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**DECEMBER 2023**

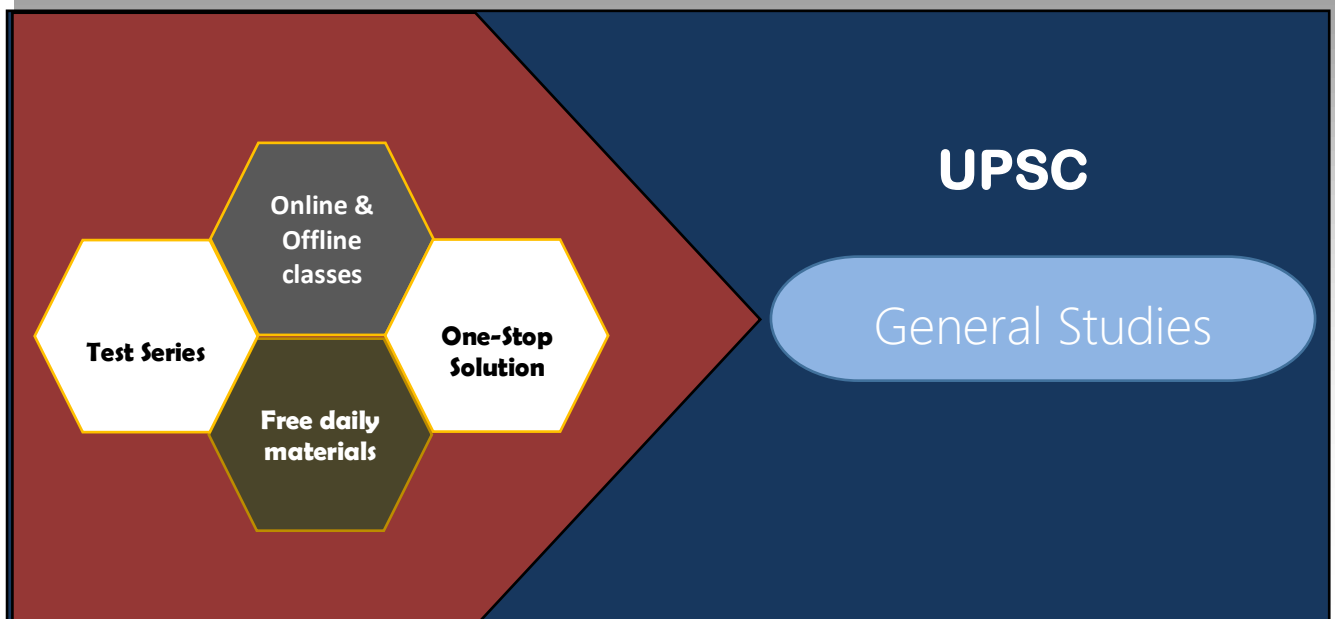
**Monthly current affairs magazine**

**SHIKSHA**

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**Articles of the day  
THE HINDU & INDIAN EXPRESS**



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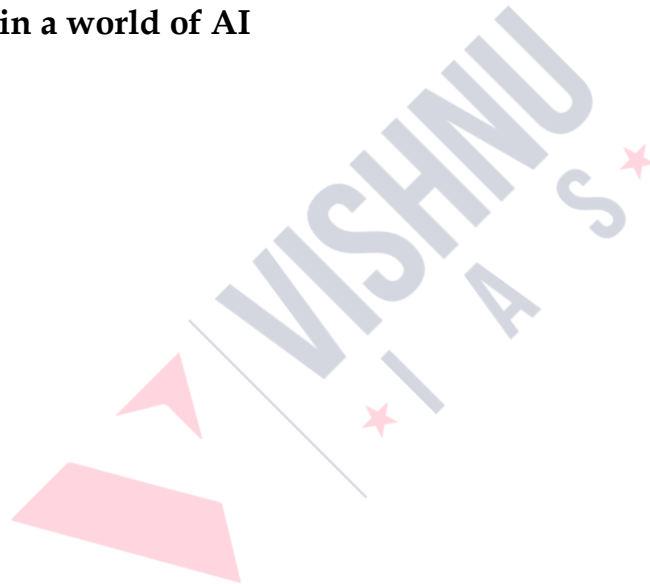
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## GS 1 : Heritage, culture ,Geography of the World and Society

### 1. Cyclone Michaung

- Cyclone Michaung (name suggested by Myanmar) makes landfall in Tamil Nadu and Andhra Pradesh.
- Michaung is the fourth tropical cyclone over the Bay of Bengal this year.

#### Cyclone Michaung

- **Uncommon Intensity:** December cyclones in the North Indian Ocean typically do not reach high intensities. Michaung, with its severe storm classification, is an exception.
- **Upgraded Intensity:** Initially predicted as a tropical cyclone, IMD upgraded Michaung to a 'severe' storm due to its unexpected intensification.
- **Heat Index Contribution:** The intensification is attributed to the above-normal heat index values off the southern Andhra Pradesh coast.

#### Indian Tropical Storms: An Overview

- **Annual Cyclones:** The North Indian Ocean basin averages about five cyclones per year, predominantly in the Bay of Bengal.
- **Arabian Sea Cyclones:** Though less frequent, Arabian Sea cyclones often reach higher intensities and can cause extensive damage.
- **Peak Cyclone Seasons:** Cyclones are most common during **pre-monsoon (April-June)** and **post-monsoon (October-December)** months, with May and November seeing more intense storms.

#### Factors Influencing Storm Intensification

- **Ocean Heat:** Cyclones draw energy from warm ocean temperatures, typically around **26 degrees Celsius** or higher.
- **Tropical Cyclone Heat Potential (TCHP):** This oceanographic parameter is crucial in cyclone genesis and intensification.
- **Complex Atmospheric Conditions:** Various atmospheric factors like wind shear, convection, and air-sea interactions also play a role in cyclone development.
- **Coriolis Effect:** This effect influences cyclone formation in the northern hemisphere, causing air to move anticlockwise in low-pressure areas.

## 2. Kopili Fault (KF) Zone

Scientists recently identified **Seismogenic liquefaction features** in an active fault in **northeastern region (NER)**, called **Kopili fault (KF) zone**.

### About the research near Kopili Fault:

- Scientists from **Indian Institute of Geomagnetism (IIG)**, identified seismogenic liquefaction features at trench sites in the floodplain deposits of **Kolong River, near Kopili Fault (KF)**.
  - This area is known to have experienced **large earthquakes in 1869 and 1943**.
  - A **fault is a fracture** or zone of fractures between two blocks of rock.
- **Paleoseismic investigations**, commonly conducted through trenching studies, involve digging a trench, and a geologist logs the geological attributes of the rock layers.
- The **liquefaction features include** multiple sand dykes and sand sills, which are direct response to the liquefaction of **saturated sediment** induced during past seismic activity.
- The occurrence of past earthquakes can be identified through **geological, geomorphological, fluvial signatures**, and **radiocarbon dating**, even without historical or instrumental records.

### About Seismogenic Liquefaction:

- Liquefaction or transformation of granular material from a **solid to a liquefied state** due to **increased pore water pressure** is crucial secondary evidence of earthquakes.
- It occurs mostly in **soft sedimentary sequences**, especially interbedded **sand and silt or clay**.
- The **structures resulting from liquefaction** include sand dykes, sand blows, sand veins, pseudo-nodules, convolute bedding, load structure, etc.
- This impacts the designing of infrastructure like bridges and large buildings to withstand **potential seismic events** and their **mitigation**.

### Key Findings by researchers:

- Seven samples from **marker horizons** were processed to constrain the chronology of liquefaction features using **optically stimulated luminescence (OSL)** dating technique.
  - **OSL** is the process when a **material is exposed to ionizing radiation**, it undergoes optical stimulation and emits a light signal proportional to the absorbed dose.

- It uses **quartz and feldspar** as dosimeters and when the minerals are buried, they get **concealed from daylight**.
- This indicated **two earthquakes** induced liquefaction in the vicinity of the KF during the past **around 480 years**.
- These details could be useful for interpretation of **long-term rupture history of faults** and intraplate seismicity.

### About Kopili Fault (KF):

- It is a **300 km long and 50 km wide lineament** situated in the northeastern region (NER).
- It extends from the western part of **Manipur** to the **tri-junction of Bhutan, Arunachal Pradesh, and Assam**, close to the Himalayan Frontal Thrust.
- The fault **bisects Meghalaya Plateau** and isolated the Mishmi block from the main part of the plateau.
- The area has a **sloping terrain** from southwest to north, and the higher elevations are mainly composed of **granite and gneiss**.
- The region includes **new sedimentary** to oldest **igneous and metamorphic** rocks like sandstone, shale, argillaceous limestone formation and poor pyritic granite.
- The **Kopili River** originates in the **Borail Range** and is Assam's largest **south-bank tributary to the Brahmaputra River**.
- It has **diverse terrains** like Nagaon's plains, deep gorges, rapids, and falls including the **Kopili-Kharkor river confluence** and downstream of the **Khandong dam**.
- This makes the region **geologically unstable** and surrounded by faults, lineaments and **seduction zones** in the east.
- This could be a source of **major earthquakes** including:
  - 1869: Cachar earthquake (Moment magnitude, or Mw 7.5)
  - 1943: Hojai earthquake (Mw 7.3)
  - 2009: Bhutan and Assam earthquakes (Mw 6.3 and 5.1)
  - 2021: Kopili Fault Earthquake (Mw 6.1) in Assam

## 3. Year End Review | Ministry of Culture

### ABOUT THE MINISTRY

- A separate ministry for culture was established in 2006.
- **Primary mandate-** Preservation and conservation of ancient cultural heritage and promotion of tangible and intangible art and culture.
- **Union Minister-** Shri G. Kishan Reddy

### WORLD HERITAGE SITES

- **New Inclusion-** Santiniketan and Hoysala temples (Sacred Ensembles of Hoysalas) from India were inscribed on the UNESCO World Heritage List.
- **Santiniketan-** It is a university in West Bengal set up by the Nobel Laureate, Rabindranath Tagore.
- It is based on ancient Indian traditions, reflecting his vision and philosophy of recognizing unity of humanity or 'Visva Bharati'.
- It is the first tangible cultural heritage site from West Bengal.
- **Sacred Ensembles of Hoysalas-** It comprise 3 magnificent 13<sup>th</sup> century temples of the Hoysala Dynasty in Karnataka, namely
  - Hoysalesvara Temple Helebidu,
  - Channakeshava Temple Belur,
  - Keshava Temple Somnathapur.

India is in the 6<sup>th</sup> position for maximum number of sites on the World Heritage List of UNESCO

- **UNESCO Creative Cities Network-** Newly included in 2023 are
  - Gwalior- Music
  - Kozhikode- Literature
- **UNESCO's Representative List of Intangible Cultural Heritage of Humanity-** 'Garba of Gujarat' has been inscribed newly in 2023.

## AZADI KA AMRIT MAHOTSAV

- **Launch year-** 2021
- **Theme-** Nation first, always first
- **Meaning-** Great Celebration for the Amirtham (nectar) of Independence.
- It is an embodiment of all that is progressive about India's socio-cultural, political and economic identity.

## Important events

- **Meri Maati Mera Desh- Maati Ko Naman Veeron ka Vandan-** Unified celebration to pay tribute to the 'Veers' who laid down their lives for the country.
  - **Amrit Kalash Yatra-** Carrying soil from all corners of the country in 7500 kalash to create an 'Amrit Vatika' in Delhi.
  - **Amrit Mahotsav Memorial-** At the memorial site, people will take a solemn pledge covering Panch Pran, affirming their commitment to the country.
  - **Rastragaan-** Hoisting of flags and singing of National Anthem at sites.



- **Vasudheva vandhan-** Panchayats, villages and urban local bodies will replenish Mother Earth by planting 75 saplings of indigenous species and develop the 'Amrit Vatika'
- **Mera Gaon Meri Dharohar-** Culturally map India's 6.5 lakh villages, spanning 29 States and 7 Union Territories, on a comprehensive virtual platform under National Mission on Cultural Mapping.
- **Har Ghar Tiranga-** Encourages people to bring the tricolour flag home and to hoist it to mark the 75<sup>th</sup> year of India's independence.
- **Kashi Tamil Sangamam 2.0** -To revive the bonds between **Varanasi and Tamil Nadu** through cultural exchange and knowledge sharing
- **Swantatra Swar-** Revolutionary poetry banned during British Raj is published.
- **Vande Bharatam programme-** An initiative as part of Republic Day Celebrations 2023 along with Ministry of Defence, to promote the spirit of 'Jan Bhagidari', while showcasing India's vibrancy thorough its dance.
  - **Shakti Rupen Sansthita-** It was the title of the tableau of the Ministry of Culture that was showcased at the Republic Day celebrations at Kartavya Path.

## G20 2023- INDIA PRESIDENCY

- **Theme-** Vasudheiva Kudumbakam (One Earth One Family One Future)
- **Events held**
  - G-20 March for World Peace
  - G-20 Run for Women Power
  - Culture All Unites, the largest display of **Lambani embroidery patches** was organised at Hampi, Karnataka
- **Kashi Culture Pathway-** It reflects the consensus and commitment of the G20 member based on 4 thematic priorities.
- Protection and Restitution of Cultural Property
- Harnessing Living Heritage for a Sustainable Future
- Promotion of Cultural and Creative Industries, and Creative Economy
- Leveraging Digital Technologies for the Promotion and Protection of Culture

## INTERNATIONAL CULTURAL RELATIONS

- **Global engagement schemes**
  - **Festivals of India Abroad-** Tools of cultural diplomacy that project India's rich cultural heritage and its soft power
  - **Grant-in aid to Indo-Foreign Friendship Cultural Societies-** To promote Indian culture abroad, fostering closer friendship and cultural contacts

- **Cultural Exchange Programme-** It has been signed with Egypt, Colombia, Italy, Mauritius, Slovakia and Belarus to foster bilateral cooperation.
- **Shared Buddhist Heritage-** Organized in association with Ministry of External Affairs, it is an international conference with Shanghai Cooperation Organization Nations at New Delhi with focus on India's civilization connect.
- **Global Buddhist Summit-** It is hosted in collaboration with International Buddhist Confederation with the theme "Responses to Contemporary Challenges: Philosophy to Praxis".
- **India Art, Architecture and Design Biennale, 2023-** To invigorate the cultural space and creative industries and leverage the Arts for Global Cultural Diplomacy and Connect.

## OTHER INITIATIVES

- **Atmanirbhar Bharat Centre for Design-** Launched at Delhi to pave the way for a sustainable cultural economy derived from the indigenous crafts of India by empowering the artisan communities with new designs and innovations.
- **Rashtriya Sanskriti Mahotsav-** Organised in Mumbai to promote National Unity and integrity through cultural exchange.
- **Kala Samantar-** An art gala uniting visual and performing arts in a beautiful symphony organised by National Gallery of Modern Art, New Delhi.
- **Barisu Kannada Dim Dimava-** Festival on Karnataka's culture, traditions and history.
- **Vitasta-** Festival to celebrate the vibrant cultural traditions of Jammu and Kashmir.
- **Utkarsh-** India's largest folk and tribal cultural event organised in Madhya Pradesh.
- **Sanskrita Samunmesha-** National Sanskrit Convention to carry Sanskrit to the grassroot level.
- **Festival of libraries-** To promote development and digitization of libraries and cultivate the culture of reading.
- **International Museum Expo 2023-** To celebrate the International Museum Day and to institutionalize this in its annual calendar.

## GS 2 : Polity, Governance, International Relations

### 1. Postal Ballot

Recently, in Madhya Pradesh, an opposition party confronted election officials for opening the strong room where postal ballots had been stored.

**What options are available for voting in India?**

- **Visiting the poll booth** - A person will visit the polling booth to exercise his/her franchise.
- **Postal ballots** - A voter exercises his/her franchise through post.
- **Proxy voting** - The person can authorize another residing in the same polling booth area to cast a vote on his/her behalf.

**What is the procedure for storing postal voting ballot system?**

- **Casting of votes**- Voters who are eligible for postal ballots can cast their votes at facilitation centres or by post.
- The ballots are collected daily and stored in a strong room by the Returning Officer (RO).
- **Transfer of ballots**- The RO informs the candidates when the postal ballots will be moved from one strong room to another.
- The postal ballots are taken out of the strong room in front of the candidates or their agents, put in a steel box and sealed.
- **Opening of ballots** - The steel box is escorted by armed CPF to the strong room at the counting centre a day before counting and opened in the presence of candidates or their representatives.

**What are the issues with postal ballot?**

- **Tampering of votes**- They are vulnerable to being altered, stolen, or forged by malicious actors.
- **Time constraints**- They may cause delays in counting and declaring the results due to the time required to process and verify them.
- **Violates privacy**- They may violate the voting confidentiality and expose the voters to undue influence or coercion by others.

- **Complexity-** They may impose unequal burdens and consequences on different groups of voters depending on their literacy, accessibility, and availability of postal services.

## 2. India's Broadcasting Services Bill

India's Broadcasting Services Bill aims at regulating broadcasting comprehensively, introducing positive steps like audience data transparency and competition in terrestrial broadcasting. However, concerns arise over privacy, jurisdictional conflicts with OTT regulation, and lack of measures on ownership and an independent regulator.

### Key Highlights:

- The Broadcasting Services (Regulation) Bill aims to regulate broadcasting comprehensively, marking the third attempt since 1997.
- Positive propositions include obligations for record-keeping, audience measurement transparency, and allowing private actors in terrestrial broadcasting.

### Key Concerns:

- Lack of privacy safeguards for subscriber and audience data in data collection practices.
- Inclusion of Over-the-Top (OTT) content suppliers in the definition of broadcasting creates jurisdictional conflicts and poses threats to smaller news outlets.

### Positive Provisions Requiring Refinement:

- Obligation for maintaining records of subscriber data.
- Stipulation of a methodology for audience measurement.
- Provision to permit private actors in terrestrial broadcasting.

### Apprehensions:

- Expanded definition of broadcasting may limit conditions for journalists and news outlets not part of large television networks.
- The mandate for a 'Content Evaluation Committee' to self-certify news programming raises feasibility and desirability concerns.

### Crucial Silences in the Bill:

- Lack of measures to assess cross-media and vertical ownership impacts diversity in the news marketplace.
- Absence of provisions for creating an independent broadcast regulator.

### **Government Empowerment and Intrusive Mechanisms:**

- The Bill grants the government leeway to inspect broadcasters without prior intimation, impound equipment, and curtail broadcasting in “public interest.”
- Violations of the Programme Code and Advertisement Code could result in deleting or modifying content.

### **Concerns Regarding Broadcast Advisory Council:**

- Doubts about the Council’s capacity to address grievances raised by over 800 million TV viewers.
- Lack of autonomy for the Council, as the Central government has the ultimate decision-making authority.

### **Key Terms and Phrases:**

- Over-the-Top (OTT) content suppliers
- National Broadcasting Policy
- Content Evaluation Committee
- Vertical integration
- Broadcast Advisory Council.

### **Key Statements:**

- Privacy concerns arise due to the Bill’s lack of guardrails for subscriber and audience data collection practices.
- The absence of measures to assess cross-media and vertical ownership impacts the diversity of news suppliers.
- The Bill’s silence on creating an independent broadcast regulator is a significant omission.

### **Key Examples and References:**

- The Bill is part of a series of attempts to regulate broadcasting, following initiatives in 1997 and 2007.
- TRAI’s ‘National Broadcasting Policy’ proposes including OTT content suppliers in the definition of broadcasting services.

### **Key Facts and Data:**

- Lack of specifics on cross-media and vertical ownership in the Bill impedes diversity in the news marketplace.
- No provisions for an independent broadcast regulator, with the proposal for a 'Broadcast Advisory Council.'

### **Critical Analysis:**

- The potential positive provisions of the Bill require refinement, particularly concerning privacy protection and oversight bodies for news outlets.
- Intrusive mechanisms grant significant power to the government, posing concerns about press freedom and external pressure on news suppliers.

### **Way Forward:**

- The Bill must address jurisdictional conflicts, incorporate privacy safeguards, and reconsider intrusive provisions for effective and balanced regulation.
- Protection of press freedom and diversity should be prioritized through fine-tuning potentially positive provisions and addressing omissions.

### **3. Evolving Global order and choices India has in an emerging bipolar order**

- The current global order is characterized by significant disruptions, including China's rapid rise, superpower competition between the U.S. and China, Russia challenging European security, and conflicts in West Asia.
- The emergence of middle powers like India adds complexity to the global balance of power.

### **Perspectives on Global Order:**

- Debates exist on whether the global order is economically multipolar but militarily unipolar, or if it reflects a return to bipolar rivalry between the U.S. and China.
- The world is described as experiencing asymmetric bipolarity, with the U.S. remaining preeminent but China closing in rapidly, alongside other emerging power centres.

### **Impact of China's Rise:**

- China's economic and military rise over the past four decades has been unprecedented, significantly influencing the international order.
- China's economic leverage, controlled by a single party and leader, contributes to the redefinition of global order.

### **Russia's Alignment with China:**

- Economic sanctions imposed on Russia led to a closer alignment with China, but underlying mistrust persists, especially concerning the balance of power in Central Asia.
- Russia seeks to diversify its relationships, including a renewed focus on ties with India through strategic corridors.

### **India's Diplomatic Challenges:**

- India maintains good ties with the U.S. and Russia but faces a testy relationship with China.
- The intensification of great power competition between China, the U.S., and Russia may limit India's diplomatic options but does not necessarily lead to a rigid bipolar system.

### **India's Strategic Approach towards China:**

- Acknowledgement of China as a long-term competitor in Asia and recognition of power asymmetry.
- Focus on enhancing comprehensive national power, economic growth, military modernization, and disruptive technologies.
- Emphasis on internal balancing to address societal fault lines and external balancing to perpetuate China's two-front dilemma.

### **Global Security Situation:**

- Wars in Eastern Europe (Ukraine-Russia conflict) and West Asia (Israel-Hamas conflict) have heightened global awareness.
- Consideration of political factors, such as U.S. support for Ukraine and Israel, driven by political compulsions and historical alliances.
- Deeper concerns about the role of the military-industrial complex in perpetuating violence and conflicts worldwide.

## **4. Is the emerging global order bipolar?**

The world order is shifting, with the U.S. leading but China rising fast. India needs to navigate complex relations, address internal challenges, and focus on economic and military growth for a strong role globally. Amid global conflicts, balancing alliances is crucial for India's position in the evolving geopolitical landscape.

### **Key Highlights:**

- **Global Order Dynamics:** Shifting landscape with China's rise, Russian challenges, and the emergence of middle powers like India.
- **Asymmetric Bipolarity:** Viewing the world order as asymmetric bipolarity, where the U.S. remains pre-eminent but China rapidly advances.
- **China's Impact:** Unprecedented economic and military growth redefines international power dynamics.

### Key Challenges:

- **Russia-China Nexus:** The war in Ukraine strengthens Russia-China ties, posing strategic challenges for India.
- **Global Security Complexities:** Conflicts in Eastern Europe and West Asia contribute to a multifaceted global security landscape.
- **Diplomatic Maneuvering:** Navigating complex relations with the U.S., China, and Russia amid evolving global power dynamics.

### Key Terms and Phrases:

- **Asymmetric Bipolarity:** Understanding the dynamics of uneven power distribution in the current world order.
- **People's Power:** The 21st century characterized by unprecedented connectivity, interactions, and global integration.
- **Military-Industrial Complex:** The influence of industries producing destructive weapons on global violence.
- **Two-Front Dilemma:** China's strategic challenge, facing pressures in the Western Pacific and the Line of Actual Control.

### Key Statements and Examples:

- **Russia's Pivot:** Economic sanctions and the Ukraine conflict drive Russia towards closer ties with China.
- **India's Diplomatic Complexities:** Balancing trade ties with China and managing strategic challenges with the U.S. and Russia.
- **China's Economic Surge:** Unprecedented GDP growth influencing global power dynamics and necessitating India's strategic response.

### Key Facts and Data:

- **China's GDP Growth:** A remarkable shift from \$300 billion to \$19.3 trillion in the last four decades.
- **India-China Trade:** Standing at \$138 billion, showcasing the intricate nature of bilateral relations.
- **War in Ukraine:** Ongoing for the past 20 months, contributing to evolving geopolitical dynamics.



### Critical Analysis:

- **Recognition of Asymmetric Bipolarity:** Acknowledging and adapting to the current world order's uneven power distribution.
- **Comprehensive National Growth:** Emphasizing India's need to strengthen its comprehensive national power amid power asymmetry with China.
- **Global Relations Management:** Recognizing and addressing challenges in India's diplomatic strategy amidst evolving global dynamics.

### Way Forward:

- **Internal Strengthening:** Addressing internal fault lines, fostering societal cohesiveness, and focusing on comprehensive national growth.
- **Strategic External Balancing:** Balancing relations with the U.S. to maintain China's two-front dilemma and preserving India's strategic autonomy.
- **Advocacy for Global Disarmament:** Addressing the root issue of the military-industrial complex, promoting global disarmament for a more peaceful world.

## 5. On Constitution Day, more people-friendly laws

The Indian government, led by Prime Minister Narendra Modi, is actively simplifying legal language to promote "Access to Justice," making legal texts more understandable for every citizen. This strategic initiative, aligned with constitutional principles, addresses historical ambiguities and leverages technology to enhance accessibility, contributing to global legal recognition and fostering a transformative journey toward inclusive justice.

### Key Highlights:

- **Legal Language Simplification:** The Indian government, led by Prime Minister Narendra Modi, is undertaking a mission to simplify legal language, aligning with the vision of "Access to Justice" and aiming to make legal texts more accessible to the common citizen.
- **Constitutional Principle:** The initiative reflects the constitutional principle that legal language should be understandable to every citizen, emphasizing the importance of ensuring citizens comprehend their rights and responsibilities.
- **Correction of Ambiguities:** The government is addressing historical ambiguities in legal language, such as those in Sections 213 and 214 of the IPC, to enhance legal precision and effective enforcement, eliminating potential loopholes.

- **Global Recognition:** The government's commitment to simplifying legal language has gained international recognition, positioning India as a forward-thinking adopter of progressive measures for legal accessibility.
- **Digital Transformation:** The simplification efforts align with the Digital India campaign, leveraging technology to enhance accessibility, with online platforms and digital resources making legal information more readily available.

### Key Challenges:

- **Historical Complexities:** Addressing historical intricacies in legal language poses a challenge, requiring thorough examination and correction of ambiguities that have persisted over time.
- **Public Engagement:** While seeking public input in the simplification process is a positive step, ensuring effective public engagement and capturing diverse perspectives can be challenging.

### Key Phrases:

- **Access to Justice:** The overarching vision guiding the simplification initiative, aiming to remove barriers of legal complexity that hinder the common citizen's understanding of legal texts.
- **Legal Empowerment:** The goal of simplification extends beyond language, aiming to empower citizens with legal knowledge, fostering a sense of legal empowerment among the diverse population.

### Key Quotes:

- "We must see that the constitution is not only passed by the Constituent Assembly but that it is also worked by the common people of the country." – B R Ambedkar
- "The government envisions a legal landscape where language is not a barrier but a bridge to justice."

### Critical Analysis:

- The reduction in legal disputes due to misunderstandings and misinterpretations underscores the positive impact of the simplification initiatives in fostering a clearer legal framework.

### Way Forward:

- Continue the integration of plain language drafting principles into legal education to nurture a generation of legal professionals capable of navigating legal intricacies with clarity and precision.
- Sustain efforts to engage the public in the simplification process, ensuring diverse perspectives are considered for comprehensive legal accessibility.
- Monitor and evaluate the impact of simplification on reducing legal disputes and enhancing India's global economic competitiveness.
- Explore additional measures, such as comprehensive glossaries in multiple languages, to further enhance the understanding of legal language among citizens

## 6. A dark shadow on New Delhi's credibility

The article explores the credibility crisis faced by India in the realm of covert operations, focusing on recent legal challenges and a lack of trust with the U.S. The key themes include the impact on international relations, the dynamics of intelligence sharing, and the need for a balanced diplomatic approach to maintain India's global image.

### Key Highlights:

- **Espionage and Covert Operations:** Recent U.S. indictment against Nikhil Gupta for targeting Khalistani separatists in North America.
- **Credibility Challenges:** Multiple legal challenges to Indian intelligence operations abroad, raising questions about New Delhi's credibility.
- **Global Reach of Indian Security:** Operations against Khalistani and Pakistani operatives in various countries, showcasing India's security establishment's capabilities.

### Key Challenges:

- **Credibility Crisis:** Impact on New Delhi's credibility in covert capacities and public messaging.
- **Trust Deficit:** Lack of trust and information sharing between India and the U.S.
- **Diplomatic Balancing Act:** Juggling international engagements and addressing concerns from western allies.

### Key Terms/Phrases:

- **Covert Operations Dynamics:** Espionage, intelligence, and covert operations.

- **Targeted Groups:** Khalistani separatists, extradition, extra-judicial actions.
- **International Relations:** Trust deficit, bilateral ties, Five Eyes intelligence partnership.

#### Key Quotes/Statements:

- “In the shadowy world of espionage, intelligence and covert operations, the only rule is to never get caught carrying out a mission.”
- “Trust is still an issue.”
- “India’s double standard in its international engagements.”

#### Key Examples/References:

- **Legal Battles:** Forcible return of UAE princess, Latifah, and the “attempted kidnap” of Mehul Choksi.
- **Convictions and Challenges:** Conviction of Indian naval officers in Qatar for espionage.

#### Key Facts/Data:

- **Alleged Operations:** Involvement of Indian agencies in operations against Khalistani and Pakistani operatives globally.
- **Information Gaps:** Lack of full information sharing between the U.S. and India regarding the alleged conspiracy.

#### Critical Analysis:

- **Credibility Concerns:** Questions raised about India’s credibility in covert operations and international engagements.
- **Trust Dynamics:** Ongoing trust deficit between India and the U.S. impacting information sharing.
- **Image Management:** Balancing India’s image globally, considering hard and soft power approaches.

#### Way Forward:

- **Transparent Investigations:** Address credibility concerns through thorough and transparent investigations.
- **Enhanced Information Sharing:** Strengthen trust and information-sharing mechanisms with international partners.
- **Adaptive Diplomacy:** Evaluate and adjust India’s approach to covert operations to align with international norms.
- **Diplomatic Outreach:** Enhance diplomatic efforts to manage relationships with western allies and neighbors.

## 7. Post Office Bill 2023

- Rajya Sabha passed the Post Office Bill, which repeals and replaces the Post Office Act of 1898.
- The 1898 Act has seen significant amendment proposals over the years, including the 1986 Bill for aligning interception grounds with constitutional restrictions, which was not assented to by the President.

### Post Office Bill, 2023: Key Features

- **Removal of Exclusive Privileges:** The Bill removes the central government's exclusive privilege over conveying letters, a significant shift from the 1898 Act.
- **Director General's Role:** The Director General of Postal Services, appointed to head India Post, will have regulatory powers, including setting tariffs and regulating postage stamps.
- **Interception Powers:** The government may intercept postal articles for reasons like state security, public order, and emergency, among others.
- **Liability Exemptions:** India Post is exempted from liability regarding its services, with specific liabilities to be prescribed through Rules.
- **No Specified Offences and Penalties:** The Bill does not define specific offences and penalties related to postal services, following the removal of all offences under the 1898 Act by the Jan Vishwas (Amendment of Provisions) Act, 2023.

### Key Issues and Analysis

- **Procedural Safeguards for Interception:** The Bill lacks procedural safeguards for intercepting postal articles, potentially infringing on freedom of speech and privacy rights.
- **'Emergency' as a Ground for Interception:** The inclusion of 'emergency' as a ground for interception may exceed reasonable constitutional restrictions.
- **Conflict of Interest in Liability:** The central government's role in prescribing liabilities for India Post could lead to a conflict of interest, as it also administers India Post.
- **Absence of Offences and Penalties:** The lack of defined consequences for unauthorized actions by postal officers, such as opening postal articles, raises concerns for consumer privacy.

### Comparative Analysis with Other Services

- **Differences with Private Courier Services:** The Bill maintains distinct regulatory frameworks for public and private postal services, notably in interception provisions and consumer protection applicability.
- **Railway Claims Tribunal as a Contrast:** Unlike the postal services, the Railway Claims Tribunal Act provides a clear mechanism for addressing grievances against the Indian Railways.

### Concerns and Recommendations

- **Need for Clarity and Safeguards:** The Bill should ideally include clear procedural safeguards for interception and specify consequences for violations by postal officers to protect individual rights.
- **Balancing Consumer Protection:** Ensuring adequate consumer protection rights for India Post's services is crucial, potentially through an independent mechanism similar to the Railway Claims Tribunal.
- **Addressing Privacy and Security:** The Bill should balance the need for security with the protection of individual privacy, particularly in the context of postal article interception and officer conduct.

### Conclusion

- The Post Office Bill, 2023, represents a significant overhaul of India's postal service regulation, aiming to modernize and adapt to contemporary needs.
- However, it raises several critical issues, particularly concerning individual rights and the need for clear regulatory frameworks.
- Addressing these concerns is essential to ensure that the Bill effectively serves its purpose while safeguarding fundamental rights and consumer interests.

### 8. The Ambedkar touch in rethinking social justice policies

Contemporary democracy underscores the importance of social harmony and reforms for historically marginalized communities. Democratic institutions strive to ensure dignity and self-respect, particularly for Dalits and Adivasis in India.

The death anniversary of Babasaheb Ambedkar reminds his vision for the social welfare of Dalits. He envisioned a post-colonial India where these communities would play equal roles in the nation's development.

### Challenges for Social Justice in the Neoliberal Era:

- The advent of neoliberal economic development has disrupted traditional support for Dalits and Adivasis from state institutions.

- Positions of power are predominantly held by social elites, leaving marginalized groups with tokenistic representation.
- Despite promises, social justice policies have yielded limited impact on the substantial participation of the most disadvantaged social groups.

**Dr Ambedkar's Approach on Dalit Welfare:** Ambedkar's principles provide a critical perspective on neoliberal disregard for Dalit and Adivasi concerns. His approach proposes ethical corrective measures, fostering greater democracy and responsiveness in institutions. While not as radical as Marxism, Dr Ambedkar's mechanism instils moral sensibilities in institutions, holding them accountable.

### **Need for Reforms:**

- The detachment of the neoliberal market from social responsibilities exacerbates crony capitalism.
- Reforms are imperative to re-envision the market economy, aligning it with ethical values and addressing social inequalities.

### **Suggestions for reforms:**

- Social justice policies must extend to the private economy, democratizing the working classes and alleviating poverty. Integrating these policies into the market economy can uplift Dalits and Adivasis to influential roles.
- Adivasi concerns regarding habitat protection, ecological order, and cultural autonomy need addressing within the framework of the market economy.
- Reparation policies should rectify historical wrongs and foster equitable participation in economic development.
- The new social justice framework should facilitate the emergence of a prominent class among Dalits and Adivasis.
- Affirmative action policies are crucial to democratize the business sector, enabling these groups to become leaders, entrepreneurs, and influencers.

### **Transitioning from Traditional Methods:**

- Policymakers must view Dalits and Adivasis as active contributors rather than passive recipients of state welfare.
- These groups should be acknowledged as integral components of urbanization, industrial production, and technological innovation.
- Dr Ambedkar envisioned the modern state as a transformative force for Dalit and Adivasi emancipation.
- In the neoliberal era, the state has become a passive associate of big business, deviating from its social responsibilities.

**Conclusion:** Dr Ambedkar's vision provides a roadmap to reinvigorate social justice in contemporary democracy. Reimagining the economic order entails integrating social justice into the market, empowering Dalits and Adivasis as active contributors to the nation's development.

## 9. Crime in India 2022

As per the recent National Crime Records Bureau (NCRB) report on the crime situation in India, there was an increase in various types of crimes in 2022 compared to 2021.

### Key highlights of the report

- **Data source-** The report is a compilation of data on reported crime from across the country, obtained from the police forces of 36 states and Union Territories.
- **Data validation-** The information is entered by state/UT police at the level of the local police station, and is validated at the levels of the district and state, and finally, by the NCRB.
- **Registration of cases-** The report shows a decline of 4.5% in the registration of cases over the second pandemic year, 2021.
- **Crime rate-** Crimes registered per lakh population, has declined from 445.9 in 2021 to 422.2 in 2022.
- **Safest city in India-** Kolkata for the 3<sup>rd</sup> consecutive year has been recognised as the safest city in India, it recorded the least number of cognisable offences per lakh population among other major cities in India.

Pune in Maharashtra and Hyderabad in Telangana are also safer cities as per the report.

- **Increase in crime-** Highest surge in crimes is seen in crimes against foreigners with 28% increase compared with 2021.

### Limitations of the report

- **Data collection-** The report only shows registered crime, not actual crime. For example, more reports of crimes against women may mean more awareness, not more violence.
- **Principle Offence Rule-** The report follows a rule that counts only the most severe crime in a single FIR.
- This can lead to undercounting of some crimes, such as rape, if they are accompanied by murder.



- **Data inaccuracy-** The data is collected from local police, which may not reflect the true causes or extent of crimes.
- **Lack of wider focus-**The NCRB itself notes that the socio-economic causative factors or reasons of crimes are not being captured by the Bureau.
- **Lack of trust-** Some groups may not report crimes due to fear or lack of trust in the police.
- **Manpower shortage-** Some of the police stations may have staff shortages or vacancies that affect data quality.

### What lies ahead?

- The surge in cybercrimes indicates that the online world is not safe, it requires safe and secure architecture and proper awareness among the people.
- There is a need to strengthen support services for victims, providing safe shelter homes, and making legal aid more accessible.
- Optimise the full potential of technology to create safer environments, such as panic buttons in public spaces and enhanced surveillance systems.
- A holistic approach must be adopted with better community involvement, education, support services, and capacity building to tackle the surge in crimes in India.

### 10. Panchayat Development Index (PDI)

- The Ministry of Panchayati Raj is leading the effort to localize Sustainable Development Goals (SDGs) as part of the 2030 Agenda for Sustainable Development.
- A report on the Panchayat Development Index (PDI) has been released to evaluate the progress of grassroots institutions in achieving Localized SDGs (LSDGs).

### Panchayat Development Index (PDI)

- PDI is a comprehensive, multi-domain, and multi-sectoral index designed to assess the holistic development, performance, and progress of panchayats.
- It incorporates various socio-economic indicators to measure the well-being and development status of local communities under a panchayat's jurisdiction.
- PDI is crucial for evaluating performance and tracking progress in the localization of Sustainable Development Goals in rural areas.
- The Index is based on a framework of local indicators encompassing nine themes related to sustainable development in villages.

## Nine Themes of PDI

1. Poverty-Free and Enhanced Livelihood in Village
2. Healthy Village
3. Child-Friendly Village
4. Water-Sufficient Village
5. Clean and Green Village
6. Village with Self-Sufficient Infrastructure
7. Socially Just and Secured Villages
8. Village with Good Governance
9. Women-Friendly Village

## Ranking and Grading System

Panchayats are ranked based on their scores and categorized into four grades:

1. **Grade A+:** Scores above 90%
2. **Grade A:** Scores between 75-90%
3. **Grade B:** Scores between 60-75%
4. **Grade C:** Scores between 40-60%
5. **Grade D:** Scores under 40%

## Significance of the Panchayat Development Index

- **Insightful Analysis:** PDI provides critical insights into areas needing improvement in rural jurisdictions.
- **Identifying Disparities:** It helps in pinpointing disparities and the achievement of development goals.
- **Policy Formulation:** The Index aids in creating targeted policies and interventions to enhance the well-being and quality of life in rural communities.

## 11. Advocates Amendment Bill, 2023

Recently, Advocate amendment bill 2023 was passed in Lok Sabha which amends the Advocates Act 1961 and Legal Practitioners Act 1879.

### Legal Practitioners Act 1879

- **Aim-** To consolidate and amend the law relating to Legal Practitioners in certain provinces.
- **Application-** The Act initially extended to areas in West Bengal, Uttar Pradesh, Punjab, Bihar, Madhya Pradesh, Assam, Orissa, and Delhi.

- Any state government could, by notification in the Official Gazette, extend it to their States.
- **Legal practitioner-** Section 2 of the 1879 Act defined the term “legal practitioner” to include advocates, vakils, or attorneys of any High Court.
- **Tout-** It also introduced a new definition of the term “tout”.

A tout is someone who procures clients for a legal practitioner in exchange for payment. The definition also included people who frequented civil or criminal courts, revenue offices, railway stations, etc. for such procurement purposes.

### Advocates Act 1961

- **Aim-** To create a single class of legal practitioners known as “advocates.”
- **All India Bar Council-** It established the council consisting of the Attorney General of India, the Solicitor General of India, and one representative from each State Bar Council, elected by its members.
- **Bar Council of India-** It empowers the body to make rules on matters such as legal education, professional conduct, legal aid, and recognition of foreign qualifications.
- **Advocates-** It defines an advocate as a person who is enrolled in any State Bar Council and who is entitled to practice law before any court or authority in India.
- **Tout provisions-** The Act repealed a majority of the 1879 Act but left behind provisions relating to its extent, definitions, and powers to frame and publish lists of touts.

### Why there is a need to amend the bill?

- **Aim-**
  - To amend the Advocates Act, 1961 and
  - To repeal obsolete provisions of the Legal Practitioners Act, 1879.
- **Tout as offence-** The bill seeks to make the offence of touting as punishable and empowers judges to publish a list of offenders.
- **Efficiency-** It is amended to reduce the number of superfluous enactments in the statute book and repeal all obsolete laws.
- **Productiveness-** To keep in line with the government’s policy of repealing all obsolete laws or pre-independence Acts that have lost their utility,
- **Ethical regulation-** The bill aims to ensure the regulation of legal profession and protect the interests of advocates and public.
- **Consultation-** The bill provides provision to consult with the Bar Council of India on the regulation of legal profession.

### What are the key provisions of the bill?

- **Touts-** The Bill provides that every High Court, district judge, sessions judge, district magistrate, and revenue officer (not below the rank of a district collector) may frame and publish lists of touts.
- **Conduct inquiry-** The authorities empowered to frame and publish the list of touts may order subordinate courts to hold an inquiry into the conduct of persons alleged or suspected to be touts.
- **Publish the list-** If proven to be a tout, such person's name will be included in the list of touts that will be published by the authority and hung in every court.
- **Exclusion-** The court or judge may exclude from the premises of the Court any person whose name is included in the list of touts.
- No person will be included in such lists without getting an opportunity of showing cause against his inclusion.
- **Penalty-** Any person who acts as a tout while his name is included in the list of touts will be punished with
  - Imprisonment up to 3 months,
  - Fine up to Rs 500, or both.
- **Illegal practise-** The bill inserts a new provision in Section 45 of the Advocates Act, 1961, which prescribes 6 months of imprisonment for persons illegally practising in courts and before other authorities.

## 12. India's growing neighbourhood challenges

The central idea revolves around the challenges in India's neighborhood, marked by politically anti-India regimes, China's growing influence, and a changing geopolitical landscape. The dilemmas stem from a shift in power dynamics, policy stances, and mistaken assumptions, necessitating a realistic approach, proactive diplomacy, and addressing workforce shortages for effective foreign policy implementation.

### Key Highlights:

- **Neighbourhood Challenges:** The Achilles heel of Indian foreign policy lies in its neighbourhood, posing three types of dilemmas: politically anti-India regimes, structural challenges from Beijing's growing influence, and the overarching geopolitical architecture.
- **China's Rising Influence:** China's Belt and Road Initiative (BRI) and strategic outreach in South Asia present challenges, making India geopolitically vulnerable within an unfriendly neighbourhood.
- **Causes of Dilemmas:** Regional geopolitical architecture, China's ascendance, normative approach vs. China's non-normative stance, and the shift from resident to non-resident power dynamics contribute to India's dilemmas.

- **Policy Stance Dilemma:** India's status quo bias in dealing with regional politics and a focus on power centers contribute to path-dependencies and sometimes alienate other centers of power or opposition leaders.
- **Mistaken Assumptions:** Assumptions that South Asia minus Pakistan would align with Indian geopolitical reasoning and that cultural connections would ensure better relations have proven inaccurate.

### Key Challenges:

- **Changing Balance of Power:** India must adapt to the changed balance of power in Southern Asia, acknowledging China's emergence as a serious contender for regional primacy.
- **Involvement of External Actors:** Proactively involving friendly external actors in the region is crucial to prevent it from becoming Sino-centric.
- **Flexible Diplomacy:** Indian diplomacy needs to be flexible, engaging multiple actors in each neighboring country and focusing on lessening anti-India attitudes rather than solely dealing with those in power.
- **Diplomatic Workforce Shortage:** The shortage of diplomats is a critical challenge, hindering India's ability to implement foreign policy effectively and respond to global opportunities or crises.

### Key Quotes:

- "India's neighbours and periphery are China's too, even if we do not like it."
- "Dealing with whoever is in power is a good policy, but engaging only those in power is a bad policy."

### Critical Analysis:

- India faces complex geopolitical challenges in its neighborhood, requiring a pragmatic approach to the changed power dynamics. The need for a mental switch, proactive diplomacy, and addressing workforce shortages emerges as critical. The evolving scenario necessitates a shift from traditional assumptions and a more nuanced engagement strategy.

### Way Forward:

- **Realistic Framing:** India should acknowledge the fundamental changes in the regional balance of power and operate within the framework of a new geopolitical reality.
- **External Actor Engagement:** Actively involve friendly external actors to counterbalance China's influence in the region.

- **Flexible Diplomacy:** Adopt a flexible diplomatic approach that engages with multiple actors in neighboring countries, focusing on reducing anti-India sentiments.
- **Diplomatic Workforce Enhancement:** Address the shortage of diplomats by significantly enhancing India's diplomatic workforce to effectively implement foreign policy objectives.

### 13. Anganwadi Protocol for Divyang Children

**Anganwadi Protocol for Divyang Children** was recently launched by the Union Minister for Women and Child Development and Minority Affairs.

#### Anganwadi Protocol for Divyang Children:

- The Anganwadi Protocol for Divyang Children aims to make **Divyang** (specially-abled) child-care **more affordable** through the **Anganwadi network**.
- It is a part of the **POSHAN Abhiyan**, and hence embodies inclusive care for **Social Model for Divyangjan**.
  - The **POSHAN Abhiyaan** is an initiative of the Ministry of Women and Child Development that aims to achieve improvement in **nutritional** status of Children under **6 years, Adolescent Girls, Pregnant Women and Lactating Mothers**.
- It is aligned with the Prime Minister's vision of a **Swasth Suposhit Bharat in Amrit Kaal**.
- It emphasises on **improvement** and **upgradation** of **Anganwadi Centres** to make them more inclusive.
- Anganwadi Workers will raise awareness and **sensitize communities** for inclusive **early childhood care, education, and nutrition**.

#### Key Steps in the Protocol:

- **Step 1:** Screening for **early disability** signs.
- **Step 2:** Inclusion in **community events** and empowering families.
- **Step 3:** Referral support via **ASHA/ANM & Rashtriya Bal Swasthya Karyakram (RBSK)** teams.

#### Implementation of the scheme:

- Every district administration will be guided to address special needs for **education** and **nutrition**.
- Provision of **Swavlamban Cards** for the empowerment of Divyang children and their families.

- Development of the children will be tracked on the **Poshan tracker** for better coordination between relevant **Ministries**.
- **Training** and **capacity building** of Anganwadi Workers will be done.

#### Significance of the scheme:

- **30%** of disabilities in India are **preventable** if caught early and with the **correct play-based educational** activities conducted for children under the age of **6 years**.
- According to **Census 2011**, **2.2%** people are disabled in India, which is about **3 crores** adjusted to the current population.
- The first **3 years**, are critical for fine motor control, cognitive, and mental development and if parents are unaware or misguided, this window of opportunity will be lost.

#### Other key facts:

- The **DePwD** (Department of Empowerment of Persons with Disabilities) has released **1 crore UDID card** or Unique Disability Identity cards.
  - The objective of **UDID card** is to enable the PwDs (Persons with Disabilities) is to avail schemes and benefits for PwDs.

#### 14. Mullaperiyar Dam Case

The **Supreme Court** recently directed the **Survey of India** for assessment on Kerala's proposed mega car project near **Mullaperiyar dam**.

#### What is the issue about Mullaperiyar Dam Case?

- This was to examine whether Kerala's proposed mega car park project near the **Mullaperiyar dam encroached** upon the land specified in the **Periyar Lake Lease Agreement from 1886**.
- The **October 29, 1886 lease indenture** was for a **period of 999 years** and was signed between the **Maharaja of Travancore** and the **Secretary of State for India for Periyar** irrigation works.

#### Role for Survey of India:

- It must first **demarcate and survey the area** covered by the lease deed, and then ascertain if the construction of the car park entered into any part of the lease deed area.

- The court gave the Survey of India **three months** to complete the exercise after both Tamil Nadu and Kerala had agreed to this exercise.

### Why was Tamil Nadu against the project?

- The Chennai Bench of the **National Green Tribunal (NGT)** had allowed the project in the area around the **Periyar Tiger Reserve** near the **Mullaperiyar dam reservoir**.
- This project was located in the area **leased to Tamil Nadu** and involved **supplementary construction activities** in catchment area, water spread area, and waters of the reservoir.
- Tamil Nadu used the reservoir for **drinking and irrigation purposes** across five districts.
- **Kerala encroached** about 2.5 acres, and proposed for additional 20 acres in the water spread area for parking of tourist vehicles, recreational, sanitation, and **commercial activities**.
- Kerala argued that the **1886 Agreement** was between the two independent sovereigns, and did not convey any interest in the lands.
- The Agreement creates an interest in the lands and Tamil Nadu is entitled to enjoy property to the **exclusion of the lessee**, (Defendant State- Kerala).

### About Mullaperiyar Dam:

- It is a **masonry gravity dam** on the Periyar River of **Idukki district, Kerala** on the **Cardamom Hills** of the Western Ghats.
- The river and the dam are so called because it is located at the **confluence of Mullayar and Periyar rivers**.
- It was constructed between **1887-1895** by **John Pennycuick**, under the **British Corps of Royal Engineers**.
- **Catchment area** of the Dam lies entirely in **Kerala** and thus is **not an inter-state river**.
- **Purpose:** To divert waters of the west-flowing River Periyar eastward, to arid rain shadow regions of the Theni, Madurai, Sivaganga, and Ramanathapuram districts of Tamil Nadu.
- Though **located in Kerala**, it is **operated and maintained by Tamil Nadu** according to a 999-year lease agreement of 1886.

### About Periyar Lake:

- The **Periyar Tiger Reserve** covers the area inclusive of and around this artificial lake, created as a result of the construction of the **Mullaperiyar Dam**.
- It is the **final drainage reservoir** for the Periyar River (longest river of Kerala), while the lake further drains out to **Tamil Nadu**.



- It is also called the **Thekkady Lake** and is famous for its **water birds** including Snakebirds (Darters), White-Throated Stork, Great hornbill, Malabar grey hornbill, etc.
- **Other Fauna** include Malabar frog, Malabar gliding frog, Malabar Hills fungoid frog (endemic to Western Ghats), **Periyar barb** (endemic to this lake), Periyar Trout (endemic to Kerala), etc.

#### About Survey of India:

- It is the **National Survey and Mapping Organization** of India under the **Department of Science & Technology**.
- Established in **1767**, it is the **oldest scientific department of India**.
- It is headed by the **Surveyor General of India** and headquartered at **Dehradun, Uttarakhand**.
- It uses latest and best technologies in the world for **Digital Topographical Data Base** used for border assessment, development planning, **geo-physics, remote sensing** and digital data transfers.

#### Historical Significance:

- The **first modern scientific survey** of India was undertaken by **W. Mather** in **1793-96**.
- The **Great Trigonometrical Survey** (1802-1852) was started by Col. **William Lambton** from St. Thomas Mount (Chennai) to the foothills of Himalayas, and completed by **George Everest**.
- Mathematician and Surveyor **Radhanath Sikdar** measured **Mount Everest** in **1852**.

#### 15. Jammu and Kashmir Bills

Recently Lok Sabha has passed the Jammu and Kashmir Reorganisation (Amendment) Bill and Jammu and Kashmir Reservation (Amendment) Bill.

#### Jammu and Kashmir Reorganisation (Amendment) Bill

- It amends the Jammu and Kashmir Reorganisation Act, 2019.
- **J&K Reorganisation Act, 2019-** It provides for the reorganisation of the state of Jammu and Kashmir into the union territories of Jammu and Kashmir (with legislature) and Ladakh (without legislature).
- **Number of seats in Legislative Assembly-** 2019 Act amended the 2nd Schedule of the 1950 Act to specify the total number of seats in the Jammu and Kashmir Legislative Assembly to be 83.

- It reserved six seats for Scheduled Castes. No seats were reserved for Scheduled Tribes.

The 2nd Schedule of the Representation of the People Act, 1950 provides for the number of seats in legislative assemblies.

- **Increase in seats-** The bill increases the total number of seats to 90. It also reserves 7 seats for SC and 9 seats for ST.
- **Nomination-** Lieutenant Governor *may nominate two members from the* Kashmiri migrant community and one representing the displaced persons from Pakistan-occupied Kashmir (PoK) to the legislative assembly.
- **Social inclusion-** One of the nominated members must be a woman.

### **Jammu and Kashmir Reservation (Amendment) Bill**

- It amends the Jammu and Kashmir Reservation Act, 2004.
- **J&K Reservation Act, 2004-**It provides for reservation in jobs and admission in professional institutions to members of Scheduled Castes, Scheduled Tribes, and other socially and educationally backward classes.
- **SEBC-** Under the Act, Socially and Educationally Backward Classes (SEBCs) include
  - People residing in villages declared as socially and educationally backward by the Union Territory of Jammu and Kashmir.
  - People residing in areas adjoining the Actual Line of Control and International Border, and
  - Weak and under-privileged classes (social castes)
- **Amendment-** It seeks to change the nomenclature of a section of people who are eligible for quotas in appointments and admissions.
- **Power of the government-** It may make *inclusions or exclusions* from category of weak and under-privileged classes, on the recommendations of a Commission.
- **Substitution-**The Bill substitutes weak and under-privileged classes with other backward classes as declared by the UT of Jammu and Kashmir.

### **Significance of the Bills**

- **Inclusive India-** It reflects a commitment to inclusivity and justice, it also represent a broader strategy to integrate Jammu and Kashmir more fully with the rest of India.
- **Affirmative action-** It ensures equal opportunities for marginalised communities in education and employment by replacing weak and under-privileged with other backward classes.

- **Strong representation-** Increasing seats in the Legislative Assembly for SC,ST will provide a strong political representation.
- **Abrogation of Article 370-** It has significantly impacted the region's security dynamics, leading to a notable reduction in terrorism-related activities.

### What are the challenges in reservation of assembly seats?

- **Non-inclusive-** The Bill provides for nomination rather than elected representatives which may fail to foster reconciliation.
- **Favouritism-** Lieutenant Governor is given too much power to nominate Kashmiri Pandits. This could lead to corruption and favouritism that overshadow the community's true aspirations and needs.
- **Issues with nomination-** The Bill differs from the past practice of nominating members by elected governments, which weakens the credibility and effectiveness of the nominated members, raising questions about their validity and acceptance by the people.
- **Vote bank politics-** The community can be used as a political card, without addressing their real needs or interests.
- **Definition of Kashmiri Pandits-** It is flexible and could exclude certain categories from the nomination.

### What lies ahead?

- The journey toward genuine empowerment necessitates embracing democratic norms, fostering meaningful engagement, and creating pathways that bridge communities rather than perpetuating divisions.
- The need of the hour is inclusive measures through which political representation can truly catalyse reconciliation.

## 16. The hypocrisy of Western democracy

The article explores the tragic situation in Palestine, emphasizing the West's complicity in enabling Israel's actions. It highlights the suppression of freedom of expression, media bias, and challenges in Europe, calling for an exposé of Western democracies' hypocrisies and a truthful reckoning to address the root causes of Palestinian oppression.

### Key Highlights:

- **Tragic Toll:** The passage reveals the staggering death toll of over 17,000 Gazans since October 7, underscoring the magnitude of the ongoing tragedy.

- **West's Enabling Role:** The West is implicated in enabling Israel's actions through support, framing the conflict, and reducing Palestine to the actions of Hamas.

### Key Challenges:

- **Freedom of Expression Suppression:** Western societies, despite professing democracy, are suppressing freedom of expression, particularly in universities, where pro-Palestine advocates face public exposure.
- **Media Bias:** The media, a significant influencer, is criticized for its overwhelming bias towards Israel, neglecting the historical roots and international illegality of Israeli occupation.

### Key Terms and Phrases:

- **Zionism and Apartheid:** These terms highlight ideological aspects and the discriminatory nature of certain Israeli policies.
- **Genocidal Intent and Settler Colonialism:** These phrases emphasize the severity of actions and the historical context of Israeli actions in Palestinian territories.

### Key Quotes:

- "The West has shockingly enabled this [tragedy] in various ways," pointing to the culpability of Western nations.
- "The media has been key in framing the Palestine-Israel conflict for 75 years," exposing the media's role in shaping public perception.

### Key Examples and References:

- **University Actions:** Instances of Harvard and Columbia exposing details of pro-Palestine students highlight the suppression faced by advocates.
- **European Countries' Stance:** The passage cites bans on pro-Palestinian protests in countries like the U.K., France, Germany, and Italy as concrete examples of European support for Israel.

### Key Facts and Data:

- **Death Toll:** Over 17,000 Gazans killed since October 7, quantifying the scale of the tragedy.
- **Harvard's Philanthropy Dependency:** Highlighting that 45% of Harvard's revenue in 2022 came from philanthropy underscores the potential influence of donors.

### Critical Analysis:

- **Suppression of Free Speech:** The critical analysis underscores the severe impact of suppressing freedom of expression on informed dialogue.
- **Media's Role:** Emphasizing media bias prompts reflection on the potential manipulation of public opinion.

### Way Forward:

- **Expose Hypocrisies:** Advocates for change should actively expose the hypocrisies of Western democracy, challenging the status quo.
- **Acknowledge Complicity:** A call to acknowledge Western complicity in Palestinian oppression encourages introspection and accountability.
- **Listen to Dissenting Voices:** Encouraging the acknowledgment of dissenting voices, including Jewish dissenters, fosters a more inclusive dialogue.
- **Truthful Reckoning:** Highlighting the need for a truthful reckoning emphasizes the importance of understanding historical roots and actions for a sustainable resolution.

### 17. Article 370 Verdict

- The Supreme Court upheld the Centre's 2019 abrogation of Article 370, affirming that Jammu and Kashmir no longer holds a special status in the Indian Union.
- Justice Sanjay Kaul suggested establishing a Truth and Reconciliation Commission to address human rights violations in J&K by both state and non-state actors.

### Understanding Truth and Reconciliation Commissions

- **Definition and Purpose:** These commissions are official bodies aimed at acknowledging and revealing government or non-state wrongdoings to address and resolve past conflicts.
- **Characteristics:** As defined by Priscilla B Hayner, such commissions focus on the past, investigate patterns over time, engage with affected populations, are temporary, and are state-authorized.

### Global Precedents of Truth Commissions

- **Historical Overview:** Hayner reviewed commissions from Uganda (1974) to Kenya (2009), with notable ones in South Africa, Australia, Canada, Sri Lanka, and Nepal.
- **Canadian TRC:** Addressed the impact of the Indian Residential Schools system on indigenous children. It operated from 2007 to 2015, with a budget of about \$72 million, and its documents are now housed at the University of Manitoba.
- **South African TRC:** Established in 1995 post-apartheid, it aimed to uncover human rights violations during apartheid and foster national healing. Its focus was on gathering information rather than prosecution, resulting in a multi-volume report released between 1998 and 2003.

### Justice Kaul's Proposition

- **Significance of the Proposal:** Justice Kaul's recommendation for a Truth and Reconciliation Commission in J&K reflects an approach focused on healing and understanding, rather than retribution.
- **Nature of the Commission:** He emphasized that the commission should focus on dialogue and reconciliation, rather than acting as a criminal court.
- **Broader Context:** This proposal, if implemented, could play a crucial role in addressing the complex history of human rights issues in J&K, following the significant constitutional changes brought by the abrogation of Article 370.

## 2. Surge in Indian illegal migration to US

Trend of migration from India and across international borders, its possible impacts on bilateral relations.

In response to a question in the Rajya Sabha, it was revealed that the U.S. has encountered a significant increase in illegal Indian migrants, reaching almost 100,000 in 2023.

### Illegal Migration Trend in U.S.:

- Over the last four years, there has been a significant surge in illegal migration to the United States.
- U.S. Customs and Border Protection data reveals encounters with nearly 100,000 illegal Indian migrants in 2023 alone.
- The trend contrasts with the previous decade, where the number of Indian illegal migrants was comparatively low, crossing the 10,000 mark only in recent years.

### Indian Migration and Trend:

- The number of Indians attempting to enter the U.S. illegally has risen sharply, reaching 96,917 in 2023.
- This surge gains attention amid the upcoming U.S. presidential elections, with illegal border crossings being a key concern for voters.
- Former President Donald Trump attributes the rise to the reversal of his immigration policies by President Joe Biden.

### **Migration from Northern and Southern Border:**

- Historically, the majority of illegal border crossings occurred at the U.S.-Mexico border (southwest).
- In 2023, 77% of all illegal migrants entered through the southwest border, while the northern border with Canada accounted for approximately 6%.
- Notably, there's a rising trend among Indian migrants choosing the northern border, with numbers increasing from less than 100 in 2014 to over 30,000 in 2023.

### **Trump Policy and Migration:**

- Former President Trump's immigration-related policies, reversed by President Biden, are seen as a contributing factor to the surge in illegal migration.
- Trump's policy of separating minors from their families was a controversial measure, resulting in over 5,000 children being separated.
- Despite a recent federal judge's decision against the separation of minors, there is an observed increase in both accompanied and unaccompanied Indian minors attempting to cross the border.

## **18. University-Industry Collaboration**

Recently, the University Grants Commission (UGC) approved the draft guidelines on 'Sustainable and Vibrant University-Industry (UI) Linkage System for Indian Universities'.

### **Benefits of proposed UI linkage**

- **Address the local issues** - Universities and industries can collaborate at State and central level to address the technological needs of that region.
- **Benefit students** - It will offer industry exposure and make students globally competent and improve their employability.
- **Single window opportunity** - One industry can cater to many universities through the IRC, and one university to address the needs of many universities through the URC.

- **Improves business productivity** - Through URC, MSMEs can benefit from faculty knowledge and student skills to improve the overall productivity of their businesses.
- **Advances research and innovation** - IRC can help universities obtaining funding for R&D besides offering students opportunities to interact with industry practitioners.

### What are the hurdles in collaborating?

- **Different goals** - Higher education institutions (HEIs) are service motive that predominantly seek to educate students while industries are profit-driven.
- **Different focus** - HEIs focus on creating theoretical knowledge and conducting research while industries pursue practical applications of knowledge to enhance productivity and innovation.
- **Funding basis** - Unlike HEIs, an industrial company might be sceptical about funding a research project if it believes that the outcomes do not translate into prompt saleable applications.
- **Cultural differences** - HEI needs more academic rigour and theoretical profoundness while the company will focus more on practical outcomes.
- **Lack of recognition** - Industry recognizes the product development which is mostly a team effort but academia recognises only the individual effort based on number of publications the individual has.

### What is the way forward?

- **Evolve shared goals** - The two parties must engage in an open dialogue, develop a flexible attitude, and find common ground where theoretical knowledge and practical applications can coexist.
- **Bridge the cultural gap** - HEI researchers could refine their findings into practical recommendations that the industrial partner can implement, while the industrial partner could provide more context to the data.
- **Establish communication** - Indian HEIs must establish good communication channels with the industry to work out a mutually agreeable IP arrangement and non-disclosure agreements.
- **Facility oriented collaboration** - Universities with minimal research facilities can focus on short-term collaborations with local companies that lack technical expertise.
- Universities with good research facilities can focus on long-term research collaborations with industry that aim to develop cutting-edge technologies.



## 19. Atal Pension Yojana (APY)

Recently, **Atal Pension Yojana (APY)** enrolments crossed the 6 crore mark.

- The total enrolment under the Atal Pension Yojana (APY) has crossed 6 crore, with over 79 lakh enrolments in the current Financial Year.

### **Atal Pension Yojana (APY):-**

- Atal Pension Yojana (APY) is **an old-age income security scheme for all savings account holders** between the age group **18-40 years**.
- The scheme also addresses the **longevity risks among the workers in the unorganized sector** and encourages the workers to voluntarily save for their retirement.
- Under APY, the individual subscribers shall have the **option to make the contribution on a monthly basis**.
- Banks will be collecting additional amounts for **delayed payments**, such amount will vary from a minimum of Rs. 1 per month to Rs 10/- per month as shown below:
  - 1 per month for contributions up to Rs. 100 per month.
  - 2 per month for contributions up to Rs. 101 to 500/- per month.
  - 5 per month for contributions between Rs 501/- to 1000/- per month.
  - 10 per month for contributions beyond Rs 1001/- per month.
- **Discontinuation of payments** of contribution amount shall lead to the following:-
  - After 6 months account will be frozen.
  - After 12 months account will be deactivated.
  - After 24 months account will be closed.
  - Upon exit on attaining **60 years**
- The subscriber shall receive the following **three benefits on attaining the age of 60**:
  - **Guaranteed minimum pension amount:** Each subscriber under APY shall receive a **guaranteed minimum pension** of Rs. 1000 per month or Rs. 2000 per month or Rs. 3000 per month or Rs. 4000 per month or Rs. 5000 per month, **after the age of 60 years until death**.
  - **Guaranteed minimum pension amount to the spouse:** After the subscriber's demise, the spouse of the subscriber shall be entitled to receive the same pension amount as that of the subscriber, until the death of the spouse.

- **Return of the pension wealth to the nominee of the subscriber:** After the demise of both the subscriber and the spouse, the nominee of the subscriber shall be entitled to receive the pension wealth, as accumulated till age 60 years of the subscriber.
- The contributions to the Atal Pension Yojana (APY) are **eligible for tax benefits** similar to the National Pension System (NPS) under section 80CCD(1).
- **Voluntary exit (Exit before 60 Years of age): -**
  - The subscriber shall **only** be refunded the contributions made by him to APY along with the net actual accrued income earned on his contributions (after deducting the account maintenance charges).
  - Exception: In the case of subscribers who joined the scheme before 31st March 2016 and received Government Co-Contribution shall not receive the Government co-contribution and the accrued income earned on the same, if opted for Voluntary exit before 60 years.
- Age of joining and contribution period
  - The **minimum age for joining APY is 18 years** and the **maximum age is 40 years**.
  - The age of **exit and start** of pension would be **60 years**.

#### **Exclusions:-**

- **Tax Payers will not be eligible** to join APY from **1 Oct 2022**.
- **Members of the statutory social security scheme** are not eligible under this scheme.
- Members enrolled in statutory social security schemes like:-
  - Employees' Provident Fund and Miscellaneous Provision Act, 1952.
  - The Coal Mines Provident Fund and Miscellaneous Provision Act, 1948.
  - Assam Tea Plantation Provident Fund and Miscellaneous Provision, 1955.
  - Seamen's Provident Fund Act, 1966.
  - Jammu Kashmir Employees' Provident Fund and Miscellaneous Provision Act, 1961.
  - Any other statutory social security scheme.

## **20. Growing reliance on consulting firms**

The article explores into the growing reliance on consulting firms for policy formulation and program implementation in Indian government projects. It raises concerns about potential downsides, such as the hollowing out of government capabilities, excessive dependence, and the risk of lobbying and corruption scandals. While acknowledging the benefits, the author calls for a balanced

approach, emphasizing the necessity of a regulatory framework to ensure fairness, transparency, and knowledge transfer.

### Key Highlights:

- **Rise of Consulting in Government:** Government projects, including major initiatives like Ganga cleaning and Swachh Bharat, heavily rely on consulting firms for policy formulation and program implementation.
- **Proliferation of Global Consulting Firms:** Reports reveal that Indian ministries paid around Rs 5,000 million in fees to global consulting firms in the last five years, prompting the finance ministry to seek details of these engagements.
- **Concerns Over Dependence:** There are concerns about a potential hollowing out of government capabilities due to excessive reliance on consultants, leading to mission creep, repeated redeployment, and potential lobbying for repeat work.

### Key Challenges:

- **Hollowing of Government Capabilities:** The unbridled use of consulting firms raises concerns about a decline in the skills and capabilities of government officials, potentially infantilizing government institutions.
- **Mission Creep and Dependence:** Excessive dependence on consulting teams may result in mission creep, where routine functions are outsourced, and officials become overly reliant on consultants, risking a loss of institutional knowledge and skills.
- **Consulting-Related Corruption:** The global trend of consulting firms influencing policy directions and engaging in lobbying raises concerns about corruption scandals and the distortion of public policy objectives.

### Key Terms and Phrases:

- **Programme Management Units:** Consulting firms often establish these units with broad mandates, attached to senior officials, leading to potential mission creep and dependence.
- **Consultocracy:** A term coined to describe the permeation of consultants into the core of government, diminishing the traditional role and capabilities of public servants.
- **Digitisation of Public Service Delivery:** The increasing complexity of public service delivery, including initiatives like the Direct Benefit Transfer program, demands specialized technical expertise.

### Key Examples and References:

- **Global Consulting Influence:** Books like “The Big Con” and “When McKinsey Comes to Town” highlight concerns about the influence of consulting firms, even leading governments down amoral pathways.
- **Consulting in Indian Ministries:** Reports indicate that Indian ministries paid substantial fees to global consulting firms in the last five years, prompting regulatory scrutiny.

#### Key Facts and Data:

- **Financial Transactions:** Indian ministries paid approximately Rs 5,000 million in fees to global consulting firms over the last five years.

#### Critical Analysis:

- **Balancing Act:** Acknowledges the benefits of consulting expertise in tackling complex challenges but emphasizes the need for a regulatory framework to prevent overdependence and potential pitfalls.

#### Way Forward:

- **Regulatory Ecosystem:** Advocates for a comprehensive regulatory ecosystem addressing fairness, transparency, curbing rent-seeking behaviors, and ensuring knowledge transfer to government.
- **Calibrated Onboarding:** Suggests a carefully calibrated onboarding of expertise from the private sector within a normative and transparent regulatory framework to enhance public service delivery.

### 21. New criminal law Bills endanger civil liberties

The article critiques the withdrawal and reintroduction of criminal law bills in India, highlighting concerns over civil liberties, overcriminalisation, and expanded police powers. It emphasizes the alarming increase in police custody duration and the absence of a transformative vision in the proposed legislations.

#### Key Highlights:

- **Legislative Changes:** The government withdraws and reintroduces criminal law bills, including Bharatiya Nyaya Sanhita (BNS-II), Bharatiya Nagarik Suraksha Sanhita (BNSS-II), and Bharatiya Sakshya Bill (BSB-II), reflecting potential shifts in the criminal justice system.
- **Concerns Over State Control:** The bills raise concerns about the expansion of state control, overcriminalisation, and enhanced police powers, potentially compromising civil liberties and increasing the risk of police excesses.

- **Police Custody Duration:** The BNSS proposes a significant increase in the maximum duration of police custody, from 15 days to 60 or 90 days, raising concerns about potential exposure to abuse and coercion.

### Key Challenges:

- **Risk of Overcriminalisation:** The bills introduce broadly worded offenses, especially related to the security of the state, potentially leading to overcriminalisation and ambiguous legal provisions.
- **Expanded Police Powers:** The BNSS's expansion of police custody duration, combined with vague offenses, raises concerns about the potential for misuse of power and coercive tactics.
- **Lack of Transformative Vision:** The bills lack a transformative vision for criminal law and justice, potentially entrenching colonial-era logic and emphasizing state control over citizen liberties.

### Key Terms and Phrases:

- **Bharatiya Nyaya Sanhita (BNS-II):** A proposed legislation to replace the Indian Penal Code (IPC, 1860), reflecting potential changes in criminal law.
- **Bharatiya Nagarik Suraksha Sanhita (BNSS-II):** A bill aimed at replacing the Criminal Procedure Code (CPC, 1973) with potential implications for civil liberties and police powers.
- **Bharatiya Sakshya Bill (BSB-II):** Legislation seeking to replace the Indian Evidence Act (IEA, 1872), indicating potential shifts in the criminal justice system.

### Key Quotes and Statements:

- "The expansion under the proposed BNSS heightens the risk of exposure to police excesses... a shocking expansion of police powers."
- "These Bills present a missed opportunity to correct the entrenched injustices of our criminal justice system."

### Key Examples and References:

- **Overcriminalisation Concerns:** The bills introduce broadly framed offenses, including criminalizing misinformation, raising fears of overcriminalisation and potential misuse.
- **Expansion of Police Custody:** The BNSS proposes a substantial increase in the duration of police custody, contributing to concerns about potential abuse and coercive practices.

### Key Facts and Data:

- **Duration of Police Custody:** The BNSS proposes expanding the maximum limit of police custody from 15 days to either 60 or 90 days, depending on the nature of the offense.

### Critical Analysis:

- **Missed Opportunity:** The bills are criticized for not addressing deep-seated issues in the criminal justice system and potentially entrenching colonial-era logic without a transformative vision.
- **Efficiency vs. Fairness:** Emphasizes that goals of speedy justice and effective investigation, while important, cannot be achieved without addressing structural barriers and ensuring fairness.

### Way Forward:

- **Comprehensive Regulatory Ecosystem:** Advocates for a regulatory framework ensuring fairness, transparency, and accountability, especially in the context of expanded police powers and overcriminalisation.
- **Structural Reforms:** Emphasizes the need for fundamental transformations in the criminal justice system, addressing issues like judicial vacancies, infrastructure, and scientific validity of forensic methods.

## 22. Special Provisions of States

After Supreme Court upheld the validity of abrogation of Article, certain features of asymmetric federalism like Article 371 and Article 239A in Indian Constitution have come to limelight.

### What is the nature of relationship between the centre and states in India?

- **Quasi-federal** – While states do have autonomy, the Constitution tilts towards the Centre on certain areas.
- **7th Schedule of the Constitution** – It contains the **Union, State and Concurrent lists** that prescribe subjects that the Centre and states are empowered to legislate upon.
  - Both the Centre and state can legislate upon those in the concurrent list, the Union law would prevail in case of a conflict between the law made by Parliament and the state legislature.
- **Asymmetric federalism** – **All Indian states are not given equal status** considering various factors, ranging from the fiscal, political and the administrative features.

- Several states enjoy **varying degrees of autonomy and relationship** with the Centre.
  - **Article 371** – It deals with 12 states for better governance and political administrations.
  - **Article 239A** – It deals with the creation of local legislature for Union territory of Puducherry.
  - **Article 239AA** – It deals with national capital territory of New Delhi (NCT) which has the powers to legislate upon subjects in the state and concurrent lists in the 7<sup>th</sup> Schedule.

### Special provisions under Article 371

- **History** – It did **not exist in the original constitution** but have been incorporated subsequently by various amendments.
- **Incorporation** – Like Article 370, **Article 371** is also became a part of the Constitution since January 26, 1950.
- Articles 371(A-J) were incorporated through amendments under Article 368, which lays down the power of the Parliament to amend the Constitution and procedure therefor.
- **Constitution** – **Article 371 to 371-J in Part XXI** of the constitution titled ‘Temporary, Transitional and Special Provisions’.
- **Objective**
  - To meet the aspirations of the people of backward regions of the states.
  - To protect the cultural and economic interests of the tribal people of the states
  - To deal with the disturbed law and order condition in some parts of the states
- **Validity** - All these exceptions would be operable till the crisis, either secessionist sentiments or war ceases.
- Despite the ‘temporary’ tag, there **isn’t any explicit expiry date**.

### What are the states that have special provisions under Article 371(A-J)?

- **Article 371 – Maharashtra and Gujarat**
- Governor has special responsibility to establish separate development boards for Vidarbha, Marathwada, and the rest of Maharashtra, and Saurashtra and Kutch in Gujarat.
- **Article 371A (13th Amendment Act, 1962) – Nagaland**
- **No act of Parliament would apply** in matter relating to religious and social practices, ownership and transfer of resources unless the state government pass a resolution of the same and the governor has special responsibilities with respect to law and order.
- **Article 371B (22nd Amendment Act, 1969) – Assam**

- The President may provide for the constitution and functions of a committee of the Assembly consisting of members elected from the state's tribal areas.
- **Article 371C (27th Amendment Act, 1971) – Manipur**
- The President may provide for the constitution of a committee of elected members from the Hill areas in the Assembly, and entrust “special responsibility” to the Governor to ensure its proper functioning.
- **Article 371D (32nd Amendment Act, 1973) – Andhra Pradesh and Telangana**
- It is substituted by The Andhra Pradesh Reorganisation Act, 2014.
- President must ensure equitable opportunities and facilities in public employment and education to people from different parts of the state.
- **Article 371E** - Allows for the establishment of a university in Andhra Pradesh by a law of Parliament but this is not a “special provision” in the sense of the others in this part.
- **Article 371F (36th Amendment Act, 1975) – Sikkim**
- The members of the Legislative Assembly of Sikkim shall elect the representative of Sikkim in the House of the People and parliament may provide for seats in the Assembly, which may be filled only by candidates from certain sections of people.
- **Article 371G (53rd Amendment Act, 1986) – Mizoram**
- Parliament cannot make laws on religious or social practices, customary law, and administration of justice, ownership and transfer of land unless the state Assembly so decides.
- **Article 371H (55th Amendment Act, 1986) – Arunachal Pradesh**
- The Governor has a special responsibility with regard to law and order, and “he shall, after consulting the Council of Ministers, exercise his individual judgment as to the action to be taken”.
- **Article 371J (98th Amendment Act, 2012) – Karnataka**
- A provision for a separate development board for the Hyderabad-Karnataka region and there shall be equitable allocation of funds and equitable opportunities and facilities for people in government jobs and education.

### **23. Urgent need to control use of e-cigarettes, says WHO**

- The World Health Organization (WHO) has issued a stern warning against the use of e-cigarettes, emphasising their ineffectiveness in aiding tobacco cessation and highlighting alarming evidence of adverse health effects at the population level.

### **Key Concerns and Urgent Measures**



- **Ineffectiveness for Quitting:** E-cigarettes, considered consumer products, lack demonstrated effectiveness for population-level tobacco cessation.
- **Population Health Risks:** Emerging evidence indicates adverse health effects, prompting an urgent call for global control measures to safeguard children, non-smokers, and the overall population.
- **Child Recruitment and Addiction:** Children are increasingly lured into e-cigarette use, leading to potential nicotine addiction, necessitating strict measures to prevent uptake and protect vulnerable populations.

### Global Scenario and Regulatory Gaps

- **Global Sales and Marketing:** E-cigarettes have flooded the open market, with aggressive marketing strategies targeting young people.
- **Limited Regulations:** Regulatory gaps persist, with 74 countries lacking specific regulations for these products. Thirty-four countries have outright banned e-cigarette sales, while 88 countries have no minimum age restrictions.

### India's Regulatory Framework

- **Prohibition Act:** In India, the possession of e-cigarettes is a violation of the Prohibition of Electronic Cigarette Act, 2019, reflecting the government's commitment to controlling their use.

### Impact on Youth

- **Social Media Influence:** Even brief exposure to e-cigarette content on social media correlates with increased intention to use these products and fosters positive attitudes toward them.
- **Gateway to Smoking:** Studies consistently show that young e-cigarette users are almost three times more likely to take up traditional cigarettes later in life.

### Alarming Figures and Regional Trends

- **Youth Usage Rates:** Globally, children aged 13-15 years use e-cigarettes at rates surpassing adults. Specific regions, including Canada and the U.K., have witnessed significant increases in youth e-cigarette use.
- **Nicotine Addiction and Health Risks:** E-cigarettes, particularly those with nicotine, are highly addictive and pose health risks, including the generation of toxic substances linked to cancer, heart, and lung disorders.

### Comprehensive Approach Needed

- **Long-term Health Effects:** While the full scope of long-term health effects is not entirely understood, evidence supports the generation of harmful substances, brain development risks, and potential learning disorders in young people.
- **Foetal Exposure:** Pregnant women's foetal exposure to e-cigarettes can adversely impact development, and emissions from e-cigarettes pose risks to bystanders.

**Urgent Preventive Measures:** The WHO advocates urgent global measures to prevent e-cigarette uptake, counter nicotine addiction, and align with comprehensive tobacco control strategies based on national circumstances.

#### 24. Iran's Visa-Free Travel Initiative

- Iran has announced the removal of visa requirements for Indian citizens and nationals from 32 other countries.
- The decision is aimed at increasing tourism and improving global perceptions of Iran.
- **Countries Included:** The list includes Russia, UAE, Bahrain, Saudi Arabia, Qatar, Kuwait, Lebanon, several Central Asian and African countries, Japan, Singapore, Southeast Asian nations, and select countries in Latin America and Europe.
- **Previous Visa Exemptions:** Iran had earlier lifted visa requirements for Türkiye, Azerbaijan, Oman, China, Armenia, Lebanon, and Syria.
- **Tourist Influx Statistics:** Iran witnessed a 48.5% increase in tourist numbers, reaching 4.4 million in the first eight months of the current Iranian year.

#### Proposal for Wider Visa-Free Travel

- **Ministry's Initial Proposal:** The Ministry of Cultural Heritage, Tourism and Handicrafts proposed visa-free travel for 60 countries, though it wasn't fully approved.
- **Umrah Flights to Saudi Arabia:** Starting December 19, Iranians can travel to Saudi Arabia for Umrah, marking the first such opportunity in eight years.

#### India's Growing Outbound Tourism Market

- **Current Visa-Free Countries:** 27 countries now offer visa-free entry to Indian citizens, with recent additions including Kenya, Indonesia, Malaysia, Thailand, and Sri Lanka.

- **Popular Destinations for Indian Citizens:** The top five travel destinations are the UAE, the USA, Saudi Arabia, Singapore, and Thailand, with many visiting as part of the diaspora.

## 25. Election Commissioners Bill 2023

Recently Rajya Sabha passed The Chief Election Commissioner and other Election Commissioners (Appointment, Conditions of Office and Terms of Office) Bill, 2023.

### Key features of Bill

- **Election Commission-** It will consist of a Chief Election Commissioner (CEC) and other Election Commissioners (ECs). The President will periodically fix the number of ECs.
- **Appointment of the Commission-** The Commission will be appointed by the President, upon the recommendation of the Selection Committee.
- **Search Committee-** It is headed by the Cabinet Secretary, it will suggest five names to the Selection Committee.
- The Selection Committee may consider any person other than those suggested by the Search Committee.
- **Eligibility criteria-** The CEC and ECs must
  - Be a persons of integrity,
  - Have knowledge and experience in the management and conduct of elections, and
  - Be or have been Secretary (or equivalent) to the government.
- **Tenure-** Members of the Election Commission will hold office for six years, or until they attain the age of 65 years, whichever is earlier.
- **Reappointment-** Members of the Commission cannot be re-appointed. If an EC is appointed as a CEC, the overall period of the term may not be more than six years.
- **Salary, allowances and other conditions-** It will be equivalent to that of the Cabinet Secretary.
- **Pension provisions-** They will have an option to draw pension and other retirement benefits from the service that they belonged to previously.
- **Removal-** It retains the manner of removal of CEC and ECs as specified in the Constitution.
  - **CEC-** He/She may be removed in the same manner and on the same grounds as a Supreme Court Judge.
  - **EC-** They may be removed only upon the recommendation of CEC.

### What is the issues with the Bill?

- **Lack of autonomy-** The Selection Committee may be dominated by the government and compromise the independence of the Election Commission.
- The Supreme Court had suggested to include Chief Justice of India instead of a Cabinet Minister, to ensure more balance and impartiality.
- **Government interference-** The Bill allows the Selection Committee to make recommendations even when there is a vacancy in the Committee, this may result in the monopoly of the government in selection of candidates.
- **Salary provisions-** It is equivalent to Cabinet Secretary, which may lead to government influence as it is fixed by the government, it should be equivalent to salary of Supreme Court judge, which is fixed by an Act of Parliament and requires more consensus.
- **Eligibility criteria-** It limits to senior bureaucrats, who have been or are at rank equivalent to Secretary to the government. This may exclude other suitable candidates especially those who have judicial experience or expertise.

### What is the Supreme Court ruling regarding the appointment of CEC and EC?

- **Anoop Baranwal case, 2023** - It held that there has been a legislative vacuum due to the absence of any law by Parliament in the last 73 years (since the adoption of the Constitution) with respect to the appointment of the CEC and EC.
- The independence of the ECI is essential for ensuring free and fair elections that is paramount for a vibrant democracy.
- It drew reference to various other institutions supporting constitutional democracy that have independent mechanisms for the appointment of its head/members like the National and State Human Rights Commission, the Central Bureau of Investigation (CBI), etc.,
- **Committee recommendations-** Dinesh Goswami Committee and the Law Commission report on Electoral Reforms suggested that the CECs and ECs should be appointed by a committee consisting of the Prime Minister, the Chief Justice of India (CJI) and the Leader of the Opposition or the largest Opposition party in the Lok Sabha.
- **Interim arrangement-** The Court exercised its power under **Article 142** laid down that the CEC and ECs shall be appointed by a committee consisting of the Prime Minister, the CJI and the Leader of the Opposition or the largest opposition party in the Lok Sabha.

### 26. One person, one vote, one value

The central idea revolves around the crucial role of delimitation in preserving political equality within liberal democracies. It addresses challenges such as

population growth disparities, gerrymandering, and the need for a comprehensive legal framework. The way forward emphasizes urgent and comprehensive delimitation, protection of state interests, and continuous monitoring to ensure a fair and inclusive democratic representation.

### Key Highlights:

- **Political Equality in Liberal Democracies:** In liberal democracies, political equality extends beyond the opportunity to participate; it includes ensuring that each citizen's vote holds equal value.
- **Types of Dilution:** Quantitative dilution is observed when population deviations among constituencies result in unequal representation. Qualitative dilution, on the other hand, occurs through gerrymandering, impacting the chances of minority representation.
- **Constitutional Safeguards:** Articles 81, 170, 327, 330, 332 of the Constitution establish safeguards to guarantee political equality. They empower Parliament to enact laws related to delimitation and address concerns of both quantitative and qualitative dilution.
- **Role of Delimitation Commissions:** Delimitation commissions, formed periodically, play a crucial role in maintaining population-representation equality by adjusting constituency boundaries.

### Key Challenges:

- **Population Growth Disparities:** Unequal population growth among states poses a challenge, leading to quantitative dilution where the weight of votes varies significantly.
- **Impact of Gerrymandering:** Gerrymandering can qualitatively dilute the value of votes, particularly affecting minority representation. Techniques like cracking, stacking, and packing can be employed to manipulate electoral boundaries.
- **Issues with Freezing and Variation Allowance:** The freezing of population figures and the allowance for a 10% variation have resulted in imbalances, allowing deviations from the ideal population-representation ratio.

### Key Terms and Phrases:

- **Dilution Types:** Understanding the distinctions between quantitative and qualitative dilution is essential for addressing challenges in the democratic process.
- **Legal Framework:** Key legal terms include gerrymandering, the Delimitation Commission, Two Member Constituencies (Abolition) Act, 1961, 42nd

Amendment Act, 1976, and the Sachar Committee Report, which provide the foundation for delimitation processes.

### Key Quotes:

- **“The right to vote can be diluted quantitatively and qualitatively by redrawing constituency boundaries.”** – Pamela S. Karlan This quote emphasizes the importance of maintaining the integrity of the voting process and avoiding dilution through boundary manipulations.
- **“Delimitation of constituencies needs to be carried out regularly based on the decennial Census.”** Regular delimitation, aligned with the decennial Census, is crucial for adapting to demographic changes and ensuring fair representation.

### Key Statements:

- **Population Growth Variations:** Differences in population growth among states create a significant gap in the value of votes, impacting the democratic principle of equal representation.
- **Issues with Freezing and Variation Allowance:** The freezing of population figures and the allowance for variation contribute to imbalances in representation, requiring careful consideration in the delimitation process.

### Key Examples and References:

- **Impact of Delimitation on SC-Reserved Seats:** Delimitation’s impact on Scheduled Caste (SC)-reserved seats, especially concerning the majority Muslim population, highlights the complexities of fair representation.
- **Discrepancies in Muslim Representation:** Discrepancies between the percentage of Muslim MPs in Parliament (4.42%) and their overall population (14.2%) underscore the qualitative dilution in the representation of minority communities.

### Key Facts and Data:

- **Population Growth Between 1971 and 2011:** Disparities in population growth across states, with some experiencing over 125% growth, contribute to the quantitative dilution of votes.
- **Representation Disparity:** The average representation disparity, where an MP in some states represents significantly more people than in others, reflects the challenges in achieving equal representation.

### Critical Analysis:

- **Threats to Democracy:** Both quantitative and qualitative dilution pose significant threats to the democratic process, undermining the principle of equal political representation.
- **Challenges with Freezing and Variation Allowance:** The freezing of population figures and the allowance for variation may result in continued imbalances, demanding a critical evaluation of the current delimitation framework.
- **Impact on Minority Representation:** The qualitative dilution of votes has a notable impact on minority representation, requiring a nuanced approach in delimitation to address these disparities.

#### Way Forward:

- **Urgent Delimitation:** Urgent delimitation is necessary to rectify population-representation deviations and uphold the principles of equal representation in a timely manner.
- **Comprehensive Delimitation:** Future delimitation processes must consider both quantitative and qualitative aspects, ensuring a comprehensive approach to achieve fair representation.
- **Protecting State Interests:** Special attention is required to protect the interests of states with slower population growth, balancing the need for representation across regions.
- **Continuous Monitoring and Adjustments:** Regular monitoring and adjustments in delimitation processes are essential for maintaining a robust and inclusive democratic system. Continuous adaptation to demographic changes will help address evolving challenges in representation.

#### 27. National Geoscience Data Repository Portal

Recently, the Mines Ministry launched the **National Geoscience Data Repository Portal** To Foster Innovation in Exploration.

- The launch ceremony will be graced by Union Minister of Coal, Mines and Parliamentary Affairs Shri Pralhad Joshi in the presence of Shri Raosaheb Patil Danve, Minister of State for Coal, Mines and Railways.

#### About National Geoscience Data Repository Portal:-

- **Launched on :** 19th December 2023.
- **Launched by:** Ministry of Mines.
- The National Geoscience Data Repository (NGDR) Portal will be launched in a ceremony in **New Delhi**. (National Geoscience Awards -2022)
- **Objective:** to Foster Innovation in Exploration.

- NGDR is a **comprehensive online platform for accessing, sharing, and analyzing geospatial information** across the nation.
- The NGDR initiative, spearheaded by the **Geological Survey of India (GSI) and Bhaskaracharya Institute of Space Applications and Geoinformatics (BISAG-N)**.
- It represents a significant leap forward in **democratizing critical geoscience data, empowering stakeholders across industries and academia** with unprecedented access to invaluable resources.

#### **About the Geological Survey of India:-**

- **Established: 1851.**
- **HQ: Kolkata.**
- It has six regional offices located in **Lucknow, Jaipur, Nagpur, Hyderabad, Shillong and Kolkata** and **state unit offices** in almost all states of the country.
- GSI is an attached office of the **Ministry of Mines.**
- The Geological Survey of India (GSI) was **set up primarily to find coal deposits for the Railways.**
- Its main functions relate to **creating and updating national geoscientific information** and mineral resource assessment.
- These objectives are achieved through **ground surveys, air-borne and marine surveys, mineral prospecting and investigations**, multi-disciplinary geoscientific, geo-technical, geo-environmental and natural hazards studies, glaciology, seismo-tectonic study and carrying out fundamental research.

#### **About BISAG-N:-**

- **Ministry:** MeitY, Government of India. (Indian Bureau of Mines)
- At present, BISAG is a state agency of the Department of Science and Technology Government of Gujarat, located at **Gandhinagar, Gujarat.**
- Bhaskaracharya National Institute for Space Applications and Geoinformatics [BISAG (N)] is an **Autonomous Scientific Society registered under the Societies Registration Act, of 1860.**
- **Objective:** to undertake technology development & and management, research & and development, facilitate National and international cooperation, capacity building and support technology transfer & and entrepreneurship development in the area of geo-spatial technology.
- BISAG has implemented GIS and **geospatial technologies for major Ministries and almost all States.**
- For this purpose, geo-spatial science (GIS Remote Sensing, Image Processing, Photogrammetry, GPS, Cell Phone etc.), Information Science Systems (MIS, Database, ERP, Project Management, Web, Artificial Intelligence etc.) and



Mathematics Science Systems (Geometry, Fluid, Mechanics, Trigonometry, Algebra etc.) have been integrated in-house by BISAG.

## 28. Pradhan Mantri Kaushal Vikas Yojana

Recently the Lok Sabha standing committee has found that the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) has trained 13.7 million candidates, but only 18% of them have secured a job.

### Challenges in implementation of PMKVY

- **Underutilised funds-** As per government's data, the programme's fund utilisation was poor in 2016-17, with only 56% of the allocated funds being used
- **Limited coverage-** Currently only around 2.4% of India's strong workforce has received formal vocational education or training.
- **Infrastructural deficit-** The scheme relies on the training centres set up by the NSDC and its partner trainers, many of them lack adequate infrastructure, equipment, and trainers to provide quality and practical training.
- **Incompatible-** The current skill development programmes do not match the actual regional demand for skills, creating a mismatch between the training and the market requirements.
- **Poor productivity-** Disconnect with the industry has led to a gap between the skills imparted and the skills needed, resulting in low employability and productivity
- **Dropouts-** It has a high dropout rate, with 20% of the enrolled candidates leaving the training before completion.
- **Limited impact-** It is due to medical issues, family obligations, social challenges, lengthy commutes, marital status changes, increased livelihood demands, limited job opportunities, and perceived skill stagnation.
- **Regional disparity-** The placement rate varies across different states, with Telangana having the highest rate of 35.1% and Maharashtra having the lowest rate of 9.3%.
- **Low placement rate-** Only a small fraction (18%) of trained candidates have been able to find a job after completing the training.

### What lies ahead?

- **Quality improvisation-** This can be done by ensuring adequate infrastructure, equipment and trainers at the training centres and by providing regular training.
- **Capacity building-** The government must create a pool of *National Assessors and Trainers* under PMKVY 4.0 to reduce the dropout rates.

- **Better representation of industry-** The standing committee has suggested conducting a survey of industry representatives to better understand their needs and expectations.
- **Foster participation-** The government should increase the industry participation by involving them in the design, delivery, and assessment of the skill development programmes, and by providing incentives and recognition for their contribution.
- **Adopt localised approach-** It is important to adopt localised, demand-driven approaches that cater to the specific regional challenges and opportunities.
- **Effective collaboration-** The scheme needs to involve the State governments and the *District Skill Committees* more actively in the planning, implementation, and monitoring of the skill development programmes.
- **Accountability-** The scheme should enhance the monitoring, mentorship, evaluation, and grievance redressal mechanisms, by using technology-driven platforms, innovative financing, and digitalisation, and by ensuring transparency and accountability at all levels.
- **Extensive support-** Provide post training support and guidance, by facilitating placement opportunities, entrepreneurship development and career counselling and by offering additional support for vulnerable groups such as women, persons with disabilities and minorities.

## 29. India-Oman Relationship

Recently the Oman's Sultan Haitham bin Tarik visited India, it marks a significant milestone as it is the first State visit by an Omani ruler in 26 years.

### History of India-Oman relations

- **Historical relations-** The maritime trade routes established between the Sumerian civilisation and the Harappan civilisation in the Indus Valley highlight the great historical significance.
- Oman had links with the India through Gujarat, and with Tamilakam along the Malabar Coast.
- **Political relations-** The political engagement between the two countries has increasingly taken on a more strategic shape.
- Oman is a strategic partner of India and an important interlocutor at Gulf Cooperation Council (GCC), Arab League and Indian Ocean Rim Association (IORA) forums.
- **Oman's friendly relation-** Oman was one of the few Arab countries that maintained close ties with India during and after the Cold War, despite the pro-Pakistan stance of most of the Arab world.
- **G20 summit-** As a mark of this special friendship, India has invited Oman as a guest country during India's Presidency in 2023.

- **Diplomatic relations-** Both countries established diplomatic relations in 1955 and the relationship was upgraded to Strategic partnership in 2008. It is based on the twin pillars of mutual trust and shared interests.
- **Economic relations-** India is among Oman's top trading partners.
  - Crude oil- 2<sup>nd</sup> largest market for Oman after China.
  - Non-oil exports- 2<sup>nd</sup> largest market for Oman after Saudi Arabia
- **Oman-India Joint Investment Fund (OIJIF)-** It was set up in 2010 as a Special Purpose Vehicle (SPV) to invest in India, which is a 50-50 joint venture between the State Bank of India and the erstwhile State General Reserve Fund (SGRF) of Oman.
- **Rupay debit card-** Both launched the Rupay debit card in Oman, a key footprint of India's initiative of promoting digital public infrastructure (DPI) in the world.
- **Defence cooperation -** Oman is India's closest defence partner in Gulf region. Oman is the first Gulf country with which all the three wings of India's defence forces hold joint exercise.
- The 1<sup>st</sup> ever India-Oman Defence Industrial Seminar was held in Muscat in 2023.
- **Operation Sankalp-** During the Persian Gulf crisis in 2019, the Indian Navy launched this operation to ensure the safe passage of Indian flagged ships which most often operated off the coast of Oman
- **Cultural relations-** There is a deep socio-cultural bond between India and Oman, rooted in the strength of people-to-people contacts.
- **Yoga special events-** 'Oman yoga yatra' and 'Yoga for Vasudhaiva Kutumbakam' was launched by embassy, it reflects the rich Indian cultural tradition celebrated by the people of Oman.
- The 1<sup>st</sup> ever 'Festival of India in Oman', organized by the Embassy with support of Ministry of Culture of India in 2017.
- **Indian community in Oman-** It is organized under Indian Social clubs in Muscat, Salalah, Sohar, and Sur.
- These clubs have several sub-groups called Linguistic Wings which cater to their members' cultural and social needs.
- **Pravasi Bharatiya Samman Awards-** It is given to recognize the outstanding contributions of Indians and People of Indian Origin in Oman to the strengthening of our bilateral relations.

### Key takeaways from the recent visit?

A vision document titled, 'A joint Partnership for the future' touching all grounds of development is endorsed and accepted firmly.

- **Digital connectivity**- Both have agreed to enhance cooperation on digital payment systems, such as RuPay and e-Dirham, to facilitate trade and remittances between the two countries.

India has also proposed to link the Unified Payment Interface (UPI) with Oman's mobile wallet app, Thawani.

- **Hospitality**- India promises to reopen historic maritime voyage to Oman sailing through Mandvi to Muscat tentatively in 2025-26.
- **Terrorism**- An MoU has been signed between Financial Intelligence Unit (FIU) and National Centre for Financial Information (FNCI) on cooperation in the exchange of intelligence related to money laundering, associated predicate offences and terrorism financing.
- **Food security**- Both have recognized the importance of ensuring food security and enhancing agricultural cooperation, especially in the context of the Covid-19 pandemic.
- **Cultural relation**- Dhofar University and the Indian Council For Cultural Relations (ICCR) on establishment of the ICCR Chair of Indian Studies- Hindi Language.
- The vision document acknowledges the remarkable synergy between Oman Vision 2040 and India's development objectives, under 'Amrit Kaal', affirming commitment to harnessing these complementarities for deepening the partnership between Oman and India.

### Why Oman is India's gateway to West Asia?

- **Connectivity**- India-Middle-East-Europe Connectivity Corridor (IMEEC) infrastructure project to link India to Europe across West Asia, Oman will play a key vital role in undersea connectivity.
- **Defence base**- India has been granted access to the **Duqm port** in Oman, which can serve as a strategic base for India in the region.
- **Geopolitical significance**- Oman's location is of utmost strategic importance to India due to the coastline along Arabian Sea as well as the Gulf of Oman leading into the Persian Gulf and towards the Gulf of Aden.
- **Key strategic partners**- Saudi Arabia, United Arab Emirates (UAE) and Oman completes the trio of key strategic partners of India in the Gulf region.
- **Oman's peaceful neutral policy**-Oman has adopted a moderate and mediating role in the region, avoiding involvement in conflicts and disputes.

- **Persian Gulf crisis**- Oman facilitated dialogue and communication between US and Iran, it's efforts were praised by the international community as a constructive contribution to regional stability

### 30. Universal Declaration of Human Rights (UDHR)

The United Nations General Assembly (UNGA) approved the Universal Declaration of Human Rights (UDHR) in Paris 75 years ago.

#### Universal Declaration of Human Rights (UDHR):

- UDHR was approved by the UNGA in Paris on **December 10, 1948**, following the **devastation of World War II**, to establish a foundational international order.
  - The declaration was proclaimed as “a **common standard of achievement** for all **peoples** and all **nations**”.
- It is a **concise document** with a **preamble** and **30 articles** that articulate fundamental rights and freedoms for all individuals.
- **Article 1 asserts** that all humans are born free and equal, while **Article 2** emphasizes **rights and freedoms** without discrimination based on race, color, sex, language, religion, or other factors.
- Articles within the declaration emphasize the **right to life, liberty, and security**, while condemning **slavery, torture, and cruel treatment**.
- The UDHR advocates for **legal equality**, ensuring everyone has the **right to a fair and public hearing** by an **independent and impartial tribunal**.
- It recognizes the **right to seek** and to **enjoy** in other countries **asylum from persecution**.
- It enshrines freedom of religion, opinion, expression, peaceful assembly, and the **right to education**.

#### Why and how was it drawn up?

- Born out of the "**never again**" sentiment among political leaders after **two world wars** and the **Holocaust**.
- UDHR complements the UN Charter, the document that founded the United Nations in 1945, to **guarantee individual rights**.
- Chaired by **Eleanor Roosevelt**, the drafting committee included members from **eight countries**, reflecting **geographical diversity**, and over **50 UN member countries** participated in the drafting process.

#### Influence of the document:

- The declaration inspired over **70 global and regional human rights treaties**, influenced decolonization, anti-apartheid movements, and served as a universal standard for various issues.
- Although **not legally binding**, the principles of the declaration are incorporated into many countries' laws, forming the basis of international human rights law.

### What is the present scenario?

- Despite being misused and abused for political gains, the UDHR remains relevant in addressing **contemporary challenges**, as human rights face tests in conflicts like the Israel-Hamas war, Russia's actions in Ukraine, and internal conflicts in Myanmar and Sudan.

### 31. Questionable searches under the Money Laundering Act

The Supreme Court's interpretation of the Prevention of Money Laundering Act (PMLA) emphasizes a strict application tied to scheduled offences and the definition of "proceeds of crime." Criticism of the Enforcement Directorate's actions highlights the need for probity and fairness, urging consistency in procedures. The issue raises concerns about potential abuse of authority and its impact on federalism, necessitating clear jurisdictional delineation.

#### Key Highlights:

- **Supreme Court Interpretation:** The Supreme Court's unique interpretation of the Prevention of Money Laundering Act, 2002 (PMLA) has raised concerns, limiting its application to "wrongful and illegal gain of property" related to scheduled offences.
- **Definition of "Proceeds of Crime":** The Court emphasized that for the PMLA to apply, the property must qualify as "proceeds of crime" under Section 2(1)(u) of the Act.
- **Critical Observations on ED:** Instances of Enforcement Directorate (ED) actions beyond its powers, especially arrests, led to severe criticism. The court highlighted the need for the ED to function with "utmost probity, dispassion, and fairness."

#### Key Challenges:

- **Inconsistent ED Practices:** The Court noted the lack of consistent and uniform practices within the ED, especially in furnishing written copies of arrest grounds, raising concerns about procedural irregularities.

- **Abuse of Authority:** The ED's conduct in conducting searches, seizures, and arrests outside its powers resulted in strong criticism, pointing to potential abuse of authority.

### Key Terms and Phrases:

- **Scheduled Offence:** Offences specified in the schedule of the PMLA Act to which the Act's provisions apply.
- **Proceeds of Crime:** Property derived or obtained as a result of criminal activity relating to a scheduled offence.

### Key Quotes and Statements:

- "If the offence so reported is a scheduled offence, only in that eventuality, the property recovered by the Authorised Officer would partake the colour of proceeds of crime..."
- "The ED, mantled with far-reaching powers under the stringent Act of 2002, must be seen to be acting with utmost probity, dispassion, and fairness."

### Key Examples:

- **Vijay Madanlal Choudhary Case:** The Supreme Court's interpretation in the Vijay Madanlal Choudhary case set the precedent, emphasizing the need for the existence of "proceeds of crime" for PMLA application.
- **Pankaj Bansal Case:** The Court's criticism of the ED's style of functioning in the Pankaj Bansal case highlighted the importance of adherence to probity and fairness.

**Critical Analysis:** The Court's focus on the stringent application of PMLA provisions, especially tying them to scheduled offences and the definition of "proceeds of crime," reflects a commitment to precision and legal rigor. The criticism of ED practices underscores the significance of maintaining ethical standards in enforcement agencies.

### Way Forward:

- **Procedural Consistency:** Enforcement agencies, particularly the ED, need to establish consistent and uniform practices, ensuring transparency and adherence to legal procedures.
- **Judicial Scrutiny:** Ongoing cases, especially those involving political implications, should undergo thorough judicial scrutiny to prevent potential abuse of authority and protect the principles of federalism.

- **Clarity on Jurisdiction:** The ED's jurisdiction, especially in non-scheduled offences like illegal mining, should be clarified to avoid overreach, respecting the powers vested with the State governments.

## 32. Telecom law upgrades for a digital authoritarian state

The article critiques the recently passed Telecom Bill, emphasizing its nationalistic undertones, potential authoritarian features, and the failure to address the digital divide effectively. It questions the rushed parliamentary process and highlights concerns about corporate favoritism, symbolized by the renaming of the Universal Services Obligation Fund.

### Key Highlights:

- The tweet by Union Minister Ashwini Vaishnav announces the passage of the Telecommunications Bill, 2023, and the repeal of The Indian Telegraph Act, 1885.
- The use of the term "Bharat" instead of "India" and crediting the PM's individual vision are intentional for cultural nativism.

### Key Challenges:

- The Telecom Bill is criticized for ignoring the persisting digital divide and lacking fresh ideas to address it.
- Provisions favoring select private firms and potential misuse of regulatory power are highlighted.
- State control and surveillance powers without defined safeguards raise concerns about privacy and freedom.

### Key Terms and Phrases:

- "Digital Bharat Nidhi": Renaming of Universal Services Obligation Fund (USOF) in the Telecom Bill.
- "Regulatory sandboxes": Provisions likely to benefit large corporations in the telecom sector.
- "Authorisation" vs. "Licensing": The change in terminology with increased severity in the Telecom Act.

### Key Quotes:

- "Bharat moves on..." - Tweet by Union Minister Ashwini Vaishnav.
- "Guess who will soon step into Mobile Satellite Services from India?" - MP Priyanka Chaturvedi on potential favoritism towards private firms.



### Key Statements:

- The Telecom Bill is criticized for distracting from the digital divide issue and lacking innovative solutions.
- Concerns raised about potential misuse of regulatory powers and selective favoritism toward private corporations.

### Key Examples and References:

- Mention of the renaming of USOF as “Digital Bharat Nidhi” in the Telecom Bill.
- Reference to the allocation of satellite spectrum benefiting the Adani Group.

### Key Facts and Data:

- Stagnation in new telecom users and contraction in smartphone sales, as reported by the Telecom Regulatory Authority of India and International Data Corporation.
- A legal penalty of ₹25,000 for providing false particulars or failing to share information as required by the Telecom Act.

### Critical Analysis:

- The Telecom Bill is criticized for maintaining colonial architecture, vague definitions, and potential threats to privacy.
- The rushed passage of the bill without addressing raised concerns reflects an unconstitutional concentration of power.

### Way Forward:

- Advocate for a thorough review of the Telecom Bill by a Standing Committee to address concerns.
- Emphasize the need for policies that genuinely bridge the digital divide and promote fair competition in the telecom sector.
- Encourage transparency, public participation, and safeguards to protect individual rights in telecommunications legislation.

### 33. How India chooses its Republic Day chief guest?

- France’s President Emmanuel Macron is set to be the chief guest for India’s 75th Republic Day celebrations.
- The invitation extended by Prime Minister Narendra Modi signifies a high diplomatic honor and reflects the strong ties between India and France.

## Honor of Republic Day Chief Guest

- **Ceremonial Significance:** Being the chief guest at India's Republic Day is a top diplomatic honor, involving participation in various ceremonial activities.
- **Activities and Protocol:** The chief guest receives a guard of honor, attends a presidential reception, lays a wreath at Rajghat, and is honored with a banquet and lunch.
- **Symbolism and Friendship:** As per Ambassador Manbir Singh, the visit symbolizes participation in India's pride and reflects the friendship between the two nations.

## Selection Process for the Chief Guest

- **Advance Planning:** The process begins about six months prior, with the Ministry of External Affairs (MEA) playing a central role.
- **Key Considerations:** The decision is driven by political, commercial, military, and economic interests, aiming to strengthen ties with the invitee's country.
- **Historical Factors:** The Non-Aligned Movement's legacy has also influenced past selections, with an emphasis on mutual support and nation-building.

## Procedure Post-Selection

- **Approval and Discretion:** After MEA's selection, approvals are sought from the Prime Minister and President, followed by discreet confirmation of the invitee's availability.
- **Official Communications and Planning:** Post-confirmation, official communications and detailed planning for the visit and ceremonies are undertaken.

## Challenges and Contingencies

- **Potential for Unplanned Events:** Organizers prepare for various contingencies, including health issues or weather disruptions.
- **Protocol Challenges:** Incidents like the one recounted by Ambassador Singh, involving the ADC of a chief guest, highlight the importance of strict adherence to protocol.

## Broader Implications of the Visit

- **Ceremonial and Strategic Importance:** The role of the Republic Day chief guest blends ceremonial honor with strategic diplomacy, playing a key role in India's international relations and foreign policy.
- **Media Coverage and Perception:** The visit is closely monitored by international media, influencing perceptions of the guest's nation.

- **Cultural and Diplomatic Impact:** The hospitality and ceremonies reflect India's traditions and culture, enhancing diplomatic relations.
- **Beyond Ceremonial Significance:** The visit of the chief guest holds potential for opening new avenues in international relations and advancing India's global interests.

### 34. Methodology and Evolution of Village Studies

- **Historical Surveys:** Starting in 1916-17, Gilbert Slater initiated a series of surveys in five Tamil Nadu villages, marking the beginning of a century-long study of rural India.
- **Unique Village Studies:** Palakurichi and Palanpur stand out as unique Indian villages extensively studied over a century and decades, respectively.
- **Initial Approach:** Slater's students, natives of the surveyed villages, used questionnaires to understand the socioeconomic conditions of rural households.
- **Subsequent Surveys:** These villages were revisited for studies in subsequent years, including 1936-37, 1964, 1983, 2004, and 2019, providing a longitudinal perspective.

#### Significance of Longitudinal Studies

- **Contrast with Cross-Sectional Surveys:** Unlike the National Sample Survey Office's cross-sectional surveys, village studies are longitudinal, focusing on in-depth analysis over time.
- **Objective:** The aim is to trace changes in the specific village over time, providing micro-level insights that complement macro-level data.

#### Key Findings from Recent Surveys

- **Economic Shifts:** The 2019 survey of Palakurichi revealed a decline in agriculture's dominance, with only 43.3% of the workforce engaged in farming, down from 85% in 1983.
- **Diversification of Workforce:** Similar trends were observed in Palanpur, with a significant shift from agriculture to non-farm jobs over the decades.

#### Changing Social Dynamics

- **Diminished Dominance of Traditional Landholders:** In both Palakurichi and Palanpur, traditional upper caste landholders' power has declined, with middle castes and Dalits gaining more land ownership.

- **Economic and Social Mobility:** These changes reflect broader social and economic mobility within these rural communities.

### Policy Implications and Challenges

- **Land Leasing Practices:** As some communities move away from agriculture, land leasing becomes common, often based on oral agreements to avoid legal complications.
- **Need for Policy Reforms:** There's a need for policies that balance the interests of landowners and tenant farmers, encouraging investment in land improvement.
- **Sustaining Agricultural Productivity:** With rural India becoming less dependent on agriculture, ensuring continued or improved farming practices on existing agricultural lands is crucial.

### Conclusion

- **Insights from Micro-Level Studies:** Longitudinal village studies offer valuable insights into the patterns of change in rural India, informing policy and understanding of rural dynamics.
- **Balancing Agricultural and Non-Agricultural Growth:** These studies highlight the need for balanced development policies that support both agricultural sustainability and non-farm employment opportunities.

## 35. Colombo Security Conclave (CSC)

Recently, India's National Security Adviser (NSA), took part in the 6th NSA meeting of the Colombo Security Conclave (CSC) which agreed upon a road map for the year 2024.

### Colombo Security Conclave

- It is a **regional security grouping** initially known as the Trilateral for Maritime Security Cooperation.
- **Established in - 2011**
- **Aim** - To promote a safe, secure, and stable Indian Ocean, with India playing a leadership role.
- **Membership - 4**
  - **India, Sri Lanka, and the Maldives** were part of trilateral maritime security collaboration, while **Mauritius** joined at 5<sup>th</sup> meeting of grouping in Male in 2022.

- **Observer status - Bangladesh and Seychelles**, now they have received invitations to become active participants in the group.

The CSC countries are all members of the 2 region-wide Indian Ocean groupings, the Indian Ocean Rim Association (IORA), and the Indian Ocean Naval Symposium (IONS).

- **5 pillars**
  - Maritime safety and security
  - Countering terrorism and radicalisation
  - Combating trafficking and transnational organised crime
  - Cyber-security and protection of critical infrastructure
  - Humanitarian assistance and disaster relief
- **Permanent secretariat - In Colombo**, established in 2021 to coordinate all activities and implement decisions made at the National Security Advisor (NSA) level.
- **Meeting** - It happens at the level of NSA and deputy NSA.
- **Security-focused exercises** - In 2021, India, Sri Lanka, and Maldives conducted **Exercise Dosti XV** in Maldives and they subsequently conducted their 1<sup>st</sup> joint exercise in the Arabian Sea named as **Table Top Exercise (TTX)**.
- **Significance** - Since 2021, it has investigated terrorism and terror financing, narcotics trafficking, cybercrime and security, marine pollution, maritime law, and coastal security.
- **Conducting conferences** - In 2022, for the 1<sup>st</sup> time, the organisation held a
  - Conference of oceanographers and hydrographers
  - Conference on coastal security and the next iterations of these conferences are scheduled for 2024.
- **Joint working groups** - It is to focus on terrorism, cyber-security, humanitarian aid and disaster relief (HADR), trafficking and transnational organised crimes.
- **Collaborating on capacity-building** - In sectors such as counter-terrorism, police, law enforcement, and cyber-security.

### What is the changing dynamics of CSC?

- **Disruption** - It started in 2011 but it came to a standstill after 2014 due to rising tensions between India and the Maldives which led to the **suspension of meetings between 2014 and 2020**.
- **Revival** - In 2020, India pushed for the revival and thus it was **rebranded as Colombo Security Conclave**.
- India also expressed interest in expanding the CSC to the Seychelles and Bangladesh who are currently observer nations.

- **Reason for revival** – It is due to increasing importance of Indian Ocean in an evolving multipolar world today, with extra-regional powers competing to make inroads in the region.
- It is partially linked to the increased Chinese presence in Indian Ocean along with its Belt and Road Initiative (BRI) projects.
  - China has established a base in Djibouti and controls Sri Lanka's Hambantota port.
- **Space for India's leadership** – It offers India an opportunity to institutionalise its role, shape the regional security architecture, and better address the existing and emerging threats.
- India plays as the 1<sup>st</sup> responder in the IOR, be it to avert coups or to offer humanitarian and economic assistance during COVID-19 and multi-faceted crises.

### What are the challenges faced by CSC?

- **Domestic politics** – It remains vulnerable to domestic political changes in member-states, as evidenced by the Maldives' absence from the recent meeting.
- **Chinese influence** – All member-states being democracies may continue to play nationalist and pro-China cards for domestic and external benefits as the Indo-Pacific region grows in prominence.
- **Emerging Sub-regionalism** – The convergence of 6 Indian Ocean region countries within the CSC signifies the emergence of sub-regionalism on a unified maritime and security platform.

### What lies ahead?

- Uphold a common strategic vision emphasizing the importance of not being hindered by the escalating Chinese influence in the region.
- Avert points of contention with neighbouring countries and foster collaboration in the region.

## 36. Bharatiya Nyaya Sanhita Act, 2023

President gives assent to 3 Criminal Law amendment bills, the Bharatiya Nyaya Sanhita, the Bharatiya Nagarik Suraksha Sanhita and the Bharatiya Sakshya Adhinyam.

### What are the significant take aways from the new act?

- **Addition** – 20 new offences have been added.
- **Deletion** – 19 provisions that existed in IPC have been deleted.
- **Punishment of imprisonment** – It has been increased in 33 offences.
- **Punishment of fine** – It has been enhanced in 83 offences.
- **Punishment of 'community service'** – It has been introduced in 6 offences.
- **Mandatory minimum punishment** – It has been introduced in 23 offences.
- Reorganisation of offences are made wherein similar provisions have been clubbed together.

### What are the major changes in the new act?

- **New definitions** – It defines 'child' and also defines 'beggary' as a form of exploitation for trafficking.
- **Modifications** – The definition of 'movable property' is widened to include property of every description.
- In the definition of grievous hurt, the number of days has been reduced from 20 days to 15 days.
- **New chapter** - On offence against woman and child and on 'inchoate offences' (attempt, abetment and conspiracy).
- **Sedition** – Under new name 'deshdroh' with wider definitions.
  - It covers acts of subversive activities, and those encouraging feelings of separatist activities.
- **Gender neutrality** – While rape laws continue to operate only for women, some children related laws were modified.
  - For the offences dealing with illicit intercourse.
  - For the offence dealing with kidnapping of minors, it is 18 years for both the genders.
- For adults, the offence of outraging the modesty of women (354A of the IPC) and voyeurism (354C) now has gender neutrality for the accused, which means that women can also be booked.
- **Inclusion** – It includes transgender in the definition of 'gender' and includes electronic and digital records in the definition of 'document'.
- **Deletion** – Unnatural sexual offences under Section 377 of IPC, the provisions related to thugs and adultery.

In 2018, the Supreme Court has struck down the section 377 of the IPC which criminalised homosexuality and the offence of adultery as unconstitutional.

- **Community service** – It is introduced as a punishment for theft of less than Rs 5,000.
- **Attempt to suicide** – It criminalises 'suicide attempts with the intent to compel or restrain any public servant from discharging his official duty'.
  - Jail term which may extend to 1 year with community service.

- It could be invoked to prevent self-immolations and hunger strikes during protests.
- **Damage to public property** - It now carry a graded fine, which means the fine corresponds to the amount of damage caused.
- **Mob Lynching and hate-crime murders** - It is for cases when a mob of 5 or more individuals commits murder based on factors such as race, caste, community, or personal belief.
  - Punishment extends from life imprisonment to death.
- **Organised crime** - It prescribe vast powers of surveillance and relax standards of evidence and procedure in favour of the state.
  - The punishment for attempt to commit and for committing is the same, but a distinction is based on whether a death is caused or not by the alleged offence.
- A separate category of petty organised crime criminalises 'theft, snatching, cheating, unauthorised selling of tickets, unauthorised betting or gambling, selling of public examination question papers'.
- **Terrorist act** - While it imports larger parts from UAPA act, the offence involving terror financing is broader than in UAPA.
- **False Promises to Marry** - Clause 69 seems to ostensibly tackle the "love jihad" narrative by criminalising "deceitful" promise to marry.
  - It also essentially criminalises consensual sexual activity too.

#### What are the minor changes in the new act?

- **Removal of archaic expressions** - At 9 places, expressions like 'lunatic', 'insane' and 'idiot' have been done away with.
- **Deletion of colonial remnants** - Terms like 'British calendar', 'Queen', 'British India, 'justice of the peace' have been deleted.
- **Replacement of terminologies**
  - At 44 places 'Court of Justice' has been replaced with 'Court'.
  - At 12 places 'denotes' has been replaced with 'means'.
  - At 3 places and 'that is to say' is replaced with 'namely'.
- **Uniformity** - The expression 'child' is same throughout the BNS.
- Contemporary style of drafting has been used.

### 37. The Central Goods and Services Tax (Second Amendment) Bill, 2023

Recently, The Central Goods and Services Tax (Second Amendment) Bill, 2023 was passed by Rajya Sabha.



### About the bill:

- The Act empowers the central government, based on the **GST Council's recommendation**, to establish an **Appellate Tribunal** comprising a **President**, a **judicial member**, and **two technical members**.
- The Central Goods and Services Tax (Second Amendment) Bill, 2023, aims to set the **age limit** for **GST Appellate Tribunals (GSTAT) President** at 70 years and **members** at 67 years, an increase from the previous limits of 67 and 65 years, respectively.
- Unlike other tribunals, the amendment opens the **possibility for advocates to become members** of the **GST Appellate Tribunal**, provided they meet the **specified experience criteria**.

### Eligibility for Judicial Members:

- The Bill aligns **Central GST Act provisions** with the **Tribunal Reforms Act, 2021**, and introduces eligibility criteria for appointing judicial members to GSTAT.
- Judicial members can be appointed from **two categories**: (i) a **High Court judge**, or (ii) a **district judge or additional district judge** with a **minimum of 10 years of service**.
- The amendment allows **advocates with a minimum of 10 years' experience**, specifically in **litigation** related to **indirect taxes**, to serve as **judicial members** of the Tribunal.
- The Bill maintains a **criterion for judicial members**, requiring a **minimum of 10 years** of experience for **advocates and district judges**.
- Judicial members, whether judges or advocates, must demonstrate **substantial experience** specifically in matters related to **indirect taxation**.
- The minimum age for appointment as a member or president of the Tribunal is set at **50 years**, ensuring a level of professional maturity and experience.

### Other provisions:

- The rules mandate **members and the President** to declare their assets, liabilities, and financial interests before assuming office, **promoting transparency and accountability**.
- The **law stipulates** that the **President or member must resign** or voluntarily retire before joining the **Tribunal**, and they are prohibited from undertaking any arbitration assignments while serving in these capacities.

### Benches of GSTAT:

- GSTAT will have one **principal bench** based in New Delhi, with a **President** and **one judicial and technical member each**.
- The **state benches of GSTAT** will have a **president** and **two judicial members** and **two technical members** (one each from Centre and states).
  - Setting up of **state-level benches** of GSTAT would help businesses by way of faster dispute resolution.

### 38. India-Oman to sign FTA in Jan 2024

- India and Oman are rapidly progressing in their negotiations for a Comprehensive Economic Partnership Agreement (CEPA), expected to be signed in January 2024.
- The second round of talks was recently concluded in Muscat, indicating both countries' eagerness to finalize the deal.

#### India-Oman Trade Relations

- **Export Destination:** Oman is India's third-largest export destination in the Gulf Cooperation Council (GCC), making the FTA crucial for enhancing Indian exports.
- **Current Trade Dynamics:** Over 80% of Indian goods currently enter Oman with an average import duty of 5%, and the FTA aims to reduce these barriers.

#### Potential Benefits of the FTA

- **Boost in Exports:** The agreement is expected to significantly increase Indian exports in various sectors, including gasoline, iron and steel, electronics, and machinery.
- **Key Export Sectors:** Sectors like motor gasoline, iron and steel products, electronics, machinery, textiles, plastics, boneless meat, essential oils, and motor cars are likely to benefit from duty elimination.

#### Economic Context and Strategic Importance

- **Oman's Economy:** With a GDP of about USD 115 billion and a higher per capita income compared to India, Oman presents a market for diversified and higher-value Indian goods and services.
- **Bilateral Trade Growth:** India-Oman bilateral trade reached USD 12.39 billion in 2022-23, with Indian exports and imports showing significant growth.

- **Oman's Position:** Oman's strategic location in the Arabian Gulf region, with key ports along the Arabian Sea and the Gulf of Oman, is of utmost importance to India.
- **Historical Ties:** The longstanding connection between Oman's ruling family and India has fostered strong bilateral relations, with a significant Indian community contributing to these ties.

### India-Oman Strategic Partnership

- **Defense and Security:** The partnership, strengthened by a MoU signed in 2005, includes joint exercises and cooperation in maritime security.
- **Trade and Commerce:** Bilateral trade and joint ventures are key pillars of engagement, with significant Indian investment in Oman.

### Future Collaborations and Regional Stability

- **Space and Rare Earth Metals:** Prospects for cooperation in space exploration and rare earth metals exploration are on the horizon.
- **Connectivity Projects:** Oman could play a crucial role in India's proposed connectivity corridors and infrastructure projects in West Asia.

### Conclusion

- **Shared Interests:** The deepening India-Oman relationship, marked by shared interests and mutual respect, positions Oman as India's gateway to West Asia.
- **Broader Engagement:** As India seeks to expand its global outreach, particularly in West Asia, Oman's strategic importance and balanced foreign policy make it a key ally in the region.

### 39. Decriminalising Medical Negligence: Views from both sides of the bed

- A woman recently died from septic shock after a surgery in Jamshedpur, leading her brother to allege medical negligence due to unauthorized surgeon substitution and lack of postoperative care.
- The case has ignited discussions on the legal and ethical aspects of medical negligence in India, amidst proposed changes to exempt doctors from criminal prosecution.

### Understanding Medical Negligence

- **Definition and Impact:** Medical negligence involves a breach of duty by healthcare professionals, leading to patient harm or death.
- **Legal Framework:** Currently, under Section 106(1) of the Bharatiya Nyaya (Second) Sanhita (BNSS), doctors face potential imprisonment and fines if convicted of negligence, though proposed changes might alter this.

### Recent Developments and Legal Provisions

- **Recent Announcement:** MHA proposed exempting doctors from criminal prosecution in negligence cases, sparking debate and concern among various stakeholders.
- **Constitutional Rights:** The proposed changes have to be balanced against constitutional protections like Article 20(3) and Article 21, which safeguard against self-incrimination and ensure the right to life and liberty.

### Role of the Indian Medical Association (IMA)

- **IMA's Stance:** The IMA has advocated for exempting doctors from criminal prosecution for negligence, citing the increasing harassment and detrimental impact on patient care.
- **Concerns Raised:** The IMA also highlighted the high number of medical negligence cases filed against doctors and the economic losses due to violence against healthcare professionals.

### Ethical and Societal Implications

- **Power Dynamics:** Critics argue that exempting doctors from criminal prosecution might exacerbate power imbalances in the doctor-patient relationship and lead to increased medical malpractice.
- **Marginalized Populations at Risk:** There's concern that such exemptions could disproportionately affect vulnerable groups, including women, queer, transgender individuals, and rural residents.

### Legal and Ethical Conundrums

- **Good Faith Clause:** BNSS clauses provide some protection for acts done in good faith, but the distinction between negligence and accident remains unclear.
- **Bioethicists' Perspective:** Experts emphasize the need for a balanced approach that considers both healthcare professionals' challenges and patients' rights and safety.

### Way Forward

- **Nationwide Dialogue:** The IMA plans to engage in discussions with the government and public to advocate for their position.
- **Need for Comprehensive Data:** Critics like Geet suggest conducting a nationwide survey to understand the scope of medical negligence and inform policy decisions.
- **Legal Recourse for Patients:** Ensuring that patients have access to legal recourse and justice is crucial to maintaining trust in the healthcare system and preventing violence against doctors.

## Conclusion

- **Complex Decision-Making:** Exempting doctors from criminal prosecution for medical negligence is a multifaceted issue requiring careful consideration of legal, ethical, and societal factors.
- **Ensuring Justice and Quality Care:** Any policy changes must strive to protect patients' rights while also considering the challenges faced by medical professionals, ensuring that the healthcare system remains just, accountable, and focused on delivering high-quality care.

## 40. National Geoscience Data Repository Portal

Recently, the ministry of mines unveils the **National Geoscience Data Repository (NGDR) Portal**.

- The Ministry of Mines conceptualized **NGDR as part of NMEP 2016**, assigning GSI the responsibility to establish this digital geospatial platform.

### About National Geoscience Data Repository (NGDR) Portal:

- The National Geoscience Data Repository (NGDR) is established as a part of the **National Mineral Exploration Policy, 2016**, by the **Geological Survey of India (GSI)** and **Bhaskaracharya Institute of Space Applications and Geoinformatics (BISAG-N)**.
- NGDR hosts all **baseline and exploration-related geoscientific data** in a **single GIS platform**, to **expedite, enhance and facilitate** the exploration coverage of the country.
  - This will include **baseline geoscience data** and all mineral exploration information generated by various **central and state government agencies** and **mineral concession holders**.
- It aims at **democratizing critical geoscience data**, empowering stakeholders across industries and academia with **access to invaluable resources**.

- Currently, 35 map services are incorporated in the **NGDR portal**, covering geological, geochemical, and geophysical aspects, enhancing the **understanding of potential mineral zones**.
- Users, upon registration, can view, download, and interpret the geoscientific data available on the NGDR portal.
- NGDR's overarching goal is to **increase the investment attractiveness** of India's mining sector by **providing open access** to geological, geochemical, and mineral exploration data on a **digital geospatial platform**.

### Key Features:

- **Centralized Access:** Provides a **centralized repository** of diverse geoscience datasets, including geological maps, mineral resources, seismic data, and environmental information.
- **User-Friendly Interface:** An intuitive interface designed to cater to a wide range of users, enabling seamless navigation and exploration of data.
- **MERT template:** The Mineral Exploration Reporting Template facilitates all the geoscientific stakeholders to submit their data in the NGDR portal in a standard reporting template.
- **Analytical Tools:** Equipped with **state-of-the-art analytical tools** to interpret and extract valuable insights from complex geospatial data.
- **Open Access:** Encourages **transparency** and **knowledge sharing** by offering open access to a wealth of geoscience information.

### Accessibility:

- NGDR portal, accessible at <https://geodataindia.gov.in>, allows global viewing, downloading, and interpretation of geoscientific data, **attracting international mining companies** and fostering technological advancements in mineral exploration.
- By establishing a state-of-the-art, user-friendly, and interoperable platform, India joins other mineral-rich countries globally that prioritize the accessibility of geoscientific data for successful mineral exploration programs.

### National Mineral Exploration Policy, 2016:

- The National Mineral Exploration Policy (NMEP) aims to accelerate exploration activities in India, **encouraging private sector participation** to uncover and maximize the nation's **non-fuel and non-coal mineral potential**.
- **Policy Emphasis:**
  - **Comprehensive mineral exploration.**
  - Making available baseline geoscientific data of world standards in the public domain.

- **Public-private partnership** for quality research.
- Special initiatives for searching **deep-seated and concealed deposits**.
- **Quick aerogeophysical surveys** of the country.
- Creation of a **dedicated geoscience database**.

### Key features:

- **Auctioning of Exploration Blocks:** The Ministry of Mines will carry out auctioning of identified exploration blocks for **exploration by private sector on revenue sharing basis** in case their exploration leads to **auctionable resources**.
  - **Successful bidders** bear the revenue for auctionable blocks.
- **Exploration Expenditure Reimbursement:** If explorer agencies find **no auctionable resources**, their exploration expenditure will be reimbursed on a normative cost basis.
- **Baseline Geoscientific Data:** Creation of baseline geoscientific data for open dissemination free of charge.
- **National Aerogeophysical Program:** Government will carry out a National Aerogeophysical Program for acquiring state-of-the-art baseline data for targeting concealed mineral deposits.
- **National Geoscientific Data Repository:** A **Data Repository** is proposed to be set up to collate all baseline and mineral exploration information generated by various central & state government agencies and also mineral concession holders and to maintain these on **geospatial database**.
- **National Centre for Mineral Targeting (NCMT):** Proposal to establish a not-for-profit autonomous institution for **scientific and technological research** in collaboration with scientific, research bodies, universities, and industry.
- **Private Investment Incentives:** Provisions for **inviting private investment** in exploration through attractive revenue-sharing models.
- **Special Initiative for Deep-Seated Deposits:** Launch of a special initiative in collaboration with National Geophysical Research Institute, proposed NCMT, and Geoscience Australia to probe deep-seated/concealed mineral deposits.

## GS 3 : Economy, Science and Technology, Environment

### 1. Dollarisation

Javier Milei, the recent winner of Argentina's presidential election, has drawn attention for his plan to replace the country's currency "Peso" with the dollar.

#### Dollarisation

- It is the process by which a country decides to use two currencies the local currency and generally a stronger, more established currency like the US dollar.
- **Occurrence-** It occurs in developing countries with a weak central monetary authority or an unstable economic environment.
- It usually happens when a country's currency becomes unstable or loses its value due to high inflation or other economic problems.
  - **Example-** Zimbabwe ran a dollarization test to see if the adoption of foreign currency could reduce high inflation and stabilize its economy.
- **Types-** There are 4 types of dollarization that countries can adopt.

### What is the significance of dollarisation?

- **Economic stability-** It can lower inflation rates and stabilise prices, as the dollar is less prone to devaluation and volatility than the domestic currency.
- **Promote investment-** It can avoid currency crises, which reduces the sovereign risk premium and lowers interest rates, leading to higher investment and growth.
- **Boost trade-** It can facilitate trade and integration with international markets, as the dollar is stronger and more widely accepted than the domestic currency.
- **FDI destination-** It can encourage foreign direct investment (FDI), as investors do not need to worry about exchange rate risks or currency fluctuations.
- **Cost effective-** It can promote fiscal discipline and a competitive financial system, as the government and the banks cannot rely on printing money to finance their deficits or bailouts.

3 fully dollarised economies - **Ecuador, Panama and El Salvador** have had successful economic outcomes following dollarisation.

### What are the issues of dollarisation?

- **Monetary autonomy-** It can reduce the country's monetary autonomy, which means it cannot adjust its money supply or interest rates according to its economic needs.
  - Greece benefited from using the Euro as a common currency, but lost its policy autonomy.
  - Ecuador's dollarisation led to losing of monetary autonomy and exchange rate policy autonomy.
- **Seigniorage-** It can lose the revenue generated by issuing currency.



Seigniorage is a term that refers to the profit that a government or a central bank makes by issuing money.

- **Country's identity-** The country may face a loss of public support or legitimacy, especially if the decision to dollarise is perceived as imposed by external forces or interests.
- **External factors-** It can increase the country's vulnerability to foreign influence and external shocks, as it depends on the US monetary policy and dollar availability.
- **Liquidity risks-** It can impair the lender-of-last-resort's ability to provide emergency liquidity to the financial system in times of crisis.

### What lies ahead?

- Dollarisation is not a silver bullet, but if used well in conjunction with domestic policy, it can offer a route to success.
- Dollarisation should be implemented in a country based on dollar reserves, fiscal policy, trade policy and external shocks to realise its full potential.

## 2. India plans to develop its own 'Sovereign AI'

- In a strategic move towards bolstering its technological prowess, India is set to extend its Digital Public Infrastructure (DPI) model to artificial intelligence (AI), aiming for sovereign AI capabilities.

### Sovereign AI Initiative

- **Strategic Direction:** Minister of State for Electronics and IT has articulated India's commitment to developing its own sovereign AI, diverging from solely relying on ecosystems driven by global tech giants.
- **Focus Areas:** The government's AI strategy is based on practical applications in sectors like healthcare, agriculture, and governance, aiming for broader economic impact.

### Tech Governance Solutions so far

- **Global Positioning:** India is showcasing itself as a leader in using technology for large-scale governance solutions.
- **Prominent Examples:** The country highlights its Aadhaar bio-metric identity program and the Unified Payments Interface (UPI) as key achievements.

- **Digital Public Infrastructure (DPI):** This concept involves government-backed technology frameworks that are later expanded upon by private entities for various applications.

### India's Strategy for AI Control

- **Policy Framework:** The National Data Governance Framework Policy, proposed by MeitY, aims to create an India Datasets platform, aggregating non-personal and anonymized government data.
- **Empowering Innovation:** This initiative is designed to provide startups and researchers with access to valuable data for AI development and research.
- **Objective:** The policy's goal is to modernize data collection to enhance governance and stimulate an AI-centric startup ecosystem.

### Unified National Data Sharing Platform

- **Report Findings:** A recent IT Ministry report highlighted the India datasets program as a key to enabling diverse data sharing and exchange use cases.
- **Data Monetization:** The potential monetization of non-personal data is seen as a catalyst for innovation and growth in the AI sector.

### Regulating AI in India

- **Legislative Outlook:** India's future AI governance laws are expected to reflect the significant role AI plays in the digital economy.
- **Regulatory Approach:** The government plans a hybrid regulatory model, incorporating elements of both European and American frameworks.
- **Tech Giants' Data Sharing:** A proposed directive, part of the draft Digital India Bill, may require major tech companies to contribute non-personal data to a government database.
- **Legislative Timeline:** The Digital India Bill is anticipated to be a focus for the government post the 2024 general elections.
- **Committee Recommendations:** A MeitY-appointed committee suggested utilizing aggregated non-personal data for economic gains, identifying specific high-value datasets for this purpose.

### Conclusion

- In its pursuit of sovereign AI and robust digital public infrastructure, India is positioning itself as a key player in the global AI domain.
- The focus on practical AI applications, combined with a balanced regulatory approach, aims to foster innovation, ensure effective data governance, and drive economic growth.

### 3. UNLF Peace Accord

Recently, the Centre and Manipur government signed a peace agreement with the United National Liberation Front (UNLF), the oldest valley-based armed group in Manipur.

#### History of UNLF

It is Manipur's oldest militant group dominated by the Meitei community and one of the seven "Meitei Extremist Organisations" banned by the Union government under the Unlawful Activities Prevention Act.

- **Established-1964**
- **Founder-** Arambam Samarendra
- **Aim-** To liberate Manipur from India and to form an independent socialist state of Manipur.
- It is distinct from the insurgent groups active in the state's Naga-dominated and Kuki-Zomi dominated hills.
- **Objective-**
  - It favoured a long-term programme to **secede from India**, form alliance mainly with China and gradually capture political power with the help of an indoctrinated young population and the intelligentsia.
  - It aimed at reclaiming the **Kabow Valley in Myanmar**.
- **Manipur People's Army-** It is an armed wing formed in 1990 which has carried out attacks on India's security force.
- **4 point proposal-** In 2005, it mooted a proposal to bring the Indo-Manipur conflict to an end.
- **Government's response-** The Central government didn't accept the 4-point proposal by UNLF.
- **Factions-** UNLF split into 2 factions due to internal differences.
  - **Khundongbam Pambei-** Signed the peace agreement recently with the government.
  - **NC Koireng-** Remains opposed to talks.

#### Significance of the deal

- **Historic milestone-** The pact marks a historic milestone, as it is the 1<sup>st</sup> time a valley-based proscribed organization has engaged in peace negotiations since the eruption of ethnic violence in 2023.
- **Establish peace-** The UNLF, known for its armed struggle, has agreed to renounce violence and participate in the peaceful democratic process.
- **Success of tripartite agreements-** The tripartite accords initiated by the Centre since 2014 have led to surrendering and a substantial decline in

violence in terms of security forces, civilian casualties and number of violent incidents.

- **Rehabilitation-** The agreement provides for the rehabilitation and re-settlement of UNLF's armed cadres.
- **Institutional support-** A Peace Monitoring Committee will oversee the enforcement of agreed ground rules.

### What are the challenges?

- **Multiple stakeholders-** The peace agreement can be complex to implement due to multiplicity of stakeholders and their divergent interests and grievances.
- **Unknown terms-** The terms of the agreement are not known and the involvement of militants in the latest ethnic conflict may complicate the issue further.
- **Opening up of issues-** If criminal cases are withdrawn, then similar concessions have to be given on the other side to the Kuki militants who professedly are continuing with the Suspension of Operations agreement.
- **Diverse demands-** Each group has distinct historical grievances, aspirations and demands, making it hard to arrive at a resolution that satisfies all parties.
- **Vulnerability-** The fragility of peace agreements also lies in their vulnerability to disruptions caused by extremist factions or splinter groups within these communities.
- **Distrust-** Lack of trust in the government's commitment to fulfil promises outlined in peace agreement undermines its effectiveness.
- **Geopolitical factors-** The reluctance of neighbouring countries to support peace processes or interference by external actors can destabilise the region.

### What lies ahead?

- The UNLF Manipur Peace Pact represents hope for lasting peace, but the challenges need to be addressed.
- The road ahead requires commitment, transparency, and genuine reconciliation.

## 4. The GDP surprise: India on the up and up

The Indian growth story remains a beacon of hope. The economy is unlikely to slow down in line with other major economies of the world as the government continues to undertake reforms.

### Key Highlights:

- **Economic Growth:** The Indian economy expands by 7.6% in Q2, challenging doubts on post-pandemic macroeconomic resilience.
- **Manufacturing Surge:** The manufacturing sector grows robustly at 13.9%, indicating positive outcomes from policy initiatives and credit stabilization.
- **Corporate Health:** Corporate books show impressive bottom-line growth, reflecting broad-based economic recovery.
- **Capex Intentions:** Historic capex intentions with new investment announcements reaching Rs 37 lakh crore in 2022-23, signifying increased private sector participation.
- **Agricultural Transformation:** Agriculture grows by 1.2%, with a shift towards allied activities reducing dependence on traditional farm income.
- **Banking Support:** Banks increasingly finance the entire agri value chain, with agri loans growing by 15.4% in 2022-23.
- **Services Sector Moderation:** Services sector growth moderates to 5.8%, influenced by low growth in trade, hotels, transport, and communication.
- **Consumption Patterns:** Private consumption decelerates to 3.1%, possibly impacted by higher inflation, expected to pick up in the third quarter.
- **Government Investments:** Government consumption and investments register healthy growth, with gross fixed capital formation increasing by 11%.

#### Key Challenges:

- **Global Growth Risk:** Risk of softer global growth, especially in the US and Euro region, may impact India's exports and economic momentum.
- **Consumer Sentiment Woes:** Consumer sentiments in major economies worsen amid growing uncertainty, potentially affecting global trade.

#### Key Terms and Phrases:

- **Macro-economic Resilience:** India's ability to withstand and recover from economic shocks.
- **PLI Scheme:** Production-Linked Incentive scheme aimed at boosting manufacturing in specific sectors.
- **Corporate Balance Sheets:** Financial health and performance of businesses.
- **Capex Intentions:** Plans and commitments for capital expenditures.
- **Allied Activities in Agriculture:** Diversification into areas like dairy and fisheries within the agriculture sector.
- **Gross Fixed Capital Formation:** Investment in fixed assets contributing to economic growth.
- **Consumer Sentiments:** Public attitudes and feelings regarding economic conditions and spending.
- **Global Trade Headwinds:** Challenges and obstacles affecting international trade.

### Key Quotes:

- “The Indian growth story remains a beacon of hope.”
- “The economy is unlikely to slow down in line with other major economies of the world.”

### Key Statements:

- Manufacturing sector growth indicates an uptick triggered by government expenditure, policy initiatives, and credit stabilization.
- Agriculture’s increased focus on allied activities reduces dependence on traditional farm income.
- Historic capex intentions and private sector participation signal a strong economic recovery.

### Key Examples and References:

- New investment announcements hitting a high of Rs 37 lakh crore in 2022-23, showcasing increased private sector participation.
- Agriculture loans by banks increase by 15.4% in 2022-23, indicating growing support for the agri value chain.

### Key Facts and Data:

- Indian economy grows by 7.6% in Q2, marking two consecutive quarters of 7% plus growth.
- Manufacturing sector grows at a robust 13.9%, reaching a nine-quarter high.
- New investment announcements hit Rs 37 lakh crore in 2022-23, compared to Rs 20 lakh crore in 2021-22.
- Agriculture grows by 1.2% in Q2, with allied activities contributing significantly.

### Critical Analysis:

- The robust economic growth raises questions about the accuracy of forecasts doubting India’s resilience.
- The manufacturing sector’s strong performance indicates positive outcomes from government initiatives and policies.
- Private sector participation in capex reflects confidence in the economic recovery.
- Increased focus on allied activities in agriculture showcases a shift in the sector’s dynamics.
- The potential risk of softer global growth highlights external factors influencing India’s economic trajectory.

### Way Forward:

- Continued government reforms and support for economic growth.
- Monitoring and addressing potential risks from softer global growth.
- Sustaining the positive momentum in manufacturing and capex through policy measures.
- Emphasizing the role of allied activities in agriculture for a diversified income base.
- Nurturing consumer sentiments and encouraging private consumption for sustained economic recovery.

## 5. Oil and Gas Industry in Net Zero Transitions

The International Energy Agency (IEA) released a report titled "The Oil and Gas Industry in Net Zero Transitions" ahead of the COP28 climate summit, highlighting the industry's role in the climate crisis.

### Key Highlights of the Report:

#### Need for Transition:

- The IEA predicts a peak in global oil and gas demand by 2030, with a potential **45% drop by 2050** if climate pledges are fulfilled.
- Currently, only **1% of global clean energy investment** is by the oil and gas sector, which is largely insufficient given the sector's **impact on global emissions**.
- A radical shift is necessary, with a recommendation for **50% of capital expenditures** to go towards clean energy by **2030**, a significant increase from the **2.5% spent in 2022**.

#### Discrepancies Between Pledges and Actions:

- Despite pledges by oil majors to reduce production and emissions, their actions are not fully aligned with the Paris Agreement and the **1.5°C goal**.
- The industry's clean energy investments in 2022 accounted for only **2.5% of total capital spending**, contrasting sharply with the needed commitment towards clean energy transition.

#### Road to Net Zero Emissions:

- IEA's suggestion for the industry includes a commitment to reduce its emissions by **60% by 2030**, aligning with the **Paris Agreement**.

- **Role of COP28:** The upcoming COP28 is seen as a decisive moment for the industry, indicating whether it will be a genuine partner in combating climate change.

### Reality of Carbon Capture Technologies

- Despite promotion by industry leaders, reliance on **Carbon Capture, Utilisation, and Storage (CCUS) technologies** is seen as insufficient to meet climate goals.
- The IEA analysis shows that operating the necessary **CCUS technologies by 2050** would require more electricity than the global demand in 2022.

### 6. Global Digital Public Infrastructure Repository

India's launch of two major initiatives to advance Digital Public Infrastructure (DPI) globally, was announced at the Virtual G20 Leaders' Summit on November 22, 2023.

#### Global Digital Public Infrastructure (GDPIR)

- The GDPIR is a **virtual repository of DPI** to be shared by **G20 members**, which aims to share practices and experiences in developing and deploying DPI.
- **Scope:** Includes tools and resources used by governments and private businesses.
- **Examples from India:** Aadhaar, UPI, Jan Dhan.

#### Significance of DPI:

- **Concept:** Digital systems that provide large-scale services to society.
- **Benefits:** Empowers citizens, promotes digital inclusion, and improves service delivery.
- **Indian Success:** Praised globally for innovations like Aadhaar and UPI.
- **UPI Transactions:** Recorded 9 billion transactions worth Rs 14 lakh crore in May.

#### Global Response and Collaborations:

- **MOUs Signed:** Eight countries collaborating with India on digital infrastructure.
- **World Bank Praise:** Recognized India's achievement in financial inclusion through DPI.
- **Financial Inclusion:** India achieved 80% financial inclusion in 6 years, a process that could have taken 47 years without DPI.



- **UPI and GDP:** UPI transactions last year nearly 50% of India's nominal GDP.

### G20 Declaration on DPI:

- **Focus Areas:** Safety, security, resilience, and trust in the digital economy.
- **AI Governance:** Promoting discussions on international governance for Artificial Intelligence.
- **Human Rights and Privacy:** Asserting DPI's role in respecting human rights, data privacy, and intellectual property rights.

## 7. How does GPS work

The article discusses the **functionality and significance of the Global Positioning System (GPS)**.

- Established by the U.S. Department of Défense in 1973, **GPS is a constellation of 24 satellites** orbiting the Earth, providing **location information through a network of ground control stations and user devices**.

### Functioning:

- The GPS system consists of **three main segments**: the **space segment with 24 satellites in six orbits**, the **control segment** managing satellite performance and commands, and the **user segment** incorporating GPS across various sectors like agriculture, construction, military operations, and more.
- The satellites emit radio signals at **specific frequencies (L1 and L2)** with encoded information about their location and time.
- GPS receivers on devices, **like smartphones, pick up these signals to calculate the distance from satellites** and, by triangulation, determine the user's precise location in three dimensions of space and one of time.

Other Global Navigation Satellite Systems (GNSS) worldwide, **such as GLONASS, Galileo, and BeiDou, operate alongside GPS**.

**India's has developed NavIC system**, comprising seven satellites with **rubidium atomic clocks**, and the **GPS-Aided Geo Augmented Navigation (GAGAN) system**, developed for civil aviation applications.

## 8. Ozone Hole

Contrary to public perception, recent research reveals that the **Antarctic ozone hole** has been among the largest on record over the past three years.

**Key highlights of research:**

**Magnitude and Duration of Ozone Hole:**

- Contrary to public perception, the **ozone hole** over Antarctica has been **exceptionally large and persistent in the last four years.**

**Role of Chlorofluorocarbons (CFCs):**

- CFCs are **not the sole contributors** to the **ozone hole**, as their impact alone cannot explain observed changes.
  - CFCs are **greenhouse gases** containing **carbon, hydrogen, chlorine and fluorine** and have been studied to contribute to ozone depletion.

**Complex Factors Contributing to Ozone Hole:**

- **Atmospheric factors**, particularly **changes in air entering the polar vortex above Antarctica**, play a role.
- Challenges the **traditional understanding of the ozone hole's causes.**

**Concerns Regarding Previous Communication:**

- **Major communications** about the ozone layer over the last few years have given the public the impression that the '**ozone issue**' has been solved.
- Despite progress under the **Montreal Protocol**, the **ozone hole** has been **among the largest** on record in the **past three years.**
- Current size exceeds 26 million square kilometers, nearly twice the area of Antarctica.

**Ozone's Impact on Climate:**

- The ozone hole interacts with the **delicate balance** in the atmosphere.
- Because ozone usually **absorbs UV light**, a hole in the ozone layer can not only cause **extreme UV levels** on the **surface of Antarctica**, but it can also **drastically impact** where **heat is stored in the atmosphere.**

**About Ozone Layer:**

- The **majority of atmospheric ozone** is concentrated in the **stratosphere**, located approximately 15 to 30 km above the Earth's surface.

- Ozone is a molecule that contains **three oxygen atoms**.
- At any given time, ozone molecules are constantly **formed and destroyed in the stratosphere**.
- Despite these dynamic processes, the **total amount of ozone has remained relatively stable** over the decades it has been measured.

### Role of Ozone Layer:

- The ozone layer in the stratosphere plays a critical role by absorbing a portion of the sun's radiation, particularly the **harmful UVB (ultraviolet B) light**.
- This absorption helps **prevent UVB from reaching the Earth's surface**, mitigating potential harmful effects such as **skin cancers, cataracts, and damage to crops and marine life**.

### Ozone Depletion:

- Ozone concentrations in the **atmosphere vary naturally** with **sunspots, seasons, and latitude**.
  - Each **natural reduction** in ozone levels has been **followed by a recovery**.
- Beginning in the 1970s, however, scientific evidence showed that the **ozone shield was being depleted well beyond natural processes**.

### What is causing Ozone Depletion?

- When **chlorine and bromine** atoms come into contact with ozone in the stratosphere, they **destroy ozone molecules**.
- A **single chlorine atom** can destroy over 100,000 ozone molecules before being removed from the stratosphere, causing **faster ozone destruction** than its **natural creation**.
- Certain compounds, when **exposed to intense UV light** in the stratosphere, release **chlorine or bromine**, contributing to **ozone depletion**.
  - These substances are known as **ozone-depleting substances (ODS)**.

### Ozone-depleting substances (ODS):

- ODS that release **chlorine** includes **chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), carbon tetrachloride, and methyl chloroform**.
- ODS that release **bromine** includes **halons and methyl bromide**.
- Although ODS are emitted at the Earth's surface, they are eventually **carried into the stratosphere** in a process that can take as long as two to five years.

### Depletion through natural process:

- Certain natural processes, like large volcanic eruptions, can indirectly impact ozone levels.
- For instance, the **1991 eruption of Mt. Pinatubo** did not raise **stratospheric chlorine** concentrations but **produced substantial aerosols (distinct from consumer aerosol products)**.
- These **aerosols increase chlorine's effectiveness** at destroying ozone.
  - The aerosols in the stratosphere **create a surface on which CFC-based chlorine** can destroy **ozone**.
- However, the **effect from volcanoes is short-lived**.

### Initiatives to stop the ozone depletion:

#### Vienna Convention:

- The **1985 Vienna Convention** is a framework agreement in which states agree to cooperate on research, scientific assessments, information exchange, and adopt "appropriate measures" to prevent activities harming the ozone layer.

#### Montreal Protocol:

- The Montreal Protocol is a global agreement to **protect the Earth's ozone layer** by phasing out the chemicals that deplete it.
  - It bans the production of CFCs, halons, and other ozone-depleting chemicals.
- The landmark agreement entered into force in **1989**.
- **The Kigali Amendment (2016):** extended controls to **phase down the production and consumption of HFCs**.
  - These substances were **adopted by industries** in moving away from ozone-depleting substances and they are **potent greenhouse gases damaging to the earth's climate**.

## 9. Psyche Mission fires Lasers at Earth

**Psyche spacecraft** of the National Aeronautics and Space Administration (NASA) has beamed a **near-infrared laser** on Earth from almost 16 million kilometres away.

- **Psyche** is a NASA mission launched in **2023**.
- **Aim:** To study a **metal-rich asteroid named Psyche**, located in the main asteroid belt between **Mars and Jupiter**.
- It is **orbiting the Sun** between Mars and Jupiter.

- It has a **magnetometer**, a **gamma-ray and neutron spectrometer**, and a **multispectral imager** to study asteroid Psyche.
- It is capable of **sending and receiving near-infrared signals** by the **transceiver**, a high-tech instrument.

#### About Asteroid Psyche:

- **Psyche is a large M-type asteroid**, discovered in **1852**.
  - **M-type asteroids** are a spectral class of asteroids that contain **higher concentrations of metal** phases.
- It was the **16th asteroid** to be discovered, thus also called **16 Psyche**.
- It is likely made of a **mixture of rock and metal** (Metal composing **30% to 60%** by volume).

#### About Deep Space Optical Communications (DSOC):

- The **DSOC** experiment is **NASA's first demonstration** of **optical communications beyond the Earth-Moon system**.
- It is riding aboard the **Psyche spacecraft**.
- It consists of a **flight laser transceiver**, a **ground laser transmitter**, and a **ground laser receiver**.
- **Use:** To send **high-bandwidth test data** to our planet as psyche travels to the main asteroid belt between Mars and Jupiter.

### 10. Strategic Auction of Critical Mineral Blocks

- The Centre is auctioning twenty blocks of critical minerals for commercial mining by the private sector.
- These blocks contain lithium ore and 10 of the 30 minerals declared as "critical" by the government in July.

#### Critical Minerals

- Critical minerals are elements that are crucial to modern-day technologies and are at risk of supply chain disruptions.
- These minerals are used in making mobile phones, computers, batteries, electric vehicles, and green technologies like solar panels and wind turbines.
- Minerals such as antimony, cobalt, gallium, graphite, lithium, nickel, niobium, and strontium are among the 22 assessed to be critical for India.
- Many of these are required to meet the manufacturing needs of green technologies, high-tech equipment, aviation, and national defence.
- List of critical minerals includes:

1. **Identified Minerals:** The assessment resulted in a list of 30 critical minerals, including antimony, beryllium, cobalt, copper, lithium, nickel, rare earth elements, silicon, tin, titanium, tungsten, and others.
2. **Fertilizer Minerals:** Two minerals critical for fertilizer production, phosphorous and potash, are also included.

### Significance of Lithium Ore Auction

- **First Instance:** This auction marks the first time that rights for lithium ore mining are being offered to private parties in India.
- **Other Critical Minerals:** The blocks also include nickel, copper, molybdenum, and rare earth elements (REEs), crucial for various industries.

### Location and Rights of Mineral Blocks

- **Distribution:** The 20 blocks are spread across eight states, including Tamil Nadu, Odisha, Bihar, Uttar Pradesh, Gujarat, Jharkhand, Chhattisgarh, and Jammu & Kashmir.
- **Types of Licenses:** Four blocks are for a Mining License (ML), allowing immediate mining post-clearance. The remaining 16 blocks are for a Composite License (CL), permitting further exploration before potentially converting to an ML.
- **Approvals Required:** Licensees must obtain various approvals, including forest clearance and environmental clearance.
- **Forest Land:** Approximately 17% of the total concession area, or 1,234 hectares, is forest land.

### Reserve Estimates and Key Minerals

- **Lithium Reserves:** The two lithium reserve blocks, one each in J&K and Chhattisgarh, are auctioned for CL.
- **Nickel and Copper Reserves:** Nickel ore reserves are found in Bihar, Gujarat, and Odisha, with the Odisha block also containing copper reserves.

### India's Current Mineral Imports

- **Lithium Imports:** In FY23, India imported 2,145 tonnes of lithium carbonate and lithium oxide, costing Rs 732 crore.
- **Nickel and Copper Imports:** The country imported 32,000 tonnes of unwrought nickel and 1.2 million tonnes of copper ore, costing Rs 6,549 crore and Rs 27,374 crore, respectively.
- **Import Dependence:** India relies entirely on imports for lithium and nickel, and 93% for copper.

## Post-Auction Plans and Policy Initiatives

- **Future Auctions:** A second tranche of critical mineral blocks, including new lithium reserves in Rajasthan and Jharkhand, is expected.
- **Geological Surveys:** The Geological Survey of India is conducting 125 projects to explore critical mineral reserves.
- **Centre of Excellence:** A recommendation to establish a Centre of Excellence for Critical Minerals aims to develop a complete value chain in the country.

## Conclusion

- The auction of critical mineral blocks is a significant step towards reducing India's reliance on imported minerals, particularly lithium, nickel, and copper.
- This initiative aligns with the #AatmanirbharBharat vision and is expected to bolster India's position in vital industries like battery manufacturing and electric vehicles.
- The success of these auctions will be crucial in shaping India's resource independence and industrial future.

## 11. Global Digital Public Infrastructure Repository

India's launch of two major initiatives to advance Digital Public Infrastructure (DPI) globally, was announced at the Virtual G20 Leaders' Summit on November 22, 2023.

### Global Digital Public Infrastructure (GDPIR)

- The GDPIR is a **virtual repository of DPI** to be shared by **G20 members**, which aims to share practices and experiences in developing and deploying DPI.
- **Scope:** Includes tools and resources used by governments and private businesses.
- **Examples from India:** Aadhaar, UPI, Jan Dhan.

### Significance of DPI:

- **Concept:** Digital systems that provide large-scale services to society.
- **Benefits:** Empowers citizens, promotes digital inclusion, and improves service delivery.
- **Indian Success:** Praised globally for innovations like Aadhaar and UPI.

- **UPI Transactions:** Recorded 9 billion transactions worth Rs 14 lakh crore in May.

### Global Response and Collaborations:

- **MOUs Signed:** Eight countries collaborating with India on digital infrastructure.
- **World Bank Praise:** Recognized India's achievement in financial inclusion through DPI.
- **Financial Inclusion:** India achieved 80% financial inclusion in 6 years, a process that could have taken 47 years without DPI.
- **UPI and GDP:** UPI transactions last year nearly 50% of India's nominal GDP.

### G20 Declaration on DPI:

- **Focus Areas:** Safety, security, resilience, and trust in the digital economy.
- **AI Governance:** Promoting discussions on international governance for Artificial Intelligence.
- **Human Rights and Privacy:** Asserting DPI's role in respecting human rights, data privacy, and intellectual property rights.

## 12. Challenges in Renewable Energy

International Energy Agency (IEA) has called for government to commit to tripling global renewable capacity by 2030 ahead of COP 28, but some key players have not signed the pledge.

### Challenges of increasing renewables energy

- **Hydroelectric power-** Large dams are difficult to construct due to environmental and regulatory issues.
- **Unrealistic goal-** Around 57% of hydroelectric power is of renewable energy, but tripling its capacity by 2030 is unlikely.
- **Solar power-** It is limited by daylight hours, land availability, environmental impacts, and import dependence.
- **High cost-** Solar panels also need efficient and costly storage solutions to match peak demand and overcome intermittency.
- **Import dependency-** Many countries depend on China for solar panels or raw materials, it increases the import costs.
- **Wind energy -** It is affected by weather conditions, site availability, and material emissions.
- **Structural issues-** Wind turbines also face the problem of intermittency and require backup or storage solutions to provide stable power.



- To triple renewable energy by 2030 the solar and wind output must increase by at least 5 times.
- **Issues with fossil fuel-** The COP 28 pledge does not specify reducing fossil fuels, which cause over 80% of greenhouse emissions. The US and other countries still subsidize and use fossil fuels extensively.
- **Fund deficit-** The transition to renewables requires massive investments, which can burden poorer countries and affect their budgets for essential services.

Despite the challenges, renewable energy capacity has more than doubled globally in the past decade, with costs declining significantly. By 2035, renewable electricity generation is expected to surpass fossil fuel production.

### What is India's stand with respect renewable energy?

- **India's status-** India is the 3rd largest energy consuming country in the world.
- As per Renewables 2022 Global Status Report, India stands
  - 4th globally in renewable energy installed capacity
  - 4th in wind power capacity
  - 4th in solar power capacity
- India has already achieved its target of 40% installed electric capacity from non-fossil fuels.
- **Renewable energy target-** India has set an enhanced target of 500 GW of non-fossil fuel-based energy by 2030, which is the world's largest expansion plan in renewable energy.
- **Carbon neutrality-** India has also pledged to achieve net-zero emissions by 2070.
- **Tripling renewables proposal-** India didn't sign the pledge as a report has found that India would need an investment of about 293 billion dollars to triple its renewable energy installed capacity by 2030.
- **Reliance on coal-** India is not comfortable with the coal phase out target as it need to focus on poverty reduction and economic growth, hence it did not sign the pledge.

### 13. 'Gemini AI Model'

- Google has introduced Gemini, a new multimodal general AI model, available globally through Bard.
- It is seen as Google's response to ChatGPT, offering advanced capabilities in the realm of GenAI.

### Google Gemini

- Unlike ChatGPT, Gemini can process and operate across various formats including text, code, audio, image, and video.
- Google claims Gemini Ultra surpasses current models in academic benchmarks and is the first to outperform human experts in massive multitask language understanding (MMLU).

### Different versions available

- **Three Variants:** Gemini comes in three sizes – Ultra, Pro, and Nano – each designed for specific levels of complexity and tasks.
1. **Gemini Ultra:** Intended for highly complex tasks, currently in a trial phase with select users.
  2. **Gemini Pro:** Available in Bard for general users, offering advanced reasoning and understanding, and accessible to developers via Google AI Studio or Google Cloud Vertex AI.
  3. **Gemini Nano:** Focused on on-device tasks, already integrated into Pixel 8 Pro, and soon available to Android developers via AICore in Android 14.

### Addressing Challenges of Hallucinations and Safety

- **Factuality and Hallucinations:** While improvements have been made, Gemini, like other LLMs, is still prone to hallucinations. Google uses additional techniques in Bard to enhance response accuracy.
- **Safety Measures:** Google emphasizes new protections for Gemini’s multimodal capabilities, conducting comprehensive safety evaluations, including bias and toxicity assessments.
  - **Ongoing Safety Research:** Google collaborates with external experts to stress-test models and identify potential risks in areas like cyber-offence and persuasion.

### Comparing Gemini and ChatGPT 4

- **Flexibility and Capabilities:** Gemini appears more versatile than GPT4, especially with its video processing and offline functionality.
- **Accessibility and Cost:** Unlike the paid-access ChatGPT4, Gemini is currently free to use, potentially giving it a broader user base.

## 14. Ethanol Production Policy

- The Ministry of Consumer Affairs, Food and Public Distribution issued a directive to sugar mills and distilleries, not to use sugarcane juice or syrup for ethanol production in the ethanol year 2023-2024.

## No Sugarcane Juice for Ethanol Production

- **Continuation of Existing Supplies:** The directive allows the continued supply of ethanol from B-Heavy molasses based on existing offers received by Oil Marketing Companies (OMCs).
- **Regulatory Oversight:** The Department of Food and Public Distribution, responsible for monitoring sugar production and availability, implements this directive under the Sugar (Control) Order.

## Rationale behind the Directive

- **Ensuring Sugar Availability:** The government's decision aims to ensure sufficient sugar availability in India, considering the lower sugar production in the country.
- **Food vs. Fuel Consideration:** Businesses highlighted this move as a balance between food security and fuel production.
- **Impact on Ethanol Blending Targets:** The directive is significant in the context of India's goal of achieving 20% ethanol blending by the 2025-2026 ethanol year.

## Implications for Industry

- **ISMA's Response:** The Indian Sugar Mills Association (ISMA) is assessing the implications of the order.
- **Effect on Domestic Sugar Supply:** Industry sources indicate that this decision will ensure adequate sugar supply domestically, especially with reduced sugarcane production in states like Maharashtra and Karnataka.
- **Impact on Ethanol Blending Program:** The restriction is likely to affect the ethanol blending program, which is a key component of India's renewable energy strategy.
- **Consequences for Ethanol-Only Units:** Facilities dedicated solely to ethanol production may face challenges due to this new policy.

## Conclusion

- The directive represents a strategic decision by the Indian government to prioritize domestic sugar availability over ethanol production from sugarcane.
- Monitoring the impact of this directive on both the sugar industry and the ethanol blending program will be crucial in the coming years.

## 15. Rat-Hole Mining

12 rat-hole miners were enlisted to excavate the remaining 10 meters after the auger machine malfunctioned during the rescue operations of the Uttarkashi tunnel collapse.

### About Rat-Hole Mining:

- Rat hole mining is a method used for extracting coal from narrow, horizontal seams, and it is particularly prevalent in the state of Meghalaya.
- The term "**rat hole**" refers to the narrow pits dug into the ground, usually just large enough for one person to descend and extract coal.
- Once the pits are dug, miners descend using **ropes or bamboo ladders** to reach the coal seams.
- The coal is then **manually extracted** using **primitive tools** such as pickaxes, shovels, and baskets.

### Types of rat-hole mining:

#### Side-cutting procedure:

- The **side-cutting type** of mining is usually done on **hill slopes** by following a **coal seam visible from the outside**.
  - **Coal seams:** Dark brown or black-banded coal deposited within layers of rock.
- In this procedure, **narrow tunnels are dug on the hill slopes** and workers go inside until they find the coal seam.
  - The **coal seam in hills of Meghalaya** is very thin, less than 2 m in most cases

#### Box-cutting:

- It entails digging a **circular or squarish pit**, varying from 10 to 100 sqm in width, up to a **depth of 400 feet**.
- Miners who drop down in **makeshift cranes** or using **rope-and-bamboo ladders** dig horizontally after finding the coal seam.
- Once the coal seam is found, **rat-hole-sized tunnels** are dug horizontally through which workers can extract the coal.
- The tunnels are dug in every direction from the edge of the pit, resembling the **tentacles of an octopus**.

### Environmental and Safety Concerns:

- The mines are typically **unregulated**, lacking safety measures such as proper ventilation, structural support, or safety gear for the workers.
- The unregulated mining led to land degradation, deforestation, and water with high **concentrations of sulphates**, iron, and toxic heavy metals, low dissolved oxygen, and high biochemical oxygen demand.
- **Water sources in Meghalaya rivers** have **turned acidic** with high concentrations of toxic metals due to rat-hole mining, posing environmental challenges.

### Bans by the National Green Tribunal (NGT)

- The NGT banned rat-hole mining due to **safety concerns**, with **incidents of flooding** during the rainy season resulting in fatalities.
- Despite bans by the NGT in 2014 and 2015, **rat-hole mining** persists in **Meghalaya** due to **economic factors** and the **absence of alternative livelihoods**.

## 16. The future of healthcare is in our genes

The article underscores the transformative potential of gene and cell therapy in addressing India's healthcare challenges, particularly genetic disorders, cancer, and infectious diseases. It emphasizes the imperative for a paradigm shift, highlighting the need for collaborative efforts, regulatory frameworks, and increased awareness to integrate these therapies into mainstream healthcare.

### Key Highlights:

- **Genetic Disorders in India:** Over 40 million individuals in India suffer from genetic disorders, emphasizing the urgent need for advanced treatments like gene therapy.
- **Haemoglobinopathies:** Conditions like Thalassemia and Sickle Cell Anaemia affect millions, and gene therapy offers a potential cure by addressing the root genetic mutations.
- **Cancer Treatment:** With 1.16 million new cancer cases annually, gene and cell therapy, especially CAR-T therapy, present precision medicine solutions tailored to individual genetic profiles.
- **Infectious Diseases:** Gene therapy shows promise in treating infectious diseases, including potential applications against viral threats like dengue, HIV/AIDS, and others.

- **Future Vision:** Gene and cell therapies anticipate a future of precise and personalized treatments, reducing economic burdens associated with chronic conditions.

### Key Challenges:

- **Infrastructure Limitations:** Integrating gene and cell therapy into mainstream healthcare faces challenges related to infrastructure readiness.
- **Ethical Considerations:** The ethical implications of gene therapy, including issues of consent and long-term consequences, pose challenges to widespread adoption.
- **Awareness Gap:** Limited awareness among healthcare professionals and the public about gene and cell therapy hinders successful integration.

### Key Terms and Phrases:

- **Precision Medicine:** Tailored medical approaches considering the unique genetic makeup of each patient.
- **Chimeric Antigen Receptor T-cell therapy (CAR-T):** Modifying a patient's immune cells to target cancer cells, exemplifying precision medicine.
- **mRNA Vaccines:** Groundbreaking gene-therapy products, as seen in Covid-19 vaccines like Pfizer-BioNTech and Moderna.
- **Severe Combined Immunodeficiency (SCID):** A genetic disorder potentially treatable with gene therapy to restore normal immune function.

### Key Quotes:

- "Gene therapy is not just about managing symptoms – it is about rewriting the genetic code that underlies these conditions."
- "The imperative lies in investing in research and infrastructure to make these transformative therapies accessible to those who need them."
- "Gene and cell therapy are not just treatments; they are the future of healthcare."

### Key Examples and References:

- **Haemoglobinopathies Impact:** Thalassemia and Sickle Cell Anaemia affecting 40 million individuals in India.
- **Cancer Cases:** Over 1.16 million new cancer cases annually, highlighting the demand for advanced treatments.
- **mRNA Vaccines:** Pfizer-BioNTech and Moderna Covid-19 vaccines as groundbreaking gene-therapy products.

### Key Facts and Data:

- **Demographic Impact:** Genetic disorders affect millions in India, necessitating advanced treatments.
- **Cancer Statistics:** Over 1.16 million new cancer cases reported annually in India.
- **Economic Burden:** Gene therapy's potential to reduce long-term healthcare costs for chronic genetic conditions.

### Critical Analysis:

- **Integration Challenges:** Infrastructural and ethical challenges pose hurdles to the mainstream integration of gene and cell therapy.
- **Opportunities for Collaboration:** Challenges present opportunities for collaborative efforts among scientific communities, industries, policymakers, and healthcare providers.
- **Need for Awareness:** Limited awareness emphasizes the importance of enhancing awareness among healthcare professionals and the public for successful integration.

### Way Forward:

- **Collaborative Efforts:** Encourage collaboration between scientific communities, industries, policymakers, and healthcare providers to overcome challenges.
- **Regulatory Frameworks:** Develop regulatory frameworks balancing innovation with ethical considerations to guide gene therapy integration.
- **Research and Development:** Invest in research and development to advance gene and cell therapy, addressing infrastructure limitations and ethical concerns.
- **Public Awareness:** Foster awareness among healthcare professionals and the public to ensure successful integration into the broader healthcare landscape.

## 17. Understanding Fractal Dimensions

- **Quantum Complexity:** Quantum physics studies the behavior of very small particles, like atoms and photons, and is known for being difficult to understand.
- **Heisenberg's Uncertainty Principle:** This principle states that you cannot precisely know both the position and momentum of a particle at the same time.

### Quantum Mechanics and Wave-function Collapse

- **Measuring Particles:** In quantum mechanics, when you measure a particle's property, such as its position, you affect its wave-function.
- **Wavefunction Defined:** The wave-function is a mathematical function that describes all possible states of a particle. When it collapses, it results in a single state.
- **Particles in Multiple States:** Before measurement, a particle can exist in multiple states or locations simultaneously.
- **Fractals in Quantum Physics:** Fractals are shapes that have non-integer dimensions, used in quantum physics to describe complex systems.
- **Fractals in Nature:** Fractals are patterns that repeat at different scales. The **Koch snowflake**, for example, has a fractal dimension of about 1.26.

### Visualizing Fractals in Different Scales

- **Fractals in Nature:** Fractal patterns are visible in natural phenomena like tree branches, clouds, and river networks.
- **Fractals in Quantum Materials:** In quantum materials, such as neodymium nickel oxide and graphene, fractal patterns can be observed in the arrangement of magnetic domains or electron density.

### Applications of Fractals

- **Early Uses:** Fractals were initially used to understand random particle movements, like Brownian motion.
- **Diverse Applications:** Today, fractals are used in various fields, including technology, space research, and biology.
- **Studying Complex Systems:** Fractals help in understanding complex systems that exhibit patterns at different scales.

### Importance of Fractals

- **Beyond Geometry:** Fractals are important in understanding complex patterns in both quantum physics and natural phenomena.
- **Complexity from Simple Rules:** Fractals show how complex patterns can emerge from simple rules, offering insights into the quantum world and the natural environment.

## 18. Ethanol Blended Petrol Program

Recently the Ministry of Consumer Affairs, Food and Public Distribution directed all mills and distilleries not to use sugarcane juice/syrup for making any ethanol "with immediate effect".



## Ethanol Blended Petrol Program (EBP)

- **Launch year-** 2003
- **Aim-** To promote the use of renewable fuels.
- **Ethanol-** It is an agro-based product, mainly produced from a by-product of the sugar industry, namely molasses. It is 99.9% pure alcohol that can be blended with petrol.
- **Guidelines-** National Policy on Biofuels.
- **Nodal department-** Department of Food and Public Distribution (DFPD) is the nodal department for promotion of fuel grade ethanol producing distilleries in the country.
- **Target-**
  - **E10-** It has achieved the target of 10% ethanol blending in 2022.
  - **E20-** It has set a target of 20% blending (E20) by 2030 which was now shifted to 2025-26.
- **Price fixation-** The procurement price of ethanol is fixed by the government, and oil companies can purchase it from domestic sources.
- **C-heavy molasses-** Ethanol is typically made from “C-heavy” molasses, a by-product of sugarcane processing.
- **Alternative feedstocks-** It include “B-heavy” molasses, concentrated sugarcane juice, and other substrates like rice and maize.
- **Increase in ethanol production-** It happened largely after 2017-18, when mills started making it from B-heavy molasses and concentrated sugarcane juice/syrup.

## Significance of EBP

- **Differential pricing-** The success of the Ethanol Blended Petrol (EBP) program is attributed to differential pricing for ethanol produced from various feedstocks.
- **Diversified production-** Government support and alternative feedstocks have diversified ethanol production.
- **Sustainable production-** The government raised the procurement price of ethanol produced from damaged grain and maize, this would lead to food security as it reduces the reliance on the food sources.
- **Fuel India-** Uttar Pradesh and Bihar would “fuel India” in future as Punjab, Haryana, Maharashtra feeds India.

Uttar Pradesh is a major sugarcane producer, Bihar is the major producer of maize.

- **Vehicle efficiency-** Ethanol blending offers increase in Research Octane Number (RON) of the blend, fuel embedded oxygen and higher flame speed.

- **Climate resilient-** It helps in complete combustion and reduce vehicular emissions such as hydrocarbon, carbon monoxide and particulate matter.
- **Energy security-** Domestic biofuels provide a strategic opportunity to the country, as they reduce the nation's dependence on imported fossil fuels.
- **Waste to wealth-** Ethanol produced from damaged food grain and vegetable waste would promote circular economy.

### Why the government announced restrictions on ethanol production?

The Government directed the sugar mills and distillers “not to use sugarcane juice /sugar syrup” for ethanol production under Sugar (Control) Order 1966.

- **Low stock-** As per National Federation of Cooperative Sugar Factories the sugar production for the year 2022-23 is lowest since 2016-17.
- **Uncertain production-** Maharashtra and Karnataka are expected to record particularly sharp declines, on the back of subpar rains and low reservoir water levels in their major cane-growing areas.
- **Domestic availability-** The sugar production is low coupled with uncertain production, hence the government prefers domestic supply for exports.
- **Consumerism-** The primacy has been given to consumers over ethanol production which is the need of the hour and the government gives high preference for food rather than fuel.
- **Check food inflation-** The restrictions by the government is to regulate the price mechanism for ethanol.

## 19. Strategy for India's Future Growth

India's future growth strategy needs to be calibrated in view of the changing global conditions.

### Challenges that India faces

- **Deglobalisation-** There is a trend of reducing global integration and increasing protectionism among countries due to various factors such as geopolitical conflicts, sanctions, and supply chain disruptions .
- **Geopolitical conflicts-** The ongoing conflicts such as Russia-Ukraine war and the Israel-Hamas war have escalated in recent years and have caused humanitarian crises, regional instability, and diplomatic tensions.
- **Economic sanctions-** The geopolitical conflicts have led to sanctions and isolation leading to breaks in supply chains as well as disruptions in

international settlements due to non-access to systems such as SWIFT for the sanctioned countries.

- **Reduced world real GDP growth-** It has fallen, implying that the global economy is slowing down and facing recessionary pressures.
- **Reduced global exports-** This is due to reduced real GDP of the world as countries including India want to reduce their dependence on imported petroleum due to supply uncertainties and price volatility.
- **Increase in household debt-** This reflects the decline in household savings, if the trend persists even after the recovery of economy from the pandemic this could pose a risk to India's growth potential and fiscal sustainability.
- **Climate friendly technologies-** India's climate commitments may have negative impact on economic growth as some sectors face higher cost and lower productivity.

### How India should frame the future growth strategy?

- **Self-reliant model-** India should adopt independent and resilient economic model, where it can generate enough domestic demand and supply to support its growth, without relying too much on external sources.
- **Domestic growth drivers-** India needs to rely more on domestic sources of growth, to achieve and sustain a 7% plus real growth, domestic savings will be critical.
- **Low ICOR-** Incremental Capital Output Ratio must be low for the higher productivity of capital and a higher potential growth rate of the economy.

Incremental Capital Output Ratio is the ratio of the change in capital stock to the change in output, it measures how much additional capital is needed to produce one unit of additional output

- **Demographic dividend-**As per UN population projections, the share of India's working age population is projected to peak at 68.9% in 2030 while its overall dependency ratio would be at its lowest at 31.2%.
- **Strategize employment-** The non-agricultural growth will have to be high enough to absorb labour released from agriculture which is estimated at 45.8% in 2022-23 by the Periodic Labour Force Survey.
- **Adopt new technologies-** Absorption of productivity-enhancing technologies including Artificial Intelligence (AI) and Generative AI would add to overall growth.
- **Productive investment-** India needs to invest in training and skilling its workers to cope with the changing structure of output and to adopt new technologies.

- **Focus on service sector-** The adverse impact of climate-promoting technological changes can be minimised by emphasising service sector growth which is relatively climate friendly.

The service sector accounts for about 55% of India's GDP and employs over 30% of its workforce.

- **Fiscal responsibility-** It is important to ensure that the combined fiscal deficit and debt to GDP ratios are brought down to 6% and 60%, respectively for sustainable growth.

### What lies ahead?

- Higher savings and investment rates can boost economic growth by providing more resources for productive activities.
- The need of the hour is to enhance the skills and employability of the young workforce to the labour market.
- India must adopt a technology mix which is employment friendly to create more jobs and reduce inequality.

## 20. **Limitations of CCS and CDR**

The draft decisions taken at COP28 at Dubai have referred to the abatement and removal of carbon emissions using carbon capture and storage (CCS) and carbon-dioxide removal (CDR) technologies.

### 'unabated' fossil fuels?

- **Unabated** - Doing nothing to reduce the carbon dioxide (CO<sub>2</sub>) and other greenhouse gases that are released from the burning of coal, oil, and natural gas.
- According to IPCC, unabated fossil fuels are those "without interventions that substantially reduce GHG emissions.
- At COP28, the term "unabated fossil fuels" has come to mean the combustion of these fuels **without using CCS technologies** to capture their emissions.
- **Abated** - Attempts to decrease the release of polluting substances to an acceptable level.

### What are CCS and CDR?

CDR and CCS are distinct, but some CO<sub>2</sub> removal methods (e.g., direct air capture) may share the same capture processes or long-term storage infrastructure used for conventional CCS.

- **Carbon capture and storage (CCS)** – CCS refers to technologies that can capture CO<sub>2</sub> at a source of emissions before it is released into the atmosphere.
- These sources include the fossil fuel industry (where coal, oil and gas are combusted to generate power) and industrial processes like steel and cement production.
- It is a three-step process, involving:
  - Capturing the CO<sub>2</sub> produced
  - Transporting the captured CO<sub>2</sub>
  - Storing it deep underground
- **Carbon-Dioxide Removal (CDR)** – Uses technologies, practices, and approaches to **remove CO<sub>2</sub> from our atmosphere** through deliberate and intentional human actions.
- CDR captures CO<sub>2</sub> from the atmosphere and locks it away for years in plants, soils, oceans, rocks, saline aquifers, depleted oil wells, or long-lived products like cement.
- It can be natural (afforestation or reforestation) or use technologies (direct air capture), where machines mimic trees by absorbing CO<sub>2</sub> and storing it underground.
  - For example: Enhanced rock weathering and BECCS (Bioenergy with carbon capture and storage)

### How well do CCS and CDR need to work?

- According to 6<sup>th</sup> Assessment Report (AR6) of UN's IPCC, **climate mitigation relies a lot on the use of CDR** in achieving the goal of limiting the world's average surface temperature increase to 1.5 degrees C with no or limited overshoot.
  - If CO<sub>2</sub> emissions continue at current levels, we will have a 50% chance of exceeding 1.5 degrees C compared to pre-industrial levels in 7 years.
- There is more than a 50% chance of limiting warming to 1.5 degrees C assuming if the world can **sequester 5 billion tonnes of CO<sub>2</sub> by 2040** which is more than India emits currently every year.

Direct mitigation refers to reducing our reliance on fossil fuels with renewable energy sources like solar and wind power.

### What are the limitations of CCS?

- **Under developed technology**– CCS haven't demonstrated feasibility at large scale despite decades of development.

- **Higher costs** – It is cheaper to shut down a coal plant and replace it with some combination of wind, solar and batteries in comparison to attaching a carbon capture device to the plant.
- **Additional energy needs** – It create new energy needs for the transport and long-term storage of carbon.
- **Creates room to emit GHGs** - A Germany-based climate science and policy institute, revealed that reliance on CCS could release an extra 86 billion tonnes of greenhouse gases into the atmosphere between 2020 and 2050.
- **Underperformance** - A 2022 study by the Institute for Energy Economics and Financial Analysis (IEEFA) found that most of the 13 flagship CCS projects worldwide have either failed entirely or underperformed.

### What are the limitations of CDR?

- **Affect land rights** – Higher land demand for planting trees and deploying large-scale CDR methods deprive indigenous communities of their land rights.
- **Threaten food security** – It compete with other forms of land-use, like agriculture that is crucial for ensuring food security.
- **Affect biodiversity** – It might alter existing land usage and thereby impact habitat and survival of different organisms.
- **Impact of climate change mitigation** – Deploying CDR technologies in large tracts of land might counteract from using land to generate renewable energy resources.
  - For example, the **2023 ‘Land Gap’ report** shows over reliance of government on land-based CDR to offset fossil fuel emissions thereby shifting their mitigation burden away from reducing fossil fuel use.
- **Uncertain future** – There is need to identify viable and scalable CDR methods and to figure out who will pay for CDR at scale in the future.

### 21. Exercise VINBAX 2023

- The Indian Armed Forces contingent, consisting of 45 personnel, has arrived in Hanoi, Vietnam, to participate in the fourth edition of the Joint Military Exercise VINBAX-2023.

### Exercise VINBAX-2023

- **Inception:** VINBAX was established in 2018, with its inaugural edition held in Jabalpur, Madhya Pradesh, India.
- **Annual Event:** This training event is conducted annually, alternating between India and Vietnam. The last edition took place at Chandimandir Military Station in August 2022.

- **Collaborative Partnership:** The exercise aims to foster collaborative partnerships and promote interoperability between the two nations.
- **Focus on Peacekeeping:** It is aligned with Chapter VII of the United Nations Charter on Peace Keeping Operations.
- **Training Emphasis:** The focus is on the deployment and employment of an Engineer Company and a Medical Team in a Command Post Exercise cum Field Training Exercise format.

### Activities and Training Modules

- **Tactical Exchange:** The exercise will facilitate the exchange of tactics, techniques, and procedures between the contingents.
- **Engineering and Medical Drills:** Participants will share modern methods for constructing roads, culverts, helipads, ammunition shelters, and observation posts. Combat engineering and medical drills are also part of the training.
- **Validation Exercise:** The exercise will conclude with a Validation Exercise to showcase the standards achieved by both contingents.

### 22. Retrospective Power of NFRA

The **National Company Law Appellate Tribunal (NCLAT)** has recently confirmed the **retrospective power** of the **National Financial Reporting Authority (NFRA)** over audits conducted **before 2018**.

#### Key Findings of the NCLAT:

#### Retrospective Power of NFRA:

- NCLAT has confirmed **NFRA's retrospective power** over audits conducted before its establishment in **2018**.
- NFRA can **initiate** investigations even for **misconduct occurring before 2018**, the date of notification of its **rules and powers**.

#### Mandatory Compliance with Auditing Standards:

- The tribunal underscored the **mandatory nature of Standards of Auditing (SAs)** and their **retrospective applicability**.
- NFRA's authority to initiate investigations is affirmed, **irrespective of peer-review certifications** from the Institute of Chartered Accountants of India (ICAI).

#### Role of Branch Auditors:

- NCLAT dismissed the argument that the **role of branch auditors is limited**, emphasizing their **critical contribution** to the overall audit process.

#### About National Financial Reporting Authority (NFRA):

- NFRA was constituted in **2018** by the government of India under **section 132 (1)** of the **Companies Act, 2013**.
- It is an **independent regulator** set up to oversee the **auditing profession** and the **Indian Accounting Standards**.
- **Aim:** To improve the **transparency and reliability** of financial statements and information presented by **listed companies** and **large unlisted companies** in India.
- It can **initiate investigations Suo motu**, especially in cases involving **large financial frauds** or matters of **public interest**.

#### Functions and Duties of NFRA:

- As per **Section 132 (2)** of the **Companies Act, 2013**, the duties of the NFRA are to:
- Recommend **accounting and auditing policies** and standards to be adopted by companies for approval by the Central Government;
- **Monitor and enforce compliance** with accounting standards and auditing standards; and
- **Supervise service quality** in professions related to **standards compliance** and recommend improvements.

### 23. Aditya-L1 sheds light on solar wind using ASPEX

**Aditya L1** of ISRO (Indian Space Research Organisation) has recently started sending data on **solar wind** after the **ASPEX** (Aditya Solar wind Particle Experiment) **payload** has started its operations.

#### About the ASPEX:

- The ASPEX is a payload that aims to understand the **solar and interplanetary processes** (like shock effects, wave-particle interactions etc.) in the **acceleration and energization** of the solar wind particles from L1 point.
- It comprises of **2 instruments**- (i) **SWIS** (Solar wind Ion Spectrometer) (ii) **STEPS** (SupraThermal and Energetic Particle Spectrometer).
- It can measure **low and high** energy particles that are associated with **slow and fast components** of solar wind, suprathermal population, shocks



associated with Coronal Mass Ejections (CME) and Solar Energetic Particles (SEPs).

- CMEs are **large expulsions** of **plasma** and magnetic field from the Sun's corona.

#### About the Solar wind Ion Spectrometer (SWIS):

- The SWIS is an instrument designed to analyse the behaviour of **solar wind ions** such as **protons** and **alpha** particles, which are components of **solar radiation**.
- It has 2 sensor units that are placed in **perpendicular** to each other and hence offers insights into behaviour of solar wind.
- It enables **precise measurements** of solar wind **protons** and **alphas**, and thus will help address questions about **properties** of solar wind, underlying **processes**, and their **impact** on Earth.

#### About the SupraThermal and Energetic Particle Spectrometer (STEPS):

- The STEPS is an instrument onboard the ASPEX that will help measure **fast-moving** charged particles emanating from the Sun.
- It comprises of **six sensors**, each observing in **different directions** and measuring supra-thermal and energetic ions ranging from 20 keV/nucleon to 5 MeV/nucleon, in addition to electrons exceeding 1 MeV.
- These measurements are conducted using **low** and **high-energy particle spectrometers**.
- It was developed by the **Physical Research Laboratory** (PRL) with support from the **Space Application Centre** (SAC) in Ahmedabad.
- The data collected by it will help to analyse the behaviour of **particles** surrounding the Earth, especially in the presence of the **magnetic field** of Earth.

#### Key Findings of Aditya-L1:

- Aditya-L1's observations will help in understanding the **acceleration mechanisms** of solar wind.
- Improved understanding of solar wind dynamics will help in better predicting **space weather**, crucial for **satellite operations** and **astronaut safety**.
  - It will help understand how solar activity impacts Earth's **magnetosphere** and **ionosphere**.
- The change in the **proton** and **alpha** particle number ratio, as observed by **SWIS**, will provide information about the arrival of **coronal mass ejections** at the Sun-Earth **Lagrange Point L1**.

- **Lagrange Points** are positions in space where the **gravitational forces** of a 2-body system like the **Sun** and **Earth** produce enhanced regions of attraction and repulsion.
- The X-ray spectrometer “**HEL1OS**”, on Aditya-L1 spacecraft captured the first **high-energy X-ray** glimpse of solar flares.
  - A **solar flare** is a sudden brightening of the solar atmosphere that produce enhanced **emission in all wavelengths** across the electromagnetic spectrum - radio, optical, UV, soft X-rays, hard X-rays and gamma-rays.
- There were variations in histogram of **proton (H<sup>+</sup>)** and **alpha particle** (doubly ionized helium, **He<sup>2+</sup>**) counts.

### About the Solar Wind:

- Solar wind is a stream of **charged particles** released from the **upper atmosphere** of the Sun, called the **corona**.
- It varies in **density, temperature** and **speed** over time and over **solar latitude** and **longitude**.
- Its particles can escape the **Sun's gravity** because of their **high energy** resulting from the **high temperature** of the corona, which in turn is a result of the **coronal magnetic field**.

### 24. **Global Partnership on AI Summit (GPAI)**

The 2023 summit of the Global Partnership on Artificial Intelligence (GPAI) held on 12-14 December 2023, in New Delhi, India.

#### GPAI

Artificial intelligence (AI) is the simulation of human intelligence processes by machines, especially computer systems.

- **Launched in** – 2020
- **Aim** – To **bridge the gap between theory and practice on AI** by supporting cutting-edge research and applied activities on AI-related priorities.
- **GPAI Secretariat** – OECD

The 1st 3 GPAI summits were held in Montreal, Paris and Tokyo, respectively.

- **Multi-stakeholder initiative** – Experts from industry, civil society, governments, international organisations and academia.
- **Mission** – To share multidisciplinary research and identifying key issues among AI practitioners and **to understand AI impacts**.

- **4 working groups** – Responsible AI, data governance, the future of work, and innovation and commercialization.
- **Values** – Based on **OECD Recommendation on Artificial Intelligence** grounded in the principles of human rights, inclusion, diversity, innovation and economic growth.
- **Membership** – 29 members.
- It is open to countries, including emerging and developing countries.

### What are the major outcomes of GPAI summit 2023?

- **Adopted GPAI New Delhi Declaration** on advancing safe, secure, and trustworthy AI and commitment to supporting the sustainability of GPAI projects.
- A call to prepare a global framework for the ethical use of AI.
- India Shines as Global Hub for AI Innovation.
- India brought together all major initiatives for AI – UN Advisory Group on AI, UK AI Safety Summit.
- AI Research Analytics and Knowledge Dissemination Platform (**AIRAWAT**) and **National Program on Artificial Intelligence** and its role in shaping AI ecosystem in India was prominently emphasized.
- Startup community and research community showcased their AI products and services in the expo.
- **AI Pitch fest** provided an opportunity to upcoming startups to pitch for their innovation and value-added products and services.
- Taking AI among the masses especially among youths and students.

### What does the GPAI New Delhi declaration on AI say?

- GPAI 2023 has unanimously **adopted the New Delhi declaration on AI.**
- **Objectives** – To mitigate risks arising from the development and deployment of AI systems.
- To promoting equitable access to critical resources for AI innovation.
- To support AI innovation in the agriculture sector as a new “thematic priority”.

“Frontier AI” is defined as highly capable foundation generative AI models that could possess dangerous capabilities that can pose severe risks to public safety.

- **Governing principles** – A global framework for use of AI should
  - Upheld democratic values and human rights
  - Safeguard dignity and well-being
  - Ensure personal data protection

- Protec intellectual property rights, privacy, and security
- Fostering innovation and promoting trustworthy, responsible, sustainable, and human-centred use of AI.
- **Contrasts Bletchley declaration** – Unlike UK AI Safety Summit which mainly focused only on security and safety risks related to AI, this finds a balance between innovation and the risks associated with AI systems.

**Bletchley declaration on AI** was signed by 28 major countries including India to initiate a global action to tackle the potential risks of AI.

## 25. **Is India doing enough to tackle climate change?**

- **Shift in Focus:** COP28 saw a historic shift as all 198 signatories agreed to “transition away” from all fossil fuels, moving beyond the earlier emphasis on coal.
- **India’s Role:** India played a crucial role in modifying language at COP26 and supported the UAE Consensus at COP28, signaling a departure from coal-centric agreements.

### Key Challenges:

- **Loopholes and Criticism:** The COP28 outcome faced criticism for not achieving a complete fossil fuel phase-out, with concerns about loopholes such as nuclear abatement and carbon capture.
- **Developing Country Struggles:** Developing countries, lacking expertise, face challenges in effectively de-carbonizing sectors and raising ambition due to financial constraints.

### Key Terms:

- **COP28:** The 28th United Nations’ Conference of the Parties.
- **UAE Consensus:** The agreement to transition away from fossil fuels in a just, orderly, and equitable manner.
- **Loss and Damage Fund (LDF):** Operationalized at COP28, the fund addresses climate impacts but currently falls short in funding.

### Key Phrases:

- “Transitioning away from fossil fuels in a just, orderly, and equitable manner.”
- “Compromise after 30 years” regarding the LDF funding.
- “Deep, rapid, and sustained reductions in greenhouse gas emissions.”

### Key Quotes:

- Harjeet Singh: “The outcomes have been unprecedented and historic.”
- Karthik Ganesan: “It’s a maze of words. What is clear is that subsidies for fossil fuels must go.”

### Key Statements:

- Developing countries insist on technology transfer and removal of trade barriers for effective renewable energy transition.
- India faces a dilemma in balancing economic growth, environmental concerns, and contributions to global climate initiatives.

### Key Examples and References:

- India’s role in modifying language at COP26 and supporting the UAE Consensus at COP28.
- Comparison of the economic value of coal and solar sectors in India.

### Key Facts and Data:

- The LDF has raised \$700 million, falling short of the trillions needed to address climate impacts.
- India is the third-largest emitter of greenhouse gases with a significantly smaller per capita emission rate.

### Critical Analysis:

- The COP28 outcome is criticized for loopholes and a lack of ambition, emphasizing the need for a balance between economic growth and environmental concerns.
- The dichotomy of India’s role as a regional power, emerging economy, and its responsibility to contribute to global climate initiatives is highlighted.

### Way Forward:

- Developing countries must focus on technology transfer and removing trade barriers for effective renewable energy transition.
- India needs to reassess its economic paradigm, prioritizing environmental concerns and adopting a sustainable growth model.
- Continued engagement, contribution, and learning from large countries like India are essential for global climate justice movements.

## 26. **DigiYatra Initiative**

- DigiYatra gates, allowing passengers to use facial scans and barcoded e-tickets for terminal and security check entry, are installed at 13 airports, with 25 more set for deployment next year.

### **DigiYatra**

- DigiYatra offers **paperless airport entry** using facial recognition technology.
- It aims for paperless, contactless airport checkpoints, identifying travelers by facial features linked to boarding passes.
- This system automates passenger entry at various points like airport entry, security checks, and boarding using facial recognition.
- Passengers no longer need to present ID cards and boarding passes.
- The **DigiYatra Foundation**, a **joint venture** with stakeholders including the Airports Authority of India and major Indian airports, is implementing the project.
- The Airports Authority of India holds a 26% stake, while five major airports equally share the remaining 74%.

### **How to Use DigiYatra?**

- Passengers register on the DigiYatra app with **Aadhaar validation** and a **self-captured image**.
- Next, they scan their boarding pass, sharing credentials with airport authorities.
- At the airport e-gate, passengers scan their boarding pass; the facial recognition system validates their identity and travel documents.
- After validation, passengers can **enter through the e-gate**.
- Normal security clearance and boarding procedures still apply.

### **Need for DigiYatra**

- Facial recognition technology streamlines flying and reduces airport congestion.
- This technology, already in use at airports like Dubai, Singapore, Atlanta, and Narita (Japan), enhances efficiency.

## 27. India Surpasses Montreal Protocol Targets

The **Ministry of Environment** and the **United Nations Development Programme (UNDP)** have recently released a report stating India has **surpassed Montreal Protocol targets**.

### Key highlights of the Report:

- India has phased out the ozone-depleting and climate-warming chemical **1,1-Dichloro-1-fluoroethane (HCFC 141b)**.
- Surpassing the **35%** phase-out target for **Hydrochlorofluorocarbons (HCFCs)**, India has achieved a **44% reduction**.
- India has achieved **33% reduction in emission intensity of the economy** in 2019, surpassing the **2030 target**.
  - The **emission intensity of the economy** refers to the total amount of greenhouse gases emitted for every unit increase of **gross domestic product (GDP)**.
- These measures have not only helped in **safeguarding the ozone layer** but also significantly reduced **greenhouse gas emissions**.
- **Cooling** is crucial in residential, **commercial, cold-chain, transport, and industries**.
- Anticipated demand rise due to **economic growth, income, population, and urbanization** led to the **India Cooling Action Plan (ICAP)**.

### About India Cooling Action Plan (ICAP):

- **ICAP** was launched in **2019** by the **Ministry of Environment, Forests and Climate Change**.
- It provides a **20-year perspective** and outlines **actions needed** to provide access to **sustainable cooling**.
- **Targets** under ICAP:
  - **Reduce cooling demand** across sectors by **20-25%** by 2037-38,
  - **Reduce refrigerant demand** by **25-30%** by 2037-38,
  - **Reduce cooling energy requirements** by **25-40%** by 2037-38,
  - Recognise “**cooling and related areas**” as a thrust area of research under National Science and Technology Programme,
  - **Training and certification** of 100,000 servicing sector technicians by 2022-23, synergizing with **Skill India Mission**.

### About The Montreal Protocol:

- The **Montreal Protocol** is a multilateral environmental agreement that **regulates** the production and consumption of **Ozone-depleting substances (ODS)**.

- It was adopted on **16 September 1987**.
  - **World Ozone Day** is celebrated on this day in remembrance of the adoption of the Montreal Protocol.
- These chemicals damage the **stratospheric ozone layer**.
  - The **stratospheric ozone layer** protects humans and the environment from **harmful levels of ultraviolet radiation** from the sun.
- It phases down the **consumption and production of the different ODS** in a step-wise manner.
- There are **different timetables** for developed and developing countries (**Article 5 countries**).
- All parties have **specific responsibilities** related to the **phase-out** of the different groups of ODS, control of ODS trade, data reports, license to control ODS imports and exports, etc.
- **Developing and developed** countries have **equal but differentiated responsibilities**.
- Both groups of countries have **binding, time-targeted, and measurable commitments**.
- The substances controlled by the treaty are listed as:
  - Annexes A (**Chlorofluorocarbons (CFCs), halons**),
  - Annexes B (**Other halogenated CFCs, Carbon tetrachloride, Methyl chloroform**),
  - Annexes C (**HCFCs**),
  - Annexes E (**Methyl bromide**), and
  - Annexes F (**Hydrofluorocarbons (HFCs)**).
- These protocols also make important contributions to the realization of the **UN Sustainable Development Goals (SDGs)**.

#### **Phase-out of HCFCs - The Montreal Amendment:**

- **HCFCs** are gases used in **refrigeration** and **air-conditioning (AC)** but they are being phased out since they **deplete the ozone layer**.
- These are both **ODS** and powerful **greenhouse gases**.
- The most commonly used HCFC is nearly **2,000 times more potent** than carbon dioxide (CO<sub>2</sub>) in terms of its **global warming potential (GWP)**.
  - **GWP** is a measure of how much energy the emissions of 1 ton of a gas will **absorb** over a given time, relative to the emissions of **1 ton of carbon dioxide (CO<sub>2</sub>)**.
  - The **larger the GWP**, the more that a given gas **warms the Earth compared to CO<sub>2</sub>** over that time.

#### **Phase down of HFCs - The Kigali Amendment:**



- **Hydrofluorocarbons (HFCs)**, were introduced as **non-ozone-depleting alternatives** to support the timely **phase-out of CFCs and HCFCs**.
- These are now used in **ACs, refrigerators, aerosols, foams** and other products.
- Uncontrolled growth in **HFC emissions** poses challenges to keep **global temperature rise** at or below **2°C** this century.
- The **Parties to the Montreal Protocol** reached an agreement at their **28th Meeting of the Parties in 2016 in Kigali, Rwanda** to phase down HFCs.

## 28. The Forest Rights Act

The Forest Rights Act (FRA) aims to rectify historical injustices faced by forest communities, addressing issues through individual and community forest rights. Implementation challenges, political opportunism, and bureaucratic resistance hinder the FRA's potential to democratize forest governance. Despite recognizing past injustices, the FRA's full realization faces obstacles.

### Key Highlights:

- **The Forest Rights Act (FRA) and its Aim:** The FRA, enacted in 2006, seeks to rectify historical injustices faced by forest-dwelling communities due to colonial forest policies.
- **Acknowledgment of Injustices:** It recognizes the disruption caused by the colonial takeover of forests, imposition of eminent domain, and subsequent injustices post-Independence.
- **Addressing Issues through Recognition:** The FRA tackles 'encroachments,' access, and control by recognizing individual and community forest rights, fostering decentralized forest governance.

### Key Challenges:

- **Implementation Hurdles:** Challenges include political opportunism, forester resistance, bureaucratic apathy, and a distorted focus on individual rights.
- **Concerns in Individual Rights Recognition:** Shabby recognition of individual forest rights, especially in 'forest villages,' remains a concern.
- **Obstacles in Community Rights Recognition:** Slow and incomplete recognition of community rights to access and manage forests (CFRs) faces opposition from the forest bureaucracy.

### Key Terms and Phrases:

- **Defining Concepts:** Individual Forest Rights (IFRs), Community Forest Rights (CFRs), 'Forest encroachments,' Eminent domain, 'Grow More Food'

campaign, Net Present Value fees, Wildlife (Protection) Act 1972, Forest (Conservation) Act 1980.

### Key Quotes:

- **Highlighting the Lag in Delivering Promises:** “17 years after it was enacted, the FRA has barely begun to deliver on its promise of freeing forest-dwellers from historic injustices.”
- **Opposition to CFRs:** “The forest bureaucracy vehemently opposes CFRs as it stands to lose its zamindari (control).”

### Key Statements:

- **FRA’s Remarkable Aspects:** The FRA stands out for acknowledging historical injustices and providing redress through the recognition of individual and community forest rights.
- **Lacunae in Implementation:** Implementation challenges include political misrepresentation, bureaucratic hindrance, and slow recognition of community rights.

### Key Examples and References:

- **State Recognition of CFRs:** Maharashtra, Odisha, and Chhattisgarh are highlighted as states recognizing CFRs, with Maharashtra enabling their activation through de-nationalizing minor forest produce.

### Key Facts and Data:

- **Scale of Challenge:** Estimates indicate that 70%-90% of the forests in central India should be under CFRs, emphasizing the magnitude of the challenge in implementing community rights.

### Critical Analysis:

- **Addressing Issues in Individual Rights Focus:** The article critiques the distorted focus on individual rights, digital processes causing hardships, and the forest bureaucracy’s opposition to community rights.
- **Importance of Understanding FRA’s Intent:** Emphasizes the need for a deeper understanding of the FRA’s intent to address historical injustices and democratize forest governance.

### Way Forward:

- **Comprehensive Recognition:** To realize the FRA's potential, there is a need for comprehensive recognition of both individual and community forest rights.
- **Appreciation of Intent:** Political leaders, bureaucrats, and environmentalists must appreciate the spirit and intent of the FRA to ensure meaningful implementation and address historical injustices.

## 29. Zero Trust Authentication (ZTA)

- In response to rising cyberattacks, the Centre has established a secure e-mail system for 10,000 users across critical ministries and departments.
- The National Informatics Centre (NIC) has designed this system, incorporating Zero Trust Authentication (ZTA).

### Zero Trust Authentication (ZTA)

- ZTA is a security concept and framework that operates on the principle of "never trust, always verify."
- This approach to cybersecurity is a significant shift from traditional security models that operated under the assumption that everything inside an organization's network should be trusted.
- In contrast, Zero Trust assumes that trust is never granted implicitly but must be continually evaluated and authenticated, regardless of the user's location or the network's perimeter.

### Key Principles of ZTA

- **Least Privilege Access:** Users are granted only the minimum level of access needed to perform their job functions. This limits the potential damage in case of a security breach.
- **Strict User Verification:** Every user, whether inside or outside the organization's network, must be authenticated, authorized, and continuously validated for security configuration and posture before being granted access to applications and data.
- **Micro-segmentation:** The network is divided into small zones to maintain separate access for separate parts of the network. If one segment is breached, the others remain secure.
- **Multi-Factor Authentication (MFA):** ZTA often requires multiple pieces of evidence to authenticate a user's identity. This could include something the user knows (password), something the user has (security token), and something the user is (biometric verification).

- **Continuous Monitoring and Validation:** The system continuously monitors and validates that the traffic and data are secure and that the user's behaviour aligns with the expected patterns.

### Implementation of Zero Trust Authentication

- **Technology:** Implementation of Zero Trust requires technologies like identity and access management (IAM), data encryption, endpoint security, and network segmentation tools.
- **Policy and Governance:** Organizations need to establish comprehensive security policies that enforce Zero Trust principles, including how data is accessed and protected.
- **User Education and Awareness:** Training users on the importance of cybersecurity and the role they play in maintaining it is crucial.

### Benefits of Zero Trust Authentication

- **Enhanced Security Posture:** By verifying every user and device, Zero Trust reduces the attack surface and mitigates the risk of internal threats.
- **Data Protection:** Sensitive data is better protected through stringent access controls and encryption.
- **Compliance:** Helps in meeting regulatory requirements by providing detailed logs and reports on user activities and data access.
- **Adaptability:** Zero Trust is adaptable to a variety of IT environments, including cloud and hybrid systems.

## 30. ADB initiative to safeguard Hindu Kush Himalayas

The **Asian Development Bank (ADB)** has recently launched an initiative to address climate and disaster risks in the **Hindu Kush Himalaya** region.

### About the ADB's Initiative:

- The ADB's Initiative aims to assess and manage climate and disaster risks in the **Hindu Kush Himalaya** region.
- It will conduct in-depth analysis of **multi-hazard threats**, including landslides, earthquakes, and floods, with a specific focus on **Bhutan** and **Nepal**.
- **Early warning systems** and risk management strategies will be developed for future infrastructure development.

### Significance of the ADB initiative:

- The **Hindu Kush Himalaya** region is a crucial water source supporting over a billion people across **Asia**.
- **Economic losses** from disasters in the region totalled **USD 45 billion** from **1985 to 2014**, surpassing other mountain regions.
- The region is experiencing accelerated **warming**, with **projections** indicating that **75%** of glaciers in **Bhutan** and **Nepal** could melt by the end of the century if global temperatures rise by **3°C**.
- **ADB's** assistance will enhance the government's capacity for **risk assessments** in priority river basins.

### Role of ADB in climate financing:

- **ADB** aims to advance knowledge in the **Hindu Kush Himalaya** region on climate-resilient investment planning, development, and risk management.
- **ADB's** commitment to providing **USD 100 billion** in climate financing from **2019 to 2030**, with **USD 34 billion** earmarked for adaptation.
- In **2022** alone, **ADB** allocated **USD 7.1 billion** for climate finance, demonstrating its commitment to sustainable development and poverty eradication in the region.

### About ADB:

- The Asian Development Bank (ADB) is a **regional development bank** whose mission is to achieve a prosperous, inclusive, resilient, and sustainable Asia and the Pacific.
- It was established in **1966**.
- It is headquartered in **Metro Manila**, Philippines.
- It has **68 members**, with 49 belonging to the **Indo-Pacific region**.
  - India is one of its members.
- It has a crucial role in **infrastructure** development, poverty reduction, and sustainable economic growth in the Asia-Pacific region.
- Its **major focus area** includes- education, environment, climate change, and disaster risk management, infrastructure, finance sector development, regional cooperation and integration and private sector lending.

### Organization:

- The **highest policy-making body** of the bank is the **Board of Governors**, which composes of 1 representative from each member state.
- The **Board of Governors** elect among themselves the **board of directors** and their deputies and the bank's president.

- Bank's president is the **chairperson** of the board of directors and manages ADB.
- As **Japan** is one of the **largest shareholders** of the bank, the president has always belonged to Japan.

### About the Hindu Kush Mountains:

- The **Hindu Kush Mountains** are a significant mountain range in **Central Asia**.
- They stretch across **Afghanistan** and into parts of **Pakistan** and **Tajikistan**, and hence they form a natural border between **Central** and **South Asia**.
- The **eastern end** of the **Hindu Kush** in the **north** merges with the **Karakoram Range**.
- Towards the southern end of the range, it connects with the **White Mountains** near the Kabul River.
- They are characterized by **rugged terrain**, **deep valleys**, and **high mountain peaks**.
- Some of its notable peaks include **Tirich Mir**, which is the highest mountain in the Hindu Kush range.
- The term "**Hindu Kush**" has **Persian** origins and is often interpreted as "**Killer of Hindus**," reflecting the challenging nature of the terrain.

### Strategic Importance:

- Historically, the Hindu Kush has been of strategic importance due to its **location** along **ancient trade routes**, connecting **Central Asia** with the **Indian subcontinent**.
- It has played a crucial role in the movement of people, goods, and ideas across regions.
- The region, particularly in **Afghanistan**, has been associated with **geopolitical** and **security** challenges for India.
- The difficult terrain has historically posed challenges for **external interventions** and **military operations**.

### Other Significance of Hindu Kush Mountains:

- They consist of the **largest ice reserves** outside the **polar regions**.
- They feed **10 major rivers**, including the rivers such as **Amu Darya** and the **Indus**.
- They are warming **faster** than the **global average**, posing threats to water access, food and energy security, and biodiversity.
- They are a vital source of **freshwater**, feeding **major rivers**.

- **Glacial meltwater** from these mountains sustains agriculture and human settlements in the surrounding regions.
- They have facilitated cultural exchange and interactions between Central Asian, Persian, and South Asian civilizations over centuries.
- The Hindu Kush has historical connections to the spread of **Buddhism** into **Central Asia** and beyond, with **trade routes** facilitating **cultural diffusion**.
  - Sites such as the Bamiyan Buddhas is located in this region.

### 31. **Arctic Research**

India will have around-the-year manning of the Arctic with the launch of the first-ever winter expedition in this region.

#### **Why is the Arctic region being studied?**

*Arctic region is the region, which is above the Arctic Circle and includes the Arctic Ocean with the North Pole at its centre.*

- **Polar studies**- The polar regions, Arctic and Antarctica, offer pristine environments for scientists to study a range of natural phenomena for atmospheric, oceanic, biological, geological, glaciological and earth sciences research.
- **Climate conditions**- It is unique in many ways and offers opportunity for many discoveries about how the physical and biologic environments function under extreme conditions
- **Unique fauna**-Several species of animals are unique to the Arctic (e.g., polar bear, walrus, musk ox) and many species of birds have their summer home.
- **Native communities**-The Arctic, unlike the Antarctic is inhabited by humans, including diverse Native communities with a longer history than many of the southerly societies.
  
- **Anthropological studies**- The study of the Native culture is important for its preservation, and it can give insights about long-term human survival in the Arctic.
- **Economic value**-The Arctic has many natural resources that could be exploited for economic benefit.
- Crude oil, gold and industrial metals, and diamonds are presently being extracted now, yet much of the Arctic's potential for natural resources is unknown

- **Human impact-** Arctic is not as isolated from heavily populated areas and modern civilization is having impact on the Arctic.
- **Global warming-** Arctic is witnessing a series of unusual changes over past two decades due to release of greenhouse gases into the atmosphere by industrialized nations
- **Warming trend-** It has warmed by 4°C in 100 years and is losing sea ice at 13% per decade, which could make the Arctic Ocean ice-free by 2040.
- **Climate change-** The Arctic sea-ice loss could increase tropical temperature, precipitation and extreme rainfall events, and shift the Inter Tropical Convergence Zone
- **Scientific evidence-** It has shown that the Arctic ice and the sea ice have the potential to affect humans outside the Arctic region, as sea levels rise, and to influence atmospheric circulations.

### How India is engaged in the Arctic region?

- **Impact on India-**The vulnerability of the Arctic region may have an impact on India in terms of economic security, water security and sustainability.
- **Svalbard treaty-** India's engagement with the Arctic can be traced to the signing of the Svalbard Treaty in 1920.
- **Conduct studies:** India conducts studies regarding atmospheric, biological, marine, hydrological, glaciological events.
- **Arctic Council-** India is an observer state in Arctic Council including China.
- **Himadri research station-** India's first permanent Arctic research station located at Spitsbergen, Svalbard, Norway.
- It is located at the *International Arctic Research base, Ny-Alesund*.
- **Arctic Policy of 2022-** It mentions that the country's approach to economic development of the region is guided by UN Sustainable Development Goals.
- **Potential for minerals-** The region constitutes the largest unexplored prospective area for hydrocarbons remaining on the earth, it may have significant reserves of coal, zinc and silver.
- **Institutional support-** In 2018 India renamed National Centre for Antarctic and Ocean Research to National Centre for Polar and Ocean Research.
- **Infrastructural base-**
  - Multi-sensor moored observatory was inaugurated in 2014
  - Northernmost atmospheric lab was launched in 2016.

### What lies ahead?

- The 1<sup>st</sup> winter expedition realises the India's vision of making it a developed nation by 2047, as it is committed to expanding scientific activities and international cooperation and collaboration.



- Arctic is an area of scientific, climatic, and strategic importance hence Indian scientists will play a vital role in addressing areas that affect life and survival on this planet.

### 32. Gemini

Google recently announced Project Gemini, a groundbreaking AI model designed to mimic human-like behaviour, sparking discussions about its potential benefits and risks.

#### Project Gemini:

- Gemini is Google's latest AI model, capable of understanding **text, images, videos, and audio**.
- It is described as **multimodal**, it excels in complex tasks across **math, physics, and code generation**.

#### Features and Capabilities:

- **Gemini enhances Bard's intuitiveness and task management abilities.**
- On **Pixel 8 Pro**, it **summarizes recordings** and offers **automatic replies on messaging services**.
- Advanced version, "**Gemini Ultra**", to boost "**Bard Advanced**" for a test audience.
- Initially operates in **English**, with plans to expand to **other languages**.
- Capable of **multitasking** with **text, photos, and video recognition**.

#### Versions of Gemini:

- **Gemini Nano:** Optimized for smartphones like Google Pixel 8, focusing on on-device AI tasks.
- **Gemini Pro:** Designed for Google's data centres, powering the AI chatbot Bard.
- **Gemini Ultra:** Google's most capable model, surpassing other large language models in benchmarks. Still in the testing phase for complex tasks.

#### Impact and Concerns:

- Potential for **significant scientific breakthroughs**.
- Concerns about **job loss** and negative uses like **misinformation** and **security threats**.

- Google's approach to AI development is **ambitious yet responsible**, with safeguards and collaboration with **governments and experts**.

### Competitive Landscape in AI:

- Gemini intensifies competition with **OpenAI** and **Microsoft**.
- Microsoft's OpenAI developed **GPT-4** and **ChatGPT**, challenging Google's AI advancements.
- OpenAI's **commercialization strategies** and Microsoft's investment raise concerns about its **original mission**.

### Gemini vs Other AI Models:

- **Gemini's flexibility** allows it to run on various devices.
- It **outperforms rival models** in benchmark tests, showcasing advanced reasoning and image understanding.
- **Gemini's multimodal nature** enables simultaneous comprehension of text, audio, image, video, and code.
- Distinction between **Google's product-oriented approach** and competitors' **service-oriented strategies**.

## 33. Amendment to Special Economic Zone (SEZ) Rules

The **Central government** recently amended the **Special Economic Zone (SEZ) Rules** to permit the demarcation of a portion of the built-up area in **IT/ITES sector** SEZs as a non-processing area.

### Special Economic Zones (Fifth Amendment) Rules, 2023:

- It outlines the **calculation of tax benefits repayment** based on the proportion of the built-up non-processing area to the **total built-up processing area**.
  - The **processing area** in an SEZ is where units are located for manufacture of goods or the rendering of services.
  - **Non-processing area** is where supporting infrastructure is created.
- Tax benefits related to **shared infrastructure** must be repaid, as certified by a **chartered engineer**.
- This non-processing area can be utilized for setting up and operation of businesses engaged in **Information Technology (IT) or Information Technology Enabled services (ITeS) sector**, with terms specified by the **Board of Approval**.

- **Non-processing** area shall consist of a **complete floor** and part of a floor shall **not be demarcated** as a non-processing area.
- The amendment addresses **industry demands**, aiming to **counteract the decline in SEZ** occupancy due to the phasing out of tax benefits.
- This move is expected to **reduce vacancies and benefit REITs** (Real Estate Investment Trusts) with substantial SEZ space.
- The demarcation of non-processing areas **is prohibited** if it reduces the processing area **below 50% of the total area** specified for different Category cities.

### About Special Economic Zone (SEZ):

- It is an **area in a country** that is subject to **different economic regulations** than other regions within the same country, to **generate positive economic growth**.
- An SEZ has **more favourable rules** including tax incentives and the opportunity to pay lower tariffs.
- These regulations tend to be conducive to and attract **Foreign Direct Investment (FDI)**.
  - **FDI** refers to any investment made by a firm or individual in one country into business interests located in another country.
- According to the **World Bank**, the **SEZ includes** a geographically limited and secured area with single management or administration and streamlined procedures.

### About SEZs in India:

- The **SEZs policy** of India was launched in **2000**, whereas the **Special Economic Zones Act, 2005** under the **Ministry of Commerce and Industry**.
- **Objectives** of the Act include:
  - To generate additional economic activity,
  - Promote exports of goods and services,
  - Cater investment from domestic and foreign sources,
  - Address employment opportunities,
  - Development of infrastructure facilities.
- **SEZ category** includes multiple types like Free Trade Zones (FTZs), EPZs, industrial estates (IEs), free ports, free trade warehousing zones (FTWZs), and urban enterprise zones, etc.
- During the **financial year 2023**, the SEZs in India had a **goods export value** of around **61 billion U.S. dollars**.
- **Kandla SEZ in Gujarat**, had the highest export value (38 billion dollars), accounting for **63% of the export value** among key SEZ zones in the country.

### 34. Tax 'HFSS' foods, view it as a public health imperative

The article advocates for the immediate implementation of High Fat Sugar Salt (HFSS) taxes in India to tackle health risks, emphasizing their role in encouraging healthier choices, driving industry reformulation, and reducing the economic strain on healthcare. It positions HFSS taxation as a vital public health imperative to address market failures and promote a sustainable food system.

#### Key Highlights:

- **Rising Health Risks:** High Fat Sugar Salt (HFSS) foods contribute significantly to health issues like obesity, diabetes, and high blood pressure. The global burden of Non-Communicable Diseases (NCDs) in India has surged from 38% in 1990 to 65% in 2019, with 1.2 million deaths annually attributed to dietary risks.
- **Economic Impact:** Overweight and obesity's economic impact in India was estimated at \$23 billion in 2017, expected to rise to \$480 billion by 2060. The ultra-processed food sector in India grew at a compounded annual growth rate of 13.4% between 2011 and 2021.
- **Global Trend of Taxation:** Many countries, including Denmark, France, Hungary, Mexico, South Africa, the UK, and the US, have implemented taxes on HFSS foods to combat obesity. Colombia's recent "junk food law" serves as a model for other nations.
- **Market Failures and Externalities:** The consumption of HFSS foods leads to negative externalities in the form of increased healthcare expenditures, imposing societal costs. Taxes are proposed as a targeted tool to curb detrimental consumption habits, reducing societal burdens.
- **Need for HFSS Tax:** The article argues for taxing HFSS due to market failures, negative externalities, and internalities. Unlike sin goods, HFSS taxation aims to incentivize the industry to reformulate products for healthier alternatives and prompt consumers to choose a healthier diet.
- **Designing Effective HFSS Tax:** Properly designed HFSS taxes can be non-regressive and fiscally neutral. Differentiated tax rates based on nutritional quality can incentivize product reformulations. The goal is to make healthier alternatives more affordable and accessible.
- **Inconsistencies in GST Rates:** Current GST rates on ultra-processed foods do not align with nutritional content. Uniform tax rates overlook variations in sugar, salt, and nutritional impact, limiting their impact on altering consumption patterns.
- **Public Health Imperative:** HFSS taxation is positioned not just as an economic or fiscal policy concern but as a public health imperative. Effective taxes, combined with nutrition literacy and food labeling, can combat

overweight and obesity, fostering a more sustainable and equitable food system.

### Key Challenges:

- **Resistance from Industry:** The food industry may resist HFSS taxes, viewing them as detrimental to profits. Balancing industry interests with public health objectives poses a challenge.
- **Designing Optimal Tax Rates:** Determining the right tax rates that effectively deter HFSS consumption without being regressive requires careful consideration and analysis.
- **Consumer Awareness:** Ensuring that consumers are aware of the health implications of HFSS foods and understand the purpose of taxes is crucial for the success of such interventions.

### Key Terms/Phrases:

- **HFSS Foods:** High Fat Sugar Salt foods, known for their negative impact on health.
- **Negative Externalities:** Detrimental effects of HFSS consumption on society, leading to increased healthcare costs.
- **Internalities:** Harm caused to individuals due to limited understanding influenced by marketing.
- **Market Failures:** Situations where the market does not efficiently allocate resources, leading to suboptimal outcomes.
- **Non-regressive Tax:** A tax that does not disproportionately burden lower-income individuals.
- **Nutritional Quality:** The nutritional content and health impact of food products.

### Key Quotes:

- “HFSS taxation in India should not be merely seen as an economic or fiscal policy concern but it deserves to be considered a public health imperative.”
- “Effectively designed taxes can reap multiple benefits – they can act as a deterrent to consuming HFSS; promote healthier food choices; prompt manufacturers to reformulate foods; improve public health outcomes...”

### Key Statements:

- “The imperative for taxing HFSS arises from significant market failures associated with their consumption, contributing to negative externalities and internalities.”

- “HFSS taxation in India should be both non-regressive and fiscally neutral, creating a level-playing field between HFSS and their healthier alternatives.”

### Critical Analysis:

The article provides a comprehensive overview of the health and economic challenges associated with HFSS consumption in India. It effectively argues for the implementation of HFSS taxes as a public health imperative and highlights the need for well-designed, non-regressive tax policies. The emphasis on creating a fiscal environment that incentivizes healthier choices and product reformulation adds depth to the analysis.

### Way Forward:

- **Collaborative Approach:** Engage stakeholders, including the food industry, health professionals, and policymakers, to collaboratively design and implement effective HFSS tax policies.
- **Continuous Evaluation:** Regularly assess the impact of HFSS taxes on consumption patterns, health outcomes, and industry practices, making adjustments as needed.
- **Public Awareness Campaigns:** Launch campaigns to educate the public about the health risks associated with HFSS foods and the purpose of taxation, fostering informed choices.
- **International Best Practices:** Learn from and adapt successful strategies from countries that have effectively implemented HFSS taxes to address obesity and improve public health.
- **Research and Innovation:** Encourage research on the nutritional content of food products and innovative ways to reformulate HFSS items for healthier alternatives.

## 35. World's First Fourth-Generation Nuclear Reactor

The world's first fourth-generation reactor, Shidaowan nuclear power plant in China has begun its commercial operations.

### About Shidaowan nuclear power plant:

- This 200-megawatt (MW) **high-temperature, gas-cooled reactor (HTGCR) plant** uses a modular design.
  - **Modular plants** refer to those of **less than 300MW** that can be constructed off-site.

- They can **operate in remote locations** and power traditionally hard-to-abate heavy industry sectors.
- It will be a part of a global push for **safer**, more **sustainable** and **efficient** nuclear operations.
- It is designed for **fuel efficiency** and to **improve its economics, safety and environmental footprint**.
- This innovation enables the construction of **inland nuclear plants**, eliminating the need for proximity to water sources.

#### About Fourth-generation reactors:

- **Aim:** To limit the **environmental impact, nuclear waste burden**, risk of **nuclear meltdown**, and opportunities for **nuclear proliferation**.
- They are intended to **operate at higher temperatures** than most of the reactors.
- It allows them to generate both **electricity** and **hydrogen**.
  - **Hydrogen** produced can be used as **fuel**, as well as in **industrial applications**.

#### About High-Temperature, Gas-Cooled Reactor (HTGCR):

- HTGCR is a type of **gas-cooled nuclear reactor** that uses **uranium fuel** and **graphite moderation** to produce very high reactor core output temperatures.
- The **HTGR** employs **helium gas for cooling**, thus, these nuclear reactors are designed to be successors to the **existing water-cooled nuclear reactors**.
- The **distinguishing feature** of all high-temperature reactors is the use of **TRISO** (Tri-Structural Isotropic) **fuel**.
- It is placed either in a **pebble-bed** or **prismatic block-type** configuration.
- The **high operating temperatures** of **HTGR** reactors enable applications such as **process heat** or **hydrogen production** via the thermochemical **sulfur-iodine cycle**.
- **Helium**, which is an inert gas is the **coolant** used in all HTGRs.
- The design takes **advantage** of the safety characteristics of a **helium-cooled, graphite-moderated core** with specific design optimisations.

### 36. Model Bye-laws for Primary Agricultural Credit Societies (PACS)

The Ministry of Co-operation has formulated Model Bye-laws to enhance the viability of **Primary Agricultural Credit Societies (PACS)** at the Panchayat/village level.

### About Model Bye-laws for PACS:

- A **National Level Committee**, comprising representatives from NABARD, State Cooperative Banks, Vaikunth Mehta National Institute of Co-Operative Management (VAMNICOM), **National Council for Cooperative Training (NCCT)**, etc., was constituted to prepare the Model Byelaws.
- The Model Bye-laws **empower PACS** to undertake more than 25 business activities, promoting **diversification** such as dairy, fishery, floriculture, godowns, foodgrain procurement, and various other services.
- It aims to make **PACS membership more inclusive**, ensuring adequate representation for **women and Scheduled Castes/Scheduled Tribes**.
- It enables PACS to serve as **multi-service centers**, enhancing operational **efficiency, transparency, accountability**, and providing comprehensive services in rural areas.
- It will help farmers in getting **short-term, medium-term and long-term credit** and other services such as fertilizers, seeds, pesticides, storage facilities, banking services, etc. at one stop for meeting their varied needs.
- It will **facilitate farmers** in accessing **social security schemes, micro-insurance**, over 300 e-services of **Common Service Centre**, and additional sources of income through business diversification.
- Overall, the Model Bye-laws aim to **improve the socio-economic conditions** of farmers by providing a one-stop solution for their varied needs and **promoting sustainable agricultural practices**.

### About PACS:

- PACS are **grassroots-level institutions** and their membership encompasses **individual farmers**, artisans, and members of other weaker sections of the society as shareholders.
- They form the **lowest tier** of the **federated short-term cooperative credit structure** with District Cooperative Banks (DCCBs) and/or State Cooperative Banks (StCBs) in their **upper tiers**.
- PACS deals directly with the **rural (agricultural) borrowers**, give those loans and collect repayments of loans given and also undertake **distribution and marketing functions**.
- It serves as the **final link between the ultimate borrowers** on the one hand and the **higher financing agencies**, namely the **Scheduled Commercial Banks**, and the RBI/NABARD on the other hand.



### 37. Prevention of Cyber Crimes

The States and Union Territories are primarily responsible for the prevention, detection, investigation and prosecution of crimes including cybercrime through their Law Enforcement Agencies (LEAs).

#### Cyber-crime

- It is a criminal activity that either targets or uses a computer, a computer network or a networked device. Most cybercrime is committed by cybercriminals or hackers who want to make money.
- Cybercrime can be carried out by individuals or organizations, some are organized, use advanced techniques and are highly technically skilled.
- **Types-**
  - Email and internet fraud.
  - **Identity fraud-** Personal information is stolen and used.
  - **Cyberextortion-** Demanding money to prevent a threatened attack.
  - **Cryptojacking-** Hackers mine cryptocurrency using resources they do not own.
  - **Cyberespionage-** Hackers access government or company data.
  - Infringing copyright, illegal gambling etc.,

#### What are the steps taken to prevent cyber-attack?

- **Indian Computer Emergency Team (CERT-In)** - CERT-In is the national nodal agency for responding to computer security incidents as and when they occur.
- **Indian Cyber Crime Coordination Centre (I4C)** - It is launched to deal with all types of cybercrime in the country, in a coordinated and comprehensive manner.
  - National Cyber Forensic Laboratory
  - National Cyber Crime Reporting Portal
  - Citizen Financial Cyber Fraud Reporting and Management System
- **National Cyber Forensic Laboratory (Investigation)** - It has been established at **New Delhi** to provide early stage cyber forensic assistance to Investigating Officers.
- **National Cyber Crime Reporting Portal-** It has been launched to enable public to report incidents pertaining to all types of cyber crimes, with special focus on cybercrimes against women and children.
- **Citizen Financial Cyber Fraud Reporting and Management System-** It has been launched for immediate reporting of financial frauds and to stop siphoning off funds by the fraudsters.

- **National Cyber Forensic Laboratory (Evidence)** - It has been set up at **Hyderabad** to provide the necessary forensic support in cases of evidence related to cybercrime, preserving the evidence and its analysis in line with the provisions of Information Technology Act and Evidence Act.
- **National Cyber Security Coordinator** - It is under the National Security Council Secretariat, coordinates with different agencies at the national level on cybersecurity issues.
- **The National Critical Information Infrastructure Protection Centre** - It has been set up for the protection of national critical information infrastructure.
- **Cyber Swachhta Kendra** - It is a Botnet Cleaning and Malware Analysis Centre that has been launched for detection of malicious software programmes and to provide free tools to remove them.
- **National Cyber Coordination Centre** - It works on creating awareness about existing and potential threats.
- **Cyber Crisis Management Plan** - It has been formulated for countering cyber-attacks.
- **Centre for Financial Literacy Project**- It was launched by Reserve Bank of India in 2017 as a pilot project on financial literacy with an objective to adopt community led innovative and participatory approaches.
- **Massive Open Online Courses (MOOC) platform**- 'CyTrain' portal has been developed under I4C, for capacity building of police officers/judicial officers through online course on critical aspects of cyber crime investigation, forensics, prosecution etc., along with certification.
- **Awareness generation**- Dissemination of messages through SMS, I4C social media account.
  - Example- CyberDostI4C in Facebook, Radio campaign, Cyber Safety and Security Awareness weeks etc.,
- **Cyber Surakshit Bharat programme**- It is a public-private partnership to educate and enable the Chief Information Security Officers & broader IT community in Central/State Governments, Banks, PSUs and Government organizations to address the challenges of cyber security.

### **38. Fossil Fuel Phase-Out and Carbon Capture in COP28**

The 28th Conference of Parties (COP28) in Dubai has sparked intense debates around the phase-out of fossil fuels and the role of carbon capture technologies in combating climate change.

### COP28's Stance on Fossil Fuel Phase-Out:

- The **global stocktake (GST) draft** at COP28 does not explicitly mention the phasing out of fossil fuels, which is crucial for limiting global warming to **1.5°C** under the Paris Agreement.
- **Sultan Al-Jaber**, COP28 President, emphasizes the need for high ambition in fossil fuel language.
- The draft lists various mitigation options but notably omits a direct phase-out of all fossil fuels.

### Mitigation Options Proposed:

- These include reducing fossil fuel consumption and production to target **net zero emissions by mid-century**.
- Emphasis on **tripling renewable energy capacity by 2030**, phasing down unabated coal, and accelerating low-emission technologies.

### Reaction and Analysis:

- The **European Union** and other entities criticize the draft for insufficient commitments to combat climate change.
- Experts highlight the disparity in treatment between **developed and developing nations** in the draft.
- Representatives from the **Republic of the Marshall Islands** underscore the necessity of a comprehensive fossil fuel phase-out.

### Debate Over "Unabated" Fossil Fuels:

- "Unabated" refers to the burning of fossil fuels without significant reductions in emissions.
- The inclusion of this term in the final declaration could allow for the continued use of fossil fuels if carbon capture technologies are employed.
- **John Kerry**, U.S. climate envoy, emphasizes the importance of committing to phasing out all unabated fossil fuels.

### Carbon Capture as a Controversial Solution:

- Carbon capture technology is discussed as a means to remove or store emissions from fossil fuel use.
- Debates persist over the feasibility, cost, and effectiveness of carbon capture in significantly reducing emissions.
- The **International Energy Agency** cautions against over-reliance on carbon capture for maintaining current fossil fuel usage.

### 39. Extreme December rainfall in Tamil Nadu

Tamil Nadu has witnessed heavy rainfall in December 2023.

#### Rainfall pattern in Tamil Nadu

- **Weather conditions** – The state is vulnerable to extreme weather conditions, while coastal districts experience flooding, other areas experience severe droughts.
  - According to IMD, from the year 1951 to 2013, Tamil Nadu has received **47 normal, 8 excess, 6 deficient, and 2 scanty rainfall** over a period of time.
- **Annual rainfall** – **About 987mm** with a range varying from 317.4 mm to 1890.5 mm over the 63 years period (1951-2013).
  - While Nilgiris receives the maximum average annual rainfall, Thoothukkudi and Karur receive the least.
- **Coefficient of variation in annual rainfall** – It lies in the range of 0.21 to 0.37 (21 to 37%) across the districts of Tamil Nadu.
- **Rainfall share** – Tamilnadu receives the maximum rainfall (around 443.3mm) during post-monsoon (October, November, and December) mainly due to cyclones formation in Bay of Bengal.

Unlike Tamilnadu, the rest of India receives the maximum rainfall in the months of June, July, August, and September months (monsoon).

#### What is the rainfall scenario in December 2023?

- Since October 1, Tamil Nadu has received 450mm of rainfall.
- **Surplus rainfall** – Many coastal districts have already received their surplus rainfall.
  - The annual rainfall of Kanyakumari is 760mm, whereas the district has already recorded 1050.7mm during October 1 – December 20, 2023.
- **Deficient rainfall** - During the ongoing season (till December 20), **only 14 districts** out of total 38 have deficient rainfall.
- **Exceptionally heavy rainfall** – It occurred in 3 districts of southern Tamil Nadu **during December 17-19**.
  - IMD stated that these districts had received about 100 per cent or more surplus rain during these 3 days over the previous week (December 6 – 13, 2023).
- **24-hour time span exceptional rainfall** – It was reported by nearly 40 meteorological stations across Thoothukudi (Tuticorin), Thirunelvali and Kanyakumari districts.

- For example, in Kalyanapattinam, it was 950 mm in December 18<sup>th</sup>, which is close to the annual rainfall of Lucknow and Ambala (960 mm each) and more than the annual rainfall of Allahabad (918 mm).

#### What caused the record rainfall over southern TN?

- **Strong northeast monsoon** - It remained vigorous over Tamil Nadu since mid-December, bringing in steady rain bands, especially over the south Tamil Nadu and neighbouring Kerala.
- **Movement of cyclonic circulation** - It was developed in the southwest Bay of Bengal in December 16, located off the western Sri Lankan coast.
- As this system moved westwards and reached southern Tamil Nadu, it gave impetus to the northeast monsoon winds, persisted over the southern Tamil Nadu region on December 18 and 19.
- A **heavy cloud convection** was observed here, resulting in exceptionally heavy rainfall (more than 200mm in 24 hours) over Thoothukudi, Tirunelveli and Kanyakumari districts of Tamil Nadu and Idukki district of Kerala.

#### 40. Future workers in a world of AI

IIT Kharagpur reflects on its seven-decade journey, emphasizing multidisciplinary research, collaboration with industry, and alignment with the New Education Policy (NEP) 2020. The institute highlights achievements, challenges, and strategic initiatives, envisioning a role in building a self-reliant India through cutting-edge research and nurturing talent. The central theme revolves around evolving educational paradigms, fostering innovation, and contributing to national development.

#### Key Highlights:

- IIT Kharagpur's history dates back to 1950, founded on the recommendations of the Sarkar Committee.
- The institute has evolved over seven decades, hosting thousands of students, faculty, and employees across diverse disciplines.
- Multidisciplinary research initiatives align with the New Education Policy (NEP) 2020, fostering collaboration between academia and industry.
- Major strategic initiatives include the introduction of an MBBS program, Interdisciplinary Dual Degree Programs, and extended research or industry internships for UG students.

#### Key Challenges:

- Balancing academic and research pursuits with industry collaboration remains crucial.
- Encouraging innovation and risk-taking within the ecosystem to retain talent and curb brain drain.

### **Key Terms and Phrases:**

- New Education Policy (NEP) 2020, multidisciplinary research, Interdisciplinary Dual Degree Programs, self-reliance, Atmanirbhar Bharat.

### **Key Quotes:**

- “Technology will never replace great teachers, but technology in the hands of great teachers is transformational.”
- “Our scriptures speak of Eshah Panthah – a self-sufficient India. The culture and tradition of India speak of self-reliance.”

### **Key Examples and References:**

- IIT Kharagpur’s contributions include the development of the COVIRAP diagnostic test kit for Covid-19, painless needle, 2G Ethanol, and waste management technologies.
- Record-breaking placements, Centres of Excellence, and collaborations with tech giants highlight the institute’s achievements.

### **Key Facts and Data:**

- IIT Kharagpur accommodates over 16,630 students, 746 faculty members, and 887 employees.
- The institute engages in research across 12 major areas, including advanced materials, energy sustainability, healthcare, and space.

### **Critical Analysis:**

- The institute’s focus on STEM research, educational foundations, and entrepreneurship aligns with the vision of building a self-sufficient India.
- Challenges include retaining talent and fostering a culture of innovation within the ecosystem.

### **Way Forward:**

- Continue strengthening collaboration between academia and industry to enhance research impact.

- Foster innovation, risk-taking, and entrepreneurship to create an ecosystem that retains talent and contributes to building a self-reliant nation.
- **Investor Protection:** Direct crediting of funds and securities into investors' accounts, especially for UPI clients, strengthens investor protection.

### **Benefits of the New Mechanism**

- **Flexibility for Clients:** The new mechanism offers faster payouts of funds to sellers and securities to buyers, providing greater flexibility and control.
- **Market Ecosystem Advantages:** The faster settlement cycle is expected to enhance the operational efficiency of the securities market, benefiting the entire ecosystem.

