases whereas States like Assam with smaller population and lesser instances of child marriage registered more cases in the past 5 years.

The Prohibition of Child Marriage (Amendment) Bill, 2021 introduced in Parliament in 2021 for raising the age of marriage of women to 21 years to bring it on par with the men has been referred to a Parliamentary Standing Committee.

What lies ahead?

- **Promote decentralised planning** – In 2022, the West Bengal government called for a district action plan to curb child marriage and issued necessary guidelines.
- **Enhance political will** – This will effectively enforce the existing laws to control the child marriages.
- **Develop social campaigns** – Involve all stakeholders including panchayats, schools and local communities to improve the situation as rapidly as in other States.

2. Curb the disillusionment with the traditional rule of law

- The article explores challenges to the credibility of the rule of law, emphasizing the delicate balance between traditional norms and modern adaptations.
- Recent legal reforms in India, particularly the Jan Vishwas Act, are discussed, along with concerns about potential abuses of power through shortcuts in law enforcement.

Key Highlights:

- The article underscores the significance of faith in the inherent goodness of legal norms for trust in the rule of law.
- Discussion on the Jan Vishwas Act addressing outdated laws to facilitate business activities and reduce compliance burdens.
- Replacement of colonial-era laws with the Bharatiya Nyaya (Second) Sanhita to modernize legal thinking and rebuild credibility.
- The credibility crisis is attributed to shifts in perceptions of law as a power resource and the adoption of shortcut methods in law enforcement.

Key Challenges:

- Potential misuse of power through encounters and 'bulldozer' methods without democratic checks and balances.
- Concerns about the crude nature of an abridged rule of law, leading to arbitrary justice and unpredictability.

Key Terms:

- Jan Vishwas Act
- Bharatiya Nyaya (Second) Sanhita
- Credibility crisis
- Shortcut or abridged rule of law model

Key Phrases:

- "Normative raison d'etre" – referring to the fundamental basis or justification of norms.
- "Smart governance" – addressing infirmities and outdatedness in laws through effective governance.
- "Encounter killings" and "bulldozer action" – methods of law enforcement discussed in the article.

Key Quotes:

- "Fear of imprisonment for minor offences is a major factor hampering the growth of the business ecosystem."
- "The real credibility crisis of the rule of law is located not so much at the normative level but at the level of the rule of law reality."

Key Statements:

- Acknowledgment of the government's faith in the traditional rule of law as a positive aspect.

- Highlighting the dangers of growing reliance on shortcut or abridged rule of law models.

Key Examples and References:

- The Dandi March as an example of civil disobedience against an unjust law.
- Instances of police encounters and 'bulldozer' actions leading to potential abuses of power.

Key Facts:

- The Jan Vishwas Act addressed changes in numerous central Acts, including the Indian Post Office Act, and the Cinematograph Act.
- Replacement of colonial-era Indian Penal Code, Code of Criminal Procedure, and Indian Evidence Act in the second phase.

Critical Analysis:

- The article critically examines the evolving landscape of the rule of law, highlighting potential challenges and consequences of shortcut methods in law enforcement. It questions the credibility crisis and emphasizes the importance of maintaining faith in traditional norms.

Way Forward:

- The article suggests staying alert to the dangers of shortcut or abridged rule of law models.
- Encouragement to continue faith in the traditional rule of law while acknowledging the need for necessary reforms.

3. Section 69A of IT Act

The revelation of a significant increase in website blocking orders, documented in response to a Right to Information (RTI) application, raises concerns about the implications of this surge.

An activist's inquiry sheds light on the rise from 62 orders in 2013 to a staggering 6,954 in 2023, under Section 69A of the Information Technology Act, 2000.

Issue:

- The surge aligns with the broader increase in Internet use, especially following the substantial reduction in mobile data prices in 2016.

- There is a correlation revealed between the growth in online activity and the surge in government-issued blocking orders.
- December's directive from the Department of Telecommunications (DoT) instructing Internet service providers (ISPs) to compile Internet Protocol (IP) addresses of servers in India is examined.
- The directive aims to streamline the process of blocking content promptly and efficiently.
- Transparency issues emerge as the IT Ministry refuses to provide a detailed breakdown of statistics, citing confidentiality clauses.
- The lack of transparency raises questions about the accountability and openness of the government's actions in this domain.
- An exploration of Section 69A and its empowerment of the Union government to block online content in the interest of various national concerns, including sovereignty, defense, and public order.
- The discussion includes the scope of the section in preventing incitement to the commission of cognizable offenses.
- the evolving landscape of encryption technologies used by web browsers and firms, making website blocking a more intricate challenge.
- Advances in encryption reduce the level of visibility that Internet providers have on users' activities, adding complexity to regulatory efforts.

Significance:

- Suggestions are made for the DoT to collaborate with Content Delivery Networks (CDNs) for a more effective approach to website blocking.
- CDNs, such as Amazon Web Services, Google Cloud, and Cloudflare, play a pivotal role in the distribution of Internet content.
- Industry experts offer insights into the challenges and complexities associated with IP address declarations.
- There is a need for a balanced approach between regulatory requirements and technological realities in the dynamic landscape of Internet use.

4. Bilkis Bano Case

The Supreme Court quashed the order of remission granted by the State of Gujarat in 2022 to 11 men sentenced to life imprisonment for the gangrape of Bilkis Bano and murder of her family during the 2002 Gujarat riots.

What is the case about?

- Gujarat had turned violent after the Sabarmati train was burnt in **Godhra** on 27 February 2002 when 59 karsevaks were killed in the train.
- Fearing the outbreak of violence, then 5-month pregnant Bilkis Bano fled from her village with her three-and-a-half-year-old daughter and 15 other family members.
- They were attacked by about 20-30 people whereas Bilkis, her mother, and three other women were raped and brutally assaulted.
- Only Bilkis, a man, and a three-year-old survived the attack.
- Her case was taken up by the National Human Rights Commission (NHRC) and Supreme Court, which ordered an investigation by the CBI.

What happened in the case?

- The accused in the case were arrested in 2004 and the trial was moved out of **Gujarat to Maharashtra** after Bilkis Bano received death threats.
- In 2008, the Special CBI Court sentenced 11 accused to **life imprisonment** on the charges of conspiring to rape a pregnant woman, murder and unlawful assembly under the Indian Penal Code.
- In 2017, the Bombay High Court dismissed the appeals of the convicts.
- In 2019, the Supreme Court upheld the High Court order and awarded compensation of Rs 50 lakh to Bilkis — the first such order in a case related to the 2002 riots.

How were the convicts remitted?

Remission means a reduction in sentence imposed on a person convicted of a crime.

- **Gujarat High Court** - One of the convicts had approached the Gujarat High Court seeking remission of the sentence under **Sections 432 and 433 of the Code of Criminal Procedure.**

- The court dismissed his plea while observing that the "**appropriate government**" to take a decision about his remission is **Maharashtra,** and not Gujarat.
- **Supreme Court** - He then filed a plea in the Supreme Court, pleading that he had been in jail for over 15 years without remission as of 1 April 2022.
- The apex court directed the **Gujarat government** to look into the issue of remission of his sentence.
- It also directed the Gujarat government to rely on the **1992 remission policy** that was in effect at the time of their conviction in 2008 and not the policy adopted in 2014 which is effective today.

- The Bilkis Bano case was probed by the CBI, constituted under the Delhi Police Establishment Act and the convicts were sentenced on murder and gang rape charges.

What is the current Supreme Court judgement about?

- The Supreme Court said **Gujarat was not the "appropriate government"** and asked the Maharashtra government to consider the remission plea of the convicted men.
  - o It pointed out that Section 432(7)(b) of CrPC clearly indicates that the **State within which the offender is sentenced** is the appropriate government to pass remission orders and not the one where the crime took place or where the convict was imprisoned.
- It also said that the Gujarat government's decision to grant remission to convicts was an instance of usurpation of jurisdiction and abuse of discretion.
- The court cautioned States from exercising the power of remission in an arbitrary fashion.
- It also directed the released convicts to report back to the jail authorities within 2 weeks.

What does this mean?

- Through its ruling, the Supreme Court has allowed many to reaffirm their faith in the law of the land and the rule of law.
- It is a timely reiteration of the core principles that animate exercise of the power to grant remission — that it should be fair and reasonable and based on relevant parameters such as whether the crime involved affected society at large, whether the convict retained the potential for committing similar offences or is capable of reform.

5. Lancet Countdown Report 2023

A new report by the Lancet Countdown on Health and Climate Change warns of the severe health consequences of climate change in India.

Key highlights of the report

- **Rise in temperature**- It poses a significant threat to lives, health and wellbeing, leading to an increased risk of death and heat-related diseases.

- **Vulnerable group at risk**- Due to elevated temperature older individuals, socio economically deprived communities, very young children, pregnant women and those with underlying health issues are particularly at risk.
- **Impact on health-**

- **Economic fallout**- Agricultural workers face the brunt experiencing 64% of potential hours lost and 55% of potential income loss.

In 2022, India lost 191 billion labour hours due to heat, which was 54% more than in 1991-2000.

- **Urgent call for action**- The report stresses the critical need for immediate action, emphasizing the urgency of strengthening local health systems, adapting to climate change and reducing greenhouse gas emissions.
- **Air pollution**- The report addresses the health impact of air pollution, attributing increasing deaths to small particulate matter (PM2.5) generate from human activities.
- **Energy transition**- Transition to renewable energy is identified as a crucial step to mitigate air pollution, reduce greenhouse gas emission and promote universal, affordable and clean energy.
- **Drought** - India's vulnerability to extreme weather events including drought is outlined impacting crop yields, livestock and food security.
- **Spread of diseases-** The suitability for the spread of infectious diseases like malaria, dengue has increased due to climate change.
- **Local engagement**- The report emphasized the importance of locally relevant data and research to inform policies and enable government to take a leading role in championing health centered climate action.
- **Global collaboration-** The report gives a call for global collaboration to address the urgent challenges posed by the climate change.

What lies ahead?

- Climate negotiations must drive a rapid and sustained shift away from fossil fuels, accelerate mitigation, and increase support for health adaptation.
- The coordinated action of health professionals, policy makers, corporations, and financial institutions is the need of the hour to ensure a thriving future.
- Health-centred urban redesign can promote safe active travel, reduce building and transport-based air pollution and GHG emissions, and increase resilience to climate hazards

6. Commutation of Death Sentences

A Qatari court commuted the death sentence given to eight former Indian Navy personnel earlier this year and sentenced them to prison for varying durations ranging from three years to 25 years.

- In August 2022, eight former Indian Navy personnel were arrested in Qatar and were later sentenced to death in October 2023 over alleged espionage charges.
- These individuals were associated with Al Dahra Global Technologies and **Consultancy Services**, a company providing services to the **Qatari Emiri Naval Force**.
- They were notably involved in overseeing the induction of the Italian **small stealth submarine U2I2.**

Profiles of the Accused:

- The former Navy personnel had varied and distinguished careers, including receiving **commendations** and **awards**.
- They had been working in Qatar for **four to six years in leadership roles** at the time of arrest.

Legal and Diplomatic Efforts:

- Following the death sentence, the Ministry of External Affairs (MEA) of India and family members of the accused have been actively involved in legal and diplomatic efforts to secure their release or commutation of sentences.
- Legal challenges and appeals have been filed, and **diplomatic channels** have been employed extensively, culminating in the **recent commuting of sentences**.

Significance of the Commutation:

- The commuting of the death sentences is a crucial development for India, given the implications for its international **diplomatic relations** and the well-being of its citizens abroad.
- The case holds particular importance due to the strategic partnership between **India and Qatar**, including significant economic and defence links.

7. The need to examine the examination system

The article discusses the challenges and inadequacies in the current examination systems of educational institutions in India. It emphasizes the need for transparency, oversight, and credibility in assessments to ensure that degrees and certificates truly reflect students' learning achievements.

Key Highlights:

- Credibility of the examination system is crucial for maintaining educational standards.
- Decentralized systems in India with numerous universities and boards face challenges in maintaining transparency and standardization.
- The article criticizes the focus on memory-based testing, inflation of marks, and a lack of emphasis on higher-order thinking skills.
- Employers often rely on their own assessments rather than institutional certifications.
- The article suggests the use of technology, external audits, and adherence to minimum standards to improve assessment processes.

Key Challenges:

- Lack of transparency and oversight in examination processes.
- Inconsistency and inadequacies in syllabi and teaching methods.
- Confidentiality leading to malpractices and scandals in examinations.
- The need for balancing autonomy with proper oversight in educational institutions.
- Negligence, fraud, and quality issues in assessment processes.

Key Terms:

- Decentralized system
- Transparency
- Oversight
- Standardization
- Higher-order thinking
- Autonomy
- External audit
- Credibility
- Minimum standards
- Technology in assessment

Key Phrases:

- "Credibility of assessment and standard of education can be ensured only through transparency in teaching and assessment."
- "Inconsistency of the examination system is cause for concern."
- "Confidentiality is also a cause for scandals in examinations."
- "Transparency and proper oversight take lead roles in the examination systems."

Key Quotes:

- "A credible examination system is one of the key ways to improve the standard of education."
- "The employability of a graduate depends on higher order learning, while examination boards do not certify students on those skills."
- "The higher education regulator truly believes in decentralization through autonomous institutions without oversight."

Key Examples and References:

- Instances of question papers with language errors, conceptualization issues, and irrelevant questions.
- Employers disregarding institutional certifications in favor of their own assessments.
- The coaching market for competitive examinations and skilling due to a lack of faith in institutional certifications.

Key Facts:

- India has over 1,100 universities, 50,000 affiliated colleges, and 60 school boards.
- Total enrollment in higher education is 40.15 million students.
- Employers conduct rigorous assessments of candidates' academic achievements and suitability for employment.

Critical Analysis:

The article provides a critical examination of the challenges in the current education system, emphasizing the need for transparency, oversight, and credibility. It highlights the disconnect between institutional certifications and actual learning outcomes, calling for a shift towards higher-order thinking skills.

Way Forward:

- Emphasize transparency in teaching and assessment processes.
- Implement external audits of assessment systems to ensure reliability and consistency.
- Balance autonomy with proper oversight in educational institutions.
- Use technology to standardize question paper setting and evaluation processes.
- Codify and address issues of negligence, fraud, and academic inadequacies in assessments.
- Release audit reports regularly to assess examination boards in terms of transparency, reliability, and consistency.

8. Palna Scheme

Recently a National Level Programme on **Anganwadi-Cum-Crèche** under **Palna** was held at Vigyan Bhawan, New Delhi, to unveil the **Standard Operating Procedure (SOP) of the scheme**.

Palna Scheme:

- In 2022 The **Ministry of Women and Child Development** reorganized and renamed the erstwhile **National Creche Scheme** as the **Palna Scheme** under the **'Samarthya' sub-scheme of 'Mission Shakti'.**
    o A crèche serves as a **facility for working parents** to leave their children, offering a stimulating environment for holistic development.
    o It caters to children up to 6 years old, **providing care, guidance, and supervision during the day.**
- The Palna Scheme introduces **Anganwadi cum Creches**, expanding childcare provisions and focusing on **holistic development for children aged 6 months to 6 years**, particularly **catering to working mothers.**
- The central aim of Anganwadi-cum- Crèches is to meet the **demand for quality childcare facilities** and **enable women to actively participate in the workforce.**
- **Crèches operate for 26 days** a month and **7.5 hours per day**, aligning with mothers' work schedules.
- **State Governments** are the **primary implementing agencies**, with the flexibility to involve voluntary/non-governmental organizations if needed.
    o **Crèches** are to be run in accordance with the **Standard Operating Procedure (SOP).**

Objectives of the Palna Scheme:

- **Provide day-care facilities** for children (6 months to 6 years) of **working mothers**.
- **Enhance nutrition** and **health status** of children.
- **Promote holistic development**, including physical, cognitive, social, and emotional aspects.
- **Educate and empower parents**/caregivers for better childcare.

Integrated Services Package:

- **The scheme will provide an integrated package of the following services:**
  o Daycare Facilities including **Sleeping Facilities**.
  o **Early Stimulation** for **children below 3 years** and Pre-school Education for 3 to 6 years old children.
  o **Supplementary Nutrition** (to be locally sourced)
  o **Growth Monitoring.**
  o **Health Check-up** and Immunization.

About Mission Shakti:

- Mission Shakti' is a scheme of **Ministry of Women and Child Development** aimed at **strengthening interventions for women safety**, **security and empowerment**.
- The scheme operates on a **mission mode** to strengthen interventions for women's safety, security, and empowerment, embodying the government's commitment to "**women-led development**" by addressing issues affecting women across their life cycle.
- The scheme seeks to make **women economically empowered**, exercising **free choice** over their minds and bodies in an atmosphere free from violence and threat.
- It also seeks to **reduce the care burden on women** and increase female labour force participation by promoting skill development, capacity building, financial literacy, access to micro-credit etc.

Sub-Schemes of 'Mission Shakti':

- 'Sambal': Focused on the safety and security of women.
- 'Samarthya': Geared towards the empowerment of women.
- **Components of 'Sambal' Sub-Scheme:**
  o Incorporates the erstwhile schemes of **One Stop Centre (OSC),** Women Helpline (WHL), Beti Bachao Beti Padhao (BBBP).
  o Introduces a new component of **Nari Adalats**, aiming at women's collectives for alternative **dispute resolution and gender justice**.
- **Components of 'Samarthya' Sub-Scheme:**

- o Includes the modified schemes of **Ujjwala, Swadhar Greh**, and **Working Women Hostel**.
- o Incorporates existing schemes of **National Creche Scheme and Pradhan Mantri Matru Vandana Yojana (PMMVY)** under the umbrella of Integrated Child Development Services (ICDS).
- o **Introduces a new component of Gap Funding** for Economic Empowerment.

Services and activities under mission Shakti:

- The scheme **allocates funds for service delivery** and hiring technical manpower to provide immediate and **long-term care and support for targeted women**.
- The scheme establishes mechanisms, including a 24-hour national toll-free helpline, integrated services like temporary shelter, legal aid, psycho-social counseling, medical assistance, and police facilitation through One Stop Centres for women affected by violence or in distress.
- The long-term institutional care component covers the needs of women from **conception to support** due to **physical, financial, and sociological factors**.
  - o Support includes **financial aid via direct benefit transfer**, shelter, food, rescue services, counseling, literacy, vocational training, and linkages to various services.
  - o **Shakti Sadan provides care** for destitute, distressed, and marginalized women.
  - o **SakhiNiwas or Working Women Hostel** offers a secure place for working women away from their homes, providing accommodation, food, and day-care facilities for their children, where feasible.
    - ▪ It caters to **urban, semi-urban, or rural areas with nominal costs**, focusing on areas with employment opportunities for women.
  - o The Palna component **caters to children of working mothers** aged 6 months to 6 years for 7.5 hours daily.
  - o **Financial aid for pregnant and lactating mothers** aims to improve health, nutrition, and compensate for wage loss.

- This scheme includes large scale awareness programs and community engagement for **gender sensitisation, advocacy, training and capacity building** of all duty bearers, service providers and stakeholders through inter- ministerial convergence.

9. Water Governance in India

India aspires to become the 2nd largest economy by 2047 which will have an enormous impact on the use of water resources and thus highlights the need for effective water governance.

Water governance

- **Water governance** – The OECD define water governance as the set of rules, practices, and processes through which decisions for the management of water resources and services are taken and implemented, and decision-makers are held accountable.
- **Actors involved** – Central and local governments, regulators, NGOs, communities, and the private sector.

- **Need for water governance – India is a water stressed** country due to erratic rainfall and excess removal of groundwater
- The data (1990-2021) show that about 30% of the districts received less than normal South-west monsoon rainfall in 20 out of 32 years.
- Out of 766 districts, 256 districts are water stressed.
- By 2050, India is likely to experience water scarcity.
- There are bureaucratic hurdles like **Easement Act 1882**, is still followed which gives unlimited power of groundwater withdrawal to the owner of land.
- There is a lack of equity in water access.

At 1.4 billion, India accounts 17.5% of the world's population but has only 4% of the fresh water resources. The per capita annual fresh water availability has gone down from 5177 cu m (1951) to 1486 cu m (2019).

What is the significance of water governance?

- It ensures the sustainable and efficient use of water resources, address water-related challenges.
- It promotes equitable access to water services.
- It is also essential to address water-related challenges, such as water scarcity, water quality degradation, and climate change.

What are challenges in water governance?

- **Fragmented policies** – Owing to different jurisdiction and control of States, the interconnectedness of surface and groundwater systems resulted in fragmented policies.
- **Data gaps** – Data is scattered across multiple agencies, and inadequate for sound decision-making.

- **Looming Water Crisis** – A NITI Aayog report held that 21 major cities are expected to run out of groundwater as soon as 2020 which may affect nearly 100 million people.
- **Absence of River Boards** – While the River Boards Act was passed in 1956, no river board was ever created till this date.
- **Federal issue** – In India, **water is a State subject** except inter-State regulation of rivers which is under Central purview

What is the agenda for action?

- To work for cooperative federalism in water governance.
- To revamp existing National Water Resource Council.
- To introduce an overarching institution for regulating the entire water sector at the State level.
    - At present, **only 5 states have water regulators** in India.
- To develop a model water regulatory framework for adoption by various States.
- To restructure the CWC (Central Water Commission) and CGWB (Central Ground Water Board).
- To adopt multidisciplinary expertise, bridging silos in water sector, and building multi-stakeholder partnership.

10. Kapil Sibal writes: The Collegium system has failed India

The author highlights the challenges faced by the Indian judiciary, emphasizing the need for unbiased judges and a political system that separates religion from politics. The use of religious sentiments for divisive purposes is criticized, calling for a transparent and merit-based judicial appointment system.

Key Highlights:

- Judicial challenges in handling a growing population and increasing litigations.
- Delayed justice in the Supreme Court, impacting the relevance of decisions.
- Concerns about the quality of judges and perceived ideological alignments in appointments.
- Critique of the current collegium system and its lack of transparency.

Key Challenges:

- Overburdened judiciary with a rising number of cases.

- Delayed justice affecting the effectiveness of legal decisions.
- Perceived ideological biases in judicial appointments.
- Lack of a transparent and merit-oriented system for judge selection.

Key Terms:

- Collegium System: The system of appointing judges through a committee of senior judges.
- Ideological Alignment: Alleged connections between judges and specific political or religious ideologies.
- Judicial Hierarchy: The levels of the judicial system, with the Supreme Court being the highest.

Key Phrases:

- "Bedevilled with challenges": Describing the complex issues faced by the judiciary.
- "Divide and rule": Criticizing the use of religious emotions for political manipulation.
- "Seminal issues": Highlighting the critical issues decided by the Supreme Court.

Key Quotes:

- "India needs judges who deliver justice unconcerned with majoritarian sentiments."
- "The collegium system has failed us."
- "For the judiciary to regain its glory, it needs to do more than just decide on cases."

Key Examples and References:

- Reference to the Chief Justice addressing dormant cases but acknowledging the urgency needed.
- Critique of the appointment of judges based on perceived proximity to political power.

Key Facts and Data:

- Increase in litigants seeking justice due to a burgeoning population.
- Delayed hearings and decisions in the Supreme Court.
- Issues with the current system of appointing judges.

Critical Analysis:

The author criticizes the judiciary's current state, highlighting issues of delayed justice, ideological biases, and the failure of the collegium system. Emphasis is placed on the need for transparency and merit in the appointment process.

Way Forward:

- Reforming the judicial appointment process to ensure transparency and meritocracy.
- Addressing the backlog of cases to expedite justice delivery.
- Advocating for a political system that separates religion from politics to avoid divisive agendas.

11. Nationwide Transportation Strike: Protesters' Concerns and Demands

The nationwide transportation strike entered its second day, causing huge disruptions across the country.

- The strike, involving truck, bus, and tanker drivers, is a protest against stringent regulations under the Bharatiya Nyay Sanhita (BNS) for hit-and-run cases.

BNS Provisions

- **Implementation of BNS**: The Bharatiya Nyaya Sanhita, which introduces tougher penalties for hit-and-run cases, has not yet been implemented.
- **Comparison with IPC**: The new law replaces Section 304A of the Indian Penal Code, which had a lesser punishment for causing death by negligence.
- **Section 106 Controversy**: Transporters are protesting Section 106 of the BNS, which increases punishment for rash and negligent driving to a maximum of 10 years.
- **Section 106(1) and 106(2)**: These sections provide for punishments in hit-and-run cases, with Section 106(1) offering a lesser sentence for those who report accidents.
- **Abiding to Supreme Court Observations**: The increase in sentence duration to 10 years is based on the Supreme Court's recommendations for stricter actions against reckless drivers who flee accident scenes.

- **Fear of Unjust Punishments**: Transport operators argue that the new law could lead to unfair punishments and expose drivers to mob violence.

- **Lack of Stakeholder Consultation**: There is a sentiment that the law was passed without adequate discussion with relevant stakeholders.
- **Skepticism about Government Promises**: All India Motor Transport Congress expressed doubts about the government's assurances, predicting fuel shortages and driver protests.

Impact of the Strike

- **Widespread Disruptions**: The strike has significantly impacted transportation, especially in northern states like Uttar Pradesh, Punjab, Himachal Pradesh, and others, as well as West Bengal, Odisha, and southern states.
- **Fuel Shortages**: Long queues at petrol pumps have been reported, indicating a hit to fuel supply.

Conclusion

- **Continued Protests**: Despite some transport bodies calling off the strike, others continue to protest, affecting transportation and fuel supply.
- **Need for Dialogue**: The situation underscores the need for further dialogue between the government and transport stakeholders to address concerns and find a resolution.

12. Global Nuclear Order (GNO)

Created in the shadow of the Cold War, the GNO has held reasonably well, but is facing pressures under changing geopolitics

GNO

- **Historical background –** It was created in the shadow of the Cold War, with the U.S. and the U.S.S.R., leading the western and the Socialist blocs, respectively.
- Following the 1962 Cuban Missile Crisis, both US and USSR understood 2 political realities leading to the creation of GNO.
  - o A need of bilateral mechanisms to prevent tensions from escalating to the nuclear level.
  - o The nuclear weapons are dangerous and, therefore, their spread should be curbed.
- **Pathway to control proliferation –** The U.S. and the U.S.S.R. initiated multilateral **negotiations in Geneva in 1965** on a treaty to curb the spread of nuclear weapons.

- In 1968, **Nuclear Non-Proliferation Treaty (NPT)** began with less than 60 parties but today, it is widely described as the cornerstone of the global nuclear order with 191 adherents.
- **India's standpoint** - India had chosen **not to sign the NPT**, and in 1974, stunned the world by conducting an underground peaceful nuclear explosive (PNE).
- **London club – 7 countries** (the U.S., U.S.S.R, U.K., Canada, France, Japan, and West Germany) proposed ad hoc export controls to ensure that nuclear technology, transferred for peaceful purposes, not be used for PNEs.
- **Nuclear Suppliers Group (NSG) –** The London Club later transformed into NSG, with **48 countries** to observe common guidelines for exporting nuclear and related dual-use materials, equipment, and technologies.

Though the Soviet Union and India enjoyed close relations with the Indo-Soviet Friendship Treaty in 1971, the USSR was committed to upholding the GNO, and a founding member of the London Club.

How GNO has performed?

- **Nuclear taboo – It has been held since 1945 and humanity has survived 75 years of the nuclear age without blowing itself up.**
- **Successful non-proliferation –** While more than 20 countries were predicted to possess nuclear weapons by the 1970s, (5 in 1968 – the U.S., U.S.S.R., U.K., France, and China), **only 4 countries have since gone nuclear**, i.e., India, Israel, North Korea, and Pakistan.
- **Strategic stability –** It is based on assured **2nd strike capability**, guaranteed by the enormous arsenals that both US and Russia had built up.
- This eliminated any incentive to strike 1st ensuring deterrence stability.
- Arms control negotiations led to parity in strategic capacities creating a sense of arms race stability, and fail-safe communication links provided crisis management stability.
- **Denuclearisation – Belarus, Ukraine, and Kazakhstan** were denuclearised that hosted Soviet nuclear weapons and possessed some capabilities.
- **Extension of NPT – In 1995**, the NPT, originally concluded for 25 years, was extended into perpetuity.
- **Active role of USA** - Between 1977 to 1988, the U.S. actively subverted Taiwan's nuclear weapons programme as it stepped up a normalisation of ties with China.
- During the 1970s, South Korea considered a nuclear weapons programme but France withdrew its offer to supply a reprocessing plant to South Korea under U.S. pressure.
- **Limitations –** Arms control did not end the US-USSR nuclear race.

o In fact, their arsenals grew from 28,000 bombs in 1962 to over 65,000 bombs in the early 1980s.

Since the late 1980s, the U.S. and Soviet arsenals have declined sharply, to below 12,000 bombs today mostly due to the end of the Cold War rivalry and the breakup of the U.S.S.R.

How the changing geopolitics impacts GNO?

- **Multipolar world** – Today's nuclear world is no longer a bipolar world and U.S. faces a more assertive China, determined to regain influence, regionally and globally.
- **Emergence of China** – As its nuclear arsenal continues to grow, **China may soon become the 3rd nuclear superpower**, joining the United States and Russia.
- **Withdrawal from treaties**
    o **USA** – It withdrew from the Anti-Ballistic Missile (ABM) Treaty in 2002 and from the Intermediate-Range Nuclear Forces (INF) Treaty in 2019.
    o **Russia** – It de-ratified the Comprehensive Nuclear Test Ban Treaty (CTBT) in 2023.
- The only remaining agreement, **New START**, will lapse in 2026.
- **Erosion of strategic stability** –The 2021 Geneva meeting got collapsed with the Ukraine war.
- Moreover, Russian nuclear warning to NATO and the U.S. against escalation in Ukraine has revived nuclear concerns.
- **US bias over non-proliferation** – The US turned a blind eye when Israel went nuclear in the 1960s-70s and again, when China helped Pakistan with its nuclear programme in the 1980s.
- Recently, it had the nuclear submarine **AUKUS deal** (Australia, U.S., and U.K.) reducing the influence of NPT.
- **Change in stance of countries** – Domestic compulsions are turning the U.S. inwards, raising questions in the minds of its allies about its 'extended deterrence' guarantees, especially in East Asia.
    o A shift is visible in Japan's decision to double its defence spending over next 5 years.

What lies ahead?

- There are 2 conditions to gain legitimacy
    o A convergence among the major powers.
    o A successful presentation of the outcome as a global public good to the rest of the world.

13. Draft Offshore Areas Mineral (Development and Regulation) Amendment Act, 2023 (OAMDR Act)

India's Mines Ministry has proposed new rules "The Offshore Areas Mineral (Development and Regulation) Amendment Act, 2023 (**OAMDR Act**)" for the auction of **offshore mineral blocks.**

OAMDR Act:

- The OAMDR Act aims to regulate the **mining** in **maritime zones** by introducing a **non-discretionary auction** process, offering production **lease** and **composite licence** through **competitive bidding**.
- The **composite licences** will grant rights for both **exploration** and **production**.
- The rules focus on the auction of offshore mineral blocks, including those in **exclusive economic zones** beyond territorial waters.

Key highlights of the bill:

- **Private sector firms** need to make a payment for **production lease**, either **0.50**% of the **estimated** value or ₹100 crore, whichever is **lower**, in 3 instalments.
- The Act categorizes mining activities into **reconnaissance**, **exploration**, and **production**.
- **G2** (general exploration) **level** of exploration required for considering a **block** for auction for **production lease**, with exceptions for certain minerals at **G3 level**.
    - **G2 level of exploration** aims to establish the major geological features of a deposit, giving a reasonable indication of continuity, and providing an estimate of size with high precision, shape, structure, and grade.
    - **G3 level of exploration** is the **systematic** process of **searching** promising **mineral targets** identified during reconnaissance.
- For **composite licences**, the block should be explored up to **G4 level**, or mineral potentiality should be identified.
    - **G4 level of exploration** is a grassroot exploration for **identifying** the existence of **mineral potential** or initial targets on a regional scale.
- **Exploration activity** under composite licence, with the possibility of extension, is fixed as **50 years**.
- Only the government or government companies, such as PSUs, will be granted exploration, production, and **composite licences** if these are related to **atomic minerals**.

- o Atomic minerals per the Mines and Minerals (Development and Regulation) Act, 1957 are **rare earth minerals** that are rarely found, such as uranium, thorium, pitchblende, monazite, uriniferous allanite, tantalum, titanium, niobium, lithium, zirconium, and beryllium etc.

Significance of the Act:

- India has unique maritime position with an **exclusive economic zone** (EEZ) extending over **2 million square kilometres**.
  - o India must leverage its **maritime resources** for **economic** growth.
- **Geological Survey of India** has identified resources like lime mud, construction-grade sand, heavy mineral placers, phosphorite, and polymetallic ferromanganese nodules and crusts in offshore regions.
  - o The lime mud is found in **Gujarat** and **Maharashtra** coasts; construction-grade sand in **Kerala**; **Phosphorite** is found along the eastern and western continental margins and polymetallic ferromanganese (Fe-Mn) nodules along the Andaman Sea and Lakshadweep Sea.

14. Truckers' Protests in India: Economic Impact and Underlying Issues

- **Protest against New Legislation**: Truckers in India are protesting against stringent punishments proposed in the Bharatiya Nyaya Sanhita for hit-and-run accidents, leading to significant fuel shortages and highlighting the sector's importance.
- **New Criminal Code Provisions**: The new code, passed in the winter session of Parliament, increases penalties for drivers fleeing accident scenes, raising concerns among transporters.

Truckers' Concerns: Are They Justified?

- **Increased Penalties**: The law now stipulates up to 10 years in jail or a ₹7 lakh fine for fleeing an accident scene, a substantial increase from the previous two-year term.
- **Impact on Profession**: Transporters argue that these harsher penalties could deter individuals from trucking careers, worsening the existing driver shortage in India.
- **Safety Concerns**: Truckers often flee accident scenes not to evade arrest but for self-protection against hostile crowds, adding complexity to the issue.

Accident Statistics and Truckers' Vulnerability

- **Rise in Road Accidents**: India saw an 11% increase in road accidents in 2022, with significant fatalities involving pedestrians and two-wheeler riders.
- **Truckers' Role in Accidents**: While truck drivers account for less than 9% of fatalities, their exact culpability is unclear as data doesn't specify fault. However, the high rate of accidents on national highways, where trucks are prevalent, suggests possible involvement.

Economic Impact of the Strike

- **Fuel Shortages**: The strike led to fuel shortages, with around 2,000 fuel stations running dry due to the strike and subsequent panic buying.
- **Normalization Efforts**: The All India Motor Transport Congress (AIMTC) urged truckers to resume work, leading to gradual normalization from Wednesday noon.

Significance of Road Transport in India

- **Contribution to GDP**: Road transport contributes 3.6% to India's GDP, with buses handling 85% of passenger traffic and trucks about 70% of freight movement.
- **Increased Dependence**: The sector's importance has grown with the development of more highways and expressways.
- **Essential for Perishables**: Trucks play a crucial role in transporting perishables, with price increases observed in some products within just two days of the strike.

Truck Driver Shortage in India

- **Trucks-to-Driver Ratio Decline**: From a 1:1.3 trucks-to-driver ratio in the late 1980s and early 1990s, the ratio has dropped to 1:0.65, leading to about 25-28% of trucks being idle at any time.
- **High Attrition Rate**: Approximately 60% of truck drivers leave the industry within 15 years, exacerbating the shortage.
- **Stagnant Wages**: Despite the demand-supply mismatch, truckers' salaries have not increased significantly, with driving cabs and taxis in cities offering better pay.

Conclusion

- **Balancing Legislation and Livelihoods**: The government needs to find a balance between ensuring road safety through legislation and addressing the concerns of truckers.
- **Economic Importance**: The strike underscores the critical role of truckers in India's economy, particularly in the transportation of essential goods.

- **Need for Sustainable Solutions**: Addressing the driver shortage and improving working conditions in the trucking industry are essential for maintaining the sector's viability and preventing future disruptions.

15. UN's Genocide Convention 1948

Amidst international concerns over Israel's military actions in Gaza, South Africa has recently sought intervention from the **International Court of Justice** (ICJ), due to violation of **UN's Genocide Convention 1948.**

UN's Genocide Convention:

- The UN's Genocide Convention defines **Genocide** which includes- acts committed with the intent to destroy a national, ethnic, racial, or religious group.
- The convention empowers **Contracting Parties** to seek UN intervention for prevention and suppression of genocide.
- It is formally known as the UN's Convention on the Prevention and Punishment of the Crime of Genocide.
- The convention was moved in the **General Assembly** in **1948** and entered into force in **1951**.
- It was adopted in the **aftermath** of the Holocaust during **World War II.**
- It **categorises** the following actions as Genocides-
  o **Killing members** of the group
  o Causing **serious bodily** or **mental harm** to members of the group
  o Deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part
  o Imposing measures intended to prevent births within the group
  o Forcibly transferring children of the group to another group

Obligations of State Parties:

- State parties to the Genocide Convention are obligated to **prevent** and **punish genocide**.
- They are required to **enact domestic legislation** making genocide a crime under their national laws.

Judgements on Genocide:

- The Genocide Convention provides for **disputes** related to its **interpretation** and **application** to be submitted to the **International Court of Justice** (ICJ).
- The ICJ can render judgments on cases involving allegations of genocide.

International Court of Justice (ICJ):

- The ICJ is the **principal judicial organ** of the United Nations (UN).
- It was established in **1945** and began its work in **1946**.
- It is **headquartered** at the **Peace Palace** in The Hague, Netherlands.
- It has jurisdiction to settle **legal disputes** between **states** and to give **advisory opinions** on legal questions referred to it by the **UN General Assembly**, the **UN Security Council**, or other **specialized UN agencies** and related bodies.
- It applies **international law** in its **judgments**, including treaties, customary international law, and general principles of law recognized by civilized nations.
- It is different from the **International Criminal Court** (ICC).

Functions:

- It provides **advisory opinions** on **legal questions** at the request of the UN General Assembly, the UN Security Council, or other authorized UN organs and specialized agencies.
  - While **advisory opinions** are **not binding,** they carry significant weight in international law.
- States can bring cases before the ICJ to **settle disputes**, the judgment of which are **final** and **binding** on the parties involved.
  - However, **enforcement mechanisms** are dependent on the cooperation of the states involved.

Composition:

- It consists of **15 judges** who are elected by the **General Assembly** and the **Security Council**.
- Judges serve **9-year terms** and may be **re-elected**.

16. Section 106 of the Bharatiya Nyaya Sanhita

Recently, protestors have blockaded roads and highways in states such as Gujarat, Rajasthan, Maharashtra, and Madhya Pradesh as part of a protest against the stringent provisions proposed in the **Bharatiya Nyaya Sanhita 2023 legislation** concerning hit-and-run cases.

Section 106 of the Bharatiya Nyaya Sanhita:

- Under the new law, drivers who cause a serious road accident due to negligent driving and **flee without informing the police** or any administration official can face punishment of up to **10 years in prison or a fine of Rs 7 lakh**.
- The new law replaced **Section 304A of the colonial-era Indian Penal Code.**
- The existing **Section 304A imposes a two-year jail term**, while **Section 106 introduces three components**:
  - o First component prescribes up to **five years in prison** and a **fine** for causing **death due to rash or negligent acts.**
  - o Second component **reduces criminal liability** to two years for **registered medical doctors** if death occurs during a medical procedure.
  - o Third component addresses **hit-and-run cases**, imposing imprisonment up to **10 years** and a fine if the person involved fails to report the incident to authorities.

Issues with the law:

- Private transport operators argue that the law discourages drivers and may result in unjust punishments.
- They express concerns that **drivers could face mob violence** when trying to transport the injured to hospitals.

About Section 304A of the Indian Penal Code:

- Section 304A of the Indian Penal Code addresses **causing death by negligence or rash acts**, prescribing a **maximum punishment of two years' imprisonment**, fine, or both for offenses that do not amount to culpable homicide.
- The section focuses on the terms "**negligent act" and "rash act**," defining negligent acts as acts or omissions causing damages to another person's property and rash or negligent acts as those being the immediate cause of death.
- 'Rash act' refers to **actions done restlessly**, while a 'negligent act' **involves a breach of duty** due to the omission of something that a reasonable person would do.

17. Upskilling Rural Youth of India

In a recent group discussion held by Life Skills Collaborative, most of the rural youth preferred to stay in their village which necessitates the importance of upskilling them.

Why is upskilling necessary for the rural youth?

UN projects that almost 50% of the Indian population will be living in urban areas by 2047.

- **To overcome agrarian crisis** – Farming is the main source of rural livelihoods including children who work on family-owned farms.
- But the rural economy is experiencing a major occupational shift with more farmers quitting agriculture to join non-farming jobs, hinting at an agrarian crisis.

The National Sample Survey Office (NSSO) data recorded 34 million farmers leaving their farms and transitioning to other sectors such as construction during 2004-05 and 2011-12.

- **To reduce unemployment rate** – According to NSSO, the unemployment rate among rural male and female youth stood at 17.4% and 13.6% respectively in 2020.
- **To control migration** – Many rural youth migrate to urban areas in search of meaningful employment which impacts livelihood of urban dwellers.

How can youth in rural India be made employment-ready?

- **Rural education** – Technical as well as life skills are needed to empower youth in these areas through formal education.
- The success stories of **Mexico's tele-schools and Bhutan's well-being-infused curriculum** can be introduced.

According to **'LSC Voices 2023 survey'**, of 15,856 young people across 11 districts, 66% of youth aged between 19 and 22 had never taken any kind of vocational training with only 5% of them enrolled in these courses.

- **Vocational training** – It will imbibe relevant rural skills in them to ensure a secure living where they currently live.
- **Placement opportunities** – Industrial Training Institutes need to provide avenues for placements to vocational skill aspirants.
- **Alternate employment opportunities** – Rural India can boost employability in both traditional and non-traditional trades, leading to a vibrant economy

by offering skills in fields like agricultural mechanisation, pollution monitoring, nursing and digital technologies via e-learning,

- **Upskilling opportunities –** Indian government have launched **'Skills on Wheels'** initiative with NSDC and IndusInd Bank to promote skilling to students' doorsteps.
- **Promoting life skills –** If learning is infused with rural life skills in schools, rural education will have the potential to nurture a generation capable of thriving.
  - Example, courses in both industry-specific skills (such as in healthcare, electrical, construction) and life skills by Pratham.
- **NGO's participation –** Bharat Cares, a non-profit organisation in India is working towards empowering the underprivileged through skilling.

18. After ECI guidelines, charting a path to disability inclusion in politics

The Election Commission of India issued guidelines advising political parties on using disability-sensitive language and practices. These guidelines cover inclusive communication, accessible information, and integrating people with disabilities (PwDs) within party structures. The aim is to counter derogatory remarks and stereotypes against PwDs in politics. However, concerns about the effectiveness of these guidelines arise, demanding further refinement and their inclusion in the Model Code of Conduct.

Key Highlights:

- The guidelines address disability-inclusive communication, information accessibility, and inclusion within political party frameworks.
- Recent derogatory remarks by political leaders underscore the necessity for these guidelines.
- Derogatory language contributes to attitudinal barriers under the Rights of Persons with Disabilities Act, 2016.
- The guidelines are advisory, lacking uniformity and needing a more definitive mandate.
- Absence of these guidelines in the Model Code of Conduct reduces their enforceability.
- Ambiguities in language usage and terminology require clarification to avoid misinterpretation.
- Political inclusion of PwDs is not addressed in the draft National Policy for PwD.
- Lack of data on legislators with disabilities and the absence of a disability column in election forms hinder political inclusion.

Key Terms:

- Disability-sensitive language
- Inclusive communication
- Attitudinal barriers
- Rights of Persons with Disabilities Act, 2016
- Model Code of Conduct
- Derogatory remarks
- National Policy for Persons with Disabilities
- Political inclusion

Key Phrases:

- "Advisory guidelines"
- "Attitudinal barrier"
- "Model Code of Conduct"
- "Political inclusion"
- "Derogatory remarks"
- "Rights of Persons with Disabilities Act, 2016"
- "National Policy for Persons with Disabilities"

Key Quotes:

- "These guidelines are only an 'advisory,' though the phraseology of a few guidelines is in mandatory language."
- "Instances have underlined the need for these guidelines, such as derogatory remarks by political leaders."
- "Political inclusion is an ignored aspect within the Indian realm of disability."

Key Statements:

- "A uniform mandate under all three heads is needed for effective implementation."
- "Guidelines must be included within the Model Code of Conduct to enhance their enforceability."
- "The lack of data has contributed significantly to the political exclusion of PwDs."

Key Examples and References:

- A Raja's derogatory comparison of Sanatan Dharma to people with leprosy and HIV in September 2023.
- Lack of a disability column in nomination forms and affidavits filed by contestants during elections.

Key Facts:

- The guidelines cover disability-inclusive communication, information accessibility, and inclusion within party frameworks.
- Section 92 of the Rights of Persons with Disabilities Act, 2016, is mentioned as a punitive measure for breaching guidelines related to disability-inclusive communication.

Critical Analysis:

The article critically examines the advisory guidelines, highlighting their strengths, weaknesses, and areas for improvement. It emphasizes the need for a more robust and enforceable framework within the Model Code of Conduct and addresses ambiguities in language usage.

Way Forward:

- Refine and make the guidelines mandatory under all three categories.
- Incorporate guidelines into the Model Code of Conduct for enhanced enforceability.
- Provide a detailed list of disability-sensitive words and phraseology.
- Include a chapter on political inclusion in the National Policy for Persons with Disabilities.
- Introduce a disability column in election nomination forms to collect data on legislators with disabilities.

19. Are antibiotics over-prescribed in India?

The National Centre for Disease Control (NCDC) conducted a study revealing that over half of the surveyed hospital patients in India were given antibiotics preventively rather than for treatment. This overuse of antibiotics poses a significant risk as India already faces a high burden of drug-resistant pathogens, contributing to antimicrobial resistance (AMR). Experts Sumit Ray and Abdul Ghafur discuss the causes, consequences, and potential solutions to this issue, emphasizing the need for judicious antibiotic use and addressing systemic challenges.

Key Highlights:

- **Antimicrobial Resistance (AMR):** AMR refers to microorganisms becoming resistant to antibiotics. India is grappling with high levels of drug-resistant bacteria, impacting patient outcomes negatively.

- **Factors Leading to AMR:** Inappropriate antibiotic use, lack of rapid diagnostics, insufficient training, inadequate monitoring, and pharmaceutical industry incentives contribute to the rise of AMR.
- **NCDC Survey Findings:** The survey showed that 55% of patients received antibiotics as a preventive measure, indicating a potential over-prescription issue.
- **Root Causes of Over-Prescription:** Overcrowded hospitals, limited access to rapid diagnostics, and economic factors drive doctors to opt for antibiotics as a quicker and cheaper alternative.
- **Immediate Threat:** The immediate danger is evident in the survey's findings, with a significant percentage of patients exhibiting resistance to various generations of antibiotics, leading to poor health outcomes.
- **AMR as a Complex Challenge:** AMR is not solely a medical issue but a complex challenge involving socio-economic, political, and infrastructural factors.

Key Challenges:

- **Over-Prescription:** Doctors tend to prescribe antibiotics unnecessarily due to factors like overcrowded hospitals, limited time for examinations, and inadequate diagnostic facilities.
- **Lack of Rapid Diagnostics:** The absence of quick and affordable diagnostic tools contributes to the inappropriate use of antibiotics.
- **Systemic Issues:** Weak governance, inadequate sanitation, poverty, and limited access to clean water are interconnected factors contributing to AMR.
- **Implementation Gap:** Existing guidelines for antibiotic use exist, but there is a gap in their implementation, leading to over-prescription.
- **Incentivization in Pharma Industry:** The pharmaceutical industry's encouragement of certain prescribing practices exacerbates the problem.

Key Terms/Phrases:

- **Antimicrobial Resistance (AMR):** Microorganisms becoming resistant to antibiotics.
- **Over-the-Counter Antibiotics:** Antibiotics available without a prescription.
- **H1 Rule:** Regulation prohibiting certain antibiotics without a prescription.
- **Colistin:** A potent antibiotic, banned for growth promotion in poultry farming.
- **Third/Fourth-Generation Antibiotics:** Antibiotics of advanced generations, facing resistance in bacterial strains.

Key Quotes:

- "I treat infections in cancer patients, who are the most immuno-compromised patients you can come across. Patients are losing their lives because of AMR."
  – Abdul Ghafur
- "What is essential is the linking of labs to all levels of clinical setups and the fast transmission of infection-related data between the lab and the clinician."
  – Sumit Ray

Key Examples and References:

- National Centre for Disease Control (NCDC) survey on antibiotic use in Indian hospitals.
- Indian government's 2019 ban on colistin use in poultry farming.

Critical Analysis:

- Overcrowded hospitals and limited diagnostic access drive over-prescription.
- Addressing AMR requires a holistic approach, considering socio-economic factors.

Way Forward:

- Restrict access to reserve antibiotics to reduce resistance.
- Improve public health systems, delivery, and sanitation to curb AMR.
- Enforce existing laws, such as the ban on over-the-counter antibiotic sales.

In conclusion, addressing the overuse of antibiotics in India requires a multifaceted approach, involving improvements in healthcare infrastructure, diagnostic capabilities, and enforcement of regulations. The goal is to mitigate the immediate threat of AMR and ensure the judicious use of antibiotics for effective treatment.

20. Civil Society under Siege

The anti-communal and progressive civic space is under the most serious attack by various restrictions in India.

Issues faced by Civil Society Organisations (CSOs)

A free civic space is the space where CSOs can operate without undue interference from the state or other actors.

- India is a diverse and vibrant civil society but the constitutional freedom is under siege which provides citizens to participate in public affairs, express their views, and hold the government accountable.

- As per study, the organisations that were actively fighting against communalism were mostly under attack by various legal and financial instruments.

Communalism is the ideology that divides people along religious lines and promotes hatred and violence between different communities.

What are the instruments used by the State against CSO?

- **Prevention of Money Laundering Act**- It expanded the scope of proceeds of crime that enabled the Department of Revenue and Enforcement Directorate to target NGOs and opposition politicians with charges of money laundering.
- **Foreign Contribution (Regulation) Act (FCRA)-** It was made stringent and the right of NGOs to access foreign funds was taken away from them.
- **Power to CBI**- FCRA enabled the CBI to investigate and prosecute NGOs and their personnel.
- **Income Tax Act**- It was amended in 2020 to make renewals of certificates and disclosure of donor data mandatory every 5 years.
- It also brought the domestic funding of anti-communal NGOs under siege.
- **Prior reference category list**- It is a list of 80 foreign donors who are monitored by the government for supporting human rights causes.

21. ICJ: Doing Justice without power

The International Court of Justice (ICJ), the highest judicial body of the United Nations, has recently been in the spotlight due to South Africa's case accusing Israel of genocide in Gaza.

Enforcement Challenges

- **Binding Rulings**: ICJ decisions are legally binding, but they lack enforcement mechanisms, relying on the UN Security Council (UNSC) to enforce judgments.
- **Political Influence**: Enforcement often falls victim to the politics of UNSC's permanent members, as seen in potential vetoes by the US, Israel's strong ally.

Challenges to Efficacy

- **Non-Participation**: Powerful states may refuse to participate in ICJ proceedings, making compliance difficult. For instance, Russia declined to submit to the court's jurisdiction during Ukraine-Russia conflict hearings.
- **Bureaucratic Delays**: The ICJ's slow bureaucratic process leads to years-long trials and judgments, making justice delayed justice denied.

ICJ's Relevance

- **Expanding Jurisdiction**: The ICJ now handles diverse international law areas, including human rights and environmental violations, furthering the participation of states through dispute settlement clauses.
- **Successful Reparations**: The court's rulings on reparations, such as Uganda's payment to the Democratic Republic of the Congo, demonstrate its impact.
- **Advisory Role**: The ICJ's advisory opinions contribute to peaceful conflict resolution, as seen in its opinions on nuclear weapons and the Israeli-Palestinian wall.

Niche Position

- **Amid New Courts**: Despite the emergence of new international courts and tribunals, the ICJ maintains a unique place in international judicial adjudication.
- **Fragmentation Concerns**: Coexisting courts raise concerns about potential contradictions in rulings and the fragmentation of international law.
- **Guardian of World Order**: The ICJ serves as a last resort when diplomacy fails, safeguarding the interests of the World Court.

Conclusion

- The ICJ, with its rich history and evolving role in international law, faces challenges in enforcing its rulings and ensuring swift justice.
- However, its expanding jurisdiction, successful reparations, and advisory role in peaceful conflict resolution demonstrate its continued relevance.
- Striking a balance between centralization and decentralization in international judicial adjudication will be crucial to upholding the integrity of the World Court.

22. Capital Investment Scheme

The Union government earmarks Rs 2,000 crore to encourage states to scrap old vehicles.

- The Union Government has earmarked an additional ₹2,000 crore to States under the Special Assistance for Capital Investment scheme.

- This is to incentivise States to scrap condemned government vehicles or those vehicles which are older than 15 years, besides providing tax concessions to individuals for scrapping old vehicles.
- The finance ministry in December 2022 identified a new sector road transport under the Special Assistance for Capital Investment scheme for providing incentives tied to prescribed reforms by States under the scheme.
- With the inclusion of the road transport sector, the total outlay under the scheme has increased to ₹1.07 lakh crore.

'Special Assistance to States for Capital Investment' scheme:

- The government in the 2022-23 Budget had introduced the 'Special Assistance to States for Capital Investment' scheme with an outlay of Rs 1.05 lakh crore.
- Under the scheme, financial assistance is being provided to state governments in the form of 50-year interest free loans for capital projects.
- The scheme aims to encourage States to undertake capital expenditure and has earmarked ₹80,000 crore for it in the current fiscal year.
- Besides, States are encouraged to push reforms like privatisation or disinvestment, digitisation, urban reforms, optical fibre cable projects and building rural roads.
- So far, the government has approved ₹77,110 crore under the scheme, out of which ₹41,118 crore has been released to States.
- To avail the benefit for investments made this fiscal, States will have to submit details such as name of the project, capital outlay, completion period and its economic justification to the Expenditure Department of the Union Finance Ministry.

23. Amrit Bharat Station Scheme (ABSS)

Recently, the Udupi station has been included in the **Amrit Bharat Station Scheme (ABSS)** for redevelopment.

- The railway station is under the Konkan Railway Corporation Ltd. (KRCL) network and was in dire need of attention.

Amrit Bharat Station Scheme (ABSS):-

- **Launched: August,2023.**
- **Ministry: Ministry of Railways.**

Objectives:-

- The **preparation and implementation of master plans** for railway stations to enhance the facilities beyond the minimum essential amenities and creating roof plazas and city centres at the station premises in the long term
- Meet the **needs of all stakeholders** based on the funding availability and inter-se priority
- The scheme will cater to the **upgradation and replacement of existing amenities** as well as the introduction of new amenities

Salient Features:-

- The Amrit Bharat Station scheme **envisages to take up 76 railway stations** over Central Railway for upgradation/modernisation and out of that, the foundation stone will be laid at 38 stations.
- It involves the **preparation of Master Plans** and their implementation in phases to **improve the amenities at the stations** like improvement of station access, circulating areas, waiting halls, landscaping etc. keeping in view the necessity at each station.
- The scheme also envisages **improvement of the building, integrating the station** with both sides of the city, multimodal integration, amenities for Divyangjans, sustainable and environment-friendly solutions, provision of ballastless tracks, 'Roof Plazas' as per necessity, phasing and feasibility and creation of city centres at the station in the long term.
- It will **cover stations that have undergone detailed techno-economic feasibility studies**. However, the roof plazas in these stations will not be constructed in the near term as reallocation of structures and utilities is given higher priority.
- The scheme will be implemented **based on the needs and patronage of the railway stations**.
- Infrastructural development will be ensured for **more than 1,000 stations under this scheme.**

Benefits:-

- Modern passenger amenities.
- Improved traffic circulation.
- Inter-modal integration.

24. Anti-Microbial Resistance in India

Recently the National Centre for Disease Control (NCDC) in a study found that over half of the nearly 10,000 hospital patients surveyed were given antibiotics to prevent, rather than treat, infection.

Antimicrobial Resistance (AMR)

Antimicrobials - including antibiotics, antivirals, antifungals and antiparasitic - are medicines used to prevent and treat infections in humans, animals and plants.

- It is defined as resistance of micro-organisms to an antimicrobial agent to which they were first sensitive.
- Microorganisms that develop antimicrobial resistance are sometimes referred to as "superbugs".
- **Indian context-** The present serious concern is that multiple types of bacteria like E. coli, Klebsiella, Acinetobacter, Staphylococcus aureus, enterococcus have even become resistant to some of the latest generation antibiotics.

- AMR causes higher mortality and morbidity due to drug resistant infections.

What are the key highlights of the report?

India carries one of the largest burdens of drug-resistant pathogens worldwide.

What are the causes of AMR?

The World Health Organization (WHO) included AMR as one of the top 10 threats to public health in 2019.

- **Indiscriminate use**- The inappropriate use of antibiotics in non-bacterial infections both because of prescribing practices and the use of over-the-counter antibiotics.
- **Lack of research**- Inadequate laboratory facilities to inform clinicians rapidly about what would be an appropriate antibiotic even in bacterial infections, based on cultures.
- **Lack of capacity building-** Due to lack of adequate training in antibiotic selection, escalation and de-escalation.
- **Lack of regulation-** Inadequate monitoring of AMR and control of antibiotic and dispensing practices by health systems in spite of repeated warnings.
- **Market promotion-** The pharmaceutical industry is incentivizing the antibiotic prescribing practices of doctors.
- **Superbugs**- Inappropriate use of antibiotics and other molecules used to treat or prevent infections in the human, animal and agricultural sectors generate bugs that are resistant to these drugs.
- **Improper sanitation-** This leads to the spread of superbugs due to inadequate infection prevention in healthcare institutions.
- **Lack of support**- AMR is a complex socio-economic and political challenge and not just a scientific issue, it needs support from the pharmaceutical industry, awareness to the patients etc.,

- **Speedy treatment**- The course of antibiotics is cheaper than the investigation of patients, which is time consuming.
- **Infrastructural deficit**- India lacks laboratories to speed up the patient's investigation making it costly, which results in over prescription of antibiotics.

What is the way forward?

- **Promote research-** The need of the hour is linking labs to all levels of clinical setups and the fast transmission of infection-related data between the lab and the clinician.
- **Holistic approach-** The rate of AMR is directly proportional to steady and strong governance, infrastructure, sanitation, poverty, access to clean drinking water, etc.,
- **Patient safety measures-** The factors such as sanitation in hospitals, basic access to personal hygiene and infection control, are vital.
- **Enhance infection prevention**- The basic steps such as washing hands regularly, use of sanitizers helped a lot to keep the infection under control during COVID-19, such practices must be adopted to prevent AMR.

25. Judicial contradiction in Delhi Chief Secretary's extension

The article criticizes the Supreme Court of India's November 2023 judgment allowing a six-month extension to Delhi's Chief Secretary despite serious corruption allegations. It highlights the Court's perceived inconsistency in upholding constitutional principles, particularly concerning the Government of National Capital Territory of Delhi (Amendment) Act 2023, and expresses concerns about the erosion of constitutional logic and past judicial wisdom.

Key Highlights:

- The Supreme Court's decision to permit the extension of Delhi's Chief Secretary's tenure is viewed as an instance of judicial self-abnegation.
- The article questions the Court's reversal of its own earlier Services judgment, which emphasized the elected government's control over services in Delhi.
- Serious corruption charges against the Chief Secretary and the Delhi Chief Minister's recommendation for his removal create a conflict of interest.
- The Court's reliance on the 2023 amendment and the interpretation of the Chief Secretary's role is criticized for being inconsistent with past rulings, including Royappa.

- The article points out the Court's failure to acknowledge that the 2023 amendment did not exclude the application of the Royappa case.

Key Challenges:

- The Supreme Court's perceived inconsistency in interpreting constitutional principles, especially regarding the Chief Secretary's extension and the 2023 amendment.
- Addressing the conflict of interest posed by serious allegations against the Chief Secretary and the breakdown of trust between the elected government and bureaucracy.
- The Court's deviation from its past rulings, particularly the Services judgment and Royappa case, creates a challenge in maintaining a coherent judicial stance.

Key Terms/Phrases:

- Judicial self-abnegation
- Government of National Capital Territory of Delhi (Amendment) Act 2023
- Constitutional logic
- Chief Secretary's extension
- Services judgment
- Royappa case
- Conflict of interest
- Constitutional interpretation
- Erosion of trust
- Unilateral extension

Key Quotes:

- "The Court's judgments become 'writ in water' when it reverses its own reasoning for the government's convenience."
- "The Court has lost sight of constitutional logic and past wisdom that attributed great value to constitutional interpretation."

Key Statements:

- "The article questions the Court's deviation from its earlier stance, leading to a perceived erosion of constitutional principles and inconsistency."
- "The conflict of interest arising from serious charges against the Chief Secretary and the breakdown of trust between the elected government and bureaucracy is a significant concern."

Key Examples/References:

- The Supreme Court's November 2023 judgment permitting the Chief Secretary's extension and its reliance on the 2023 amendment.
- The Services judgment emphasizing the elected government's control over services and the Royappa case defining the role of the Chief Secretary.

Key Facts/Data:

- The Government of National Capital Territory of Delhi (Amendment) Act 2023 had been challenged by the Delhi government but was not stayed by the courts.
- Serious allegations of corruption against the Chief Secretary and the Chief Minister's recommendation for immediate removal.

Critical Analysis:

The article critically examines the Supreme Court's handling of the Chief Secretary's extension, highlighting perceived inconsistencies, conflicts with past judgments, and a departure from established constitutional principles. It raises concerns about the erosion of trust between the elected government and bureaucracy.

Way Forward:

- The Supreme Court needs to revisit and reconcile its past judgments, especially the Services and Royappa cases, to ensure a coherent judicial stance.
- Addressing conflicts of interest and corruption allegations in bureaucratic appointments is crucial for maintaining public trust.
- The Court should uphold constitutional principles consistently, considering the broader impact on governance and accountability.
- Future decisions related to the Government of National Capital Territory of Delhi (Amendment) Act 2023 should be made with a clear understanding of constitutional logic and democratic principles.

26. Tenth Schedule

Maharashtra Speaker's interpretation of the anti-defection law could be challenged in the Supreme Court.

What is the issue?

- Maharashtra Assembly Speaker has refused to disqualify 40 MLAs of the Eknath Shinde faction after recognising it as the real Shiv Sena and held the appointment of whip by this group as valid.

A 'whip' is a member of the legislature party in a House who is appointed as such by the respective political party.

- He also did not disqualify 14 MLAs of the Uddhav Balasaheb Thackeray (UBT) group.
- The speaker said the Tenth Schedule of the Constitution could not be invoked to quell "intra-party dissent and indiscipline".

What are the provisions under 10th schedule?

- **Anti-defection law-** It punishes individual MPs/MLAs for leaving one party for another.
- It was added by **52nd Constitutional Amendment Act** as the Tenth Schedule in 1985.
- It was a response to the toppling of multiple state governments by party-hopping MLAs after the general elections of 1967.
- **Deciding authority- The Presiding Officer of the House** is empowered to make rules to give effect to the provisions of the 10th schedule.
- **Role of judiciary-** The decision can be challenged before the higher judiciary.

What are the issues in the Act?

- **Time limit-** The law **does not provide a time-frame** within which the presiding officer has to decide a defection case.
- **Favouritism-** The deciding authority is expected to perform this constitutional role in a neutral manner, but the past instances show that the Speakers have favoured the ruling dispensation.
- **No liability for political party-** It only punishes legislators for switching parties but political parties who are at the heart of the politics have no liability under the law.
- **Problem with merger-** The exception provision for merger is based on the number of members rather than the reason behind the defection.
- **Limited scope-** The law focuses on voluntary defection and remain silent about expulsion of member from the party.
- If expelled then such member would be an independent in the House with the option of joining another party.
- **Unable to curb instability-** The mass departures of rebel legislators have become political normal thus disrupting the governance.

What are the reforms needed?

- **Three test formula-** It was laid by the Supreme Court in 1971 for determining which faction is to be recognised as the original political party by the Election Commission.

- o Aims and objects of the party
- o Its affairs as per the party's constitution that reflect inner party democracy
- o Majority in the legislative and organisation wings
- **External mechanism**- An independent tribunal is the need of the hour to prevent the Speaker from acting on partisan lines and acting in an undemocratic manner.
- **Internal democracy**- Regular inner-party elections in our political parties is needed with strict monitoring by the Election Commission.
- **Ethics committee**- Active involvement of Ethics committee as done in Cash for Query case can help in horse trading of legislators.
- **Deciding authority**- As per **2nd ARC recommendation**, the issue of disqualification of members on the ground of defection should be decided by the President/ Governor on the advice of Election Commission.
- **Narrowing the definition of defection**- Defining actions or conduct which constitutes defection that does not inhibit independent thinking and expression by legislators.

27. India-UAE Relations: Historical Context

- PM Modi recently highlighted the strength of India-UAE relations at the Vibrant Gujarat Summit 2024.
- Bilateral discussions were held with UAE President Sheikh Mohammed bin Zayed, who was the Chief Guest.

India-UAE relations have seen significant milestones:

- **India-UAE CEPA**: Effective since May 1, 2022, this agreement has slashed tariffs on over 80% of products, facilitating duty-free access for 90% of Indian exports to the UAE. Non-oil trade surged to $50 billion from May 2022 to April 2023, with a $100 billion target by 2030.
- **IMEC**: The UAE is vital to the India-Middle East-Europe Economic Corridor (IMEC), offering an alternative to China's Belt and Road Initiative.
- **I2U2 Group**: Comprising India, UAE, Israel, and the U.S., this group promotes technological and private-sector cooperation in water, energy, and transportation.
- **Rupee-Dirham Agreement**: The Reserve Bank of India and the Central Bank of the UAE have established a framework for using local currencies in cross-border transactions, reducing dependence on the U.S. Dollar.
- **Cultural Exchange**: The UAE's tolerance is evident with the construction of the BAPS Hindu Mandir in Abu Dhabi, the first temple of its kind.

Significance of India-UAE Relations

These relations hold immense strategic, political, economic, and cultural importance:

[A] Strategic Significance:

- **Security Concerns**: Amid conflicts in the Middle East, the India-UAE alliance enhances both nations' security, including fighting piracy and terrorism.
- **Energy Security**: The UAE is India's sixth-largest crude oil exporter, playing a key role in India's Strategic Petroleum Reserves Program.

[B] Political Significance:

- **Multilateral Reforms**: The UAE supports India in various international platforms.
- **Counterbalancing China's Regional Dominance**: India's strengthened relations with the UAE help offset China's growing presence in the region.
- **Engagement with Regional Alliances**: Enhanced India-UAE relations could pave the way for India's membership in organizations like the OIC and a free trade agreement with the GCC.

[C] Economic Significance:

- **Remittances**: The UAE is a major source of remittance inflows to India.
- **Trade and Investments**: The UAE is India's third-largest trade partner, with substantial investments in various sectors.
- **Access to the African Market**: Relations with the UAE facilitate India's entry into the African market.

[D] Cultural Significance:

- **Safeguarding Indian Diaspora Interests**: A robust relationship protects the interests of the large Indian expatriate community.
- **Boosting India's Soft Power**: Positive relations enhance India's soft power in the Middle East.

Challenges to India-UAE Relations

- **Trade Restrictions**: The UAE's Non-Tariff Barriers (NTBs), including SPS measures and TBT, have affected Indian exports, particularly in sectors like poultry and processed foods.
- **Chinese Economic Influence**: China's "Cheque Book Diplomacy" overshadows Indian enterprises in the UAE.

- **Kafala Labour System**: Harsh conditions for immigrant laborers, passport confiscation, and delayed wages pose significant issues.
- **Financial Aid to Pakistan**: Concerns arise due to the UAE's substantial financial assistance to Pakistan.
- **Iran-Arab Dispute**: Balancing ties with the UAE and Iran amid their conflict is a diplomatic challenge.

Way Forward

- **Clarity in Non-Tariff Barriers (NTBs)**: Establish transparent NTB practices for smoother trade relations.
- **Comprehensive Strategic Dialogue**: Initiate high-level dialogues to address strategic, defense, and political issues.
- **Harmonization with UAE's 'Vision 2021'**: Collaborate in emerging sectors to reinforce economic ties.
- **Joint Ventures in Technology and Innovation**: Encourage collaborations in cutting-edge technology.
- **Healthcare Cooperation**: Collaborate in healthcare research and public health initiatives.

28. History of India Bangladesh relations

Sheikh Hasina's re-election as Prime Minister of Bangladesh will have positive impact on bilateral ties with India.

Sharing 54 rivers and a 4,096-km border, the India-Bangladesh border is the longest land boundary India has with any of its neighbours.

- **Historical relations**- Both India and Bangladesh were under the British colonial rule and Rabindranath Tagore wrote the national anthem for both countries.
- **Partition of British India, 1947**- Bengal region was partitioned based on religious lines.

- **Diplomatic relation**- India granted diplomatic recognition to Bangladesh as an independent and sovereign country and provided critical military and material support during **Bangladesh Liberation War 1971.**

Former Prime Minister of Bangladesh 'Bangabandhu' Sheikh Mujibur Rahman recognised that friendship with India is a cornerstone of the foreign policy of Bangladesh.

- **Maitri Diwas**- Bangladesh and India celebrate Friendship Day on 6th December commemorating India's recognition of Bangladesh and the continued friendship between the two countries.

Sheikh Mujibur Rahman and Indira Gandhi laid the foundation of bilateral relations through a 25-year Friendship Treaty in 1972

- **Ganga Water Treaty, 1996**- It is a 30 year treaty to share surface waters at the Farakka Barrage near their mutual border.
- **Land Boundary Agreement, 2015**- The Bangladeshi enclaves in India and Indian enclaves in Bangladesh were transferred by this agreement.
- **Shonali Adyaya**- In 2022, both countries inked an agreement on the sharing of waters of the common border river **Kushiyara,** the first pact since 1996 Ganga Waters Treaty.
- **Economic relations**- Bangladesh has emerged as India's largest trade partner in South Asia, and India is the 2nd biggest trade partner of Bangladesh.
- Bangladesh started using rupees in its trade transactions with India last year to reduce dependence on the U.S. dollar and strengthen regional currency.
- **Comprehensive Economic Partnership Agreement (CEPA)-** A joint feasibility study is conducted in 2022 which reduces or eliminate customs duties on traded goods and simplify trade norms.
- CEPA gains additional significance as Bangladesh is set to lose its Least Developed Country (LDC) status after 2026, thereby losing its duty-free and quota-free market access in India.
- **Regional trade agreements**- Both are part of Asia Pacific Trade Agreement (APTA), SAARC Preferential Trade Agreement (SAPTA), Agreement on South Asian Free Trade Area (SAFTA) and Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) which govern the tariff regimes for trade.
- **BIMSTEC Master Plan for Transport Connectivity**- It is a comprehensive plan that aims to enhance regional connectivity and integration among the member countries of the BIMSTEC.
- **COVID-19 assistance**- India was the first country to provide free vaccines around 2 million Covishield to Bangladesh to assist in its efforts to fight against the pandemic.
- **Regional connectivity**- In 2022, **Akhaura-Agartala rail link** was inaugurated that connects Bangladesh and the northeast through Tripura.
- **The Khulna-Mongla Port rail link** is the project constructed in Bangladesh with financial assistance from India.
- A cross-border bus service operates from Shillong, Agartala and Kolkata to Dhaka.
- **Maitri Setu**- The **Sabroom Bridge** over the Feni river reduces the distance between Tripura and Chittagong port.

- **India Bangladesh Protocol Route**- It is an inland water transit and trade protocol under which inland vessels of one country can transit through the specified routes of the other country.
- **Protocol on Inland Water Transit and Trade (PIWT&T)-** It allows the use of the waterways for the movement of goods and people.
- **High Impact Community Development Projects (HICDPs)-** It constitute an active pillar of India's development assistance, around 74 projects have been assisted by India.
- **Defence relations**- **Exercise Sampriti XI** is the annual joint military exercise held at Umroi in Meghalaya.
- **Cultural cooperation**- **Indira Gandhi Cultural Centre (IGCC) and Indian Cultural Centre in Dhaka** plays a crucial role in celebrating the cultural links between the two countries.
- **Capacity building**- India announced 1000 "**Suborno Jayanti Scholarships"** for Bangladeshi students and in 2022.

What are the concerns in their bilateral ties?

- **Rohingya crisis-** Bangladesh hosts over a million refugees from Myanmar and seeks India's help to repatriate them.
- **Teesta water sharing**- Bangladesh shows concern about lack of agreement on sharing the river water with India, which depends on West Bengal's consent.
- **China factor**- Bangladesh is China's best option to break out of its **'East Asia Mould'** and strengthen its maritime presence in the Indian Ocean.
- **Geopolitical dynamics-** US has imposed sanctions and visa restrictions on Bangladesh for eroding democracy and human rights, which might pose a formidable challenge for India.

What lies ahead?

- Despite concerns, both have shared a warm and cordial relationship based on mutual trust and a friendship that goes beyond the arithmetic of economic gains and losses.
- Both should work together to achieve the common goal of development and prosperity for their people.
- India should foster cordial relation in line with its '**Act East'** policy to counter China's expanding influence in the Indo-Pacific and build a friendly and stable neighbourhood.

29. Chabahar Port: A Strategic Gem

- External Affairs Minister S. Jaishankar's recent visit to Iran featured crucial discussions with Iranian Minister of Roads and Urban Development, aiming to establish a long-term cooperation framework for the strategically vital Chabahar port.

- **Location**: Chabahar Port is strategically positioned at the mouth of the Gulf of Oman in Iran.
- **Deepwater Port**: It stands as Iran's first deepwater port, holding a pivotal position on global oceanic trade routes.
- **Geographic Positioning**: Situated west of Iran's border with Pakistan, it competes with China's Gwadar Port, located to the east.
- **Strategic Importance**: Chabahar Port holds immense strategic importance for both Iran and India.
- **Mitigating Western Sanctions**: It allows Iran to mitigate the impact of Western sanctions.
- **Alternative Trade Route**: For India, it offers an alternative trade route, bypassing Pakistan's restrictions on land access for trade with Afghanistan and Central Asia.

India's Engagement with Chabahar

- **Initiating Ties**: India's engagement with Chabahar dates back to 2002 when discussions commenced between Iranian and Indian officials.
- **Strategic Cooperation**: A roadmap for strategic cooperation was signed during President Khatami's 2003 visit to India, with Chabahar as a key project.
- **Counteracting BRI**: The project gained prominence for India as it sought alternative trade routes amid China's Belt and Road Initiative (BRI) and the development of Gwadar Port in Pakistan.
- **Access to Central Asia**: Chabahar's significance further escalated with India's ambitions to access Central Asia and Russia.

Development of Chabahar Port

- **Two Distinct Ports**: Chabahar Port comprises two distinct ports: Shahid Beheshti and Shahid Kalantari.
- **Indian Investment**: India's primary investment is directed towards the Shahid Beheshti port.
- **Trilateral Agreement**: In April 2016, India, Iran, and Afghanistan signed a trilateral agreement.

- **Rapid Development**: India's Shipping Ministry rapidly worked towards developing the port.
- **Operational Milestones**: In December 2017, the first phase of Shahid Beheshti port was inaugurated, facilitating the movement of Indian wheat to Afghanistan.
- **IPGL's Role**: India Ports Global Limited (IPGL) played a pivotal role in the port's operations.
- **Phased Expansion**: The Shahid Beheshti port is undergoing development in four phases, ultimately reaching a capacity of 82 million tons per year with 32 jetties.

Challenges and Delays

- **Geopolitical Hurdles**: Geopolitical complexities, particularly Iran's relationship with the US, have contributed to project delays.
- **US-Iran Relations**: The fluctuating US-Iran relationship has posed challenges, especially after the US withdrew from the Joint Comprehensive Plan of Action (JCPOA) in 2018.
- **Sanctions Impact**: India faced challenges in finding international suppliers under sanctions.
- **Afghanistan Dynamics**: The situation in Afghanistan also affected India's relations with Kabul but gradually improved.
- **Recent Developments**: In 2022, India reopened its embassy in Kabul and allocated funds for the Chabahar port project.
- **Continued Wheat Exports**: India plans to send 20,000 metric tonnes of wheat to Afghanistan through the port in 2023.

Future Outlook

- **US-Iran Ties**: The pace of Chabahar port development remains tied to US-Iran relations and regional dynamics.
- **Ongoing Challenges**: Challenges include susceptibility to American sanctions, uncertainties in Afghanistan, and compatibility with the Belt and Road Initiative (BRI).
- **Strategic Diplomacy**: Active diplomacy, efficient implementation, and operations are vital for overcoming these challenges and maintaining Chabahar's status as a viable transit hub and a crucial link between Iran and India.

30. Annual Status of Education Report (ASER) 2023

The Annual Status of Education Report 2023 has been published recently by Pratham, a civil society organisation.

ASER

- It is a nationwide citizen-led household survey that provides a snapshot of the status of children's schooling and learning in rural India.
- **Conducted by-** Pratham, a non-governmental organisation.
- **Launched-** 2005
- **Published**- It was conducted annually until 2014 and switched to alternate year cycle in 2016.
- **Basic ASER**- It collects information about enrolment in pre-school and school for children in the age group of 3 to 16, and assesses children aged 5 to 16 one-on-one to understand their foundational reading and arithmetic abilities.
- **ASER, 2017**- For the first time it focused on the activities, abilities and aspirations of the youth aged **14 to 18** in 28 districts of the country.
- **ASER 2023**- It revisits 14-18 age group on collecting data and information about new domain that have emerged as important in the post pandemic world.
- **Theme**- Beyond Basics
- **Data collection**- The survey was conducted in 28 districts across 26 states in India.

Key highlights of the report

- **Opted streams**- Most of the people in this age group were enrolled in the **Arts/Humanities streams**.
- Females are less likely to be enrolled in the Science, Technology, Engineering, and Mathematics (STEM) stream (28.1%) than males (36.3%).
- **Vocational training**- Only 5.6% of surveyed youth report taking vocational training or other related courses currently.
- **Basic reading**- About 25% still cannot read a Class II level text fluently in their regional language.
- **Math abilities**- More than half struggle with division (3 digit by 1 digit) problems.
- **English ability**- A little over half can read sentences in English (57.3%).
- Of those who can read sentences in English almost three quarters can tell their meaning.
- **Gender based performance**- Females can do better than males in reading a Class II level text in their regional language.
- Males do better than females in arithmetic and English reading.
- Across all digital tasks, such as finding and sharing videos, searching the internet, setting an alarm, and using Google maps, boys outperformed girls.
- **Gender gap**- Males are more than twice as likely to have their own smartphone as females.

- **Mobile penetration**- Close to 90% of all youth have a smartphone in the household and kn0w how to use it.
- About two-thirds of the youth reported using smartphones for educational purposes, such as watching online videos related to studies, solving doubts or exchanging notes.
- **Digital literacy divide**- Females are less likely to know how to use a smartphone or computer as compared to males.
- **Skill deficit**- The report revealed that there is a huge skill deficit among adolescents, many of them only a few years away from entering the job market.

31. One nation, one election

The article discusses the formation and potential implications of the 'High Level Committee on One Nation, One Election' set up by the Union Government in September 2023. It delves into the reasons for and against the concept, focusing on the financial aspects and governance downtime. The author raises legal concerns, particularly regarding the constitutional autonomy of states, linguistic bias in consultations, and the role of the Election Commission. The looming possibility of a constitutional showdown in the Supreme Court is emphasized, drawing parallels with the U.S. case of Baker v. Carr.

Key Highlights:

- Formation of the 'High Level Committee on One Nation, One Election' chaired by former President Ramnath Kovind.
- Reasons supporting the concept include reducing election expenses and minimizing governance downtime caused by the Model Code of Conduct.
- Opposition argues that democratic processes, including elections and the Model Code of Conduct, are essential for a functioning democracy.
- Legal concerns raised, citing potential violation of state autonomy and constitutional provisions, particularly as stated in the S.R. Bommai case.
- The linguistic bias in consultations, with the committee's website available only in English and Hindi, is highlighted.
- The Election Commission's seemingly passive role and lack of involvement in the process are questioned.

Key Challenges:

- Constitutional and legal concerns regarding the potential alteration of the duration of State Legislative Assemblies.
- Linguistic bias in consultations, limiting the inclusivity of the decision-making process.

- Potential compromise of the Election Commission's independence and autonomy.
- Balancing financial considerations with the fundamental principles of democracy.
- The challenge of ensuring a fair and unbiased decision-making process amid political interests.

Key Terms and Phrases:

- One Nation, One Election
- High Level Committee
- Model Code of Conduct
- S.R. Bommai case
- Constitutional autonomy
- Governance downtime
- Baker v. Carr moment
- Linguistic bias
- Election Commission
- Constitutional showdown

Key Quotes:

- "The cost of holding free and fair elections… is a price that can never be high."
- "The introduction of a common election process would necessarily require alteration of the existing duration of a number of State Legislatures."
- "Similar to demonetisation, when the Reserve Bank of India was kept in the dark, the Election Commission seems to be a silent spectator."

Key Statements:

- "The Supreme Court would be called upon to determine the ultimate fate of Indian democracy."
- "The potential alteration of the duration of State Legislatures would be anti-federal and unconstitutional."
- "The stage is set for a constitutional showdown in the not-too-distant future."

Key Examples and References:

- Baker v. Carr case in the U.S. as a reference for the potential role of the Supreme Court in a constitutional showdown.
- Comparison with demonetization to highlight concerns about the Election Commission's apparent lack of involvement.

Key Facts and Data:

- The estimated cost of the 2014 general elections was ₹3,870 crore.
- The High Level Committee's website is available only in English and Hindi.

Critical Analysis:

The article critically examines the potential consequences of One Nation, One Election, questioning its feasibility and highlighting legal and constitutional concerns. It underscores the importance of democratic processes and the need for the Supreme Court to play a pivotal role in preserving India's constitutional architecture.

Way Forward:

- Ensure comprehensive and inclusive consultations in multiple languages to address linguistic bias.
- Strengthen the autonomy of the Election Commission and ensure its active participation in decision-making processes.
- Balance financial considerations with the preservation of democratic principles.
- Address legal concerns, particularly those related to state autonomy and constitutional provisions.
- Encourage public discourse to raise awareness and engage citizens in the decision-making process.

32. Chinese research vessel enters Indian Ocean, 'heading' to Male.

The recent entry of the Chinese research vessel Xiang Yang Hong 03 into the Indian Ocean, heading towards the Maldives, has stirred geopolitical considerations in the region. Open Source Intelligence (OSINT) reports and maritime tracking portals have noted the vessel's movement, with its destination set for Male, the capital of the Maldives.

Issue:

- Chinese research vessels have been increasingly active in the Indian Ocean Region, particularly around the Ninety Degree East Ridge and Southwest Indian Ridge.
- These vessels are equipped with advanced technologies for surveillance and data gathering, raising concerns about their potential impact on regional dynamics.

- The vessel's reported visit aligns with engagements between Chinese officials and the Maldivian leadership, including a meeting between the Chinese Communist Party's Vice-Minister of the International Department and Maldives President Mohamed Muizzu.
- This occurs amidst consistent demands from the Maldives for the withdrawal of Indian troops from its territory.

Significance:

The situation adds another layer of complexity to the delicate geopolitical balance in the Indian Ocean, where the interests of India, China, and the Maldives intersect. The reported visit prompts questions about the evolving strategic landscape in the region and its implications for regional stability.

33. CDSCO approval FDC medicines

The Central Drugs Standard Control Organisation (CDSCO) has conditionally approved the manufacture and sale of **five fixed-dose combination (FDC) medicines** in India.

- The Union health ministry had previously banned 14 FDC drugs, citing a lack of therapeutic justification.

Key Highlights of the approval:

- The CDSCO issued an order for conditional approval of five FDC medicines.
- Manufacturers are required to provide **post-marketing safety** and **efficacy data for three of these combinations.**

Specific Instructions:

- For combinations used in treating **cold and allergy symptoms** (e.g., paracetamol, phenylephrine hydrochloride, caffeine anhydrous), manufacturers must submit **safety and efficacy data within one year.**
- For the **second FDC**, companies are instructed to conduct randomised comparative **phase IV clinical trials.**
- The order specifies that **phase IV clinical trials** are mandatory for generating data within a year.

Additional Combinations and Regulations:

- The combination of imipramine **hydrochloride + diazepam** must be indicated for **comorbid anxiety conditions**, with treatment duration not exceeding **6 to 8 weeks.**
- **Chlorpheniramine maleate + ammonium chloride + sodium citrate**, used for treating cough with mucus, must follow specified dose strengths and schedules for adults and children, ensuring doses do not exceed the maximum permissible limit.

Regulatory Oversight:

- The CDSCO's directive aims to standardize the manufacture of these FDCs, **ensuring efficacy, safety, and correct dosage information.**
- This move signifies increased **scrutiny and regulation of pharmaceutical products** to ensure public health safety.

Fixed-Dose Combination Medicines (FDCs)

- Fixed-dose combination Medicines (FDCs) refer to **pharmaceutical formulations** that contain **two or more active ingredients** in a fixed ratio of doses within a **single dosage** form.

The rationale for FDCs:

- **Enhanced Efficacy:** Combining multiple active ingredients can lead to increased therapeutic efficacy.
- **Improved Compliance:** Simplifies drug regimens, enhancing patient adherence to treatment.
- **Synergistic Effects:** Allows for synergies between different drugs to address multiple aspects of a disease.

Challenges and Concerns:

- **Lack of Evidence:** Some FDCs may lack robust clinical evidence supporting their efficacy and safety.
- **Risk of Polypharmacy:** Increased risk of adverse effects and drug interactions with multiple active ingredients.
- **Resistance Concerns:** Overuse of FDCs may contribute to antimicrobial resistance.

34. Maldives rules out research by Chinese vessel in its waters

The Ministry of Foreign Affairs in the Maldives disclosed that the Chinese government had diplomatically approached them, seeking necessary clearances for a port call. The request emphasized the need for the rotation of personnel and replenishment, dispelling any notion of research activities during the vessel's stay.

Issue:

- This development follows Sri Lanka's move to temporarily halt foreign research vessels from calling at its ports, a decision prompted by India's expressed apprehensions over Chinese vessels.
- The regional dynamics and concerns over strategic influence have created a sensitive atmosphere, where the movements of research vessels are being scrutinized more closely than ever.
- The clarification from the Maldivian government aims to allay any fears or misconceptions surrounding the Chinese vessel's presence.
- However, the timing of the announcement, coupled with regional tensions, underscores the delicate balance that small island nations like the Maldives must navigate in the midst of broader geopolitical rivalries.

Significance:

- As maritime nations jostle for influence in the Indian Ocean region, the movements of research vessels are increasingly becoming geopolitical flashpoints.
- The Maldives, situated at the crossroads of major sea routes, finds itself in a strategic position, necessitating careful diplomatic navigation to safeguard its national interests.
- The delicate balance between maintaining diplomatic ties and addressing regional concerns highlights the challenges faced by small nations caught in the crossfire of larger geopolitical dynamics.
- As the situation unfolds, it remains crucial for nations in the region to engage in open dialogue and transparent communication to foster stability and mutual understanding.

35. Sub Categorisation of Scheduled Castes

Recently a committee has been formed to evaluate and work out a method for equitable distribution of benefits to the most backward communities among Scheduled Castes (SCs) without breaking up the SC quota.

Why the committee is formed?

As per Census 2011, Scheduled Castes comprise around 15% of the total population.

- **Need for Committee** - Madiga community in Telangana, constitutes at least 50% of the SC population in the State, but feels crowded out of benefits by the Mala community, another SC.
- SC communities in several States have said that they have been routinely crowded out of benefits meant for SCs by dominant and relatively forward communities in their category.
- **State level initiatives**- States such as **Punjab, Bihar and Tamil Nadu** have tried to enact laws to sub-categorise SCs and allocate different percent of reservation for them.
- **Central panel**- The Central Government has formed a high level committee to explore alternative ways to address the grievances of the SC communities.

What about the previous attempts of Sub categorisation?

- **Demand of Madiga community**- Union government had in 2005 considered legal options for sub-categorisation of SCs.
- Then Attorney General of India had said the Constitution can be amended to bring subcategorization within SCs, but there needs to be a mechanism to gather empirical evidence to prove the necessity of sub-categorisation.
- **Justice Ramachandra Raju Committee**- It was formed by Andhra Pradesh which recommended the sub-categorisation of SCs in the State based on the evidence that some communities were more backward and had less representation than others.
- **E.V.Chinnaiah vs State of Andhra Pradesh**- Supreme Court held that the State did not have the powers to unilaterally sub-categorise communities in the list of SCs or STs.
- The Constitution has provided that these lists can only be made by Parliament and notified by the President.
- **National Commission report**- It was formed to study the issue in Andhra Pradesh and recommended an amendment to **Article 341** of the Constitution.

- **Views of National Commissions for SCs and STs**- They opposed the constitutional amendment and argued that **Article 16(4)** of the Constitution has already allowed States to make special provision for any backward classes.

- **State of Punjab vs Davinder Singh-** The Supreme Court upheld the validity of Punjab's law to sub-classify SCs and give preference to Balmikis and Mazhabi Sikhs for reservation in services.
- The judgment has been referred to a larger bench of the Supreme Court, which will decide whether sub-classification of SCs and STs is constitutionally valid or not.

What are the functions of the committee?

- **Subcategorise SCs**-The panel will discuss about breaking up the SC quota off the table and look into ways in which benefits of other government schemes and initiatives can be focused towards these SC communities.
- **Special initiatives -** It will design special initiatives for communities that need it and focus on existing programmes to ensure a more even distribution of benefits.
- **Deadline-** The committee doesn't have specific deadline and has been asked to present its findings at its earliest.
- **Specific considerations**- It will figure out on what basis SC communities are going to be shortlisted for special attention, find out extend to which special initiatives need to be design for each of them, and then find a way to deliver them.

What lies ahead?

- Legal experts have pointed out the necessity to have concrete data to support sub-categorisation.
- The data can be made through the caste census of each community and sub-community and their respective socio-economic data, the only thing that can provide a reasonable ground to decide how castes can be categorised, how much % should be given, etc.,

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37. Providing clean water to all

The Jal Jeevan Mission, launched by Prime Minister Narendra Modi in 2019, has made significant strides in providing tap water to rural households in India, with a focus on addressing diverse regional challenges. The mission aims to ensure clean water access to every rural household, promoting health, hygiene, and overall well-being. The approach is characterized by a commitment to inclusivity, community involvement, and sustainable development.

Key Highlights:

- Tap water provided to 73% of rural households, benefiting over 14 crore households.
- Diverse strategies employed, including insulated pipes, multi-village schemes, and community water purification plants.
- Notable improvements observed in areas such as reduced migration, minimized human-animal conflicts, and revived celebratory events.
- Impact extends beyond clean water provision to encompass safety, health, and environmental benefits.
- Studies indicate potential reduction in infant deaths, prevention of diarrhoeal deaths, and significant economic savings.

Key Challenges:

- Infrastructural challenges due to diverse terrains and geographical variations.
- Customizing solutions for different regional needs.
- Ensuring sustainability and community involvement in the long term.

Key Terms:

- Jal Jeevan Mission: Government initiative aimed at providing tap water to rural households.
- Sabka Saath, Sabka Vikas, Sabka Vishwas aur Sabka Prayas: Guiding principle emphasizing inclusive development.
- Nal Jal Mitra: Initiative empowering villagers with skills for maintaining water supply systems.

Key Phrases:

- "No one is left behind": Core theme emphasizing inclusivity.
- "Elixir of life": Reference to the importance of water for well-being.

Key Quotes:

- "The growth story of the Jal Jeevan Mission is not confined to data; changes can be seen on the ground."
- "True development is not just about infrastructure; it is about bringing in a sense of community."

Key Statements:

- The mission focuses on long-term, regular access to quality water for every rural household.
- Community involvement, especially of women and youth, is integral to the mission's success.

Key Examples and References:

- Kyarkuli Bhatta in Uttarakhand, Kusumdih in Jharkhand, and Chandpur in Maharashtra cited as examples of positive changes due to the mission.
- Studies by Dr. Michael Kremer and the World Health Organization provide evidence of the mission's positive impact.

Critical Analysis:

The Jal Jeevan Mission has made commendable progress in addressing rural water needs. The tailored approach to diverse challenges, inclusion of communities, and the focus on holistic development contribute to its success. Continuous monitoring, transparency, and data-driven decision-making are strengths. Challenges lie in sustaining community involvement and ensuring long-term infrastructure stability.

Way Forward:

- Continue prioritizing community involvement and inclusivity.
- Strengthen monitoring mechanisms for long-term sustainability.
- Emphasize skill development for rural communities to ensure self-reliance in maintaining water supply systems.
- Explore innovative solutions for regions with unique challenges.

38. Reforms in Geographical Indication (GI)

India's two-decade journey with Geographical Indication (GI) tags has shown limited out-come and there is an urgent need to simplify the registration processes.

Geographical Indication tag

The first product in India to be accorded with GI tag was Darjeeling Tea in the year 2004-05.

- **GI definition**- It is defined under Article-23 and 24 of the **Trade-Related Aspects of Intellectual Property Rights (TRIPS)** Agreement of the World Trade Organization (WTO).
- GI tag is a form of certification that recognises unique products based on their origin.
- **Characteristics** - GI tagged products can be natural or man-made.
- The raw materials for such products do not necessarily have to come from that region, unless it is an agricultural tag.
  - o For instance, the mulberry silk used in Kancheepuram sarees comes from Karnataka, and the gold zari from Surat.
- The essential difference between GI and other intellectual properties (IP) is that, GI is a collective Intellectual Property Right.
- **India-** It is a member of WTO and enacted the **Geographical Indications of Goods (Registration & Protection) Act, 1999** that came into force from 2003.

Tamil Nadu has the highest number of GI tags in India.

What is the significance of conferring GI tags?

- **Legal protection**- It is unique and prevents any kind of exploitation by a third party as it is governed by the law.
- **Symbol of authenticity**- It helps consumers to get quality products and identify between fake and genuine products.
- **Economic growth**- It increases the demand for the product both at national and international markets.
- **Revenue generation-** It helps producers to obtain the title of premium goods and avail proper price in the competitive market.

What are the concerns with GI registration in India?

- **Low registration**- India lacks in GI registration compared to other nations, India lags in GI registration.
- **Strict regulations**- As per GI registry, India received 1167 applications, only 547 products have been registered. This means the application acceptance ratio is only about 46%.
- **Geographical disputes** -It took over a decade for the famous Alphonso mango to receive GI registration due to disputes over geography.
- **Outdated law**- The Act for GI is enacted in 1999, and needs to be updated to make it more user friendly and effective.

- **Ambiguous definition-** The definition of "producers" under the law lacks clarity, which results in the involvement of intermediaries who share the benefits that go to the producers.
- **Limited classification-** In many European Union nations, GI is classified into 2 categories namely Protected GI (PGI) and Protected Destination of Origin (PDO) but India has the PGI category only.
- **International conflict-** Some countries have claimed exclusive rights to certain GIs, such as **"Darjeeling"** for tea and **"Basmati"** for rice, while others have argued that these names have become generic or that they have prior trademarks on them.
- **Lack of research-** Country wise publications is dominated by European countries and India has very limited publications.

What lies ahead?

- **Provide incentives**- The Government should provide incentives and legal protection to the GI producers, and exclude the non-producers from the GI benefits.
- **Testing facility-** The quality and accessibility of GI products should be ensured by setting up testing labs and creating a separate tab on eNAM.
- **Holistic approach**- The government's One District One Product scheme should be integrated with GIs through the involvement of food producer organisations.
- **Leverage technology**-The Government should use technology and skill-building to enhance the capacity and competitiveness of the GI producers.
- **Special trade agreements**- EU-India agreement on GIs, can facilitate the recognition and exchange of GI products between countries that share a common interest in GIs.
- **Promotional activities**- The protection of GI products should be enhanced by organising exhibitions, involving embassies, advocating at WTO, and supporting the "vocal for local" initiative.

39. Opposition MPs, parliamentary disruptions

The winter session of Parliament in 2023 witnessed a significant development as a considerable number of Opposition Members of Parliament (MPs) were suspended. The suspension, amounting to 141 lawmakers, raised concerns about the role of the Opposition and the impact on parliamentary proceedings. This incident sheds light on the delicate balance between protests, democratic governance, and the need for healthy debates in the political landscape.

Importance of Protests in Democratic Governance

- Democratic Values: Protests and dissent are integral to democratic governance, reflecting the vibrancy of political discourse and the exercise of individual and collective rights.
- Opposition's Collaborative Role: Former Prime Minister Atal Bihari Vajpayee's emphasis on the collaborative role of the Opposition underscores the importance of healthy debates and dissent in shaping informed decision-making and inclusive legislation.

Track Record of Suspended MPs

- Shashi Tharoor: A three-time Lok Sabha MP, Tharoor's notable contributions include a high attendance record, active participation in debates, and the introduction of crucial Private Member's Bills.
- S. Jothimani: As a Lok Sabha member from Tamil Nadu, Jothimani has actively addressed various topics, raised numerous questions, and introduced Bills on significant issues despite being a newcomer.
- Manoj Kumar Jha: The Rajya Sabha MP from Bihar boasts a high participation rate, significant contributions through questions and Private Member's Bills, and recognition as the best debutant parliamentarian.
- Supriya Sule: With a high attendance record, Sule, a Nationalist Congress Party MP from Maharashtra, has actively engaged in debates and introduced Bills on important issues like census amendment and rights of widows.
- Gaurav Gogoi: The Lok Sabha MP from Assam, awarded the Best Parliamentarian Award, has actively participated in debates and presented Private Member's Bills on environmental concerns and company regulations.
- Vandana Hemant Chavan: A Rajya Sabha MP from Maharashtra, Chavan's active involvement in debates, extensive questioning, and introduction of Private Member's Bills on social issues highlight her commitment.
- Derek O'Brien: The Rajya Sabha MP from West Bengal, with a focus on education, digital literacy, and public health, exemplifies active parliamentary engagement through debates and Private Member Bills.
- Kunwar Danish Ali: Despite a recent suspension, the Lok Sabha MP from Uttar Pradesh has shown high attendance, active participation in debates, and the introduction of Bills, showcasing commitment to legislative duties.

Issues

- Suppression of Dissent: The suspension of MPs for causing disruptions raises concerns about the suppression of dissent, potentially hindering the Opposition's crucial role in shaping legislative discourse.
- Impact on Governance: Stifling dissent challenges democratic norms, prompting a reevaluation of the delicate balance between government and Opposition collaboration for effective governance.

Significance of Opposition's Role

- Shaping Legislative Discourse: Committed MPs underscore the indispensable role of the Opposition in shaping India's legislative discourse through active participation, questions, and Bills.
- Need for Diverse Voices: Dissent highlights the importance of diverse voices in the political landscape, contributing to the nation's future through meaningful parliamentary engagement.

Solutions

- Reevaluation of Democratic Norms: The suspension incident prompts a reevaluation of democratic norms, emphasizing the need for an inclusive and open political environment that accommodates dissent.
- Government-Opposition Collaboration: Effective governance requires collaborative efforts between the government and the Opposition, transcending political divides for the greater good of the nation.

40. Boeing's India Engineering and Technology Center (BIETC) & Boeing Sukanya Program

Recently, Prime Minister Narendra Modi inaugurated the Boeing India Engineering & Technology Center (BIETC) campus in Bengaluru, Karnataka, and launched the Boeing Sukanya Program.

Boeing's India Engineering and Technology Center (BIETC)

- BIETC aims to be a cornerstone for **collaboration** within **India's startup, private, and government ecosystem.**
- This state-of-the-art facility, representing **Boeing's largest investment outside the USA**, seeks to develop next-generation products and services for the **global aerospace and defense industry**.

BIETC's Workforce:

Engineer Engagement and Technologies:

- BIETC's diverse **engineering workforce**, exceeding 3,000, **engages in research and development**.
- Utilizes cutting-edge technologies, including Artificial Intelligence/Machine Learning, Industrial Internet of Things, Cloud, Model-Based Engineering, and Additive Manufacturing.

Partnership with Indian Armed Forces

- Boeing will **collaborate with the Indian armed forces** to boost aircraft demand in the defense sector, aligning with the vision of **Aatmanirbhar Bharat** (Self-Reliant India).

Opportunities for Engineers and Technicians:

Employment opportunities:

- Boeing announces **107 job openings** in various Indian cities, with 97 positions in Bengaluru.
- **Hiring across domains**, including software engineers, billing analysts, structural analysis engineers, product review engineers, associate systems engineers, programme analysts, and digital electronics architects.

Boeing University Innovation Leadership Development (BUILD) Program:

- Boeing's BUILD program **invites university students** and **early-stage startups in India** to incubate innovative ideas and create new market opportunities across industry verticals.
- **Partnerships with seven incubators** to organize BUILD in India, fostering entrepreneurial ideas and market opportunities.

Boeing's Impact on the Indian Aerospace Market:

Supply Chain and Local Partnerships:

- Boeing has **strengthened its supply chain** with over 300 local companies in India.
- Joint ventures for manufacturing **fuselages for Apache helicopters** and vertical fin structures for the 737 family of aircraft.

Economic Contribution:

- **Annual sourcing** from India stands at approximately $1 billion.
- **Boeing employs over 6,000 people in India**, with an additional 13,000 working with supply chain partners.

Boeing Sukanya Program:

- It a significant initiative to **empower girls** and **women across India** by fostering their **entry into the aviation sector.**

- The program, **initiated by Boeing**, is designed to **provide learning opportunities** and support for female aspirants, particularly those from **rural areas**, in the fields of science, technology, engineering, and mathematics (STEM).
  - It aims to equip girls and women with **critical skills** in STEM fields, fostering their readiness for careers in aviation.
- It focuses on **creating avenues for girls** and **women** across India to engage in **STEM-related education** and **training for careers in aviation**.
- The program's **key components** include the **establishment of STEM Labs at 150 locations**, scholarships for women pursuing pilot training, and investments in flight training curriculum, certifications, simulator training, and career development programs.

Scholarships for Women Pilots:

- Recognizing the **financial challenges** women may face in pursuing pilot training, Boeing Sukanya will provide **scholarships** to support women undergoing training to become pilots.
- This financial assistance aims to **remove barriers** and encourage more women to enter the aviation industry.

Career Coaching in Government Schools

- The program will enable many government schools to **provide career coaching** for students aspiring to become pilots.
- Beyond aviation, **developmental amenities will be extended to participating schools**, enhancing educational opportunities.

Aviation sector in India:

- India's aviation sector has become the **world's third-largest domestic market**.
- Initiatives like UDAN have played a significant role in **doubling domestic passengers in a decade**.

- **Women participation**: India leads globally with **15% of women pilots**, three times the global average.

GS 3 : Economy, Science and Technology, Environment

1. ULFA Peace Accord

Recently, the pro-talks faction of the United Liberation Front of Asom (ULFA) have signed a historic tripartite peace deal with the Government of India and the State government of Assam.

ULFA

- **Historical background** – There was an influx of migrants from all over since 19th century into Assam.
- It was further exacerbated by the Partition in 1947 and the subsequent exodus of refugees from the erstwhile-East Pakistan.
- The competition for resources skyrocketed, resulting in a 6-year long mass movement from 1979.

The Assam Accord, seeking to find a solution to the problem of foreigners in Assam was signed in 1985 but it was not sufficient to prevent the emergence of radical groups like ULFA, Mizo National Front and National Liberation Front of Tripura.

- **ULFA** – United Liberation Front of Assam was born during the anti-foreigners movement of **1979**.
- **Aim** – To establish a sovereign Assamese nation through an armed struggle against the Indian state.
- **Current leaders** – Arabinda Rajkhowa and Paresh Baruah.
- **Geographical spread** – It still has camps in Myanmar, and previously had camps in both Bangladesh and Bhutan.
- Lying deep in jungles and hilly areas, these camps act as launch pads for cross border operations, as well as shelter after the fact.
- **Links to other insurgents** – Outfits in the Northeast, Myanmar and also with Islamic terror outfits like Al-Qaeda.
- It also has links to Pakistan's Inter-Services Intelligence (ISI), which has reportedly trained ULFA insurgents in the past.

ULFA openly supported Pakistan in its **monthly newsletter Swadhinata** during the Kargil War.

- **Impact** – For over 44 years, this struggle has been chequered with kidnappings and extortion, executions and bomb blasts, leading to tragic loss of life in Assam and beyond.

What is the response by Indian government?

- **Military measures** – It has launched **Operation Bajrang (1990)** that has arrested many ULFA insurgents.
- Assam was declared a 'disturbed area', President's rule was imposed and Armed Forces Special Powers Act (AFSPA) was invoked.

After ULFA Peace Accord, only 15% area in Assam remained under the AFSPA.

- **Strategic measures** – It has allegedly supported certain factions of ULFA, like **Surrendered ULFA (SULFA) in 1992** that offered to surrender and engage in dialogue with the government.
- Later SULFA allegedly carried out secret killings of ULFA cadres on behalf of the State government.

ULFA Peace Accord

- **Surrendering the arms -** ULFA cadres have agreed to surrender arms and ammunition, vacate their camps.
- They have decided to join the mainstream and to engage in the peaceful democratic process established by law and maintain the integrity of the country.
- It would be made a time-bound programme by the Ministry of Home Affairs to fulfil the demands of the ULFA.
- **Committee formation** - A committee would also be formed for monitoring the programme implementation.
- **Reservation** - 97 out of 126 Assembly seats in Assam would be reserved for indigenous people and the future delimitation exercise would follow this principle.
- **Financial support** – Rs. 1.5 lakh crore investment had been pledged in the peace accord.
- **Constitutional safeguards** – It would be ensured by protecting land rights and putting restrictions on migration from one constituency to another.

The faction led by Paresh Baruah, known as ULFA-I, has not joined the peace process. Baruah is said to be in China and has support of 100 cadres who mainly operate from the Myanmar border.

2. Monster quake in Japan leaves 48 dead; rescuers scramble in search of survivors

Context: Tsunami waves hit Japan's coasts after a powerful 7.6-magnitude earthquake shook the north-central part of the country, leading to urgent evacuation alerts.

What happened?:

- A powerful 7.5-magnitude earthquake struck Ishikawa prefecture in Japan, causing widespread destruction and triggering tsunami waves over a meter high.
- The disaster claimed the lives of at least 48 people, with rescuers scrambling to find survivors amidst the rubble.
- The Noto Peninsula witnessed extensive damage, including building collapses, flattened houses, sunken fishing boats, and landslides on highways

Why is Japan prone to earthquakes and tsunamis?

- Japan is prone to earthquakes and tsunamis due to its location along the Pacific Ring of Fire, which is an area with a lot of seismic and volcanic activity. This region encircles the Pacific Ocean and is characterized by the presence of several tectonic plate boundaries. The Pacific Plate, Philippine Sea Plate, and Eurasian Plate converge around Japan, leading to frequent tectonic movements.
- **Tectonic Plate Boundaries:** Japan sits at the convergence of several major tectonic plates, including the Pacific Plate, Philippine Sea Plate, and Eurasian Plate. The interactions between these plates result in intense geological activity, causing earthquakes and volcanic eruptions.
- **Subduction Zones:** The Pacific Plate is subducting beneath the North American Plate along the Japan Trench to the east of Japan. This subduction process can lead to powerful undersea earthquakes, which may trigger tsunamis.
- **Ring of Fire:** Japan is part of the Pacific Ring of Fire, a horseshoe-shaped zone known for its high seismic and volcanic activity. This region is prone to earthquakes and volcanic eruptions as a result of the tectonic plate movements.
- **Underwater Geography:** The underwater geography, including deep ocean trenches and the uneven ocean floor, contributes to the potential for tsunamis. When earthquakes occur under the ocean, they can displace large volumes of water, generating tsunamis.

SDG and Sendai Framework related to Disasters:

Sustainable Development Goals (SDGs)

The United Nations introduced the 17 Sustainable Development Goals (SDGs) in September 2015, succeeding the Millennium Development Goals. Unlike the MDGs, the SDGs are universal and apply to all countries, with a target to achieve them by 2030. SDG 11 specifically focuses on making cities inclusive, safe, resilient, and sustainable.

- **SDG 11:** SDG 11 aims to ensure inclusive, safe, resilient, and sustainable cities and human settlements globally.
- **Target 11.5:** By 2030, cities should significantly reduce disaster-related deaths, the number of affected people, and economic losses in proportion to global gross domestic product.
- **Target 11B:** By 2020, there should be a substantial increase in the number of cities and settlements adopting integrated policies, including those for climate change mitigation, disaster resilience, and holistic disaster risk management at all levels, aligning with the Sendai Framework for Disaster Risk Reduction 2015-2030.

Sendai Framework

- The Sendai Framework, endorsed by the UN General Assembly, serves as a roadmap to enhance community resilience to disasters, aiming for a substantial reduction in disaster risk and losses over the next 15 years.
- The targets emphasize supporting least-developed countries in constructing sustainable and resilient buildings using local materials through financial and technical assistance.

3. UPI's 'Tap & Pay'

The **Reserve Bank of India (RBI)** Governor recently announced that **Unified Payments Interface (UPI)** members can **use 'Tap & Pay' functionality** by January 31, 2024.

About UPI Tap & Pay:

- The **National Payments Corporation of India (NPCI)** has started the process to deploy 'UPI Tap and Pay' across digital payment providers.
- Payment players under **Unified Payments Interface (UPI)** can roll out the UPI Tap and Pay feature on their apps at any time.

- This facility is a novel way to make your UPI transactions and enhance **easy, safe, and instant payments.**

Features of UPI 'Tap & Pay':

- **Near-field communication (NFC)** technology is used instead of a camera to capture a payee's UPI ID or a Virtual Payment Address (VPA).
- It can be accessed only on phones or devices that have NFC capability.
- To make the payment, one must look for the 'Tap & Pay' button on their UPI app; the transaction will be completed by tapping the device on the UPI Smart Tag/Smart QR.
- Transactions of up to and including ₹500 will be done through UPI LITE, and those exceeding ₹500, via the UPI PIN.
- The feature is available for both **Android and iOS**, and is currently live on two apps: BHIM and Paytm (**only for limited users**).

Near-field communication (NFC) technology:

- NFC is a **wireless personal area network (PAN) technology** that connects two compatible devices in very **close proximity** to each other for slow but reliable data transfer.
- It uses **short-range wireless connectivity** causing magnetic field induction to enable communication between devices.
- This is enabled when **touched together** or brought within a **few centimeters** of each other.
- It **includes** authenticating credit cards, enabling physical access, transferring small files and jumpstarting more capable wireless links.
- It builds on and extends the work of existing ecosystems and standards around **Radio Frequency Identification Tags (RFID).**
- This makes it easier to **load multiple cards** into a single phone for payments, municipal transit, building access, opening car doors, and other use cases.
- NFC supports **interactive applications** built on basic RFID capabilities such as automatically pairing Bluetooth headphones and Wi-Fi connections.
- It can also **automatically** pull up data or an app from a poster or ad.

National Payments Corporation of India (NPCI):

- It is an **umbrella organization** founded in 2008, for operating retail payments and settlement systems in India.
- This was an initiative of the **RBI and Indian Banks' Association (IBA)** under the provisions of the **Payment and Settlement Systems Act, 2007.**
- **Aim:** To create a robust Payment & Settlement Infrastructure in India.

- NPCI has been incorporated as a **"Not for Profit"** Company under the provisions of Section 8 of **Companies Act 2013.**
- This would provide infrastructure to the entire Banking system in India for **physical** as well as **electronic payment and settlement systems.**

Key initiatives by NCPI:

- **Unified Payments Interface (UPI):** To facilitate instant fund transfers between bank accounts through mobile devices using a unique identifier-Virtual Payment Address (VPA).
- **BHIM App:** Bharat Interface for Money is a mobile app to enable fast, secure, and reliable cashless payments using UPI.
- **RuPay Cards:** NPCI's RuPay is a domestic card payment network that provides an alternative to international card schemes.
- **National Financial Switch (NFS):** NFS is a standardized communication platform for banking channels to interconnect and share information securely and efficiently.
- **Immediate Payment Service (IMPS)**: IMPS enables instant interbank electronic fund transfers and facilitated through mobile phones, internet banking, and ATMs.
- **Aadhaar Enabled Payment System (AePS):** A bank-led model that allows online interoperable financial transactions at POS (Point of Sale or MicroATM) using the Aadhaar.
- **National Common Mobility Card (NCMC):** Also known as 'One Nation One Card,' it is an interoperable transport card for payments across public transport systems and retail outlets.
- **NACH (National Automated Clearing House):** NACH is a web-based solution for high volume, low-value electronic transactions, like bulk payments, dividend payments, etc.
- **UPI for International Payments**: For expansion of UPI to enable international transactions, allowing users to make payments globally using the UPI platform.
- **Fastag**: NPCI has played a role in the implementation of Fastag, an electronic toll collection system in India, promoting digital payments at toll plazas,

4. Crucial Role of Karman Line in Space Defense Strategies

- The Karman line, the theoretical boundary between Earth's atmosphere and outer space, plays a crucial role in space defense and satellite communications.

Understanding the Karman Line

- The Karman Line is an abstract boundary positioned at an altitude of 100 kilometers above sea level.
- Its primary function is to establish the separation between Earth's atmosphere and the vast expanse of space.
- Although not universally accepted by all scientists and space explorers, the majority of countries and space organizations acknowledge this demarcation.
- It was formally established in 1960s by the Federation Aeronautique Internationale (FAI), a body responsible for record-keeping.
- Crossing the Karman Line designates an individual as an astronaut.

Potential Threats from Dominating the Karman Line

- **Anti-Satellite Weapons**: Control over the Karman line could enable adversaries to deploy weapons targeting satellites, disrupting communication links.
- **Jamming and Interference**: Adversaries might use systems to disrupt satellite communications, causing blackouts or degraded performance.
- **Hacking and Cyber-attacks**: Unauthorized access to satellite systems could lead to data breaches or manipulation of communication signals.
- **Physical Interception or Tampering**: The ability to physically reach satellites could allow adversaries to alter orbits, damage components, or eavesdrop on communications.
- **Space Debris and Kinetic Kill Vehicles**: Creating debris or deploying kinetic kill vehicles could disrupt satellite networks.
- **Electromagnetic Pulse (EMP) Weapons**: EMPs could damage satellite electronics, rendering them inoperable.
- **Denial of Access to Space**: Dominating the Karman line could enable adversaries to deny space access to certain countries or entities.
- **Spoofing and Deception**: Manipulating satellite communication signals could mislead or deceive users.
- **Space-based Cyber-Physical Attacks**: Combining cyber and physical methods could disrupt or manipulate satellite operations.
- **Policy and Regulatory Challenges**: Dominance could lead to geopolitical challenges and affect international agreements related to space activities.

Historical Context and Recent Developments

- **First Breach by V-2 Missile**: On June 20, 1944, the V-2 became the first object to breach the Karman line, marking a significant milestone in space exploration.
- **Superpower Dominance**: Both the United States and the Soviet Union have historically sought to dominate space for military and reconnaissance

purposes, leading to the development of anti-satellite weapons and ballistic missiles.

India's Evolving Space Program

- **Shift in Focus**: India's space program has transitioned from a developmental focus to incorporating space for national security objectives, particularly in response to China's counter-space capabilities.
- **Military and Security Considerations**: India's approach now includes robust launch capabilities, military satellites, and an emphasis on self-reliance and situational awareness.

Conclusion

- **Strategic Importance**: The Karman line's significance extends beyond scientific understanding to encompass crucial defense strategies in space.
- **Need for Vigilance and Cooperation**: Nations must protect their space-based assets and collaborate internationally to address the multifaceted threats associated with dominating this critical boundary.
- **Future of Space Defense**: As space becomes increasingly contested, understanding and securing the Karman line is vital for maintaining and defending capabilities in outer space.

5. Smart Lander for Investigating Moon (SLIM) spacecraft

Recently, Japan's **Smart Lander for Investigating Moon (SLIM)** entered orbit around the moon ahead of its planned moon-landing attempt in January 2024.

SLIM:

- SLIM, launched by the Japan Aerospace Exploration Agency (JAXA) is a **lightweight spacecraft weighing 590 kg at launch**, considerably smaller than Chandrayaan 3.
  - SLIM is lighter because it **carried much less fuel**.
- SLIM was launched alongside **XRISM on an H-2A rocket**.
- SLIM will mark the **second Japanese** attempt in 2023 to **soft-land on the moon**.
- The **HAKUTO-R M1 lander**, built by Japanese company **ispace**, crashed in April 2023 after its engines shut down too soon during the landing.
- Just as the 'Vikram' lander of the Chandrayaan 3 mission used data from the Chandrayaan 2 orbiter to help guide its descent, **SLIM will use data from JAXA's SELENE orbiter.**

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How did SLIM get to the moon?

- SLIM took four months to reach the moon, opting for a longer but more fuel-efficient route based on **weak-stability boundary theory**.
- After launch, SLIM entered an orbit around the Earth and swung around the planet multiple times, **progressively building up kinetic energy with each swing**.
- Once SLIM **achieved sufficient speed** through the **Earth's orbit**, it accelerated towards the moon's orbit.
- As SLIM approached the moon, **instead of slowing down** and being captured by the moon's gravity, it allowed itself to be **deflected in the moon's direction** even as it **shot past lunar orbit, deeper into space**.
  - This **deflection** is the result of the combined forces exerted by the earth and the moon.
- SLIM was subsequently on a larger and loopier path that was designed to **bring it back near the moon**, after it had **slowed down further**.

Role of SLIM on the Moon?

- SLIM is dubbed the "moon sniper" for its standout feature—attempting to soft-land within an exceptionally tight limit of 100 meters from its chosen landing site on the moon.
- The 100-meter landing tolerance is unprecedented in moon-landing missions.
  - For comparison, **Chandrayaan** 3's Vikram lander had a **4 km x 2.5 km elliptical area**, and China's Chang'e 3 landed 89 meters away within a 6 km x 6 km ellipse.
- SLIM's target **landing site** is near the **Shioli Crater**.
- SLIM will deploy two small rovers called **Lunar Excursion Vehicle (LEV) 1 and 2**.
- LEV-1, LEV-2, and SLIM will together **study the lunar surface** near the landing point, collect temperature and radiation readings, and attempt to study the moon's mantle.

6. Square Kilometer Array (SKA) Project: An Overview

- India will contribute Rs 1,250 crore to the multinational Square Kilometer Array (SKA) project, a significant international astronomical collaboration.

- **Construction Phases**: The SKA project is being built in two phases, with the first phase (SKA1) having commenced in December 2022.
- **Project's Headquarters**: The SKA project is headquartered at the Jodrell Bank Observatory in the UK.

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7. Prithvi Vigyan Scheme for Earth Sciences

- The Union Cabinet, led by Prime Minister, has sanctioned the "Prithvi Vigyan (Prithvi)" scheme, a significant project of the Ministry of Earth Sciences.
- With a budget of Rs 4,797 crore, the scheme is planned for the period from 2021 to 2026.

Prithvi Vigyan Scheme

- **Consolidation of Programs**: The Prithvi scheme unifies five existing sub-schemes:

1. Atmosphere & Climate Research-Modelling Observing Systems & Services (ACROSS),
2. Ocean Services, Modelling Application, Resources and Technology (O-SMART),
3. Polar Science and Cryosphere Research (PACER),
4. Seismology and Geosciences (SAGE),
5. Research, Education, Training and Outreach (REACHOUT).

- **Aim**: This integration is designed to enhance our understanding of Earth's systems and apply scientific knowledge for societal, environmental, and economic benefits.

Objectives and Focus Areas

- **Comprehensive Observations**: The scheme emphasizes long-term monitoring across the atmosphere, ocean, geosphere, cryosphere, and solid earth to track Earth System's vital signs and changes.
- **Development of Predictive Models**: It focuses on creating models for weather, ocean, and climate hazards and advancing climate change science.
- **Exploration Initiatives**: Exploration of Polar Regions and high seas is a key aspect, aiming to discover new phenomena and resources.
- **Technological Advancements**: The scheme also stresses the development of technology for the sustainable exploitation of oceanic resources for societal applications.

Role of the Ministry of Earth Sciences

- **Provision of Critical Services**: The Ministry is responsible for delivering crucial services related to weather, climate, ocean and coastal states, hydrology, seismology, and natural hazards.
- **Support in Disaster Management**: These services are essential for issuing forecasts and warnings for natural disasters, thereby aiding in disaster preparedness and risk mitigation.

Holistic Approach to Earth System Sciences

- **Broad Scope of Study**: Earth System Sciences involve studying the atmosphere, hydrosphere, geosphere, cryosphere, and biosphere, and their complex interactions.
- **Integrated Research Efforts**: The Prithvi scheme aims to address these components comprehensively, enhancing understanding and providing reliable services for India.

Impact and Future Prospects

- **Addressing Major Challenges**: The scheme's integrated research and development efforts will tackle significant challenges in various fields like weather, climate, oceanography, cryospheric studies, and seismology.
- **Harnessing Resources Sustainably**: It explores sustainable methods to utilize both living and non-living resources, contributing to national development and environmental conservation.

8. Payments Infrastructure Development Fund scheme

The **Reserve Bank of India (RBI)** recently extended the **Payments Infrastructure Development Fund (PIDF) scheme** till December 31, **2025.**

Payments Infrastructure Development Fund (PIDF) scheme:

- The Scheme was operationalized by the RBI in **2021 for three years** (extendable up to 2 years) to encourage deployment of **payment acceptance infrastructure** in India.
- It includes physical Point of Sale (PoS) terminals, **Quick Response (QR) codes**, in **tier-3 to tier-6 centers**, North Eastern states and Union Territories (UTs) of Jammu & Kashmir and Ladakh.
- **Purpose:** To strengthen the payment acceptance infra by including **30 lakh touch points,** which includes 10 lakh physical and 20 lakh digital payment devices every year.
- This provides **financial assistance** to banks and **Non-Bank Financial Companies (NBFCs)** for such deployment.

- The **corpus of PIDF** stands at Rs 1,026.37 crore, as **funded by** the RBI and major authorized card networks in India.

Progress on PIDF Scheme:

- The beneficiaries of the **PM Vishwakarma Scheme** across the country would now be included as merchants for deployment under the PIDF Scheme.
- Apart from physical and digital devices, **Soundbox devices and Aadhaar-enabled biometric** devices are made eligible for subsidy for installations made from October 1, 2023.
- The **amount of subsidy for devices** deployed in special focus areas, including North Eastern States, Jammu & Kashmir and Ladakh, has been **increased from 75% to 90%** of the total cost.
- **Distribution of physical and digital devices:**
  - **Tier 1 & 2** centres (PM SVANidhi Scheme): 308 physical and 12,83,147 digital devices.
  - **Tier 3 & 4** cities: Around 3,99,089 physical devices and 91,99,972 digital devices.
  - **Tier 5 & 6** Centres: 3,23,236 physical devices and 1,47,48,608 digital devices.

9. National Transit Pass System (NTPS)-'One Nation-One Pass'

Union Minister for Environment, Forest and Climate Change, recently launched the **National Transit Pass System (NTPS)** across India envisaged as '**One Nation One Pass'**.

National Transit Pass System (NTPS):

- This system is to facilitate the **seamless transit of timber, bamboo, and other forest** produce across the country.
- The NTPS is envisioned as a "**One Nation-One Pass**" regime, which will enable unified, online and seamless mode for permit issuance for tree growers and farmers.
- **Special Pan Indian vehicles:** Vehicles carrying timber and other forest produce from Gujarat and Jammu & Kashmir were flagged-off for West Bengal and Tamil Nadu.
- **QR coded transit permits**: It would allow check gates across various states to verify the validity of the permits and allow seamless transit.
- Currently, the transit permits are issued for transport of timber and forest produce based on **state-specific transit rules.**

- NTPS is designed for **user convenience**, featuring desktop and mobile applications for easy registration and permit applications.
- Transit permits will be **issued for regulated tree species**, while the users can **self-generate No Objection Certificates** (NOC) for **exempted** species.

Benefits of NTPS:

- **Ease of Doing business** for those involved in Agroforestry.
- It will ensure **greater transparency** and extend its impact beyond agroforestry and tree farming.
- It would aid recent initiatives like **Indian Forest and Wood Certification Scheme** and the **Trees Outside Forest Initiative.**
- **Reduce time-consuming processes**, remove hurdles in transportation of forest prduce.
- It also promises to **incentivize** the entire **value chain.**
- It would help manage **records** for both **inter-state and intra-state transportation** from various sources like private lands, government owned forest and private depots.

10. Limitations in land availability for Biodiversity targets

A recent study highlights challenges in implementing **biodiversity targets** and **climate mitigation** due to limitations in the **available land.**

Key Findings of the Study:

The study raises concerns about potential conflicts between **land-based carbon dioxide removal (CDR)** strategies and the global biodiversity conservation **goal of "30x30."**

Land-Based Carbon Dioxide Removal (CDR):

- Countries aim to deploy land-based CDR activities covering **120 million square kilometers** to achieve **Net Zero goals.**
- CDR involves **removing and storing carbon dioxide** from the atmosphere through geological, terrestrial, or ocean reservoirs.
- Nations have committed to additional CDR activities ranging from **100–650 carbon dioxide equivalent (Mt CO2) annually** by 2030 in their **Nationally Determined Contributions (NDCs).**
- Land-based CDRs **include** afforestation, reforestation, peatland management, and soil carbon sequestration.

- CDR activities **alone cannot fulfill** the **Paris Agreement** goal of limiting global warming to 1.5 or 2 degrees Celsius.
- Doubts raised about countries' commitments to **allocate additional land** for protected areas while **expanding food production and CDR.**

Biodiversity "30x30" Target:

- The adoption of the **Kunming-Montreal Global Biodiversity Framework (GBF)** in 2022 marked a crucial milestone to combat and reverse biodiversity loss.
- Nations agreed on the **"30x30" target** to safeguard 30% of the world's terrestrial and marine areas by 2030.
- **Current protected areas** cover 16% of terrestrial and 8% of marine areas, falling short of the 30% goal.

Land Use and Protected Areas:

- Climate change and biodiversity policies **dependent on land use** may face conflicts.
- As of **2023**, 12.3 Mkm2 of **land is under protected areas**, targeting an **increase to** 23 Mkm2 by 2030.
- Researchers estimate that **44% of global land** (64 Mkm2) should be under protected areas to effectively **conserve biodiversity.**

Recommendations:

- Emphasis on **land-based CDR approaches** that benefit biodiversity, such as **ecosystem restoration and protection of existing sinks.**
- Governments are advised to **prioritize degraded lands** for CDR activities to **minimize competition with biodiversity-rich areas.**

11. Rethinking Tree Plantation Strategies in India: A Call for Policy Revision

- **National and International Commitments**: Tree planting by state forest departments is propelled by India's National Forest Policy, global restoration commitments, and central government initiatives like the Green India Mission.
- **Forest Cover Targets**: The emphasis on forest cover in financial allocations by the Finance Commission further motivates states to increase forested areas.

Geographical and Ecological Context

- **Tropical Dry Forest Biome**: Over three-fifths of India, spanning from the Shivaliks in the north to the Eastern Ghats in Tamil Nadu, falls under this biome.
- **Sparse Tree Cover and Drought-Prone Areas**: This region, characterized by sparse tree cover and less than 1,000 mm of annual rainfall, is susceptible to drought.
- **Dependence of Rural Population**: These landscapes are crucial for cattle grazing and support endangered fauna like wolves, striped hyenas, and blackbucks.

Recent Trends in Forest Cover Expansion

- **Significant Increase in Andhra Pradesh and Telangana**: Between 2006 and 2015, these states collectively added significant forest cover, further augmented by Telangana through schemes like **Haritha Haram**.
- **Satellite Imagery and Dense Plantations**: To be detected by satellite, dense plantations of fast-growing species like teak, eucalyptus, and bamboo are favored over natural sparse canopy.

Consideration for Tree Plantation

- **Site Selection:** Choose appropriate locations such as public parks, schools, and degraded lands for tree plantation. Focus on areas with adequate sunlight, proper drainage, and enough space for the tree to grow.
- **Native Tree Species**: Opt for planting native tree species as they are well-adapted to the local climate and support the region's biodiversity. Some popular choices in India include neem, banyan, peepal, mango, and teak.
- **Planting Season**: The ideal time for tree plantation in most parts of India is during the monsoon season (June to September). This period provides sufficient rainfall, which helps with the establishment and growth of newly planted trees.

Challenges and Impacts of Current Tree Planting Practices

- **Questionable Forest Cover Targets**: The 33% forest cover target lacks a scientific basis, as does the 26 million hectares target under the **2011 Bonn Challenge**.
- **Negative Ecological Consequences**: Excessive tree planting can lead to the loss of biodiverse grasslands and scrub ecosystems, impacting pastoral communities and water availability in river basins.

Recommendations for Policy Revision

- **Recognition of Varied Ecosystems**: The 15th Finance Commission's acknowledgement of diverse forest canopy densities is a positive step, but it overlooks the importance of grasslands and open scrub ecosystems.
- **Alternative Restoration Approaches**: Restoring degraded lands to their original grassland or scrub states with native trees is more beneficial than creating monoculture plantations.
- **Revising National Forest Policy Targets**: It's crucial to update the target forest cover to promote the conservation of grasslands and open ecosystems in their natural state.
- **Beyond Satellite Imagery for Monitoring**: Restoration programs should not solely rely on satellite imagery, as tree cover alone is not a comprehensive indicator of ecosystem health.

Conclusion

- **Need for Holistic Approaches**: A top-down policy approach focused on tree planting can lead to long-term ecological imbalances and wasteful expenditures.
- **Balancing Ecological and Economic Goals**: Revising tree plantation strategies and forest policies is essential to achieve ecological balance and protect diverse ecosystems, while also meeting economic objectives.
- **Incentivizing Conservation of Diverse Landscapes**: Policies should incentivize the preservation of varied landscapes, including grasslands and scrublands, recognizing their ecological and economic value.

12. Kármán Line

Kármán line is a significant **boundary** between **Earth's atmosphere** and **outer space**, has gained importance in the recent times due to modernisation of space based **weapons** and satellite-based communications.

Kármán line:

- The Kármán line is the **theoretical boundary** between Earth's atmosphere and outer space.
- It was established by Fédération aéronautique internationale (**FAI**).
- It is named after **Theodore von Kármán**, a Hungarian-American physicist and aerospace engineer who played a key role in the development of **modern aerodynamics** and **astronautics**.
- There is **no** specific **national demarcation** of the Kármán line, similar to **international waters**.

- It serves as a **reference point** for aerospace engineering and space-related activities.
- Beyond this boundary, **conventional aircraft** face challenges in terms of effective operation due to the **diminishing atmospheric density**.
- The Kármán line itself has **no** distinct physical characteristics.
- It is recognized at an altitude of **100 kilometers** above mean sea level.
  - This altitude is considered the point where the Earth's atmosphere becomes too **thin** to support **conventional aircraft**, as they would require orbital velocity to generate lift.

Significance:

- It holds immense significance in the context of **space defense** and **national security**.
- It serves as a valuable **reference** to delineate Earth's atmospheric limits.
- It influences **jurisdiction** and **legislation applicable** to aircraft and spacecraft.
- Reaching this **altitude** is considered a significant milestone for **suborbital** and **orbital flights**, as individuals who cross the Kármán line are often recognized as having entered space.

Why control over Kármán line possesses dangers?

- **Anti-Satellite (ASAT) Weapons**: Adversary control over Kármán line enables a nation to deploy **satellites** in Kármán line against enemy nations, who can disrupt or destruct critical communication links.
- **Jamming and Interference**: There is a potential for **communication blackouts** or **degraded** performance if ground or space-based systems disrupt satellite communications.
- **Hacking and Cyber-attacks**: Unauthorized access to satellites, can lead to data breaches or operational takeover.
- **Physical Interception or Tampering**: Adversaries can attempt to alter **satellite orbits** or damage critical components of a nation deployed on Kármán line.
- **Space Debris and Kinetic Kill Vehicles**: It deliberates creation of **debris** or **deployment** of kinetic kill vehicles near the Kármán line.
- **Electromagnetic Pulse (EMP) Weapons**: EMP can be used to disrupt or damage satellite electronics, potentially rendering them **inoperable**.
- **Denial of Access to Space**: Adversarial control over Kármán line restricts access for certain entities such as limiting the **deployment**, **maintenance**, or **replacement** of satellites.
- **Spoofing and Deception**: Satellite communication signals can be **manipulated** to mislead ground stations.

Historical Context of Kármán line:

- **V-2 ballistic missile**, developed by Nazi scientists, had breached Kármán line on June 20, 1944.
    - o It was a **retaliation weapon** used during **World War II.**
- By the **1960s**, the **U.S.** and **Soviet Union** had established routine satellite deployments to dominate this imaginary line, Kármán line.
- Consequently, both superpowers initiated the development of **anti-satellite weapons** to **destroy** adversary **satellites** such as directed-energy weapons, kamikaze-style satellites, and orbital nuclear explosives.
- Later on, the **Intercontinental Ballistic Missiles** (ICBM) was created, which is capable of striking virtually any target on Earth within **minutes**.

India's Space Defense Initiatives:

- India has developed robust **launch capabilities** and **military satellites**.
- **RISAT** (Radar Imaging Satellite) is a series of **Indian radar imaging** reconnaissance satellites, built by the Indian Space Research Organization (**ISRO**), to provide information on **situational awareness**, and **communication satellites** for **coordination**.
    - o It was initially designed in response to **terrorist threats** post the **2008 Mumbai attack**.
- The **Integrated Space Cell** was established in **2010** to foster coordination between the **Department of Space** and the **Indian Armed Forces** and reduce any space-based threats.
- The **Defence Space Agency** was created in **2018** which is a **tri-service agency** of the Indian Armed Forces tasked with operating the **space-warfare** and **Satellite Intelligence assets** of India.
    - o It has a potential precursor to become a **full-fledged aerospace command**.

13. First Advanced Estimate (FEA) of GDP

Recently, the 1st Advance Estimates (FAEs) released by the government showed that India's GDP will grow by 7.3% in the current financial year (2023-24), slightly faster than the 7.2% growth in 2022-23.

GDP

- **Gross Domestic Product –** GDP is defined as **total market value of all final goods and services** in an economy.
- It is used to assess the size of economy and the country's performance can be measured across years.

- Growth of GDP can be either due to increase in actual production or due to increase in prices of goods and services or combination of both.
- **Nominal GDP** – It is the value of **GDP at the current prevailing prices**.
- **Real GDP** – It is the value of **GDP at some constant set of prices** which is calculated by removing the effects of price inflation from the nominal GDP by using a GDP or price deflator.
- Since these prices remain fixed, if the Real GDP changes, then it is due to the changes in volume of production.
  - **Real GDP growth rate = Nominal rate – Inflation (GDP Deflator)**
- **GDP deflator** – It is the **ratio of nominal to real GDP** which gives us an idea of how the prices have moved from the base year to the current year.
  - **GDP Deflator = GDP/gdp**   (GDP – nominal GDP; gdp – real GDP)

Base Year is the year whose prices are being used to calculate the real GDP. In 2015, India's Central Statistics Office (CSO) introduced a new series which revised the base year from 2004-05 to 2011-12.

Gross National Product (GNP) takes into account the value of economic activities of those who are not residents of the country as well.

GNP = GDP + Net Income Property from abroad

What is contributing to India's growth?

- GDP is calculated by 3 different methods.

- **GDP calculation in India** – Calculated through income method and expenditure method.
- **Data released by** – National Statistical Office (NSO) under the Ministry of Statistics and Programme Implementation (MoSPI).

4 main engines of GDP growth – On basis of demand side.

- **Private Final Consumption Expenditure (PFCE)** – It is the **spending by people** in their individual capacity that accounts for **almost 60% of India's GDP**.
- **Gross Fixed Capital Formation (GFCF)** – It is the **spending towards investments** in boosting the productive capacity of the economy which typically **accounts for 30% of the GDP**.
- **Government Final Consumption Expenditure (GFCE)** – It is the **spending by governments** to meet daily expenditures such as salaries which accounts for **around 10% of GDP**.
- **Net exports** – It is the **net spending** as a result of Indians spending on imports and foreigners spending on Indian exports.

- Since India typically imports more than it exports, it **drags down GDP calculations**, and shows up with a minus sign.
- As such, negative growth rates here are a good development and for the current year, this drag effect has grown by 144%.

What are Advance Estimates of National Income?

- They are indicator-based and are compiled using the **benchmark-indicator method**, i.e. the estimates available for the previous year (2022-23) are extrapolated using the relevant indicators reflecting the performance of sectors.
- **Compiled by** –MoSPI
- **1st Advance Estimates (FAE) –** They are presented at the **end of the 1st week of January every year**, the 1st estimates of growth for that financial year.
- **Calculation of FEA –** Based on the performance of the economy over the 1st 7-odd months, and the data are extrapolated to arrive at an annual picture.
- **Significance of the FAE –** They are the last GDP data released before the Union Budget of any financial year and it constitute the base for the Budget numbers.

Union Budget is presented on February 1 every financial year. In the year of Lok Sabha elections like in 2024, a full-fledged Union Budget will not be presented.

- **Findings of FEA –** By the end of March 2024, India's GDP is expected to rise to almost Rs 172 lakh crore and on an annual basis, the growth rate estimated for 2023-24 is 7.3%.
- **2nd Advance Estimates –** It is released by the end of February every year.
- **Provisional Estimates –** It is released by the end of May.
- **Revised Estimates –** The GDP estimates continue to be revised and in the coming 3 years, the 1st, 2nd, and 3rd Revised Estimates of this year's GDP will be released.
- **Actuals –** It is the **final number of GDP**.

==14. Assessing India's Progress in Air Quality Improvement==

- **Ambitious Goals**: The National Clean Air Programme (NCAP) aims to reduce particulate matter concentrations by 40% by 2026 in 131 Indian cities.

- **Mixed Results**: An analysis by Respirer Living Sciences and Climate Trends reveals varied progress among cities, with only a few meeting targeted declines in PM 2.5 levels.

Particulate Matter Reduction: Varied City Performances

- **Inconsistent Declines**: Among 49 cities with consistent data over five years, 27 showed a decline in PM 2.5, but only four met or exceeded targets.
- **Notable Increases in Pollution**: Cities like Delhi, Navi Mumbai, Mumbai, Ujjain, Jaipur, Visakhapatnam, and Pune have seen marginal declines or increases in PM 2.5 levels.

Success Stories and Regional Disparities

- **Significant Reductions**: Cities like Varanasi, Agra, and Jodhpur reported substantial declines in PM 2.5 and PM 10 levels.
- **Uttar Pradesh's Progress**: Except for Jodhpur, cities achieving the 2026 reduction targets are predominantly from Uttar Pradesh.
- **Indo-Gangetic Plain's Pollution**: The IGP remains a hotspot for high PM 2.5 levels, with 18 of the top 20 polluted cities located in this region.

Factors Influencing Pollution Levels

- **Annual Variations**: Pollution levels can vary significantly within a year, with northern and eastern Indian cities peaking during winter.
- **Air Quality Monitoring Infrastructure**: The number and distribution of continuous ambient air quality monitors significantly impact the accuracy of pollution data.
- **Geographical and Meteorological Influences**: The study acknowledges the need for further research to understand the impact of emissions, geography, and weather on pollution levels.

NCAP's Progress and Future Outlook

- **Noteworthy Efforts**: The NCAP has made progress in reducing pollution in some cities, but the overall effectiveness remains unclear.
- **Enhanced Monitoring**: The addition of new air quality monitoring stations is expected to provide a clearer picture of pollution levels and aid in mitigation efforts.

Conclusion

- **Persistent Pollution Challenges**: Despite some successes, many urban areas continue to struggle with rising pollution levels.

- **Commitment to Environmental Goals**: The NCAP's revised target reflects India's commitment to ambitious environmental objectives.
- **Need for Comprehensive Strategies**: Effective air quality management requires a combination of robust monitoring, targeted policy interventions, and public awareness to achieve sustainable improvements in air quality.

15. Challenges in India's Tea Industry: A Call for Introspection and Resilience

- **Echoes of the Past**: India's tea industry is facing challenges similar to the "dark phase" of 2002-07, as noted by the Tea Association of India (TAI).
- **Key Concerns**: Stagnant prices, oversupply, demand-supply gap, and a trend towards cheaper teas are major issues impacting the industry.

Historical Context and Recent Developments

- **Previous Crisis**: The industry suffered a significant slump during 2002-07 due to regulatory challenges, falling demand, competition from cheaper international teas, and export quality concerns.
- **Current Scenario**: Despite India's economic strides, the tea industry struggles with stagnant prices and increasing input costs, leading to estate closures and reliance on subsidies.

Demand-Supply Imbalance and Quality Concerns

- **Oversupply Issues**: The meeting highlighted the critical problem of oversupply leading to an imbalance between availability and consumption.
- **Quality Decline**: To make tea more affordable, there has been a decline in quality, resulting in a "race to the bottom."

Proposed Measures and Tea Board of India's Role

- **Repositioning Tea**: TAI suggests repositioning tea to enhance its perception and consumption patterns.
- **Regulatory Steps**: Measures include regulating tea waste sold domestically, restricting import of low-quality teas, and promoting tea's health benefits.
- **Potential Impact**: Regulating waste could reduce supply by 15-20 million kg, and limiting imports could remove an additional 30 million kg of low-quality teas.

Tea Industry Statistics and Trends

- **Production and Export**: India's tea production increased by 39% from 2008 to 2022, with a slight projected increase in 2023. However, exports till October 2023 decreased by 2% compared to 2022.
- **Import Increase**: Tea imports rose from 27 million kg in 2021 to 30 million kg in 2022.

Overview of the Indian Tea Industry

- **Global Standing**: India is the second-largest tea producer and the fourth-largest exporter globally, with a significant domestic consumption market.
- **Employment and Regulation**: The industry directly employs 1.16 million workers, with the Tea Board of India regulating cultivation.
- **Main Growing Regions**: The Northeast, including Assam, and north Bengal are major tea-growing areas, with significant cultivation in the Nilgiris in south India.

Challenges and Issues

- **Global Competition and Quality Decline**: Competition from countries like Kenya and the demand for organic tea have affected India's market position.
- **Worker Conditions and Small Tea Growers**: Poor worker conditions and challenges faced by small tea growers, including pricing and recognition issues, are significant concerns.
- **External Factors**: Global events like the Russia-Ukraine war have further compounded problems for the industry.

Tea Board of India Initiatives

- **Establishment:** The Tea Board was set up under the Tea Act 1953 and functions as a statutory body under the Ministry of Commerce. Headquarters are located in Kolkata, the Board is reconstituted every three years.
- **Promotional Efforts**: The Board undertakes various initiatives to promote packaged Indian tea and subsidizes participation in international fairs.
- **Promotional Activities**: The Board supports packaged Indian tea promotion and subsidizes participation in international fairs.
- **Tea Development and Promotion Scheme**: This scheme aims to enhance productivity, quality, worker welfare, and market promotion.
- **Support for Small Growers**: The Board has formed SHGs, FPOs, and FPCs to assist small tea growers.

Way Forward

- **One District One Product (ODOP) Program**: This program can help promote Indian tea.

- **Improving 'AROMA'**: 'AROMA' stands for Assistance to small growers, Re-energizing infrastructure, Organic and GI tea promotion, Modernization of supply chains, and Adaptability to climate change.
- **Supporting Small Farmers**: Enhancing production, quality, and sustainability while focusing on high-value markets is crucial for the industry's growth.

16. Microplastic Contamination in Indian Landfills

Recent studies highlight the presence of **microplastics in landfill leachate** and **groundwater,** posing **environmental and health risks.**

What are Microplastics?

- Microplastics are tiny pieces of **plastic debris** that are **less than 5 millimeters in size,** often too small to be **easily seen by the naked eye.**
- They result from the **breakdown of larger plastic** items **through** weathering, photo-degradation, thermal degradation, mechanical fragmentation, and biodegradation.

Main categories of microplastics:

- **Primary**: Plastic particles manufactured to be small, like microbeads in personal care products, pellets used in plastic manufacturing, and fibers after washing synthetic textiles.
- **Secondary**: These particles result from the degradation of larger plastic items, that break down over time due to various environmental factors.
  - These include particles derived from the **weathering and breakdown** of plastic items like **packaging materials, bottles, and other plastic** products.

Key Findings in the study:

- **Organic waste** (food waste and greens) at landfill sites decomposes faster with microbial activities under predominantly anaerobic conditions, producing leachate and gaseous emissions.
- Most **Plastic items are non-biodegradable** in nature and remain intact in landfills.
- **Main sources of plastic in landfills:** Disposable diapers, sanitary pads, carry bags, multi-layered packaging items, packaging sheets, container bottles,

polyvinyl chloride (PVC) pipes, footwear, disposable cups, and plastic utensils.

- **Biochemical reactions cause** 30-60 °C fluctuations, high salinity, low pH, and release gases like methane, carbon monoxide, carbon dioxide, ammonia and hydrogen sulphide.
- These create an environment conducive to **disintegration of plastic** items into smaller pieces.
- **Physical processes** like weathering of larger particles through photo-degradation, thermal degradation, mechanical fragmentation and biodegradation can form microplastics.

Study 1:

- A **Landfill Leachate study** conducted in Hyderabad revealed that Microplastic concentrations ranged from 9-21 items per litre.
- **Predominant shapes:** Fiber (83%), fragment (11%), film (3%), foam (2%).
- **Colors:** Yellow (35%), transparent (16%), purple (15%), etc.
- **Dominant polymers**: Low-density polyethylene, polypropylene, polyterethalate, cellulose acetate, and nitrile.

Study 2:

- A **Groundwater Study** conducted by **Institute for Ocean Management** found that microplastic contamination in the range of 2-80 items per litre.
- **Colored particles include** white (38%), black (27%), green (8%), etc.
- **Predominant polymer type**: Nylon (70%), pellets (18%), foam (6%), etc.
- **90% of microplastics** are derived from **buried plastics and waste fragmentation**, mainly polypropylene and polystyrene.

Implications and Recommendations:

- Uncontrolled plastic disposal in landfills is a primary source of plastic pollution, leading to the formation of **pervasive microplastics.**
- **Comprehensive policy approaches**, including waste management policies and efficient collection systems, are crucial to limit plastic influx into landfills.
- **Existing regulations** such as the **Solid Waste Management Rules (2016)** and recent bans on single-use plastics need strict enforcement.
- **Scientific landfill design**, advanced containment systems, and the **remediation of open dumpsites** are essential to prevent leachate dissemination of microplastics.
- Investing in **research, incentivizing innovation**, and promoting a **circular economy** approach can strengthen India's strategy to combat microplastic contamination from landfills.

17. CCI study on iron ore mining, pricing and export issues

The **Competition Commission of India** (CCI) recently conducted a market study focusing on the mining sector, particularly iron ore, to assess competition dynamics and market fairness.

- The study addressed concerns related to differential pricing, exports, and entry barriers in the iron ore and steel industry.

Key highlights of the study:

India's Iron Ore Production Overview:

- India is **self-sufficient** in iron ore, contributing **7%** to global production (**4th largest** globally).
- The **value** of **iron ore exports** has surpassed imports, showcasing increased competitiveness in value-added products like pellets.
- **95**% of iron ore production is directed to the **steel sector**, emphasizing **strong interlinkages** between the **2 industries**.
- Allocation of **captive mines** to **specific players** creates entry barriers, hindering new firms' entry and operation due to high costs.

Competition Concerns and Pricing:

- Amendments in **mining law** (2021) by allowing **captive mines** to sell **50**% **surplus** in the open market may boost **iron ore supply**.
- Caution is urged when captive mines sell **surplus** to other entities to prevent high costs for buyers competing in the steel market.

Key recommendations of the study:

- To address iron ore availability, e-auctions must be held **weekly** or **bi-weekly**, aligning with business needs for enhanced efficiency.
- Government must emphasis on **sustainable mining** by gradually phasing out **'dirty' technologies**.
- A clear regulatory framework to incentivize the adoption of **clean technology** must be framed and facilitate the **transformation** of production processes towards sustainability.
- Discourage **iron ore exports** and encourage **high value-added** activities, including domestic steel production, to control prices effectively.

About the Distribution of Iron Ore in India:

Major Iron Ore Belts in India:

- **Orissa-Jharkhand Belt**: This belt is the largest iron ore belt in India and covers the states of Orissa and Jharkhand.
  - The important mines in this belt are Noamundi, Kiriburu, and Badampahar mines.
- **Durg-Bastar-Chandrapur Belt**: This belt lies in Chhattisgarh and Maharashtra.
  - The important mines in this belt are Bailadila iron ore deposit and Dalli-Rajhara.
- **Bellary-Chitradurga-Chikmaglur-Tumkur Belt**: This belt is located in Karnataka, with important mines in the region being Hospet, Sandur, and Bellary.
- **Maharashtra-Goa Belt**: This belt is situated in Goa and parts of Maharashtra, with important mines being Goa, Ratnagiri, and Sandur.
- **Odisha-Jharkhand Belt**: This belt spans across the states of Odisha and Jharkhand, with important mines being Gurumahisani, Sulaipat, and Badampahar.

Types of Iron ore in India:

- **Magnetite**: This is the best quality of iron ore containing **72**% of pure iron.
  - It possesses **magnetic property** and hence is called magnetite.
  - It is found in Andhra Pradesh, Jharkhand, Goa, Kerala, Tamil Nadu and Karnataka.
- **Haematite**: It contains **60-70%** pure iron and is found in Andhra Pradesh, Jharkhand, Orissa, Chhattisgarh, Goa, Karnataka, Maharashtra and Rajasthan.
- **Limonite**: It contains **40- 60%** of pure iron and is of **yellow** or light brown colour.
- **Siderite**: It contains many **impurities** and has just 40-50% of pure iron.
  - However, due to presence of lime, it is self-fluxing.

Major Iron Ore producing States:

- **Odisha**: Odisha is the **largest** producer of iron ore in India, which accounts for **53.8%** of the country's overall output.

About the Distribution of Steel in India:

- India is the world's second-largest producer of the crude steel, but the distribution of steel production is **not uniform** across the country.
- The **primary steel-producing states** in India include Odisha, Jharkhand, Chhattisgarh, West Bengal, and Karnataka.

- Major steel plants are located in these states, contributing significantly to the overall production.
- **Odisha** is the **largest** producer of steel in India, with a capacity of 18 million tonnes per year of steel production.
- **Jharkhand:** It is home to steel plants like **Tata Steel** in Jamshedpur, **Steel Authority of India Limited** (SAIL) in Bokaro etc.
- **Chhattisgarh:** It is home to Bhilai Steel Plant (SAIL), and NMDC Steel Plant in Nagarnar.
- **West Bengal:** It has Durgapur Steel Plant, which is an important steel production facility in the region.

About Competition Commission of India (CCI)

- The Competition Commission of India (CCI) is a **statutory body** that aims to promote and sustain **competition** in the market, protect the **interests** of **consumers**, and ensure **freedom of trade** carried on by other participants in the market in India.
- It was established in **2003** under the **Competition Act, 2002**.
- The Competition Act, 2002, provides the **legal framework** for its functioning and defines **anti-competitive practices**.
- It helps to prevent **anti-competitive practices** and create a competitive environment in the country.
- The **National Company Law Appellate Tribunal** (NCLAT) hears appeals against the judgements given by CCI related to competition matters.
- It is a member of the **International Competition Network** (ICN) and actively participates in discussions on global competition issues.

Composition:

- The Commission consists of a **Chairperson** and **not** less than **2** and not more than **6 members** appointed by the Central Government.
- The Chairperson and members are appointed based on their expertise in economics, business, law, or public affairs.

Functions:

- Investigating and penalizing **anti-competitive agreements** and abuse of dominant positions.
- Regulating **combinations** (mergers and acquisitions) that may have an adverse effect on competition.
- Advocating **competition policy** and creating awareness about competition issues.

18. Green Cover Index

The **National Highways Authority of India (NHAI)** has recently entered into a Memorandum of Understanding with the **National Remote Sensing Centre (NRSC)** under **ISRO** to introduce initiative - the "**Green Cover Index**."

Memorandum of Understanding:

- It is a **3-year partnership** that aims to leverage advanced technologies and satellite imagery to assess and enhance the greenery along the extensive network of **National Highways** in India.
- **Objective**: Develop and report a "**Green Cover Index**" for National Highways using advanced technologies and satellite imagery.
- NRSC will utilize **emerging technologies** for **in-situ data collection**.
- **High-resolution satellite imagery** will supplement plantation management and NHAI performance audits.

About the Green Cover Index:

- The Green Cover Index is an innovative tool that will measure the extent of greenery along the vast network of **India's National Highways**, aligning with the **Green Highways Policy** launched in **2015** to prioritize the greening of highway corridors.
- Alongside providing a measure of green cover, it will act as a tool for **targeted interventions** in areas lacking sufficient greenery.
- It will feature **performance audits** by NHAI, creating a thorough system for monitoring and improvement of green cover along India's highways.
- It will facilitate the **comparison** and **ranking** of various national highways for timely and periodic intervention.

About the NRSC:

- **Mandate**: Establishment of ground stations, generation of data products, and development of remote sensing applications.
- It is headquartered in **Hyderabad**, and **operates** under ISRO.
- NRSC's successful pilot projects for estimating green cover along **National Highways** serve as proof of concept.

19. The delusion of eliminating 'the last terrorist'

The article, written by Shashank Ranjan, a retired Indian Army officer and current faculty member at O.P. Jindal Global University, critiques the counter-terrorism approach in Jammu and Kashmir, emphasizing the need to reevaluate the obsession with the number of terrorists killed. It highlights the historical context of insurgency in the Rajouri-Poonch region and argues that a singular focus on 'kills' may be counterproductive in achieving long-term stability.

Key Highlights:

- The new year in Jammu and Kashmir began with a terror strike in Rajouri-Poonch, leading to a renewed focus on the number of terrorists killed by security forces.
- The article questions the efficacy of the current counter-terrorism approach, suggesting that an obsession with numbers may not align with the changing dynamics of insurgency in the region.
- Ranjan draws attention to the historical success in curbing insurgency in Rajouri-Poonch by addressing the root causes, and how the focus on 'kills' might be contributing to the re-emergence of instability.

Key Challenges:

- The article highlights the challenges posed by a system that is reluctant to adapt to changing dynamics and continues to prioritize short-term gains and competitive career environments over long-term stability.
- The gap between the tactical-level operations and people-centric approaches is emphasized, pointing out the lapses that have led to civilian casualties and operational rush for 'kills.'
- The reluctance of political initiatives in Jammu and Kashmir is mentioned as a challenge, hindering a comprehensive resolution through a whole-of-government approach.

Key Terms:

- Counter-terrorism: Measures and strategies to combat terrorism and insurgencies.
- People-centric: Approaches and operations that prioritize the well-being and acceptance of the local population.
- Whole-of-Government Approach: An integrated approach involving all government agencies to address complex issues.

Key Phrases:

- "Debatable obsession with the numbers of terrorists killed."
- "Misplaced focus of the counter-terrorism approach."
- "Tail wagging the dog" – Pursuing goals without regard to the means.

Key Quotes:

- "In our undue obsession with the numbers of 'kills', we may have been winning the battle by addressing the symptoms, but it has indeed been at the cost of the campaign."
- "Chasing numbers was the obvious option in the years when terror-related fatalities in J&K touched a yearly mark of 2,000-plus."

Key Statements:

- "The situational dynamics, unfortunately, never ushered in adjustments in the modus operandi of security forces and assessment methodology of unit performance by the hierarchy."
- "Leadership is all about compensating any cost to the soldier, with the leader standing up to bridge the gap between the interests of people and soldiers."

Key Examples and References:

- Refers to the historical success in curbing insurgency in Rajouri-Poonch by addressing root causes.
- Mentions the unfortunate death of three civilians in Dera ki Gali as a consequence of lapses in people-centric policies.

Key Facts and Data:

- Reports declining terror-related fatalities in Jammu and Kashmir, contrasting figures at 134 in 2023 with over 2,000 in earlier years.
- Highlights the absence of Assembly representation in J&K since 2018.

Critical Analysis:

The article critically analyzes the counter-terrorism approach, pointing out the flaws in focusing solely on the number of terrorists killed. It underlines the need for adaptation to changing dynamics, a people-centric approach, and a shift from short-term gains to long-term stability.

Way Forward:

- Urges a reevaluation of the current counter-terrorism strategy to align with the evolving dynamics of insurgency.

- Emphasizes the importance of a people-centric approach and addressing the root causes of conflict.
- Calls for political initiatives and a whole-of-government approach to achieving comprehensive and lasting stability in Jammu and Kashmir.

20. Madhya Pradesh's Ken-Betwa River Project

- The Ken-Betwa river interlinking project, a significant initiative of the Madhya Pradesh government and part of the Centre's ambitious plan, has come under scrutiny.

Overview of the Project and Violations

- **Project Details**: The Lower Orr dam, a part of the Ken-Betwa river interlinking project's second phase, began construction in 2019.
- **Violation of Clearance Laws**: In 2022, an expert appraisal committee (EAC) reported that the project commenced without formal clearance from the Environment Ministry.
- **Incomplete Construction**: As of the last report, about 82% of the dam and 33.5% of the canal network were completed without necessary clearances.
- **EAC's Recent Recommendations**: In December 2023, the EAC called for a fresh evaluation and more data on potential damage caused by the construction.

Ken Betwa Link Project

- **First of its Kind**: This project is the inaugural venture under the National Perspective Plan for interlinking Indian rivers.
- **River Linking**: It involves transferring water from the Ken River to the Betwa River, both tributaries of the Yamuna.

Phases of the Project

- **Phase-I Components**: This includes the Daudhan dam complex, Low Level Tunnel, High Level Tunnel, Ken-Betwa link canal, and Power houses.
- **Phase-II Components**: The second phase will see the construction of the Lower Orr dam, Bina complex project, and Kotha barrage.

Utility of the Project

- **Irrigation Benefits**: The project aims to irrigate 10.62 lakh hectares annually.

- **Drinking Water Supply**: It is expected to provide drinking water to 62 lakh people.
- **Power Generation**: The project will generate 103 MW of hydropower and 27 MW of solar power.
- **Regional Development**: It promises to bring socio-economic prosperity to the Bundelkhand region through increased agricultural activities and employment.
- **Combating Rural Distress**: The project is also seen as a solution to distress migration from this region.

Ecological Issues with the Project

- **Scientific Basis**: Concerns have been raised about the 'surplus and deficit' model and the availability of water in the Ken River.
- **Water Sharing Disputes**: UP and MP have had disagreements over water sharing, especially during non-monsoonal months.
- **Environmental Impact**: The project involves creating a reservoir dam in the Panna National Park and Tiger Reserve, impacting the downstream Ken Gharial Sanctuary.
- **Wildlife Act Compliance**: Approval by the National Board for Wildlife, as required under the Wildlife (Protection) Act, 1972, has not been confirmed.

Issues with the Projects

- **Displacement**: The project will lead to significant displacement of people.
- **Topographical Changes**: The flat topography of the Ganga basin poses challenges for dam construction.
- **Inundation and Seismic Hazards**: Large-scale water transfer risks inundating forests and creating seismic hazards in the Himalayan region.
- **Financial and Political Challenges**: The project requires substantial financial investment and political support.
- **Land Acquisition and Ecological Feasibility**: Consensus building for land acquisition and ecological concerns are major hurdles.

Criticisms of Such Projects

- **Questionable Science**: Critics argue that these projects are based on outdated water management understanding.
- **Contravention with Nature**: They are seen as going against natural processes, posing more threats than opportunities.

Way Forward

- **Expert Scrutiny**: Thorough and independent expert scrutiny during the approval stage is crucial.
- **Independent Hydrological Study**: A comprehensive study of these rivers is necessary to assess the feasibility and impact.

Conclusion

- Developmental projects like the Ken-Betwa Link should not compromise fragile ecosystems or important wildlife habitats.
- The potential destructive impact on the flow of water and sanctuary ecosystems, along with legal compliance, needs clear assessment and consideration.
- Sound environmental governance and due diligence are essential in balancing developmental needs with ecological preservation.

21. Oil production at Krishna-Godavari (KG) basin

Oil and Natural Gas Corporation (ONGC) recently started crude oil production from its massive deep-sea project in **the Krishna-Godavari (KG) basin** block.

Details of the Project:

- The **Krishna-Godavari (KG) basin** block KG-DWN-98/2, situated **offshore** in the **Bay of Bengal** initiated crude oil production under the flagship project of **Oil and Natural Gas Corporation (ONGC).**
- It is situated 35 km from the **Andhra Pradesh** coast in water depths of 300-3,200 meters.
- ONGC had estimated its **capital expenditure at $5.07 billion** and operational expenditure at $5.12 billion over a **field life of 16 years.**
- **Cluster development approach** is employed by focusing on the 2nd cluster as 2A and 2B.

Benefits:

- It is expected to **increase ONGC's** total oil and gas production by **11% and 15%,** respectively.
- A **7% increase** in India's oil and natural gas production is anticipated after the completion of extraction in phase 2.
- The **final phase** targets mid-2024, with expected peak production of 45,000 bopd and over 10 mmscmd of gas.
- It is critical to India's objective of meeting growing energy needs, reducing dependence on imports, and energy **self-reliance (Aatmanirbhar Bharat).**

- India is the **world's third-largest crude oil consumer**, and **imports over 85%** of its requirement from Russia, Iraq, Saudi Arabia, etc.

Krishna Godavari Basin:

- It constitutes an **extensive deltaic plain** formed by two large east coast rivers, **Krishna and Godavari in Andhra Pradesh** and the adjoining areas of the **Bay of Bengal.**

- The basin is an **Ultra-deep-water** gas, and the **world's second-deepest hydrocarbon discovery.**

- **Petroleum System**: Proven petroliferous basin of continental margin located on the east coast of India.
- **Stratigraphy:** It contains about 5 km thick sediments with several cycles of deposition, ranging in age from Late Carboniferous to Pleistocene.
    - This is influenced by a long **linear Gondwana rift valley.**
- **Major geomorphologic units**: Upland plains, Coastal plains, Recent Flood, and Delta Plains.
- **Geophysical Surveys**: ONGC conducted geological mapping since 1959 using Gravity-magnetic surveys and 3D seismic surveys in on-land and offshore areas.

Oil and Natural Gas Corporation (ONGC):

- ONGC is an Indian **central public sector undertaking** under the ownership of the Ministry of **Petroleum and Natural Gas.**
- It was founded in **1956** and is headquartered in **New Delhi.**
- **Maharatna ONGC** is the **largest crude oil and natural gas Company** in India, contributing around 71 per cent to Indian domestic production.
- ONGC is the only **fully–integrated oil and gas** company in India, operating along the entire hydrocarbon value chain.
- ONGC possesses about **15% of the total Indian refining capacity.**
- It has established **8.98 billion tonnes** of in-place hydrocarbon reserves.
- It has to its credit more than **570 discoveries of oil and gas** with **Ultimate Reserves** of 3.13 Billion Metric tonnes (BMT) of **Oil Plus Oil Equivalent Gas (O+OEG)** from domestic acreages.
- ONGC produced **18.4 million tonnes** of crude oil and about 20 billion cubic metres per day of gas in FY23.
- It contributes around **71% of India's oil and gas production.**

22. Sky Dew

Israel recently deployed a large radar blimp, "**Sky Dew,**" along the **Lebanon border** due to rising tensions with **Hezbollah**, a Lebanese Shia Islamist political party and **militant group.**

Sky Dew:

- Sky Dew or **High Availability Aerostat System (HAAS),** is one of the largest high-altitude observation balloons and is a collaborative project between the US and Israel.
- It was developed by **Israel Aerospace Industries (IAI)** and American balloon manufacturer TCOM.
- This was designed to **detect unmanned aircraft** and cruise missiles from Iran and Syria, which are typically small and challenging to detect.
- It was done using **simpler balloons** in the south, developed after the peace agreement with Egypt to monitor surprise attacks from the east.
- The **reconnaissance balloon** carries 7,000 pounds and operates at an altitude of about **10,000 feet.**
- **Radar system** based on the **Arrow system**, capable of observing at 250 km and tracking multiple targets.

Advantages:

- Operating costs are significantly **lower than AWACS** (Airborne Warning and Control System), making it a **cost-effective solution.**
- The radar on these aircraft is **more advanced** than the AWACS, offering better detection capabilities and **resistance to jamming**.
- It can remain in **surveillance for extended periods without** needing fuel or crew replacement.
- This can track **multiple targets**, including, **low-altitude and valley targets.**

Challenges:

- The Sky Dew balloon will not be able to **rise to extreme heights** or accompany fighter jets to **targets like Iran.**
- It has a **huge size**, making it **visible to enemies** from more distance.
- It is sensitive to basic faults like **air leaks.**

23. Rise of Light-Emitting Diodes (LEDs)

- In 2014, the Royal Swedish Academy of Sciences declared that "the 21st century will be lit by LED lamps," recognizing the pivotal role of Light-Emitting Diodes (LEDs) in shaping the future of lighting technology.
- This article delves into the fascinating world of diodes, LEDs, and their significance in modern technology.

Understanding Diodes

- **Diode Basics**: A diode is a small electronic component with two terminals, an anode and a cathode. Its primary function is to allow current flow in one direction only, thanks to a p-n junction.
- **P-N Junction**: A p-n junction consists of two adjacent materials: a p-type with positive charge-carriers called holes and an n-type with negative charge-carriers – electrons. Electrons can flow easily from the n-type to the p-type but not the other way, granting the diode its one-way current control.
- **Anode and Cathode**: The anode terminal is connected to the p-type material, while the cathode is connected to the n-type material. These terminals define the diode's directionality.

Birth of Light-Emitting Diodes (LEDs)

- **Electroluminescence**: LEDs are diodes that emit light. Electrons, with higher energy levels than holes, release energy when they occupy holes in the p-n junction. If this energy falls within the visible spectrum, light is emitted – a phenomenon known as electroluminescence.
- **Band Gap**: LEDs achieve specific light colors by ensuring that electron-hole recombination releases a precise amount of energy, determined by the band gap.

Significance of Band Gap

- **Energy Levels**: Electrons can only have distinct energy values and occupy particular energy levels. These electrons tend to occupy the lowest energy levels available, leading to conductors, insulators, and materials with a band gap.
- **Band Gap's Role**: A band gap represents the energy threshold required for electrons to move from lower to higher energy levels, allowing materials to conduct electricity.
- **LEDs and Band Gap**: In LEDs, the energy emitted during electron-hole recombination corresponds to the band gap, determining the light's color.

LED's Color Palette

- **Historical Context**: Scientists developed red and green LEDs over four decades before achieving blue LEDs. The challenge lay in creating gallium nitride crystals with precise properties for electroluminescence.
- **Primary Colors**: LEDs can produce red, green, and blue light, offering a versatile color palette. Combining different LEDs enables a broad spectrum of colors on display boards and screens.
- **Breakthrough**: Japanese researchers, Isamu Akasaki, Hiroshi Amano, and Shuji Nakamura, made a significant breakthrough in the late 1980s, creating a bright blue LED using gallium nitride. Their achievement earned them the 2014 Nobel Prize in Physics.

Advantages of LEDs

- **Efficiency**: LEDs outperform incandescent bulbs and fluorescent lamps in terms of luminous efficacy, emitting more light per watt of power.
- **Durability**: LEDs are highly durable, reducing material waste and maintenance costs.
- **Diverse Applications**: LEDs find applications in diverse fields, from consumer electronics and signage to greenhouse lighting and air quality monitoring.
- **Color Versatility**: LEDs can emit various colors and frequencies, catering to a wide range of applications.

Future Prospects

- **Haitz's Law**: Similar to Moore's law, LEDs have followed Haitz's law, predicting cost reduction and increased light output over time.
- **Innovations**: Ongoing research explores skin-embedded LEDs, organic LEDs, and efficient LEDs made from perovskites, promising further advancements in lighting technology.

24. Peregrine Mission-1

Private lunar lander Peregrine Mission-1, the first US spacecraft due to land on the moon's surface since Apollo 17 in 1972, suffered an "anomaly".

Peregrine Lander 1:

- The Peregrine lunar lander, developed by a **US-based lunar logistics company**, Astrobotic, is a robotic spacecraft designed to deliver **payloads to the moon or its orbit**.
- Its inaugural mission, **Peregrine Mission One**, aimed to transport scientific equipment to the moon's Gruithuisen Domes region, supporting **NASA's Artemis programme** for sustained human presence on the moon.

- Payloads included instruments from the **Mexican** and **German space agencies** and contributions from various **universities, companies**, and **individuals globally**.
- **Notable payloads:** A physical coin containing one bitcoin, and a Japanese **"lunar dream capsule"** with messages from children worldwide.

Launch and Initial Complications:

- Peregrine launched aboard the **new methane-fuelled Vulcan Centaur rocket** from Cape Canaveral, Florida.
- Post-launch, the lander faced difficulties in reorienting its **solar panels for battery charging**, leading to propulsion system issues and critical propellant loss.

Challenges in Mid-Mission:

- Despite successful solar panel reorientation, further problems emerged, including **insulation damage** and **an unsustainable fuel leak.**
- The leak affected the thrusters of **Peregrine's attitude control system**, limiting their operational lifespan.

Current Status and Future of the Spacecraft:

- Scheduled lunar landing on 23 February appears increasingly unlikely due to **propulsion challenges.**
- Astrobotic's focus shifted to bringing Peregrine as close to the moon as possible before losing power.
- If **abandoned**, Peregrine will become space debris, carrying DNA samples and remains of notable individuals, including former **US presidents**.

Potential Salvageable Outcomes:

- Despite the compromised mission, testing of onboard scientific instruments in **space's harsh environment** offers valuable data for future missions.

Impact on Future Collaborative Missions:

- Peregrine's challenges underscore the risks of private lunar missions, following previous failures like the **Beresheet** and **Hakuto-R landers**.
- NASA's future lunar missions involve multiple private spacecraft, emphasizing **high-risk, high-reward strategies.**
- Peregrine's **mission, despite setbacks**, contributes to lunar lander development and fosters cost-effective, sustainable lunar exploration.

As the Lok Sabha elections approach in 2024, there could be a clamour for parties to include "legal guarantee for MSP" in their manifestos.

Minimum Support Price (MSP)

- **MSP –** It is the price at which the **government is obligated to purchase the produce** from farmers in the event that the market price falls below this threshold.
- **Concept –** It was 1st proposed throughout the 1960s as a market intervention to insure agricultural producers against any sharp fall in farm prices.
- **Need** - Farmers for most part operate in buyer's market and mostly crops are harvested and marketed in bulk, so sudden increase relative to demand may lead to fall in prices and lesser income.
- While their crops are sold wholesale, they pay retail prices for other consumables like seeds, pesticides and tractors.
- **Coverage – 22 crops** (Kharif, Rabi and commercial crops)
- It includes cereals (7), pulses (5), oilseeds (7), raw cotton, raw jute and copra.

- **Announcement –** At the beginning of the sowing season.
- **Price value –** On the basis of the recommendations of the **Commission for Agricultural Costs and Prices (CACP)** and to be **approved by Cabinet Committee on Economic Affairs (CCEA)**

Fair and Remunerative Price (FRP) is given for sugarcane.

- **Factors considered before fixing the price**
  - Demand and supply of a commodity
  - Cost of production
  - Market price trends (both domestic and international)
  - Inter-crop price parity
  - Terms of trade between agriculture and non-agriculture (ratio of prices of farm inputs and farm outputs)
  - A minimum of 50% as the margin over the cost of production
  - Likely implications of an MSP on consumers
- **Cost provided –** The **MS Swaminathan Commission** had recommended **C2+50**% but the government is providing **A2+50%.**
- **Calculation of Cost of Production**
  - **A2 –** Actual cost of farming including seeds, fertilisers and hired labour.
  - **A2+FL –** Includes value of unpaid labour of family workers in addition to A2

- o **C2** – Includes the cost of land rentals or interest on invested capital in addition to A2+FL

What are the methods through which MSP can be guaranteed?

- **Forcing buyers to pay MSP** – Already, sugar mills are required, by law, to pay cane growers a "fair and remunerative" or "state advised" price within 14 days of purchase.
- But this risks implementation hurdles.
- **Buying by government agencies on entirety** – Promoting government agencies to buy the entire marketable produce of farmers offered at MSP.
- But this is unsustainable, both physically and fiscally.
- **Price deficiency payments (PDP)** - It entails the government to pay farmers the difference between the market price and MSP, if the former is lower.

PDP was tried out 1st in Madhya Pradesh through a Bhavantar Bhugtan Yojana. Haryana's PDP scheme is called as Bhavantar Bharpai Yojana (BBY)

What is the road ahead?

- **MSP for more crops** –Madhya Pradesh and Haryana have demonstrated the feasibility of delivering MSP to farmers in crops other than rice, wheat, and sugarcane through Agricultural Produce Market Committee (APMC) infrastructure and systems for farmer registration.
- **Implementing a nationwide PDP scheme** – Providing 50% central funding can perhaps incentivise other states to follow the examples of Madhya Pradesh and Haryana.
- **Rationalising the eligibility** – Price assurance can be given to those farmers who depend on agriculture as primary income and as their incidental livelihood source as they are more exposed to both price and production risks.

26. Unveiling the Human Microbiomes

- The human microbiome, consisting of trillions of microorganisms residing primarily in the digestive tract, plays a crucial role in regulating health and disease.
- This intricate microbial community impacts various facets of human well-being, encompassing digestion, nutrient absorption, metabolite processing, immune function, and mental health.

Human Microbiomes

- The human microbiome refers to the vast and diverse community of microorganisms, including bacteria, viruses, fungi, and other microbes, that inhabit various parts of the human body, such as the skin, mouth, gut, and reproductive organs.
- These microorganisms play a crucial role in maintaining health by aiding digestion, supporting the immune system, and influencing metabolic processes.
- Imbalances in the microbiome have been linked to various health conditions, including digestive disorders and autoimmune diseases.
- Research on the human microbiome has grown significantly in recent years, leading to a better understanding of its impact on overall well-being.

Genomic Advancements in Microbiome Research

- **Challenges in Study**: Many microbiome microorganisms defy conventional laboratory culturing, necessitating innovative approaches.
- **The Human Microbiome Project**: Launched in 2012, this international consortium initiated genomic exploration of the human microbiome through DNA sequencing.
- **Technological Progress**: Advancements in genomic technology over the last decade have empowered scientists to achieve greater revelations.

Impact on Human Health

- **Vital Physiological Functions**: The human gut microbiome significantly contributes to essential processes like digestion, nutrient absorption, and the production of necessary enzymes.
- **Health Conditions**: Imbalances in microbial populations can lead to various health conditions, emphasizing the importance of a balanced microbiome.
- **Response to Antibiotics**: The gut microbiome can undergo significant changes when individuals take antibiotics, eventually reverting to its original state.

Manipulating Microbiome for Clinical Outcomes

- **Microbiota Transplants**: Researchers have employed treatments like fecal microbiota transplants to manage infections and metabolic syndromes, demonstrating the potential to artificially alter the human microbiome.

From Genetics to Gut Microbes

- **Genetic Influence on Microbes**: Recent studies suggest that genetic variations in individuals may affect the diversity and abundance of gut microbes.
- **A Link to ABO Blood Group**: Researchers identified a link between genetic variants in the ABO blood group and microbial genes involved in metabolizing N-acetylgalactosamine, revealing potential links to cardiometabolic traits and even COVID-19 susceptibility.

Implications for Cancer and Neurons

- **Cancer Link**: Gut microbes have been associated with the development of colorectal cancer, offering new prospects for cancer therapy.
- **Neuronal Signaling**: Microbiome-produced vitamin B12 may influence neuronal signaling through its impact on choline availability.

Role in Urobilinogen Metabolism

- **Yellow Urine Pigment**: Researchers uncovered the role of the human microbiome in metabolizing urobilinogen, impacting bilirubin levels and jaundice.
- **Personalized Healthcare**: These genetic insights are shaping future healthcare by enabling personalized interventions.

Conclusion

- The study of the human microbiome, guided by genomic research, continues to unravel its profound impact on human health and well-being.
- From its vital role in physiological functions to potential links with diseases and even neurological processes, the microbiome is an essential component of our overall health.
- Understanding the genetic intricacies of this microbial community holds great promise for personalized healthcare and innovative therapies.

27. Forest Cover Targets

A recent study in the Nature Geoscience journal showed that with increased tree plantations, there was a decline of almost 38% in water availability in some river basins globally.

Forest Cover

- **Definitions**

- o **Forest Cover –** FSI defines it as 'all lands of **a hectare or more** with tree patches with **canopy density of more than 10**%' and it covers all lands, irrespective of legal ownership and land use.
  - o **Recorded forest area –** It includes only those areas recorded as **forests in government records** and includes pristine forests.
  - o **Tree cover –** MoEF&CC defines it as 'tree patches outside recorded forest areas exclusive of forest cover and **less than the minimum mappable area of 1 hectare'**.
- **Assessment –** The **Forest Survey of India (FSI)** has been mapping India's forest cover since the early 1980s, even though it only started publishing its biennial State of Forest reports (ISFR) in 1987.
- Based on internationally adopted norms of classification, forests are broadly classified into different classes.

- **India's Target –** According to the National Forest Policy of India, the ideal percentage of total geographical area under forest should be **at least 33**% to maintain ecological stability.

According to 17th ISFR (2021), India currently covers **just 24.62**% of the country's land with forest cover and is shrinking rapidly.

According to FSI, between 2006 and 2015, Andhra Pradesh and Telangana collectively added over 346,400 hectares to their forest cover. Telangana has schemes like Haritha Haram.

Why forest cover targets needs to be revised?

- **No scientific basis –** The 33% forest cover target was 1st proposed in the National Forest Policy 1952 and it has not been revised.
- There is also no basis for the 26 million hectares target under the **2011 Bonn Challenge** that India has set to achieve by 2030.
- **Issues with methodology –** Sufficient tree cover is needed on the ground to detect a forest in a 30 by 30-pixel satellite image thus it necessitates more trees to be planted in a dense manner, compared to the natural 10-40% canopy cover.
- Only fast-growing trees like teak, eucalyptus and vegetation like bamboo can grow quickly enough to be picked up in satellite images.

What lies ahead?

The 15th Finance Commission recognised that forest canopy cover across India varies and weightage given for devolution of funds to the States should be according to different canopy density classes.

- **Restoration –** Restoring degraded land to its original state of grasslands or scrub vegetation with native trees will be more rewarding than creating monoculture plantations.
- **Revising the targets –** It is important to revise the target forest cover under the National Forest Policy.
- **Promote conservation –** Provide incentives for conserving grasslands and other open ecosystems with low tree cover, which are of high importance and often misclassified as 'wasteland'.
- **Expand indicators** - The restoration programmes and monitoring should not entirely depend on satellite imagery, as tree cover is not the only good indicator of health of an ecosystem.
- **Bottom-up approach –** A top-down policy approach will dissuade the States from taking up ill-advised tree planting schemes that could be detrimental in the long term.
- **Tree plantation in appropriate areas –** Ecological balance cannot be achieved by compensating for forest loss elsewhere by tree plantations in these dry forest regions.

28. Great Indian Bustard: An Overview

- The Supreme Court has called upon the Centre to unveil its strategy for preserving the critically endangered Great Indian Bustard (GIB) by February.

- Recognizing the urgent need to safeguard this bird species, the court acknowledges the significant threat posed by high transmission power lines in the natural habitats of Gujarat and Rajasthan.
- These areas are not only vital for the GIB but also play a crucial role in India's renewable energy initiatives, particularly solar power.
- Striking a balance between GIB conservation and international commitments to reduce carbon emissions through renewable energy is the challenge at hand.

- **Significance**: GIBs are the largest among India's four bustard species and are considered flagship birds of grasslands.
- **Conservation Status**: Critically endangered, with historic habitat reduced to just 10 percent.
- **Protection Measures**: Listed under CITES Appendix I, IUCN status: Critically Endangered, and under Schedule I of the Wildlife (Protection) Act.
- **Threats**: Overhead power transmission, poor vision, windmills, noise pollution, landscape changes, and alterations in cultivation patterns pose significant threats to GIBs.

Conservation vs. Solar Power Dilemma

- **International Commitments**: India has global commitments to reduce carbon emissions and promote alternative energy sources such as solar power.
- **Striking a Balance**: The Supreme Court emphasizes the need to find a middle ground that preserves the GIB while ensuring the availability of solar power.
- **Safety Concerns**: Underground power lines are deemed dangerous, necessitating innovative solutions.

Challenges and Concerns

- **Ineffective Bird Diverters**: Current bird diverters installed in key GIB habitats are either sub-standard or have failed to prevent collisions.
- **Government's Role**: The Court questioned the government's intentions and seeks a clear plan to address the GIB's conservation and the solar power expansion.
- **Data on Bird Diverters**: The Chief Justice inquired about authentic data or government-monitored studies on the effectiveness of bird diverters.

29. Coastal Zone Management Plan (CZMP)

National Green Tribunal (NGT) recently asked the Ministry of Environment, Forest and Climate Change to ensure that coastal States and Union Territories prepare the **Coastal Zone Management Plan (CZMP).**

Coastal Regulation Zones (CRZ):

- The **Ministry of Environment & Forest & Climate Change** passed the Coastal Regulation Zone (CRZ) Notification, 1991 under the **Environment Protection Act, 1986.**
- CRZ is a zone that includes the coastal stretches of seas, bays, estuaries, creeks, and backwaters areas up to 500 meters from the **High Tide Line (HTL).**
- It also included the land between **Low Tide line (LTL)** and HTL as a **Coastal Regulation Zone** and imposed certain restrictions in the zone.
- It **aimed to conserve and protect** the environment of coastal stretches and marine areas, besides **livelihood security** to the fisher communities and other local communities.
- It excludes the islands of **Andaman and Nicobar and Lakshadweep** and the marine areas surrounding these islands, as Coastal Regulation Zone.
  - **CRZ-IA -** Ecologically Sensitive Areas
  - **CRZ-IB -** Intertidal Zone
  - **CRZ-II -** Developed Land Areas (Municipal Limits / Urban Areas)

- o **CRZ-IIIA** - Undeveloped rural areas with population density more than 2161/sq. km. and No Development Zone (NDZ) area up to 50 meters from the HTL on the landward side.
- o **CRZ-IIIB** - Undeveloped rural areas with population density less than 2161/sq. km. and the area up to 200 meters from the HTL on the landward side as the NDZ.
- o **CRZ-IVA** - The water area and the sea bed area between the Low Tide Line up to twelve nautical miles on the seaward side shall constitute CRZ-IV A
- o **CRZ-IVB** - areas with water area and bed area between LTL at the bank of the tidal influenced water body to the LTL on the opposite side of the bank.

Coastal Zone Management Plan (CZMP):

- It is also called the **Island Coastal Regulation Zone Plan (ICRZP),** issued under the **Coastal Regulation Zone (CRZ) Notification, 1991.**
- The **coastal State Governments and Union territory (UT)** administrations were entrusted with the preparation of CZMPs.
- This was through the **agencies authorized by** the Ministry of Environment, Forest and Climate Change (MoEFCC).

Steps for CZMP:

1. **Base Data:** Utilize base data such as High Tide Line (HTL), Low Tide Line (LTL), Ecologically Sensitive Areas (ESAs), Hazard line, Critical Vulnerable Coastal Areas (CVCA), and existing CZMP database.
   - o Shapefiles from the CZMP database prepared as approved by the **National Centre for Sustainable Coastal Management (NCSCM)**, as the base for revision or updation.
2. **Data Provided by States/UTs to Authorized Agencies:** Village-wise survey numbers for government land, digitized geo-referenced Census village boundary maps, stakeholder data.
3. **CRZ Buffers:** No Development Zone (NDZ)/Buffers for tidally influenced water bodies shall be 50 m for CRZ IIIA, 200 m for CRZ IIIB and 20 m for inland islands in coastal backwaters - 20 m.
4. **Processing of Census Data:** Analyze 2011 census maps and data to compute population density for CRZ-III classification and classify based on population density (2161 per sq. km.)
5. **CRZ Classifications:** Update CRZ classifications as per guidelines of CRZ Notification, 2019 and demarcate water areas of CRZ-IV and fishing zones.
6. **Municipal Limits:** Categorize open spaces, parks, gardens in CRZ-II areas as No Development Zone.

7. **Public Consultation:** Publish draft CZMP on state/UT websites for suggestions and objections.
8. **Technical Scrutiny Committee:** Submit updated CZMP to Technical Scrutiny Committee for scrutiny and recommendations.

30. Pench Tiger Reserve: India's first Dark Sky Park

Pench Tiger Reserve in Maharashtra has been designated as India's first Dark Sky Park, aiming to safeguard the night sky and prevent light pollution.

Pench Tiger Reserve: India's first Dark Sky Park:

- Pench Tiger Reserve (PTR) in Maharashtra has been designated as **India's first Dark Sky Park** and the **fifth in Asia**.
- The **International Dark-Sky Association (IDA)** awarded Pench Tiger Reserve **Dark Sky certification** for efforts against light pollution, benefiting astronomers and wildlife.
- This recognition is aimed at **preserving the night sky** and **preventing light pollution**, creating an ideal environment for **astronomy enthusiasts**.
- Over 100 lights in nearby villages (**Wagholi, Sillari, Pipariya, Khapa**) replaced to reduce light pollution, aligning with night sky monitoring and lighting policy.
- **Pench's Dark Sky initiative** offers a rare opportunity to witness celestial events, such as the alignment of Venus, Mercury, Mars, the Moon, and the star Antares, **contributing to the promotion of astronomy**.

Dark Sky Park:

- Dark Sky Parks are **protected natural areas** owned either by the public or private sector.
- These parks implement **effective outdoor lighting practices** to **minimize light pollution** and often provide dark sky programs for visitors, fostering an appreciation for the pristine night sky.
- They not only provide a **platform for stargazing** but also ensures the **preservation** of the **environment**, as excessive artificial illumination can adversely impact **nocturnal plants and animals**.

About International Dark-Sky Association's (IDA) Dark Sky Places program

- The IDA's Dark Sky Places program includes various designations such as Dark Sky Communities, Dark Sky Parks, Dark Sky Reserves, and Dark Sky

Sanctuaries, with the **Pench Tiger Reserve** falling under the **Dark Sky Park category.**

- The program provides third-party certification for **lighting products** and **projects** that reduce glare, limit light trespass, and minimize light pollution, promoting responsible outdoor lighting practices.

About Pench Tiger Reserve:

- Pench Tiger Reserve, also known as Pench National Park, is a prominent tiger reserve in India, distinguished as the first to span across two states: **Madhya Pradesh and Maharashtra**.
- It is located in the **southern reaches** of the Satpura hills in the Seoni and Chhindwara districts in Madhya Pradesh, and **continues in Nagpur** district in Maharashtra as a separate Sanctuary.
- It derives its name from the **Pench River**, serving as its lifeline and contributing to its rich biodiversity.
- It has **strong connectivity** with neighboring reserves, including Kanha, Tadoba Andhari, Navegao-Nagjhira, and Bor Tiger Reserves.
- It serves as a habitat for a diverse range of floral and faunal species, including significant wildlife such as **tigers**, leopards, sloth bears, Indian gaurs, wild dogs, wolves, and more, **typical of the central Indian region**.

31. India's Solar Revolution : Pradhan Mantri Suryodaya Yojana

- PM Modi announced the launch of the 'Pradhan Mantri Suryodaya Yojana,' a government initiative aimed at providing rooftop solar power systems to one crore households in India.
- This ambitious scheme builds upon previous efforts to promote rooftop solar installations in the country, addressing the growing demand for clean and sustainable energy sources.

Pradhan Mantri Suryodaya Yojana

- **Rooftop Solar Installations**: The scheme focuses on the installation of solar power systems on 1 crore residential rooftops.
- **Reduced Electricity Bills**: It aims to reduce electricity bills for households, especially benefitting the "poor and middle class."
- **Energy Self-Reliance**: The scheme aligns with India's goal of achieving self-reliance in the energy sector.

India's Current Solar Capacity

- **Total Solar Capacity**: As of December 2023, India boasts a total solar power installed capacity of approximately 73.31 GW.
- **Rooftop Solar Capacity**: The rooftop solar capacity stands at around 11.08 GW, emphasizing the need for expansion.
- **Leading States**: Rajasthan leads in total solar capacity with 18.7 GW, while Gujarat tops the list in rooftop solar capacity with 2.8 GW.

Importance of Expanding Solar Energy

- **Growing Energy Demand**: India is projected to experience substantial energy demand growth over the next 30 years, requiring a reliable energy source.
- **Diversifying Energy Mix**: To meet this demand and reduce dependency on coal, India aims to reach 500 GW of renewable energy capacity by 2030.
- **Solar Power Growth**: India has significantly increased its solar power capacity, from less than 10 MW in 2010 to 70.10 GW in 2023.

Existing schemes: Rooftop Solar Programme

- **Launched in 2014**: The programme seeks to boost rooftop solar installations in the residential sector.
- **Financial Assistance**: It offers Central Financial Assistance and incentives to distribution companies (DISCOMs).
- **Capacity Target**: The programme aims to achieve 40 GW of rooftop solar capacity by March 2026, having already grown from 1.8 GW in March 2019 to 10.4 GW by November 2023.
- **Consumer Benefits**: Consumers can access the scheme through DISCOM tendered projects or the National Portal. They have the flexibility to select vendors and solar equipment. Subsidies are directly transferred to their bank accounts, and surplus solar power can be exported to the grid, offering monetary benefits.

Conclusion

- The news scheme signifies India's commitment to harnessing solar power as a clean and sustainable energy source for its growing population.
- With a focus on residential rooftop installations, this scheme aims to reduce electricity bills for millions of households while contributing to India's energy self-reliance goals.

32. SIGHT Programme: An Overview

- The Union Ministry of New and Renewable Energy (MNRE) has embarked Strategic Interventions for Green Hydrogen Transition (SIGHT) Programme within the National Green Hydrogen Mission.

- **Mission Alignment**: SIGHT is an integral component of the National Green Hydrogen Mission, strategically designed to foster domestic electrolyser manufacturing and green hydrogen production.
- **Financial Commitment**: A substantial investment of Rs 17,490 crore has been allocated to SIGHT until 2029-30.
- **Dual Incentive Mechanisms**: SIGHT introduces two distinct financial incentive mechanisms:

  1. **Incentive for Electrolyser Manufacturing:** To boost the production of essential electrolysis equipment.
  2. **Incentive for Green Hydrogen Production:** Encouraging the generation of clean and sustainable green hydrogen.

- **Adaptive Evolution**: The incentive schemes and programs will evolve in response to market dynamics and technological advancements, ensuring the Mission's adaptability.
- **Execution Authority**: The Solar Energy Corporation of India (SECI) is entrusted with executing the scheme, driving its effective implementation.

National Green Hydrogen Mission

- **Strategic Implementation**: Launched by the MNRE, the mission commits an outlay of ₹ 19,744 crore from FY 2023–24 to FY 2029–30.
- **Global Hub for Green Hydrogen**: The overarching aim is to position India as a global hub for the production, utilization, and export of green hydrogen and its derivatives.
- **Vision for 2030**:

  1. **Production Capacity:** India's green hydrogen production capacity is projected to reach 5 million metric tons (MMT) per annum, diminishing fossil fuel imports and saving ₹1 lakh crore by 2030.

2. **Economic Impact:** The mission anticipates attracting over ₹8 lakh crore in investments and generating employment for more than 6 lakh people.
3. **Carbon Emission Reduction:** A targeted production and utilization of green hydrogen is expected to avert nearly 50 MMT per annum of CO2 emissions.

- **Pilot Projects**: The Mission encompasses support for pilot initiatives in low-carbon steel, mobility, shipping, and ports.
- **Flexible Allocations**: The Mission allocates resources for various sub-components like SIGHT, pilot projects, research and development (R&D), enabling the funding of selected projects.
- **State-Wide Impact**: While the Mission has no state-wise allocation, its broad scope promises nation-wide benefits.

Significance of Green Hydrogen

- **Eco-Friendly Production**: Green hydrogen is produced through electrolysis, splitting water into hydrogen and oxygen using renewable energy sources like solar, wind, or hydropower.
- **A Sustainable Fuel**: This process yields a clean, emission-free fuel with immense potential to supplant fossil fuels and mitigate carbon emissions.

33. MPLADS e-SAKSHI Mobile App

The Minister of State (Independent Charge) of the Ministry of Statistics and Programme Implementation had recently launched the **MPLADS (Member of Parliament Local Area Development) e-SAKSHI Mobile Application**.

- **Guidelines** for **MPLAD Scheme** has also been **revised**, that will help adapt to changing community needs and help improve functioning, implementation, and monitoring of the scheme.

MPLADS e-SAKSHI Mobile App:

- The e-SAKSHI Mobile App aims to streamline and enhance the implementation of the **MPLAD Scheme**, by offering a technological solution to revolutionize the engagement and management of development projects by Members of Parliament (**MPs**).

Objectives:

- It enables **MPs** to recommend developmental works focusing on **durable community assets**.
- It emphasises on locally felt needs for effective community development.

Benefits:

- **Convenience and Accessibility:**
  o MPs can **propose**, **track**, and **oversee** projects with ease.
  o It provides **real-time access** for swift decision-making in response to emerging needs.
- **Streamlined Communication:** Enhances efficiency in the exchange of information between **MPs** and relevant authorities.
- **Transparency and Accountability:**
  o It provides instant updates on project status and progress.
  o It fosters accountability and instils public trust in **MPLADS** funds allocation and utilization.
- **Budget Management Features:** It is equipped with features for **budget management**, allowing **MPs** to monitor expenditures effectively.

About the MPLADS:

- The MPLADS is a scheme of Union Government that enables MPs to recommend development works in **their constituencies**, with an emphasis on creating **durable community assets** based on locally felt needs.
- The scheme was launched in **1993**, with the aim of ensuring **decentralization** of **development** by providing a **mechanism** for the **direct participation** of MPs in the development process.
- Its primary objective is to facilitate the execution of developmental projects based on locally felt needs, priorities, and aspirations of the people.
- This scheme is administered by Ministry of Statistics and Programme Implementation (**MOSPI**).
  o Earlier, the scheme was administered by Ministry of Rural Development (**MoRD**).

Funding:

- **Budget Allocation:** Each MP has the authority to recommend works up to a specified amount per year.
  o The annual fund allocation is determined by the **Ministry of Statistics and Programme Implementation.**
- **Contribution:** MPLADS is funded by the Government of India, and the funds are **non-lapsable**, meaning they do not expire at the end of the financial year.

Eligibility and Implementation:

- **Elected Members** of **Rajya Sabha**, may select works for implementation in **one** or **more district**(s) as they may choose.
- **Nominated Members** of the **Lok Sabha** and **Rajya Sabha** may also select works for implementation in **one** or **more districts**, **anywhere** in the country.
- MPs can also recommend work of up to Rs. 25 lakhs per year **outside their constituency** or state of election to promote national unity, harmony, and fraternity.
- **Eligible Areas:** Works can be recommended in the areas of national priorities such as drinking water, education, public health, sanitation, roads, etc.
- **Implementing Agencies: District Authorities** and **Urban Local Bodies** are responsible for the execution and implementation of projects under MPLADS.

Recommendation Process:

- MPs recommend projects based on the needs of their constituencies.
- The recommendations are sent to the concerned **District Authority** or **Urban Local Body** for implementation.
- A **State level nodal department** is chosen, which is responsible for supervision and monitoring, and maintaining coordination with line departments.

Monitoring and Transparency:

- **Online Monitoring:** The entire process, from project recommendation to implementation, is monitored through an online system, ensuring transparency and accountability.
- **Public Awareness:** The details of MPLADS funds utilization and project status are made available to the public, promoting transparency in governance.

Challenges and Criticisms:

- **Uneven Utilization:** There have been instances of **uneven utilization** of MPLADS funds across constituencies, leading to concerns about equitable development.
- **Role of MPs:** The role of MPs in project implementation and the potential for **misuse** of funds have been subjects of **debate** and **scrutiny**.

34. Shift in Monsoon Patterns of India

Recently, the study by the Council on Energy, Environment, and Water (CEEW) highlight significant shifts in India's monsoon patterns, with implications for agriculture, economy, and ecosystems.

About the Study:

- The study is titled **'Decoding India's Changing Monsoon Patterns: A Tehsil-level Assessment'.**
- It compared recent monsoon data (2012-2022) with the climatic baseline period (1982–2011).

Key Findings of the Study

Nationwide Monsoon Trends:

- **55%** of tehsils saw an increase in southwest monsoon rainfall by more than **10% in the past decade** compared to the climatic baseline.
- **11%** of tehsils experienced a decrease in monsoon rainfall during the same period.

Regional Variability:

- North Bengal recorded a consistent decrease in rainfall from June to September.
- South Bengal and specific districts like **Purulia, Bankura, Howrah, North and South 24 Parganas**, and **Hooghly** observed an increase in extreme rainfall days.

Agricultural and Ecological Impacts:

- Changes in monsoon patterns disrupting **sowing and harvesting cycles**.
- Uneven rainfall distribution affecting **water management** and **ecological balance.**

Future Projections:

- A predicted increase of **10%-14%** in southwest monsoon rainfall by the end of the 21st century.
- Recommendations for **adaptive measures and sustainable agricultural practices**.

District-Level Analysis:

- Around **30%** of India's districts experienced deficient rainfall years, while **38%** faced excessive rainfall years.
- Notably, **23%** of districts, including **major cities and agricultural areas**, encountered both **deficient and excessive rainfall years.**

Northeast Monsoon Trends:

- Significant increase in northeast monsoon rainfall in tehsils across **Tamil Nadu, Telangana, and Andhra Pradesh.**
- Notable trends observed in **Maharashtra, Goa, Odisha,** and **West Bengal** as well.

35. Artificial Reef Project

The Artificial Reef Project has been initiated to **deploy artificial reefs** off the coast of Thiruvananthapuram, Kerala.

Artificial Reef Project:

- The Artificial Reef Project is aimed at bolstering **fish resources** and **sustainable marine management.**
- A total of **6,300 artificial reef units**, with 150 units per village, are planned for deployment.
- State-level launch presided over by **Kerala Fisheries Minister at Vizhinjam.**
- The **Kerala State Coastal Area Development Corporation (KSCADC)** is implementing the project.
- Technical assistance is provided by the **Central Marine Fisheries Research Institute (CMFRI).**

- **Design:** Three distinct shapes of reinforced cement concrete (RCC) reef modules: **triangular** (80 units), **floral** (35 units), and **fused pipe type** (35 units) for each village.
- **Deployment: GPS technology** used for **precise positioning of modules** at a seabed depth of **12 to 15 fathoms.**

- The project, valued at ₹13.02 crore, is part of the **Central Government's Pradhan Mantri Matsya Sampada Yojana (PMMSY).**
- The initiative aligns with a national proposal to establish artificial reefs in **3,477 fishing villages across India's coastline.**

Objectives and Benefits:

- Enhance **sustainable fishing practices** and the **marine ecosystem**.
- Promote **better livelihood opportunities** for the fishing community.
- Contribute to the **restoration of fish populations** and **protection against shoreline erosion**.
- Offer new opportunities for **scientific research and ecological studies**.
- **Combat overexploitation** by mechanized vessels and create optimal fishing grounds for traditional fishermen.
- Expected to **reduce operational costs for fishermen**, particularly in terms of fuel.

Artificial Reef

- **Artificial reef** refers to a human-made structure intentionally placed on the seabed to mimic natural reefs and provide habitat for marine life.

Global Examples:

- **Great Barrier Reef, Australia:** Some sections of the Great Barrier Reef have utilized sunken ships to create artificial reefs, contributing to the region's biodiversity.
- **Gulf of Mexico, USA:** Numerous artificial reefs have been established using various materials, supporting both recreational and commercial fisheries.

36. Revisit Tax Contributions by State

Union tax revenue among States is distributed by the Finance Commission based on equity and efficiency principles.

What is the issue?

- The Finance Commission recommends a distribution formula specifying each State's share in the part of the Union tax revenue assigned to States.
- Such distribution formulas have a few weighted determinants.
- Some States have been arguing that their contribution to the Union tax revenue have been higher and, therefore, they rightfully have higher shares in the Union tax revenue.
- In the first eight Finance Commissions, tax contribution with very little weight was a determinant in the distribution formula.

- Since the 10th Finance Commission, this **tax contribution was dropped** from the distribution formula.

The Finance Commission is a constitutional body that was established under **Article 280** of the Indian Constitution.

Why tax contribution is not a good indicator?

- **Income origin-** A person may pay income tax from one State though the income earning is from other States.
- **Low weightage-** Successive Finance Commissions have assigned 10% to 20% weight to income tax revenue collection/assessment in the distribution formula for income tax revenue because collection is not a good indicator of contribution.
- **Lack of data-** Due to the unavailability of proper consumption statistics, contribution was never a determinant in the distribution formula for Union excise duties.

What is the role of Finance Commission in tax revenue transfers?

- **State share in Union tax revenue-** Finance Commission devises a distribution formula based on the principles of equity and efficiency.
  - **Equity-** The revenue-scarce States and States with higher expenditures get larger shares of Union tax revenue than others.
  - **Efficiency-** Reward the States that are efficient in collecting revenue and rationalising spending.

- **Tax contribution-** It is an efficiency indicator because a State's level of development and economic structure decides its tax contribution.
- **Population-** It is a chief indicator of the expenditure needs of the State, was given 80% to 90% weight in the first seven Finance Commissions as far as income tax distribution was concerned.
- **Union Excise duties-** The entire distribution was based on population or other indicators of expenditure needs such as area, per capita income etc.,

Since the 10th Finance Commission, the Commission has recommended a single distribution formula for both income tax and Union excise duties. Thus, the Finance Commissions have always favoured assigning more than 75% weight to equity indicators.

- **Pooled Central tax-** It included tax effort and fiscal discipline as efficiency indicators with a weight of 15%.
- **Tax effort**-It is broadly defined as the ratio of own revenue of a State to its Gross Domestic Product.

- **Fiscal discipline**- It is the proportion of own revenue to the revenue expenditure of a State.

How the tax contribution can be included in the distribution formula?

- **GST -** It is a consumption-based destination tax which is a good measure of tax contribution and efficiency of States.
- GST is a unified tax system which reflects the accurate tax base of each State and is not affected by discretionary policies.
- **Petroleum consumption**- It is another measure of tax contribution and efficiency, as it captures the relative share of Union excise and customs duties on petroleum products paid by each State.
- Both the GST and petroleum consumption indicate the relative differences in the incomes of the residents of each State, as consumption is a function of income.
- **Recommendation to 16th Finance Commission**- As both indicators account for large share of States' share in the Central tax revenue, they can be included in the distribution formula with a weightage of at least 33%.

37. BSF's Jurisdiction Expansion: Punjab's Challenge and Implications

- In October 2021, the Ministry of Home Affairs made a significant move by extending the jurisdiction of the Border Security Force (BSF) in certain states, leading to a legal dispute between the central government and the affected states.
- This article examines the recent developments and the key issues surrounding the expansion of BSF's jurisdiction.

Expansion of BSF Jurisdiction

- **Border Security Force (BSF)**: The BSF is India's border guarding organization, tasked with securing the borders with Pakistan and Bangladesh. It operates under the Ministry of Home Affairs.
- **Notification**: The Ministry of Home Affairs issued a notification in October 2021, expanding the BSF's jurisdiction in specific states.
- **Changes in Jurisdiction**:

-

1. In Punjab, West Bengal, and Assam, the BSF's jurisdiction was extended from 15 km to 50 km inland from the border.
2. In Gujarat, the jurisdiction was reduced from 80 km to 50 km.
3. Rajasthan's jurisdiction remained unchanged at 50 km.

Legal Frameworks

- **Border Security Force Act**: The Ministry of Home Affairs invoked the Border Security Force Act of 1968 to delineate the BSF's jurisdiction.
- **Powers Exercised**: The BSF's jurisdiction extension applies only to specific powers granted under the Criminal Procedure Code (CrPC), Passport (Entry into India) Act, 1920, and Passport Act, 1967.

Rationale behind BSF's Jurisdiction Expansion

- **Historical Context**: The BSF was established in 1965 to secure India's borders. At that time, border regions were sparsely populated, and police stations were scarce.
- **Trans-Border Crimes**: To combat trans-border crimes effectively, the BSF was empowered to arrest and search individuals within its jurisdiction.
- **Manpower Constraints**: Despite the establishment of police stations near the border, staffing remained inadequate.

Issues Surrounding Border Regions

- **Challenges at Borders**:

-
    1. Encroachment
    2. Illegal incursion
    3. Drug and cattle smuggling

- **Complementary Role**: Expanding BSF's jurisdiction was intended to complement the efforts of local police, enhancing cooperative measures rather than displacing state police authority.

Criticisms and Legal Challenges

- **Federalism Concerns**: States argued that the extension of BSF's jurisdiction encroached upon their powers related to police and public order, asserting their rights under the Constitution.
- **Lack of Consultation**: The states also contended that the central government issued the notification without consulting the affected states.

- **Original Suit**: The state of Punjab filed an 'original suit' against the central government in the Supreme Court under Article 131 of the Constitution, which grants the Supreme Court exclusive jurisdiction over disputes between the central government and states.
- **Approach**: Punjab argued that the expansion compromised its legislative authority on policing matters and public order, emphasizing that a significant portion of its cities and towns would now fall within the 50-kilometre jurisdiction.

Ongoing Legal Battle

- **Exclusive Challenge**: While West Bengal initially expressed opposition to the notification, currently, only Punjab's challenge is tagged with the Supreme Court.
- **Key Considerations**: The Supreme Court will assess the validity of the notification, examining whether it was arbitrary or backed by legitimate reasons. It will also weigh the impact on states' powers under the Constitution and determine if uniformity is required in setting local limits for BSF's jurisdiction.

Conclusion

- The legal battle between the central government and the states over the expansion of BSF's jurisdiction highlights the complex interplay between federalism, national security, and law enforcement.
- The Supreme Court's decision will have far-reaching implications for the distribution of powers between the center and the states in matters related to border security and policing.

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- The Supreme Court's decision will have far-reaching implications for the distribution of powers between the center and the states in matters related to border security and policing.

40. Border Security Force Extension in Punjab

The Supreme Court is set to hear the dispute over the expansion of the Border Security Force (BSF) jurisdiction in Punjab.

Border Security Force

- **Origin-** Formed based on the recommendations of the **Committee of Secretaries** in the wake of the 1965 Indo Pakistan War.
- Came into existence on 1st December 1965.
- **Mandate**- To guard the Indo-Pakistan and Indo-Bangladesh border.

Shri K F Rustamji was the first chief and the founding father of BSF.

- **Features** - It is the **world's largest border guarding force** securing the 6,386.36 km long International Border with Pakistan and Bangladesh.
- It is the only force of the nation with a distinctly defined war-time as well as peace-time role.
- BSF has been termed as the **First Line of Defence of Indian Territories.**
- It is one of the Central Armed Police Forces of the Union of India.

- **Administrative control**- Ministry of Home Affairs.
- **Legal framework**- It is governed under **Border Security Force Act, 1968**
- **Powers -** BSF is empowered to **arrest, search and seize** under Criminal Procedure Code, the Passports Act, the Passport (Entry into India) Act etc.
- BSF Act allows the **Central government** through an order to designate an area "within the local limits of such area adjoining the borders of India" where members of the BSF can exercise powers.

What is the issue?

- **The issue -** In 2021, Ministry of Home Affairs issued a notification expanding the jurisdiction of the BSF in **Punjab, West Bengal and Assam**.
    - **Prior to 2021 notification –** BSF could exercise its powers **within 15 kilometres** of the border in Punjab, West Bengal and Assam.
    - **After 2021 notification** - Within **50-kilometre** jurisdiction, the BSF can exercise powers under the Criminal Procedure Code, the Passport (Entry into India) Act and the Passports Act. For other central legislations, the 15-km limit remains.
- **Need for the expansion of BSF's jurisdiction**
    - To check the increased use of drones and Unmanned Aerial Vehicles
    - To enable surveillance and the smuggling of arms and fake currency
    - To conduct more search and seizures of cattle smuggling activity and to prevent the smugglers from taking refuge in the interior areas of the country
    - To make the BSF's jurisdiction uniform across states, as the 50-kilometre limit was already in place in Rajasthan.

Why has Punjab challenged this?

- Punjab filed an 'original suit' against the central government in the Supreme Court in 2021.
- The Supreme Court (SC) has '**original jurisdiction'** in disputes between the Central government and States under **Article 131** of the Constitution.

The 7th Schedule of the Constitution divides the legislative power between the Centre and the States.

What are the issues that the Supreme Court will consider?

- Supreme Court will decide on the issue
  - Whether the notification extending the BSF area of control to 50 km is an 'arbitrary' and 'unconstitutional' exercise of power of the central government?
  - Whether it is 'beyond the local limits' of the border area, as provided under the BSF Act?
  - What are the factors that are required to be considered for such extension of boundaries?
  - Whether all states should be treated alike to decide on extensions?
  - Whether the notification can be challenged under Article 131?