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MAINS 365

UPDATED CLASSROOM STUDY MATERIAL

(June 2024 to 15th August 2024)

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UPDATED CLASSROOM STUDY MATERIAL

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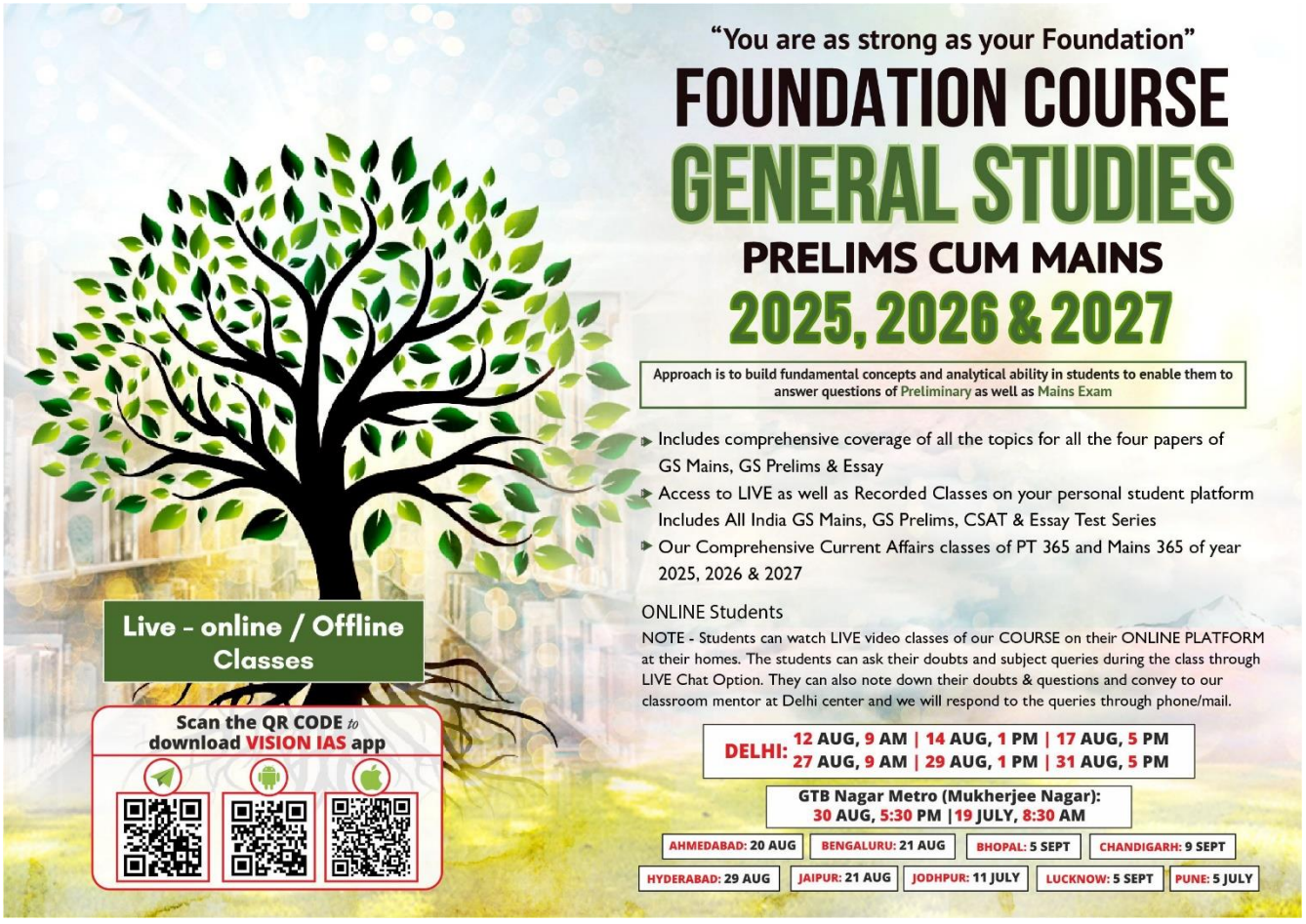

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ABHYAAS
MAINS 2024
ALL INDIA MAINS
(GS + ESSAY + OPTIONAL)
MOCK TEST (OFFLINE)
OFFLINE IN 40+ CITIES
PAPER DATES
GS-I & II 24 AUG
GS-III & IV 25 AUG
ESSAY 31 AUG
OPTIONAL-I & II 1 SEPT
OPTIONAL SUBJECTS
ANTHROPOLOGY | GEOGRAPHY | HINDI | HISTORY | MATHS | PHILOSOPHY
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RANCHI | ROHTAK | SHIMLA | THIRUVANANTHAPURAM | VARANASI | VIJAYAWADA VISAKHAPATNAM

1. POLITY AND GOVERNANCE

1.1. EMERGENCY AT A GLANCE

EMERGENCY PROVISIONS AT A GLANCE

Emergency Provisions

- Emergency is a situation when **democratic rights of people are suspended,** and central government assumes powers over state governments.
- Suspension of fundamental rights during emergency was incorporated from **Weimar Constitution of Germany.**
- Emergency Provisions are outlined in Article 352 to **Article 360 under Part XVIII of Constitution.**
- Rationale behind incorporation of these provisions is to **safeguard sovereignty, unity, integrity and security of country,** democratic political system, and constitution.

Types of Emergencies

National Emergency (Article 352)

- President (on advice of Cabinet headed by Prime Minister) issue proclamation of emergency if **security of India/any part of country** is threatened by **"war or external aggression (external emergency) or armed rebellion"**
- Ground of **"internal disturbance" was substituted by "armed rebellion" by Constitution (44th Amendment) Act, 1978**

President's Rule (State or Constitutional Emergency) (Article 356)

- An emergency due to failure of constitutional machinery in states

Financial Emergency (Article 360)

- Due to threat to financial stability or credit of India or of any part of territory

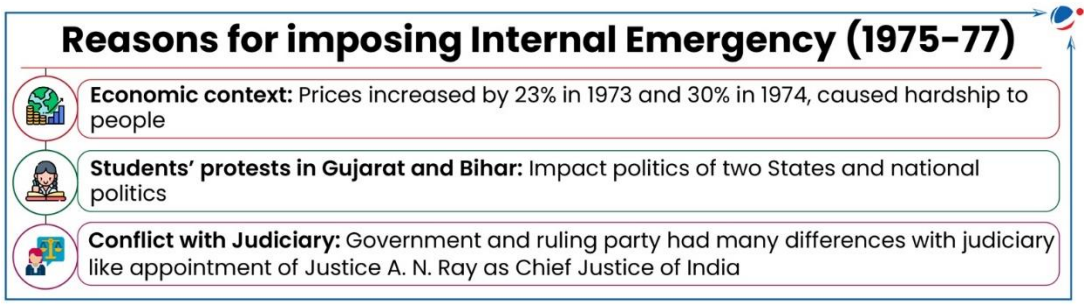
Procedure of Proclamation of Emergency

- **Approval:**
  - It must be **approved by both houses of Parliament within one month** from date of its issue.
  - If approved by both houses, **Emergency continues for 6 months** and can be **extended to an indefinite period** with an approval of Parliament for every six months. (44th Amendment Act 1978)
    - **If dissolution of Lok Sabha (LS) takes place during period of six months** without approving further continuation of emergency, then **proclamation survives until 30 days from first sitting** of LS after its reconstitution, provided Rajya Sabha in the meantime approved its continuation.
  - Every resolution approving proclamation of emergency, or its continuance must be passed by either **House of Parliament by a special majority.** (44th Amendment Act 1978)
- **Revocation**
  - Revoked by **President at any time by a subsequent proclamation.** Such proclamation does **not require parliamentary approval.**
  - Resolution for disapproval of continuation of National Emergency is required to be **passed by LS by simple majority.**

1.1.1. INTERNAL EMERGENCY

Why in the news?

The year 2024 marks the beginning of 50th year since the imposition of internal Emergency on June 25, 1975.



Implications/ Criticism of imposing Internal Emergency (1975-77)

- **Political Impact**
  - **Suspension of Civil Liberties**: Government gets power to curtail or restrict all or any of Fundamental Rights during emergency.
    - ✓ Newspapers were subjected to pre-censorship. **Press Council was abolished**, and many journalists, activists were imprisoned.
  - **Centralization of power:** Practically suspended federal distribution of powers and all the powers are concentrated in hands of union government (Prime Minister Office). Thus, altering legislative power of states.
    - ✓ **42nd Constitutional Amendment Act (CAA), 1976** extended duration of **Lok Sabha from five to six years**.
  - **Crackdown on Dissent**: Opposition leaders were arrested without trial under laws like Maintenance of Internal Security Act, 1971 (MISA).
- **Social Impact:**
  - **Misuse of Power:** There was widespread **torture, custodial deaths, authoritative slum clearance drives** without adequate resettlement plans, displacing thousands of people.
  - **Impact on organisations:** Religious and cultural organizations like Rashtriya Swayamsevak Sangh, Jamaat-E-Islami, etc. were **banned on apprehension of disturbance to social and communal harmony**.
  - **Forced Sterilizations**: Push for population control and family planning **intersected with citizens' rights to personal autonomy and reproductive freedom**.
- **Institutional Impact:**
  - **Judicial Independence**: It was compromised, with judges who were perceived as unsupportive of government being transferred or side-lined.
    - ✓ Government introduced **42nd CAA, 1976** aimed at **limiting scope of judicial review**.
- **Erosion of trust:** Arbitrary use of powers during Emergency eroded citizens' trust in governmental institutions.

Changes brought after Internal Emergency through 44th Amendment Act, 1978

- **Written approval:** Emergency can be proclaimed **only on basis of written advice** by Cabinet to President.
- **Fundamental Rights (FRs)**: Restricted scope of Article 359 i.e. Right to protection in respect of conviction for offences (Article 20) and right to life and personal liberty (Article 21) **remain enforceable during emergency.**
  - It **omitted right to property as a FR** and made it a **constitutional right under Article 300A**.
- **Term of Lok Sabha:** Back to **5 years** from 6 years by amending Articles 83 and 172.
- **Removal of Article 275A**: It dealt with power Government of India to deploy any armed force of Union or any other force to deal with any grave situation of law and order in any State.
- **Judicial review**: All doubts and disputes arising out of or in connection with **election of a President or Vice-President** shall be inquired into and **decided by Supreme Court**.

Conclusion

The suppression of dissent and curtailment of civil liberties during Emergency underscore citizens' role in safeguarding democracy. Further, there is need to strengthen checks and balances within democratic framework to prevent concentration of power and uphold democratic principles.

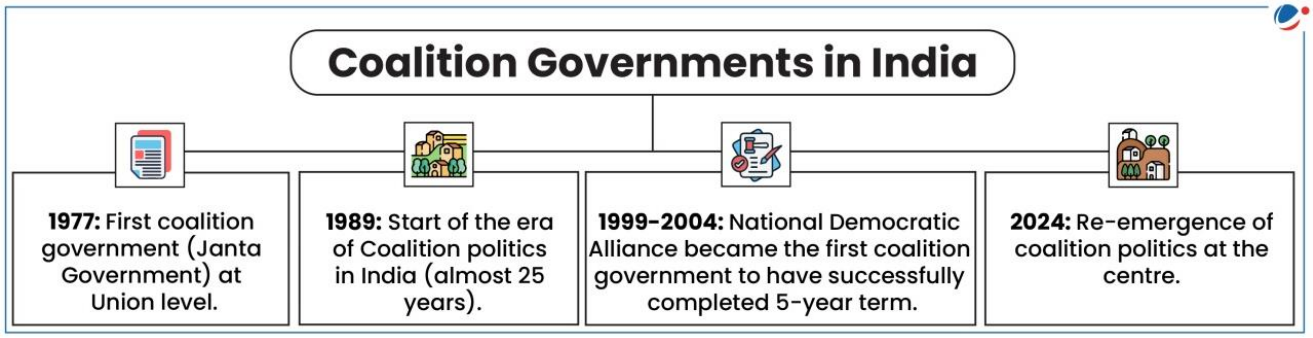
1.2. COALITION GOVERNMENT

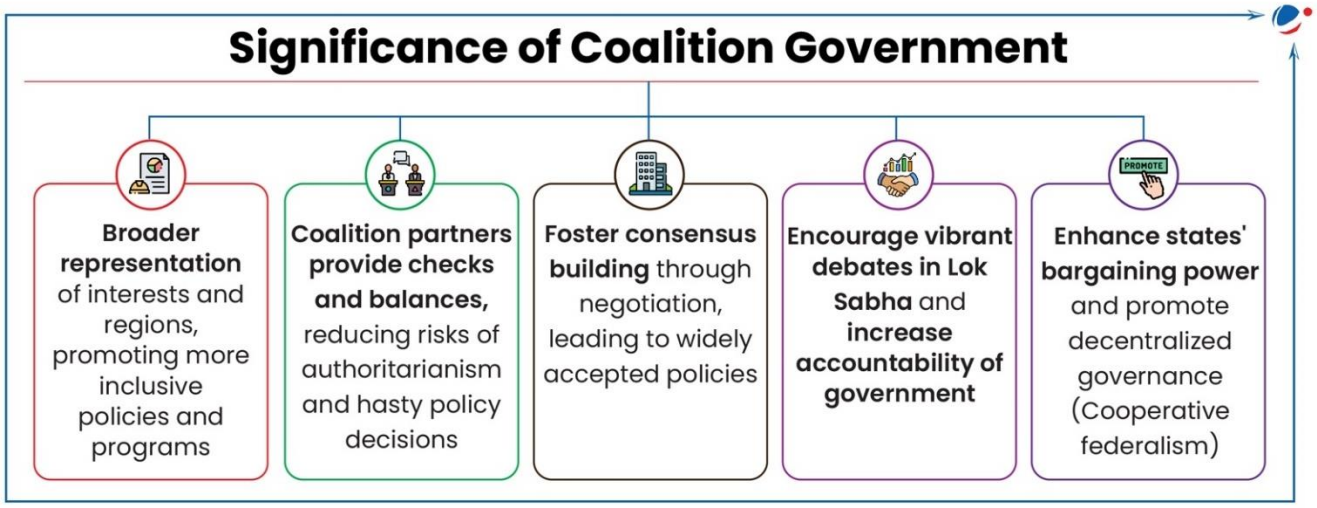
Why in the News?

Recently concluded 2024 General Elections of Lok Sabha resulted in formation of a coalition government at the centre.

About Coalition Government

- Refers to a **political arrangement** where **multiple parties collaborate to form a government** when **no single party secures a clear majority** in the legislature.
- **Factors contributing for Coalition Government in India**: Multi-party system, regional diversity and rise of state parties, anti-incumbency factors, etc.
- It can form through **two main routes:** Pre-election alliances and Post-election coalitions.





Challenges due to Coalition Government

- **Political instability**: Divergent interests of coalition partners lead to frequent disagreements, e.g., Fall of the first NDA government in 1998.
- **Policy paralysis**: E.g., Left parties withdrawing support from UPA-I over the Indo-US nuclear deal in 2008.
- **Myopic decision-making**: Frequent changes in HRD Ministry (2004-2014) caused inconsistent education policies.
- **Compromise on ideologies**: Parties may dilute core ideologies to maintain coalitions.

- **Regionalism**: Regional parties push for state-specific benefits and resource allocation.
- **Influence on foreign policy**: E.g., Stalled Teesta Water Agreement in 2011.

Way Forward

- **Political stability:** Amend legislative rules to adopt a constructive vote of no confidence (NCRWC).
- **Election of Prime Minister**: Provide for a mechanism for election of Leader of Lok Sabha, along with election of Speaker, under Rules of Procedure who may be appointed as Prime Minister. (NCRWC)
- **Transparency in functioning of coalition:** Mandate public reporting on Common Minimum Program and introduce "coalition impact assessments."
- **Long-term policies**: Use of **constitutional bodies like Inter-State Council** and **non-partisan bodies like NITI Aayog** in national policy formulation that transcends coalition politics.

1.2.1. NOTA (NONE OF THE ABOVE)

Why in the news?

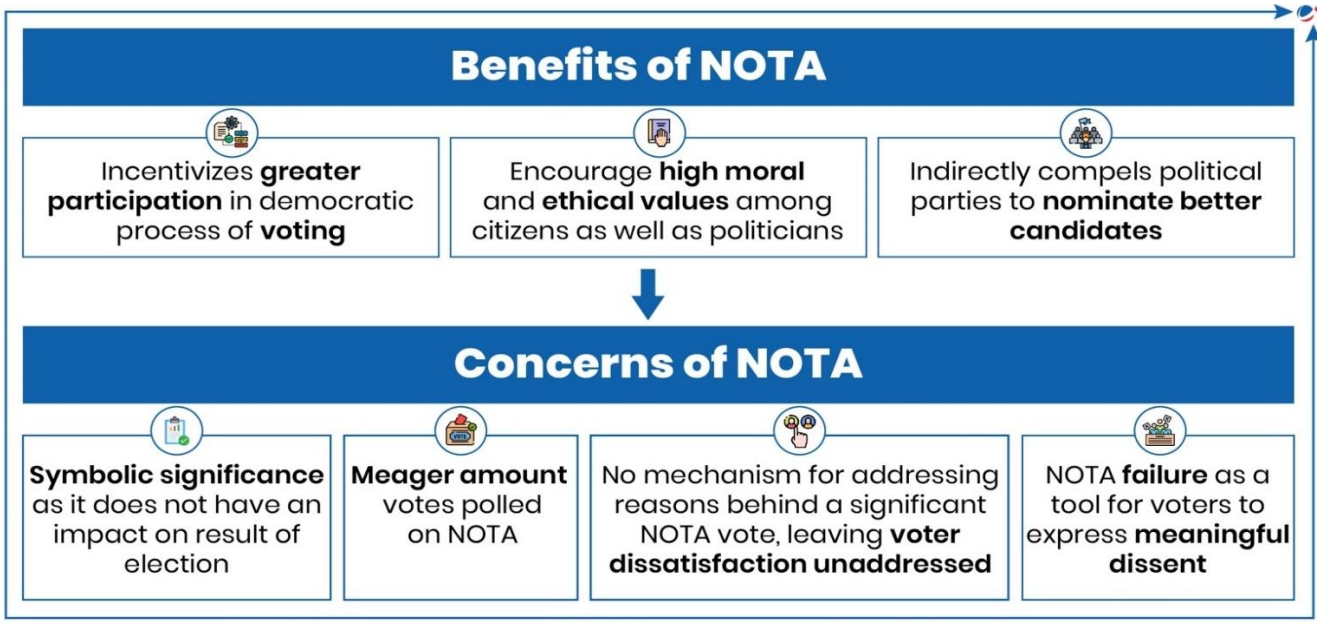
Recently, in Indore, NOTA has emerged as runner-up with more than 200,000 votes.

About NOTA

- NOTA was introduced in 2013 after a Supreme Court (SC) direction in a public Interest litigation filed by **Peoples Union for Civil Liberties (PUCL)**.
- It provides voters an option **to reject all running candidates**, signaling their disapproval of the available choices.
- **Even if NOTA get majority of votes,** the candidate with second-highest number of votes is declared the winner.
  - SC held that NOTA option is meant only for **universal adult suffrage and direct elections.**
- **Globally,** it is **also practiced in countries** such as France, Belgium, Brazil, Finland and Sweden.

Important Judicial Pronouncement related to NOTA

- **People's Union for Civil Liberties v. Union of India, 2013**: Supreme Court held that voters should be given NOTA option so that they can exercise their right to vote while protecting their right to secrecy.
- **Shailesh Manubhai Parmar v. Election Commission of India through Chief Election Commissioner & Ors Case, 2018**: SC held that NOTA option is applicable only for direct elections and **not indirect elections such as Rajya Sabha polls.**



Conclusion

NOTA enhances democratic participation, but a responsible system should minimize its need by offering competitive choices. The Election Commission should mandate fresh elections if NOTA wins a majority.

1.3. SUB-CLASSIFICATION IN SC, ST FOR QUOTA

Why in the news?

Supreme Court in **State of Punjab and Ors Vs Davinder Singh and Ors, 2024** ruled that States can sub-classify Scheduled Castes (SCs) and Scheduled Tribes (STs) to provide additional quotas for more disadvantaged groups within these categories.

Background

- Earlier in **E.V. Chinnaiah versus State of Andhra Pradesh (2005),** SC held that all castes in Presidential Order under Article 341(1) formed one class of homogeneous group and the same could not be further subdivided.
    - Under Article 341(1), President of India can officially designate certain groups as SCs in any State or Union territory.

Other Key Highlights of Supreme Court Judgment

- **State cannot earmark 100% reservation for a sub-class** while allowing sub-classification.
- Governments must conduct an **empirical study before sub-classification**.
- State's power to sub-classify is **subject to judicial review.**
- Sub-classification **does not violate principle of equality enshrined under Article 14 and President's exclusive authority under Article 341 to identify SCs.**
- SC **expressed the need to exclude 'creamy layer' among SCs** from reservation benefits meant for SC categories.
    - Currently, concept of 'creamy layer' is applicable only to reservation for Other Backward Classes.

Arguments in favour of Sub-classification of SCs & STs	Arguments against Sub-classification of SCs & STs
• Allowed states to provide **targeted benefits to most disadvantaged subgroups**, thereby **promoting more equitable distribution** of affirmative action. • **Ensure adequate representation** of most disadvantaged groups within SC category. • **Article 16(4) of Constitution** allows State to **provide reservations for backward classes who are not "adequately represented"** in State services. ○ Also**, Article 342A** empowers States and UTs to maintain their list of Socially and Economically Backward Classes.	• **Weaken reservations for other SC subclasses**, **disrupting unified implementation** of benefits and undermining core purpose of reservations. • **Undermine uniform status of SCs and STs**, which have been recognized as single, homogenous group under Constitution. • Further **dividing already limited opportunities** available to these communities. • **Create divisions/inequalities within SC and ST communities,** leading to resentment and competition among groups.

Way ahead

- **Empirical data**: Any exercise involving sub-classification by the State must be supported by empirical data that ought to underscore the more 'disadvantaged' status of sub-group.
- **Emphasis on Affirmative Action Programmes:** Beyond reservations, Affirmative action should focus on improving education and facilities to ensure upward mobility for most backward persons within SCs.

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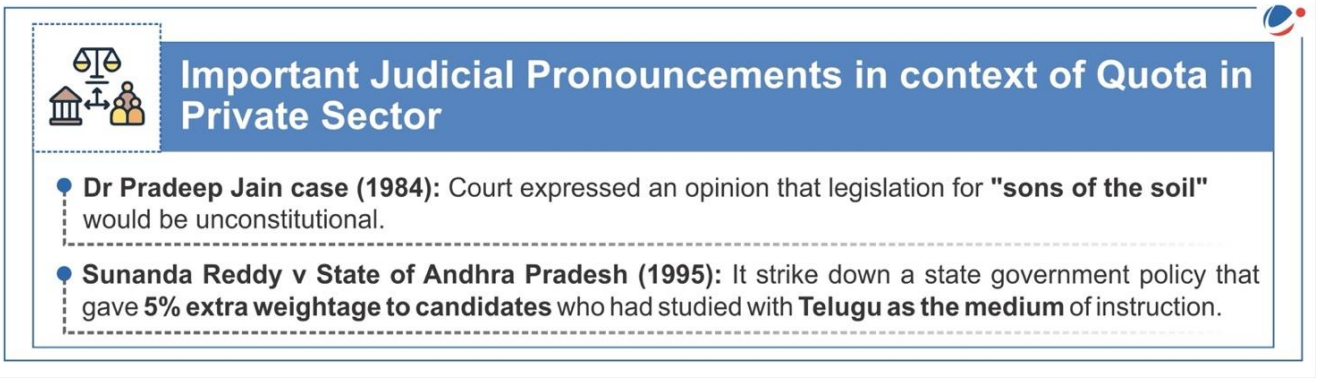
1.4. LOCAL RESERVATION IN PRIVATE SECTOR

Why in the news?

Recently, Punjab and Haryana High Court quashed Haryana State Employment of Local Candidates Act, 2020.

Arguments regarding Local reservation in Private Sector

Arguments for local reservation in private sector	Arguments against local reservation in private sector
• Protect livelihood and health of state residents. • **Dealing with shrinking employment opportunities.** • **Curb discriminatory corporate practices against local workers** who believe local workers lack work discipline, unwilling to learn new trades. • **Discourage reliance on migrant labor**, reducing infrastructure strain. • **Less crime rate** due to meaningful engagement toyouth. • **Address agrarian distress** by facilitating local job creation.	• **Contravenes Articles 14, 16, and 19(1)(g)** by favoring local candidates. • **Fuels sons-of-the-soil syndrome.** • Such reservation may push business to migrate, as their skilled workforce is not sufficiently 'local'. • Reservations in private sector would result in **revival of license-raj.** • **No solution to core issues such as** Skewed geographical development, Low quality of education and skills • **Limits hiring pool,** potentially reducing competitiveness and deterring investment.



Way forward

- **Bridging regional inequalities** by setting up of educational and skills institutions in backward areas.
- **Promotion of labor-intensive industries** to create more jobs.
- **Providing incentives to industries for more investments** and create an enabling environment for employing local people.

1.5. COMPARISON OF CONSTITUTIONAL FEATURES

1.5.1. INDIA AND FRANCE

Why in the News?

French President formally accepted the resignation of Prime Minister and asked him to continue running the caretaker government until the appointment of the next government.

Similarities between Constitution of India and France

- **France became a republic** from a monarchy **following French Revolution.**
  - India was inspired by French revolution.

- **Both countries have a written constitution** which is based on **Ideals liberty, equality and fraternity outlined in French Revolution.**
- Both countries **have popular sovereignty with universal adult franchise and a bicameral parliament**.
  - In France, the National Assembly members are elected for five years by direct suffrage, while Senate members are elected indirectly, renewable every three years.
- **Provision of emergency** is also enshrined in Constitution of both countries.

Contrasting Features of Constitution of India and France		
Specification	**India**	**France**
President is Head of State	President is indirectly elected for five years with no term limits	President is elected for five years by direct suffrage with a two-consecutive term limit
System of Government	**Parliamentary system**	**Semi-Presidential system,** with significant powers held by the President
Prime Minister (PM) is Head of Government	• Constitution provides for **Council of Ministers (CoM) Headed by PM** to aid and advise President. • **Strength, roles and Responsibilities of CoM is provided in Constitution.**	• **President appoints PM** and **members of government** (on recommendation of PM). • **Purview, competences, responsibilities and tasks of each minister are not fixed.** They are freely **determined by PM and President.**
Justice system	• **Integrated judicial system**	Divides judicial authority between legal and administrative jurisdictions
Involvement of Civil Society	No provision	**Involves civil society in governance** through a consultative assembly

1.5.2. INDIA AND UK

Why in the news?

Recently, new Prime Minister of United Kingdom was elected.

Similarities between UK and India Constitution

- Both counties follow a **Parliamentary system of democracy**.
- **Prime Minister is leader of majority party/**coalition in Lok Sabha. **Similarly, in UK, PM is leader of party** with a majority in House of Commons.
- **First-Past-The-Post System is used for general elections** in both countries.
- Both countries have **Supreme Court as the highest court.**
- Both countries have **Rule of Law,** which is based on principles of freedom, equality, and accountability.

Comparison of dimensions of democracy in India and UK

Specification	India	UK
Eligible Voters for election in Lower House	• 18 years of age or older **Indian citizens.** • Members of **Upper House** are also **eligible** for casting votes.	• 18 years of age or older **UK citizens, a qualifying citizen of Commonwealth or a citizen of Republic of Ireland.** • **Members of upper House cannot vote** in UK parliament election.
Voting process	• **Electronic Voting Machine (EVM)**	• **Postal ballots**
Office of Prime Minister (PM)	• Established in the **Constitution.** • **PM can be from either House** of parliament, i.e. Lok Sabha (lower House) or Rajya Sabha. • **A non-elected Member of Parliament** (MP) can be appointed as PM **for 6 months.** • **President** appoints PM.	• Bases **on Convention** (UK does not have a written constitution). • PM can only be **from Lower House** • A PM **must be, or be about to become an MP.** • **Monarch** appoints PM. • PM is also '**First Lord of the Treasury'.**
Oath by elected Members	• Members of both Houses take an **oath of allegiance to Constitution.** • Forms of Oaths or Affirmations are provided in **3rd Schedule of Constitution.**	• Members of both Houses take an **oath of allegiance to Crown.** • Oath is based on P**romissory Oaths Act 1868 and Oaths Act 1978.**

1.5.3. INDIA AND NEPAL

Why in the News?

Recently, **Nepal's Prime Minister** was sworn in for the fourth time to lead a new coalition government.

More about the News

- Since monarchy's abolition in 2008, Nepal has experienced 14 governments, highlighting its instability.
- Unlike Quasi-Federal republic of India, Nepal's 2015 constitution established it as **a federal democratic republic.** However, Constitution of both countries has **many similar features.**

Constitutional Similarities Between India and Nepal

- **Secular State:** Both protect religious freedom.
- **Fundamental Rights (FRs):** Comprehensive FRs, including socio-economic rights to Citizens.
- **Bicameral Parliament:** Executive branch is accountable to legislature.
- **Head of Government: President** is **ceremonial head**, while **Prime Minister** is real **head of government.**
- **Affirmative Action:** Includes provisions for marginalized groups to promote inclusivity.
- **Other Features:** Every adult citizen has right to vote, multi-party-political system, constitutional supremacy and an independent judiciary, with Supreme Court as ultimate interpreter of Constitution.

1.6. SPECIAL PACKAGES

Why in the news?

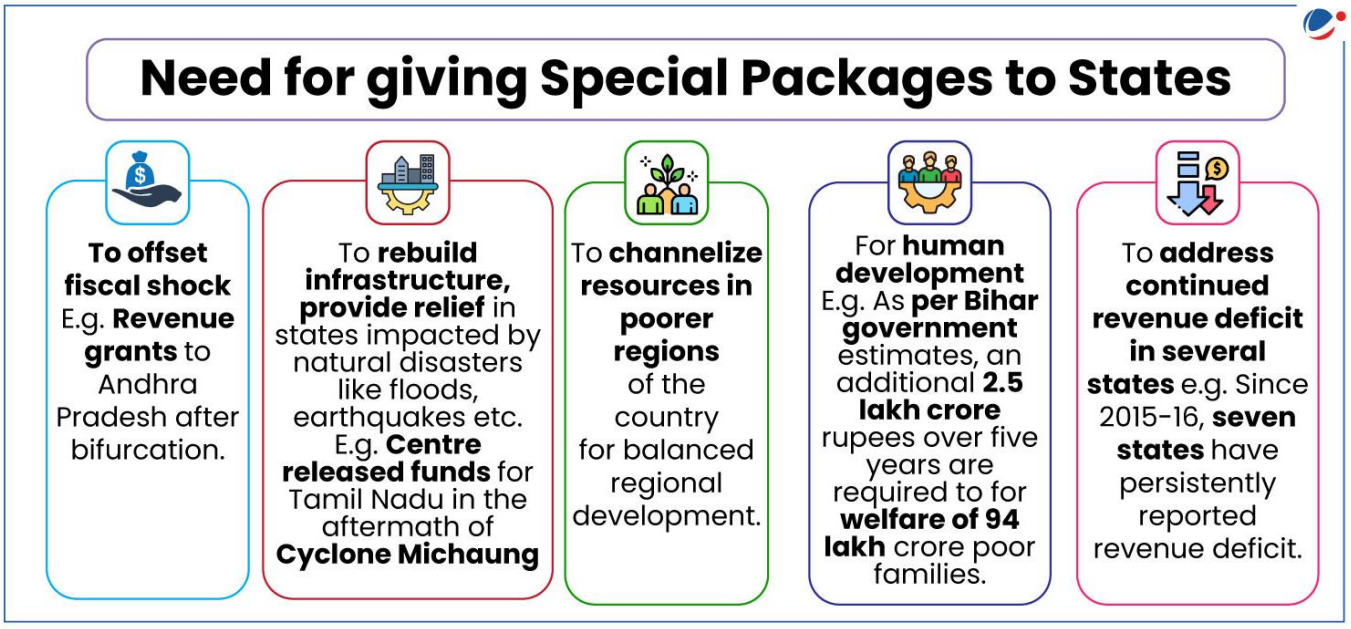
Recently, the Chief Ministers of Bihar and Andhra Pradesh had demanded special financial packages for their respective States.

More about News

- Special Packages for both states Bihar and Andhra Pradesh were **announced in Union Budget 2024-25**.
- **Announcements made:**
  - **Irrigation and Flood Mitigation:** Financial support of **Rs. 11,500 crore** to projects like **Kosi-Mechi intra-state link in Bihar.**
  - **Purvodaya: Vikas bhi Virasat bhi:** Plan for endowment rich states in Eastern parts covering **Bihar**, Jharkhand, West Bengal, Odisha and **Andhra Pradesh** for generation of economic opportunities to attain Viksit Bharat.
  - **Update on Andhra Pradesh Reorganization Act 2014:**
    - ✓ **Financial support** of Rs. 15,000 crores will be arranged in FY 24- 25.
    - ✓ **Completion of Polavaram Irrigation Project** ensuring food security of nation.

About Special Packages to States

- Special Packages provide additional financial assistance to states facing geographical and socio-economic challenges.
- The Constitution includes provisions for specific state issues, particularly through Articles 371A to 371H, which grant special status and privileges to certain states.
- On contrary, **special packages are purely discretionary**.
  - It is an **additional grant under Article 282, which falls under 'Miscellaneous Financial Provisions'.**



Implications of giving Special Packages to States

- **Fiscal prudence:** Providing special packages would potentially **increase fiscal burden** on Centre and also on other States.
- **Governance issues:** Poor state governance can lead to mismanagement and fund leakage.
- **Dependency risks:** Short-term benefits might discourage structural reforms, fostering reliance on central aid.
- **Federal issues:** Unequal distribution can strain Centre-state relations and fuel conflicts.
- **Social Unrest:** Perception of unfair distribution of benefits might lead to social unrest and dissatisfaction among different communities in state.

Way ahead

- **Clear Framework:** Develop a clear framework for special package allocation based on measurable criteria like poverty, infrastructure deficits etc.

- **Customized development plans:** Create customized initiatives to meet each state's specific needs, focusing on areas like infrastructure and employment.
- **Public-Private Partnerships:** Engaging private sector to mobilise additional funding, expertise and to reduce fiscal burden on centre.
- **Monitoring:** Enhance monitoring, plug leakages, and ensure efficient resource utilization.
- **Decentralization:** By providing greater fiscal autonomy, decision-making authority, and prioritizing spending as per local needs, it can reduce demand for special packages.
    - E.g. 14th Finance Commission recommended that Centre should intervene in schemes where there are large externalities or national priorities involved.

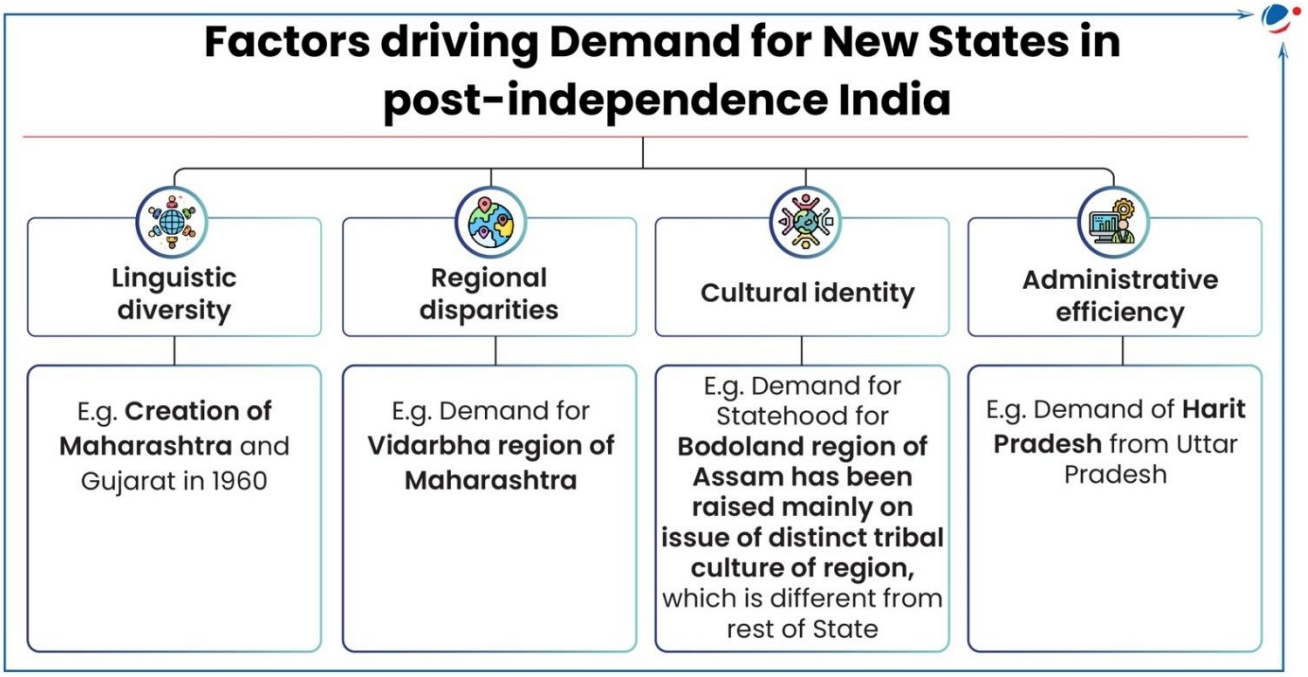
1.7. DEMAND FOR NEW STATES

Why in the news?

Bhil tribe demanded an independent tribal state i.e., **Bhil Pradesh, comprising parts of Rajasthan, Madhya Pradesh, Gujarat, and Maharashtra**

Procedure for Formation of New States

- **Article 3:** Provisions for **formation of new States** and **alteration of areas, boundaries or names of existing States**. As per this,
    - **Power: Parliament** may by **law** form a **new State by** separating territory from any State, uniting two or more States, uniting parts of States and uniting any territory to a part of any State.
    - **Presidential Recommendation:** Such Bill shall be introduced in **either House of Parliament** only on **President's recommendation.**
    - **Consultation with State Legislatures:** Before recommending Bill, which affects area, boundaries or name of any of States, **President shall refer this Bill to Legislature of that State to express its view within specified time.**
- Parliament can create a new state through **ordinary legislation** (i.e. with simple majority).



Judicial Pronouncement related to Reorganisation of State

Berubari Union case, 1960: SC held that power of Parliament to diminish the area of State (under Article 3) **does not cover cession of Indian Territory to a foreign country.**

- Indian Territory can be ceded to a foreign state only by amending Constitution under **Article 368.**
- Consequently, **9th Constitutional Amendment Act (CAA), 1960** was enacted to transfer certain territory to Pakistan.

Argument in favour for creation of new states	Argument in against for creation of new states
• **Effective administrative efficiency**: Efficient administration ensures resource utilization, as seen in Telangana, where paddy production rose from 4.57 million metric tonnes (mmt) in 2015 to over 20 mmt in 2023. • **Innovation**: Smaller states foster governance innovations, like Kerala's Organic Farming Mission inspired by Sikkim's success. • **Trade**: Small States like **Uttarakhand, Himachal Pradesh and Goa tend to trade more than larger state** like Uttar Pradesh, Madhya Pradesh etc (Economic Survey 2016-17). • **Better Development:** Regional disparities have narrowed, with Uttarakhand reducing multidimensional poverty from 17.67% in 2015-16 to 9.67% in 2021 (Multidimensional Poverty Index 2023, NITI Aayog).	• **Economic Strain:** Establishing a new state's infrastructure demands substantial financial resources. For example, building infrastructure in Andhra Pradesh's capital, Amravati, is estimated to cost ₹40,000 crore. • **Resource Allocation:** Dividing resources like water and power can cause disputes, as seen in Andhra Pradesh and Telangana over Krishna River water. • **Boundary Disputes**: New state boundaries can ignite territorial conflicts, like the **Belgavi dispute between Karnataka and Maharashtra.** • **Pandora box:** It can further lead to demand for and creation of other new states.

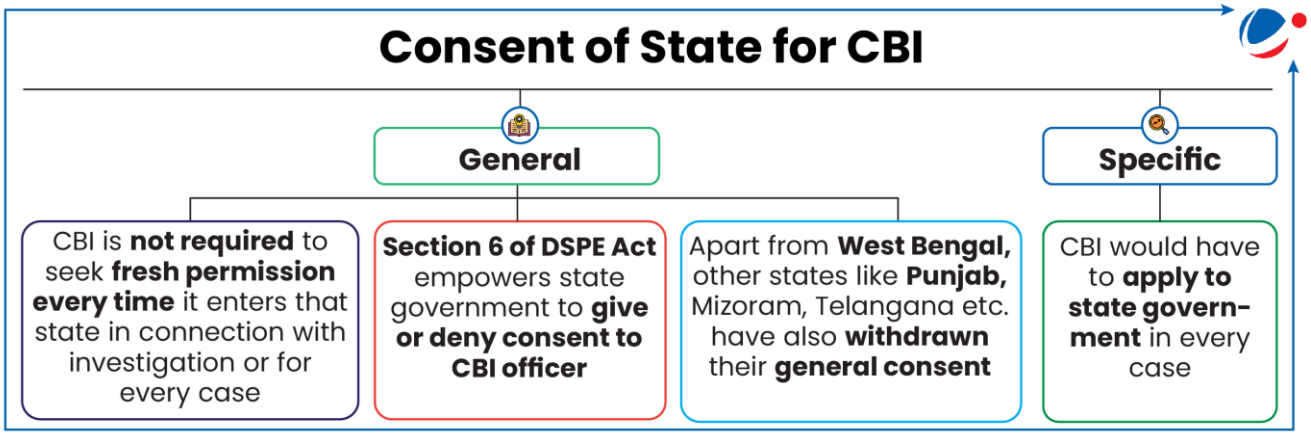
Way ahead

- **Development:** Steps should be taken for **equitable development** within existing states, addressing economic disparities and grievances fueling statehood demands.
- **Create Expert committee:** By **engaging all stakeholders** to investigate the demand/ impact of creation of new states.
- **Economic viability:** A new state should only be created if it can fund at least 60% of its expenses from inception.
- **Develop Clear Guidelines: Focussing on economic and social viability** rather than political considerations for creation of new states.

1.8. CENTRAL BUREAU OF INVESTIGATION (CBI)

Why in the news?

Recently, Supreme Court in **State of West Bengal v. Union of India case (2024**) upheld the maintainability of West Bengal government's suit against the Union over registration and investigation of cases by CBI despite revocation of its general consent in 2018.



Important Judicial Pronouncement related to CBI

- **Common Cause vs Union of India, 2019:** SC held that Central Government shall appoint CBI Director on recommendation of Committee consisting of
  - **Prime Minister (Chairperson).**
  - **Leader of Opposition recognized as such in Lok Sabha** or where there is no such Leader of Opposition, then, Leader of single largest Opposition Party in that House (Member).
  - **Chief Justice of India (CJI) or Judge of SC nominated by CJI (Member).**
- **CPIO CBI versus Sanjiv Chaturvedi, 2024:** Delhi High Court held that Section 24 permits disclosure of information regarding allegations of human rights violations and corruption and exemption provided to scheduled organisations does not totally exempt CBI from purview of RTI Act.
- **Vineet Narain v Union of India (1997):** Commonly called the Jain Hawala Case, SC directed the Union government to give statutory status to the Central Vigilance Commission and entrust the watchdog to ensure that the CBI functions effectively and efficiently and is viewed as a non-partisan agency.

Concerns associated with CBI

- **Vacant posts:** 1,709 out of 7,295 sanctioned positions are vacant as of March 2023. (Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice report)
- **Lack of transparency:** Case details and progress are not publicly accessible.
- **Withdrawal of Consent:** Nine states' withdrawal of consent hampers investigations.
- **Loss of credibility:** Criticized for mishandling high-profile cases like **Bofors scandal, Hawala scandal**, etc.
- **Administrative hurdles:** Investigations of Central Government employees at Joint Secretary level and above require prior approval, limiting the CBI's anti-corruption efforts.
- **Funding issues:** Inadequate investment in training, equipment, and under-utilisation of funds, adversely hampers CBI effectiveness.
- **Lack of autonomy:** CBI operates under **administrative control of DoPT** and government's significant role in appointing senior officials, raises concerns about agency's independence.

Way ahead

- **Recommendations of Parliamentary Standing Committee on Personnel, Public Grievances, Law And Justice**
  - **Director of CBI should monitor the progress made in filling up of vacancies** on quarterly basis.
  - **Maintain a case management system** which would be a centralised database (accessible to general public) containing details of cases registered with it and progress made in their disposal.
  - **Need to enact a new law and define status, functions and powers of CBI** and lay down safeguards to ensure objectivity and impartiality in its functioning.
  - **Percentage of officers inducted through deputation** at level of Inspector of Police be **restricted to 10%** and **40% officers** may be recruited **through Direct Recruitment**/Limited Departmental Competitive Examination.
  - Publish **case statistics** and **annual reports** on its website.
  - State's consent clause' should be removed only in such cases that are considered to be a threat to nation's security and integrity.

1.9. MISSION KARMAYOGI

Why in the news?

Recently, Capacity Building Commission (CBC), launched in 2021, as part of National Programme for Civil Services Capacity Building (NPCSCB) - Mission Karmayogi has completed three years.

About NPCSCB - Mission Karmayogi

- NPCSCB **aims to create a professional, well-trained and future-looking civil service** that is imbued with a shared understanding of India's developmental aspirations, national programs and priorities.
- **NPCSCB cover all civil servants** (including contractual employees) across different ministries, department organisations and agencies of Union Government.
  - Willing state governments will also be enabled to align their capacity building plans on similar lines.
- **Guiding Principles of Mission Karmayogi**
  - **Shift from rule to role based training** and demand-driven capacity building.
  - **70-20-10 Mandate**: 70% of learning comes from on job experiences and reflections, 20% is derived from working with others; and 10% comes from planned training.
  - **Establishment of unbiased systems of evaluation**: Under Mission Karmayogi, there will be objective, fair and independent assessments to determine performance.
  - **Democratising and enabling continuous, lifelong learning opportunities**.
  - **Move beyond silos in Government.**
- **Integrated Government Online Training (iGOT) Karmayogi Platform:** Act as a launchpad for Mission Karmayogi.
  - Performance of all users of iGOT-Karmayogi platform is **monitored and evaluated on key performance indicators** including individual learner, supervisor, content provider and creator etc.

Significance of NPCSCB - Mission Karmayogi

- **Professional Growth**: Evolving roles of civil servants **offer opportunities for officers** to **strengthen their behavioural, functional and domain competencies** enhancing professional growth.
- **Uniform Training Approach**: It harmonises training standard nationwide, promoting uniform approach in regulating capacity-building through shared resources.
- **Reducing Training Cost**: Encourage Central Ministries to **prioritize online courses, invest resources in co-creating learning processes**, and reduce spending on foreign training.
- **Inspiring to-be Civil Servants:** Mission Karamyogi's values and ideals would inspire ethical conduct in aspiring civil servants, reducing dishonesty in Civil Services examination.
- **Ease of Doing Business**: Creating policies and delivering services conducive to economic growth.
- **Citizen-centric:** Shift from traditional rule-based governance to role-based approach will foster teamwork and enhance service delivery.

Concerns associated with NPCSCB - Mission Karmayogi

- **Scalability:** Scaling training and capacity-building initiatives could be challenging due to 1.5 crore government officials at various levels.
- **Over-centralization:** Centralized training framework may face resistance from states, impacting implementation and desired outcomes.
- **Resistance:** Indian **bureaucracy is alleged to be status-quoist**, reluctant to change, thus hindering large-scale reforms.
- **Relevance to Job Functions:** Designing training modules for civil servants, tailored to address specific issues, needs, and demands of citizens poses a challenge.
    - E.g., issues faced by civil servants in Himalayan states differ significantly from those in desert areas.

Conclusion

Mission Karmayogi is a bold initiative of Government of India to democratize the training process and address issues in existing system like complexity and red-tapism, silo culture etc. Further, constant evolving training programs to match needs to civil servants, cooperation with states etc. can reform civil services and empower them to deliver services effectively and efficiently.

1.9.1. LATERAL ENTRY IN BUREAUCRACY

Why in the news?

Recently, Union Minister writes to Union Public Service Commission (UPSC) to cancel lateral entry advertisement

About Lateral entries

- It refers to the **recruitment of individuals from outside the traditional government service** cadres, to fill mid and senior-level positions in government departments.
- It was formally introduced in 2018, on recommendation of **NITI Aayog three-year Action Agenda.**
- It was also endorsed by **Second Administrative Reforms Commission,** established in 2005.
- Till now, **63 appointments have been made through lateral entry** out of which 35 appointments have been from the private sector.

Arguments in favour of Lateral Entry	Arguments against Lateral Entry
• **Bring in domain expertise** to address complex challenges in governance and policy implementation.	• **Difficult to ensure accountability** as tenure is short • **Lack of field experience** • **Deter existing talent** • Lack of clarity about reservation

• **Augmenting availability of manpower** (only 442 IAS officers are working with Centre, against required strength of 1,469 officers). • **Widen the talent pool for appointment,** similar practice is also followed in RBI successfully.	• **Potential conflicts of interest** between public service and private sector backgrounds could **influence decision-making**.

Other reforms required to strengthen bureaucracy

- **Deputation to Private Sector** to bring in domain expertise and competition.
- **Institutionalize goal setting** and tracking for each department.
- **Appraisal mechanisms** such as the government's new "360 degree" performance appraisal mechanism.
- **Setting up public administration universities** for aspiring and serving civil servants.
- **Selection process by UPSC must be transparent,** and contractual clauses should address conflicts of interest, enforce non-disclosure agreements, and ensure accountability.

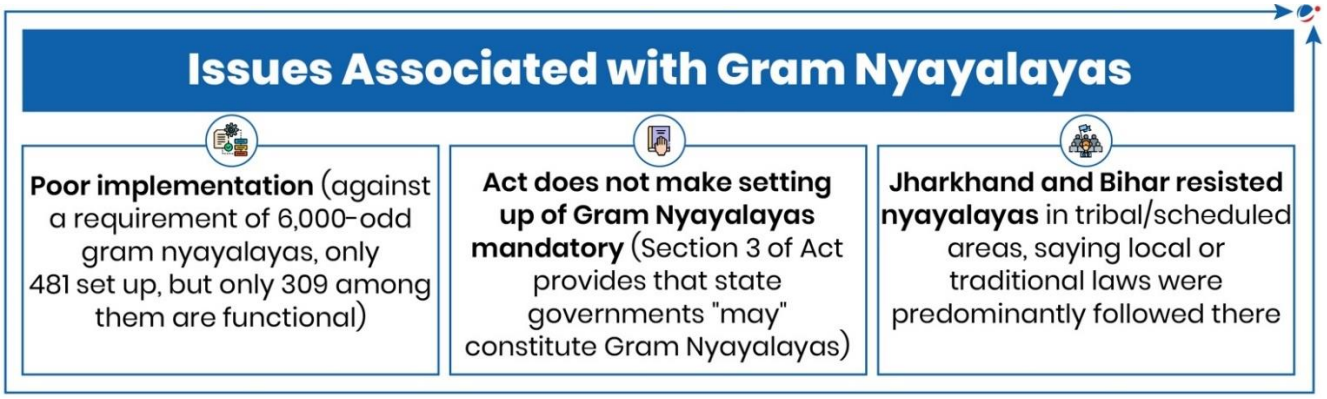
1.10. GRAM NYAYALAYAS

Why in the news?

Recently, Supreme Court directed States/UTs and their High Courts to file status report on Gram Nyayalayas.

About Gram Nyayalayas

- **Law Commission of India**, in its 114th Report, had suggested **establishment of Gram Nyayalayas** for providing **affordable and quick access to justice** to the citizens at their doorsteps and **de-clog local courts.**
- **Key Features of Gram Nyayalayas**
  - These have statuary backing under the **Gram Nyayalayas Act, 2008**. Act exempts States of Nagaland, Arunachal Pradesh, Sikkim and tribal areas specified in Act.
  - **Seat of gram nyayalayas** is located at headquarters of intermediate Panchayat.
  - **Status**: Gram Nyayalayas are deemed to be a **Court of Judicial Magistrate of First Class**.
    - ✓ State government appoints **'Nyayadhikari'** for each Gram Nyayalaya in consultation with high court.
  - **Jurisdiction**: Shall be a mobile court and both civil and criminal jurisdiction to settle petty disputes at the village level.
  - **Dispute Process**: Disputes are to be settled with the help of **conciliation** between the parties.
    - ✓ These are not bound by rules of evidence provided in **Indian Evidence Act, 1872** (now replaced by **Bharatiya Sakshya Adhiniyam**) but by **Principles of Natural Justice**.
  - **Appeals:** Appeal in criminal cases lie to Court of Session and in civil cases lie to district court, shall be disposed within 6 months from date of filing an appeal**.**
- **Initiative to Support Gram Nyayalayas:** Under **Gram Nyayalayas scheme** (Centrally Sponsored Scheme (CSS)), Union Government provides financial assistance to States to set up Gram Nyayalayas.



Conclusion

The establishment of gram nyayalayas represents a significant advancement in strengthening structural reforms in the Indian judiciary, enhancing accessibility for those who have been deprived of adequate recourse and protection due to the system's complexity and technicalities.

1.11. POST OFFICE ACT 2023

Why in the news?

Recently, Post Office Act 2023 comes into effect which repeals the **Indian Post Office Act, 1898.**

Post Office Act 2023

- The Act aims to create a simple legislative framework **for delivery of citizen centric services, banking services and benefits of Government schemes at the last mile.**

Provisions of the Post Office Act, 2023

- **Director General of Postal Services (DGPS)** will be appointed to head India Post.
  - DGPS will have powers to make regulations on matters such as **charges for services, supply and sale of postage stamps.**
- **Powers to intercept postal articles:**
  - The Central Government may, by notification, empower any officer to cause any item in course of transmission by the Post Office to be intercepted, opened or detained.
  - Grounds include **security of the State, friendly relations with foreign states, public order, emergency, or public safety**.
- **Exemptions from liability**: Post office will not incur any liability with regard to its services, except such liability as may be prescribed with regard to a service provided by the Post Office.
- There are **no penal provisions prescribed** in Act.

Concerns associated with Post Office Act 2023

- **Lack of procedural safeguards:** Act lacks adequate procedural safeguards for intercepting articles transmitted through India Post, potentially violating individuals' freedom of speech, expression, and right to privacy of individuals.
- **Exempts India Post from liability for lapses in postal services**: Liability may be prescribed through Rules by central government, which also administers India Post. This may lead to conflict of interest.
- **Lack of clarity on consequences:** Act is unclear on the consequences if authorities misuse their interception powers or if officers act fraudulently, causing service delays.
- **Undefined Emergency Powers:** Not defined emergency and gives uncontrolled powers to authorities.

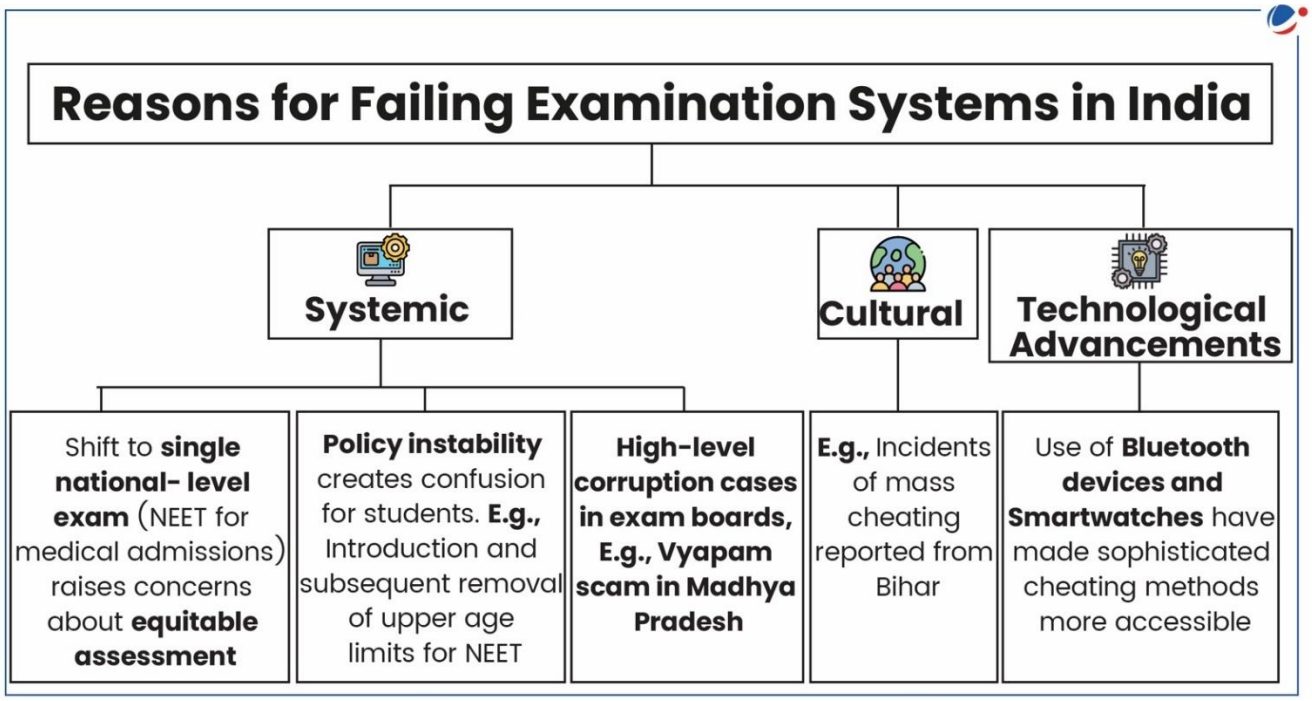
Conclusion

Government needs to frame rules containing the procedure for interception that will be fair and transparent.

1.12. FAILING PUBLIC EXAMINATION SYSTEMS

Why in the News?

Recent controversy surrounding NEET UG and UGC NET examinations conducted by **National Testing Agency (NTA)** raised serious concerns surrounding failure of public examinations among students and academic circles.



Potential Implications of failure of Public Examinations

Social	• **Erosion of public trust** and widespread skepticism about exam's fairness. • **Widening social inequalities** as disadvantaged students suffer more. • **Mental health issues** among students and parents as uncertainty cause significant anxiety. • **Shift in social values** as repeated scandals may normalize cheating, affecting societal ethics.
Economic	• Financial losses from re-examinations • **Potential b$rain drain** leading to economic losses from students studying abroad.
Political	• Lead to **hasty policy changes driven by political pressures** rather than educational needs. • **Exacerbate federal tensions**. **E.g.,** Disagreements between Centre and States over NEET. • Affect **public's perception of government efficiency.**
Institutional	• **Deterioration of professional standards** as Under-qualified professionals enter fields due to flawed exams. • **Employers bear extra training costs** as they may need to bridge competency gap. • **Perpetuation of cycle of mediocrity** as underqualified individuals become future educators, perpetuating poor education and assessment standards.

Public Examination (Prevention of Unfair Means) Act, 2024

- **Objective:** To bring greater transparency, fairness and credibility to public examination systems.
- **Key Provisions**
  - **Coverage:** Examinations held by UPSC, SSC, Railways, National Testing Agency, etc.
  - **Defines Unfair means:** Unauthorized access/leakage of question paper, answer key, assisting a candidate during public examination, tampering with computer network or resources, etc.
  - **Punishments**
    - ✓ **For person(s) resorting to unfair means**: Imprisonment for a term not less than three years but which may extend to five years and with fine up to ten lakh rupees.

- ✓ **For service provider or any person/ group committing organized crime**: Imposition of a fine up to ₹1 crore, imprisonment upto 10 years.
- ✓ All offenses shall be **cognizable, non-bailable,** and **non-compoundable**.

- In pursuance of Act, Union Ministry of Personnel, Public Grievances and Pensions has notified **Public Examination (Prevention of Unfair Means) Rules, 2024**. **Key provisions of rules include:**
  - **Venue-in-charge to take appropriate action**, including **FIR filing**, if prima-facie case of unfair means or offense in conduct of public examination is reported.
  - **Committee** should be constituted by public examination authority **if there is involvement of Management or Board of Directors of service provider** conducting exam.
  - **Periodic reporting of all incidents** of unfair means in conduct of public examination to public examination authority by Regional officer **along with details of action taken.**

Way Forward

- **Improving exam design: E.g.,** Incorporating **project-based assessments** in admission to higher educational institutions.
- **Security measures:** Formulation and implementation of measures like **real-time monitoring of exam-centres**, use of **encrypted digital lockers to storing question papers**, etc.
- **Institutional reforms:** Establish an **independent statutory body to oversee public exams** and reduce political interference in examination boards and testing agencies.
- **Decentralization and customization:** Incorporate state input and adaptive testing in national exams to address regional disparities and better assess individuals.

1.12.1. RESTORING EDUCATION TO STATE LIST

Why in the news?

Recently, controversies surrounding the NEET-UG and UGC-NET exams have intensified calls for transferring education to the State list.

Background about listing of Education:

- Under **Government of India Act, of 1935,** Education was kept under Provincial Legislative List.
- **After independence**, education was on State list of seventh schedule.
- **42nd Constitutional Amendment** (1976) moved it to **Concurrent list of Schedule 7**, following **Swaran Singh Committee's** recommendation.
- **Benefits of education under concurrent list**
  - To evolve **all-India policies** on education as a subject.
  - Lack of **professionalism and corruption** in state run universities.
  - Improvement in standards and synergy between Centre and States.

Reasons for demand to shift education in State List

- **One size fit all:** Approach is neither feasible nor desirable for a diverse country like India.
- **Revenue expenditure on Education:** As per 'Analysis of Budgeted expenditure on Education' 2022, 24 % is spent by Centre while 76% is spent by States.
- **Syllabus can be tailored** according to requirements of each state.

International Practices

- **U.S:** State and local governments set overall educational standards and supervise colleges and universities. Federal education department's functions primarily focus on policies for financial aid.
- **Canada:** Education is managed by provinces.
- **Germany:** Legislative powers for education reside with states.
- **South Africa**: National departments for school and higher education, with provinces implementing national policies and addressing local educational needs.

Conclusion

The way forward should integrate national standards with state-specific adaptations. Central guidelines can set broad benchmarks, while states customize curricula and policies. This balance can address diverse regional needs effectively.

1.13. INDIA'S SPORTS ECOSYSTEM

Why in the News?

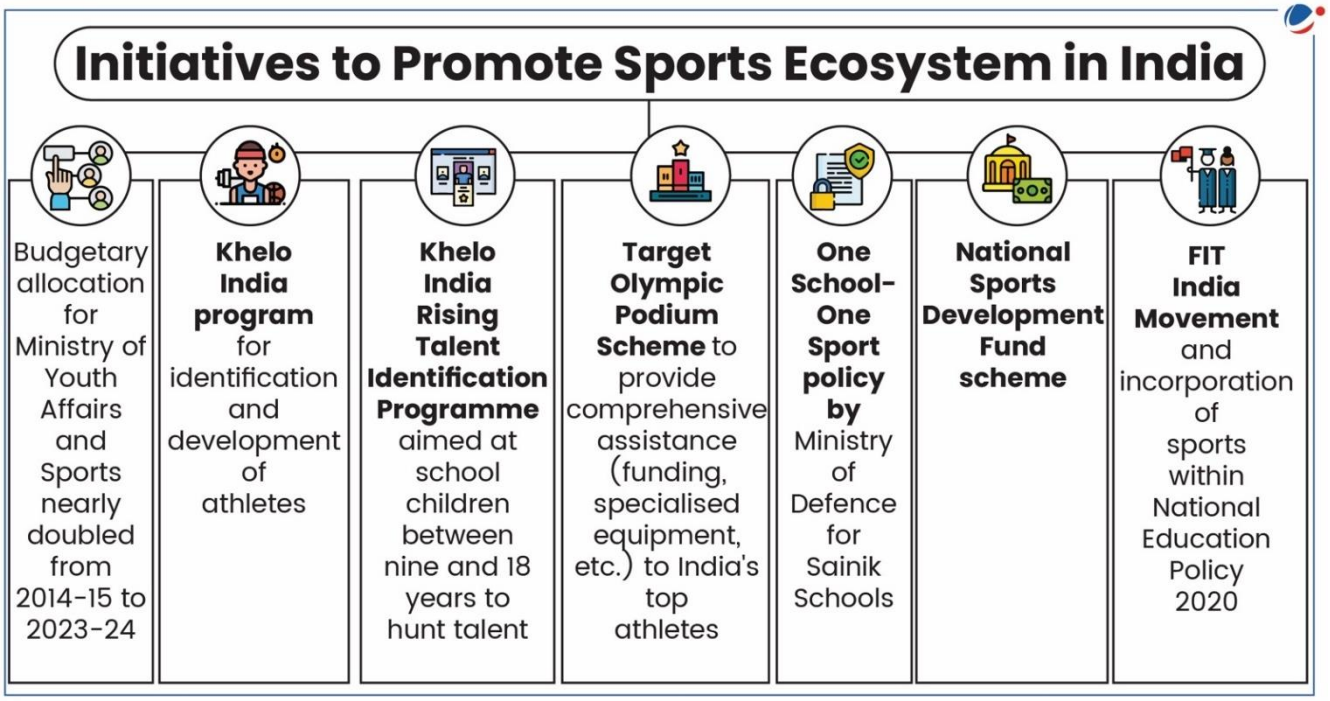
India's Olympic ranking fell from **48th in Tokyo (2020) to 71st in Paris.**

India's Sporting Ecosystem

- **Sports is a state subject**. However, **Central government,** through its various schemes, **supplements** the efforts for state government
- Sports **generate revenue and raises country's soft power** while also having significant **contribution to general health and well-being of players.**
  - Despite these benefits, **only around 6% of India's population participates in sports,** which is much lower than around 20% in countries like US, Australia and as high as 60% in Japan.

Challenges that persist in India's sporting ecosystem

- **Lack of early-stage talent identification:** Despite being most populous country, India sent only 117 athletes to Paris Olympics, compared to 594 (U.S), 572 (France), and 460 (Australia).
- **Resource constraint:** India's sports budget is **low as compared to countries like US, Germany**, and China. Fund underutilization is also an issue.
  - For instance, **Khelo India scheme spent only Rs 318 crore out of Rs 500 crore allocated** in 2019-20 (Parliamentary Standing Committee on Human Resource Development).
- **Limited Infrastructure Gaps:** Most facilities that meet international standards are **concentrated in a few states** like Haryana, Punjab, and Karnataka.
- **Corruption and unethical conduct**: For example, In January 2023, many Olympic medallists accused the then Wrestling Federation of India (WFI) president and coaches of Federation of sexual harassment.
- **Mismanagement of athletes:** For example, Vinesh Phogat's disqualification from Paris Olympic for being 100 grams overweight cost India confirmed silver and a potential gold medal.



Way ahead for strengthening India's Sports Ecosystem

- **Driving mindset change:** Parents should be informed about the benefits of state or national sports accreditation, including reservations in higher education and job preferences.
- **Increase talent pool**
  - **Nourish younger talent pool: 'One Panchayat, One Playground'** initiative by **Kerala Government** can be advocated across States to promote sporting culture at grassroots.
  - **One State-One Sport policy:** Region-specific traditional sports needs to be promoted to ensure mass participation and cultivate an interest among people.
  - **Rural Olympics**: Localised sports mega events like **'Rural Olympics',** on lines of what Rajasthan government has done, should be promoted countrywide.
- **Supporting multiple disciplines:** IPL for games like **Badminton, Football, Tennis, and Volleyball by sponsoring leagues** that facilitates owning teams and building sports facilities should be encouraged.
- **Ensuring Accountability:** Implement performance metrics for nutritionists and support staff of athletes and fix the accountability for last-moment mismanagement.
- **Improving governance structure of sports federation**
- **Corporate funding for sports sector**

1.14. SAFETY OF HEALTHCARE PROFESSIONAL

Why in the news?

Following the Supreme Court's order, Ministry of Health and Family Welfare (MoH&FW) has announced the formation of **14-member National Task Force** to formulate protocols governing the safety of doctors.

About National Task Force (NTF)

- NTF mandated to formulate effective recommendations to remedy the issues of concern pertaining to safety, working conditions and well-being of medical professionals and other related matters.
  - The Cabinet Secretary will be the chairperson of the task force..

Challenges associated with Safety of Healthcare Professional

- **Lack of security personnel in medical care units**
- **Lack of properly functioning CCTV cameras** to monitor entry and exit to hospital and to control access to sensitive areas
- **Inadequate resting spaces** for medical professionals who are posted for night-duties
- **Either inadequate or no transportation facilities** for safe commute to hostels or places of stay for medical professionals
- **Unrestricted access to patients and their attenders** to all places within hospital, including ICU and doctors resting rooms
- **Failure to implement NCAHP Act 2021 by all states**

Initiative taken to ensure Safety of Healthcare Professional

- **India**:
  - **National Commission for Allied and Healthcare Professions (NCAHP) Act, 2021:** To provide for **regulation and maintenance of standards of education and services by allied and healthcare professionals**, and maintenance of a Central Register and State Register.
  - Many of its provisions have not been implemented. Out of 28 states and union territories, only 14 have set up state councils to set standards for previously unregulated categories.
  - **Epidemic Diseases (Amendment) Act, 2020**: It provides that **acts of violence against healthcare personnel** during an Epidemic situation are considered **cognisable and non-bailable offences**.
  - **National Accreditation Board for Hospitals & Healthcare Providers (NABH)**: Constituent board of Quality Council of India, set up to establish and operate accreditation programme for healthcare organisations.
  - **Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act 2013**
  - **Kerala Healthcare Service Persons and Healthcare Service Institutions (Prevention of Violence and Damage to Property) Amendment Act, 2023**.
- **Global**:
  - **UK:** Zero-tolerance policy on violence in healthcare, supported by security teams and reporting systems.
  - **ILO and WHO:** Framework guidelines for addressing workplace violence, involving governments, employers, workers, unions, and the public.

Way ahead

- **State Responsibility:** State governments must establish mechanisms to prevent violence against doctors, including imposing penalties and setting up helplines for immediate assistance, as Health and Law & Order are State subjects.
- **NCAHP Act 2021**: States should implement provisions like establishing professional and allied healthcare councils to inspect institutions.
- **Infrastructural Development**: Install CCTV cameras, use biometric and facial recognition, and provide transport from 10 pm to 6 am.
- **Employees Safety Committees**: Form committees at every medical establishment for quarterly safety audits.
- **Work Hours Regulation**: Governments should enforce laws ensuring maximum limits on working time of health professionals.

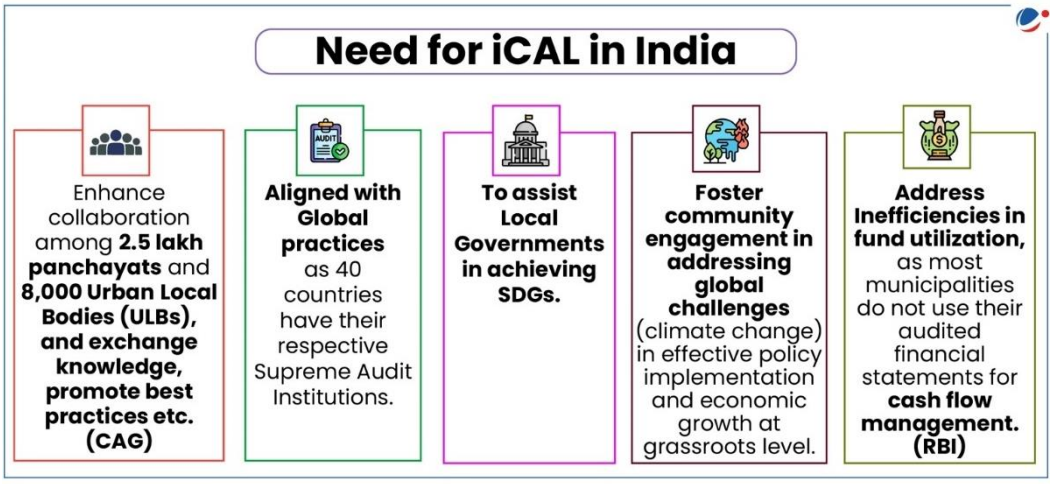
1.15. AUDITING OF LOCAL BODIES

Why in the news?

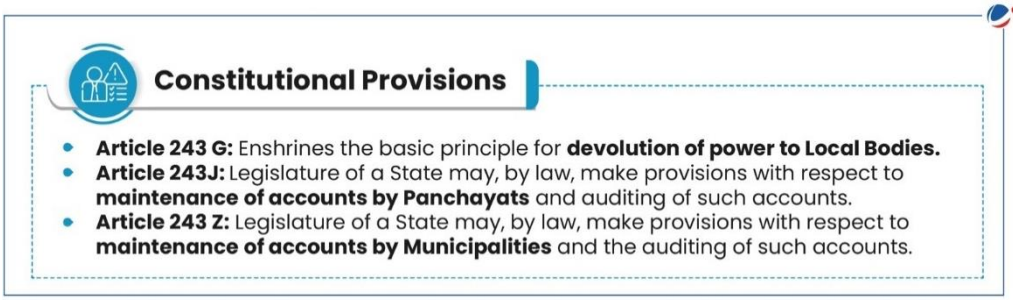
Recently, International Centre for Audit of Local Governance (iCAL) was inaugurated in Rajkot, Gujarat.

About iCAL

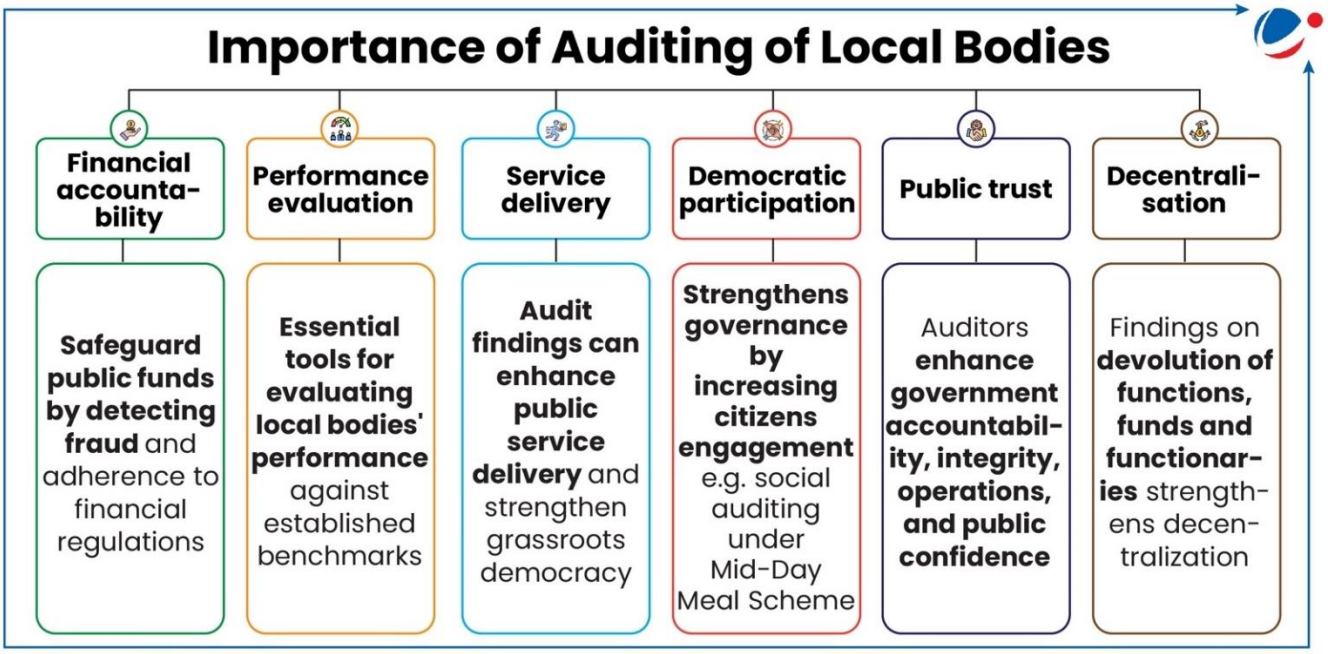
- It is the first in country and aims to **set global standards for auditing local governance bodies**, , offering a collaborative platform for policymakers and auditors.
- It builds auditors' capacity, enhancing their independence and improving financial performance and service delivery.



- **Current Auditing Mechanism of Local Bodies**
  - In 2020, **Ministry of Panchayati Raj developed Audit Online application** to conduct online audit of panchayat accounts, ensure accountability in utilisation of funds at ground level.



  - CAG's mandate for audit of Local Bodies flows from **CAG's (Duties, Powers and Conditions of Service) Act, 1971.**
    - ✓ CAG exercises **control and supervision** over proper **maintenance of accounts and auditing** for all three levels of PRIs/ULBs.
  - It is done through **Examiner of Local Fund Accounts (ELFA) or Director of Local Fund Accounts (DLFA)** in most states. It **audits utilization of funds** granted by state government to local bodies.



Issues associated with Auditing of Local Bodies

- **Poor Record Keeping:** Local bodies' financial records are incomplete, inconsistent, and further **lack uniform auditing standards across different states and local bodies**.
- **Lack of qualified auditors**: This can lead to inadequate or superficial audits, missing critical issues.
- **Overlapping Jurisdictions:** Division of auditing responsibilities between different agencies, like state audit departments, local government auditors, and CAG can create confusion and inefficiencies.
- **Out-dated procedures:** In many states, local bodies continue using outdated formats/procedures for account maintenance, despite significant increases in their powers and responsibilities. (Eleventh Finance Commission)
- **Low Awareness of audit processes and their significance**

Way ahead (2nd ARC Recommendations)

- **Simplified Standards:** Audit and accounting standards for Panchayats should be prepared in a simple, comprehensible manner for PRIs' elected representatives.
- **Institutional Independence:** DLFA or any auditing agency should be independent of State administration.
- **Legislative Scrutiny:** Audit reports on local bodies should be presented and discussed by a separate State Legislature committee, similar to the Public Accounts Committee.
- **Information Access**: DLFA or the designated authority should have access to necessary records by incorporating suitable provisions in State Laws governing local bodies.
- **Capacity Building**: Each State should ensure local bodies have the capacity to meet accounting and auditing standards.

2. INTERNATIONAL RELATIONS

2.1. INDIA: GLOBAL PEACEMAKER

Why in the news?

Recently, the **Summit on Peace in Ukraine** titled "Path to Peace Summit" was held in Switzerland.

About Peace summit

- **Objective**: To develop a common understanding of a path towards a just and lasting peace in Ukraine.
- **India's Representation**: To facilitate **peaceful resolution through dialogue and diplomacy.**
  - **India abstained from signing the joint communique released at the summit**.

Why is Global Peacemaking in India's interest?

- **Contemporary shocks across the globe**: **E.g.,** wars in Ukraine and Gaza and the threat of conflict around Taiwan have global impacts, such as trade disruptions, inflation, energy crises, food insecurity, etc.
- **Ineffective UN System**: E.g., UNSC credibility has diminished.
- **Potential Global player**: India's peace mediation can boost global influence and Net security provider status.
- **External security**: E.g., India seeks Korean peace due to Pakistan-North Korea nuclear missile connections.

India's Contributions/Potential to promoting International Peace

- **Voice of the Global South**: E.g., efforts to include **African Union (AU) into G20**, amplifying southern voices.
- **Non-Alignment Movement (NAM)**: India as a neutral mediator during the Cold War**.** E.g., India helped Austria to become free from the Soviet occupation in 1953.
- **Conflict Resolution Experience:** E.g., Role **in stabilizing Afghanistan and helping Sri Lanka during Civil crisis.**
- **Growing influence in emerging global order:** E.g., Iran asked India to play peacemaker role to de-escalate tension with US.
- **Peacebuilding through Development Partnership: E.g.,** in Africa and Afghanistan through ITEC Programmes, building infrastructure (such as Salma dam), etc**.**
- **Cultural Diplomacy**: India's **civilisational ethos** is widely respected and the **philosophy of 'Vasudhaiva Kutumbakam'** resonate globally. **E.g.,** PM's dictum: "This is not an era of War".
- **Active participant in UN peacekeeping**: **E.g.,** India has supplied one of the largest contingents of forces.

Way forward

- India can adopt a more **proactive role as Vishwabandhu (the world's friend)**
- **Partnerships:** India can collaborate with diverse nations for enhanced global peacemaking efforts. E.g., Brazil. Switzerland**.**
- **Capacity building:** Form peace teams within the Ministry of External Affairs and think tanks to study global conflicts and develop resolution strategies. E.g., Norway's peace unit in Oslo**.**

2.2. SOVEREIGN DEBT VULNERABILITY

Why in the News?

India hosted 3rd Voice of Global South Summit (VOGSS).

More on the News

- **VOGSS aims** to bring together countries of **Global South to share their perspectives** on whole **range of issues** aligned with the philosophy of **'Vasudhaiva Kutumbakam'.**
- **In the Summit India had proposed a comprehensive "Global Development Compact" (GDC)**
  - GDC has been proposed amid concerns over countries, (particularly, countries of the 'Global South') **Sovereign Debt Vulnerability due to so called 'development finance'.**
  - GDC will **facilitate trade, sharing of technologies and concessional financing** based on India's growth journey, at a time when many countries falling into the Chinese 'debt trap'.

About Global Development Compact (GDC)

- **Focus**: Development priorities set by the countries of the Global South themselves.
- **Nature**: It will be human-centric, multi-dimensional and promote a multi-sectoral approach to development.
- **Aim**: Contribute in balanced and sustainable development of the partner countries.
- **Funds proposed under GDC**
  - India will launch a **special fund of $2.5 million** to **boost trade promotion activities**
  - **Trade policy training fund of $1 million for capacity building.**

Sovereign Debt Vulnerability refers to 'the risk that a country will violate the solvency and liquidity conditions and enter a crisis'.

Reasons for the growing debt of developing countries	Issue of debt sustainability
• **Higher costs of funds:** When developing countries borrow money, they have to pay much higher interest rates. • **More resources to pay interest**: Currently, half of developing countries devote more than 1.5% of their GDP and 6.9% of their government revenues to interest payments. • **Issue in debt restructuring:** Outsider creditors avoid debt restructuring of a country in crisis.	• **The burden of debt pushes them to borrow from more expensive sources**, increasing their vulnerabilities. E.g., Sri Lanka's public debt crisis of 2022. • **Erosion of sovereignty**: Chinese company acquired the Lankan port of Hambantota on a lease for 99 years. • **Decreased Developmental spending**: 3.3 billion people live in countries that spend more on interest than health or education.

Initiatives to Address Sovereign Debt Vulnerability

- **IMF approved $272 billion to 94 countries** since start of pandemic, of which 57 were low-income countries.
- **G7 Announced Partnership for Global Infrastructure and Investment (PGII**) to meet the infrastructure needs of low-and middle-income countries.
- **G20 Established Debt Service Suspension Initiative (DSSI**)and laid **Common Framework for Debt Treatments** beyond DSSI with **Paris Club countries**.
- **India**: Contributing to **the SDG Stimulus Leaders group** for financial stress and development funding in countries of the Global South.

Way forward

- **Creating a strong** and **effective Global Financial Safety Net.**
- **Boost Multilateral Development Banks (MDBs)** lending resources, knowledge support etc. based on their involvement in development financing.
- **Ensure a transparent** and **stable** global financial system to minimize the risks of crisis.
- **Strengthen IMF surveillance system** for an **early detection** of financial risks and **proactive management** of distressed loans.

Conclusion

To mitigate **sovereign debt vulnerability**, countries must strengthen **fiscal policies, diversify economies, improve debt management, and engage in international cooperation. Sustainable borrowing** and **proactive risk assessment** are crucial for **long-term economic stability.**

2.3. INSTABILITY IN INDIA'S NEIGHBOURHOOD

Why in the News?

Bangladesh's Prime Minister has resigned amid mass protests.

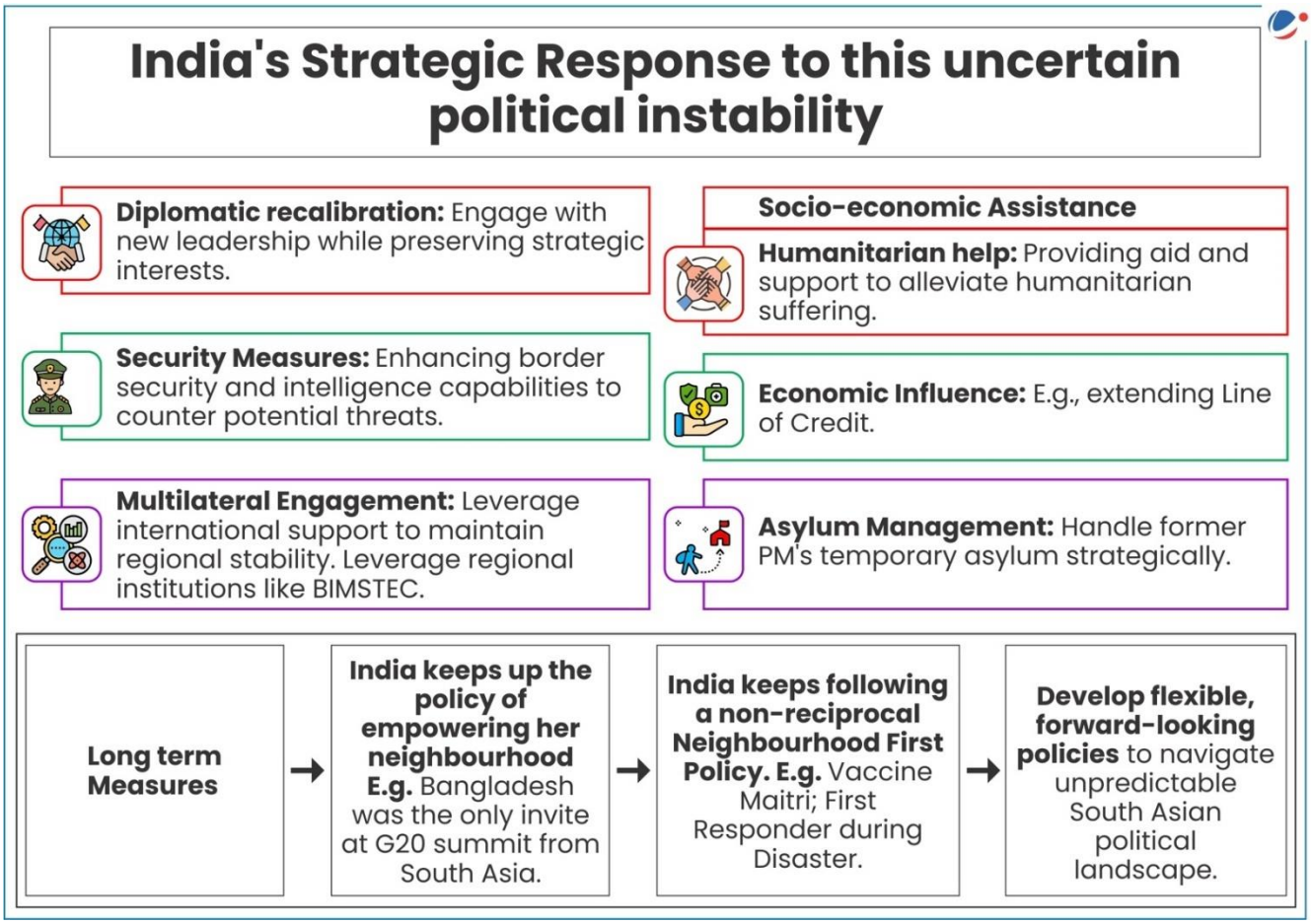
More on the News

- **An interim government** has been sworn and it's led by **Bangladesh's only Nobel Laureate** and **economist.**
- **South Asia's recent political upheavals**, including **unrest in Bangladesh** and instability in neighboring countries, have **significant implications for India's strategic interests** and **regional stability.**

Possible implications of recent development in Bangladesh

- Disruption in **India-Bangladesh partnership**.
- **Increase in illegal migration and forced displacement**: Due to rise of extremism in Bangladesh.
- **Incursion of foreign power in Bangladesh's internal politics** which may create a security threat to India.

- **Economic and investment threats:** Since **2016,** India has provided **$8 billion in credit.**
  - **Threat to k**ey projects that include the **Akhaura-Agartala rail link** and **the Khulna-Mongla Port rail line.**



Instability in India's Neighborhood

- **Myanmar:** Military coup in 2021 has destabilized democracy, sparking widespread protest and violence.
- **Afghanistan:** Taliban takeover in 2021 led to collapse of democratic government.
- **Sri Lanka:** In 2022, Economic crisis triggered political instability and public unrest.
- **Maldives:** Political turbulence in the Maldives-which began in 2012, when radicals forced the country's president to resign at gunpoint.
- **Nepal:** Political instability persists due to frequent government changes.

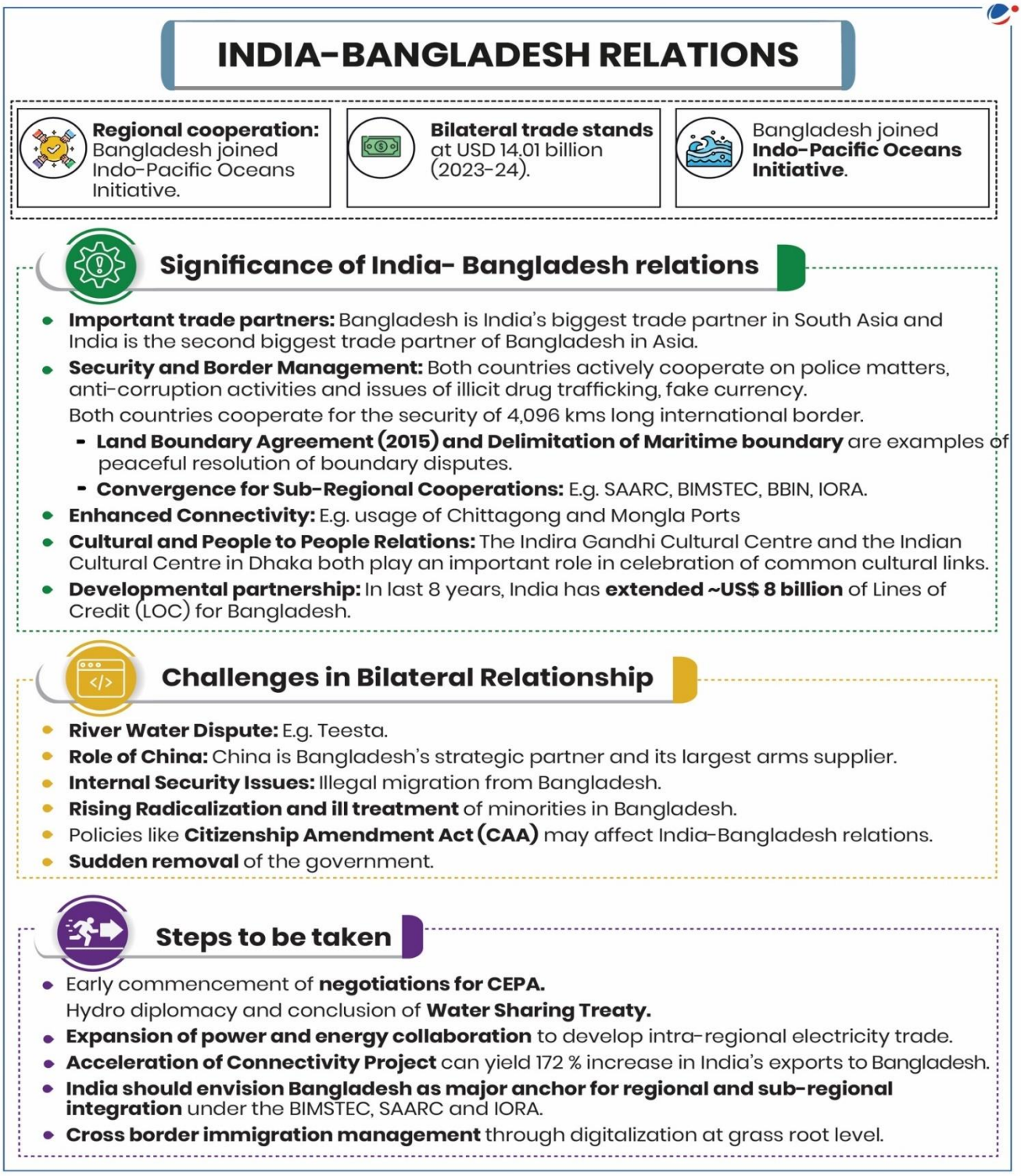
Neighborhood instability's impact on India

- **Myanmar:** Its instability is particularly concerning due to its shared border and the potential for increased insurgency and refugee flows. E.g., more than **32,000 ethnic Chin** have **sought refuge in Mizoram and Manipur.**
- **Afghanistan**: India's concerns range from the safety of its investments to the security implications of a Taliban-ruled state. E.g., The situation poses a direct threat to India's national security.
- **Sri Lanka:** Close geographical and cultural ties between the two nations. India confronts **potential refugee influx, economic spillover effects, and strategic concerns** over Chinese influence.
- **Maldives:** India's challenges include **countering radicalization, maintaining influence against Chinese inroads, protecting Indian Ocean security,** etc.
- **Nepal: F**requent leadership turnover and growing Chinese influence complicates India's regional interests and relationships. **E.g.,** Nepal recently swore in its 14th government in 16 years.

Way forward

- India, **being a voice of reason and a votary of international law**, has always advocated **dialogue, consultation and fairness** in her approach to **global issues in general** and **regional issues in particular**.
- In this regard India has **adopted the 5S principled approach-**Samman, Samvad, Sahyog, Shanti and Samriddhi.

2.3.1. INDIA-BANGLADESH RELATIONS AT A GLANCE



Conclusion

- India-Bangladesh ties should move to next level, based on **Shared Vision of Connectivity, Commerce and Collaboration.** By recognizing each other as indispensable partners, both can realize their respective national development visions of **"ViksitBharat 2047"** and **"Smart Bangladesh Vision 2041".**

2.4. ACT EAST POLICY

Why in the News?

2024 marks 10 years of Act East Policy.

About Act East Policy (AEP)

- AEP is the **policy graduation** from **Look East Policy** enacted in **1992.**
- It was articulated during India's PM's visit to Myanmar for the East Asia Summit and the ASEAN + India Summit in 2014.
- It focuses on the extended neighborhood (defined for the first time) in the Indo-Pacific region (IPR), with ASEAN as its core.
- **Objective:** Promote **economic cooperation**, **cultural ties** and **develop strategic relationships** in the IPR by providing **enhanced connectivity.**

Achievements under AEP

- **Positioned India's launching pad to the Indo Pacific Region: E.g.** India's support of Philippines' on South China Sea dispute.
- **Forged stronger strategic partnerships with countries such as** Indonesia, Vietnam, Malaysia, Japan etc.
- **Greater integration of Northeastern states** with ASEAN to end economic isolation. E.g., India-Japan Act East Forum to promote development and connectivity.

Roadblocks to AEP

- **Deeper Chinese integration** in the ASEAN economy.
- **India's economic under-performance:** E.g. India's trade deficit $ 43.57 billion**.**

Way forward: Review of **ASEAN FTA,** promote **tourism**, partner with **Singapore and Malaysia** to boost **Indian Semiconductor Mission**

Initiatives under Act East Policy

- **Regional connectivity: E.g.,** India-Myanmar-Thailand trilateral highway; Kaladan multi modal transport project.
- **Played the role of 'pharmacy of the world': E.g.,** Supplied Covid-19 vaccines under Vaccine Maitri initiative
- **Defense exports**: **E.g.**, India's supply of the BrahMos missile system to the Philippines.
- **Restoring cultural ties by restoring Monuments:** E.g., My Son temples (Vietnam), Buddhist Pagodas in Bagan (Myanmar), Wat Phou Temple Complex (Laos), Preah Vihear temple (Cambodia)

2.5. RISE OF MINILATERALS

Why in the News?

Chinese aggression in the Indo-Pacific has prompted the emergence of 'Squad', a minilateral grouping between the US, Japan, Australia and the Philippines.

More on the News

- Squad is seen as an addition to the series of security minilateral groupings in the Indo-Pacific such as the **QUAD, AUKUS, US-Philippines-Japan trilateral and the US-Japan-South Korea trilateral etc.**
- Its formation has highlighted the **growing preference for minilateralism** as the means of cooperation in the global world order.

What are Minilaterals?

Minilaterals **are informal and targeted grouping with fewer states (usually 3 or 4)** which intends to address specific threat, contingency or security issue sharing the same interest for resolving it within a finite period of time.

Failure of the Multilateral Institutions	Advantages of Minilateralism
• Failure to address emerging global challenges such as **climate change, cyber security etc.** E.g. **ASEAN members** failed to condemn Chinese action in South China Sea. • **Heightening Great-Power Rivalry** impeding consensus E.g. Dysfunctional WTO. • **Emergence of more aggressive China** is leading to emergence of groupings. E.g., QUAD, AUKUS, etc. • Developed nations see developing countries' collective influence as **unfair majority dominance**. **E.g.** USA disagree with demand of CBDR principle.	• **Pragmatic alternative to cumbersome multilateralism** as it allows increased flexibility and agility. • **Issue based cooperation** allows like-minded countries to come together **E.g. Supply-Chain Resilience initiative between Australia, India, and Japan** etc. • **De-globalization and rise in protectionist tendencies** makes it difficult to cooperate on multilateral platforms: **E.g. US-China Trade War.** • **Preventive Diplomacy**: Aimed at preventing existing disputes from escalating into conflicts **E.g., Conflict Prevention Centre** of Organization for Security and Co-operation in Europe (OSCE) • **Mediation and Negotiation**: ASEAN mediated conflicts successfully between member states. **E.g.,** Thai-Cambodian border dispute in 2011. • **Post-Conflict Reconstruction**: Assist in rebuilding post-conflict societies. E.g. EU's role in the Western Balkans. • **Addressing Existential Threats: E.g.,** EU has enacted **Net-Zero Industry Act** and **EU Artificial Intelligence Act.**

Benefits of Minilaterals for India

- **Maintaining strategic autonomy,** enhance its policy of multi-alignment. E.g., QUAD partnership.
- **Emerge as a voice of global south** by reconciling Western interests with the developmental agenda of the Global South. **E.g., India-Brazil-South Africa (IBSA) Trilateral.**
- **Co-opting partners with similar interests** in the Indo-Pacific framework. **E.g., Australia, France, and India trilateral** focuses on regional security; **India-Iran-Armenia Trilateral-** to boost INSTC, etc.
- **Solve transnational challenges** like water, energy, food security etc. E.g. **India-France-UAE** trilateral
- **Allows India to be part of diverse Networks**. E.g., part of U.S. alliances (QUAD) and the Middle East (I2U2).
- **Restructuring the China-centered Asian integration** by encouraging the shift of industrial supply chains out of China and building new coalitions. E.g., "Chip 4" semiconductor alliance (Japan, South Korea, Taiwan, and US).

Challenges with Minilaterals

- **Legitimacy and inclusiveness: E.g., India-France-Australia Trilateral** excludes members of Indo-Pacific region.
- **Limited resource and capabilities:** Of smaller groups for complex global challenges like Climate Change.
- **Tensions and divisions among countries:** Due to potential for growth of exclusionary bloc politics, particularly in areas of strategic cooperation. E.g., **China characterizes Quad as an 'Asian NATO'.**
- **Accountability and Transparency:** Less formal structure and processes in minilaterals raise concerns.
- **Informal Nature and lack of proper structures lead** to ineffectiveness in shaping of state policies, interests, etc.
- **Diminished sanctity of multilateral frameworks** by disrupting process of international interdependence and globalisation.

Conclusion

As India should embrace the concept of **Minilateralism along with Multilateralism** in line with philosophy of **Sarvajan Hitaya Sarvajan Sukhaya (Everyone's benefit, everyone's happiness).** Moreover, India should keep **pushing for reforms at the multilateral level** to safeguard a universal rules-based framework while utilising the minilateral route in the short term.

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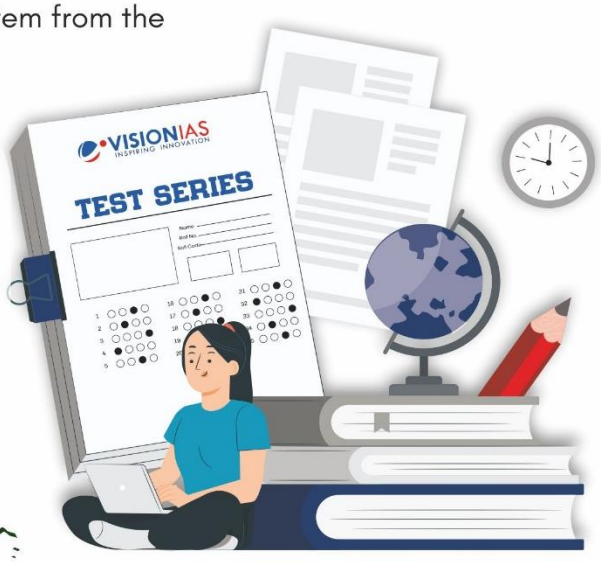

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2.6. GROUP OF 7 (G7) AT A GLANCE

GROUP OF 7 (G7)

The G7 is an informal grouping of advanced democracies that meets annually to coordinate global economic policy and address other transnational issues. E.g., Migration, Climate change, conflicts, etc.

- Comprises **40% of the global economy and 10% of the world population.**
- **Initiatives:** Build Back Better World Partnership, PGII, L' Aquila Food Security Initiative, etc.
- **Members:** 7. The US, Germany, Canada, the UK, Japan, Italy, France. Russia joined G7 in 1998, creating the G8, but was excluded in 2014 for its takeover of Crimea.

Significance of G7 in the current Geopolitics

- **Play a Central Role in Global Governance:** E.g., A.I Governance: Global Partnership on AI (GPAI) for A.I. governance.
- **Tax governance:** The FATF was established in 1989 by the G7.
- **Act as a defender of the rules-based international system:** E.g., Strictly defend free and open Indo-Pacific.
- **A platform to discuss and resolve prominent international crisis and disputes: E.g.,** Presently, Ukraine-Russia war,
- **The G-7 'Club of Democracies':** To defend democratic societies and ensure "rules-based international order."

Limitations of G7 Effectiveness

- **G7 fails to reflect current global economic landscape:** G7's economic dominance declined from over 60% in the 1970s to 26.4% in 2023.
- The focus of global economic governance is shifting to **more inclusive, representative** governance. E.g., G20.
- **G7 unity is undermined by discord between the countries:** U.S. refused to Join G7 Climate Change Declaration in G7 meet in Canada and at the end U.S. withdrew support for any communiqué.

India and G7

Significance of India's participation in G7

- **India's frequent invitations to G7 summit** indicate its **growing importance** in global affairs. **E.g., India has been invited 11 times.**
- **India's growing economic and military power make it a potential future member.**
- **As a responsible democratic power,** India offers an **alternative to China .**
- India's inclusion helps **G7 better understand and engage** with the **Global South** perspective.
- **India's G20 chairmanship complements** its G7 participation, bridging developed and developing world interests

Relevance of G7 for India

- A platform where India it can place the **priorities of the Global** South on the world stage.
- **Among the comity of democracies:** Unlike, BRICS, SCO, G7, reflects the concerns and agendas of democracies like India.
- **For India, the outreach session of the G-7 meeting is a platform** to showcase its achievements and outlook to the world.
- **G-7 platform** gives India the opportunity to meet global leaders and set priorities.

Conclusion

- **U.S. National Security Advisor Jake Sullivan's** description of the G7 as the **"steering committee of the free world"** underscores its pivotal role in shaping global policy. As **democracies face complex challenges,** the G7's unified approach to critical issues demonstrates its **enduring relevance and influence in international affairs.**

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2.7. INDIA-PACIFIC ISLANDS NATIONS RELATIONS AT A GLANCE

INDIA–PACIFIC ISLANDS NATIONS RELATIONS

Pacific Islands Nations are situated in Pacific Ocean and comprised of 3 **groupings, i.e., Melanesia, Micronesia, and Polynesia.**

Recently, India offered aid to disaster-hit pacific Island Nation **(Papua New Guinea) showcasing India's commitment to Forum for India–Pacific Islands Cooperation (FIPIC) partnership.**

Total trade between India and FIPIC was $571.66 million (2021-22).

Significance of Pacific Islands Nations for India

- **Geopolitical:**
  - The Pacific Islands are crucial to India's broader Indo-Pacific strategy.
  - Geostrategic Location offers India potential avenues for broader maritime strategies and military alliances.
- **Strengthens India's Economic Leverage:** Large EEZs of pacific island nations offers ground for mutually beneficial partnerships in terms of Blue Economy.
- These nations can play **a major role in building collective stance.** E.g. India's permanent seat at UNSC.
- **India's International commitment to Climate Change:** E.g. some of these nations have joined ISA.
- **Strong Diaspora Presence:** More than 1/3rd of Fiji population is of Indian origin.

India's engagement with Pacific Island Nations

- **Indo-Pacific Oceans Initiative (IPOI, 2019):** It is an open, non-treaty based global initiative.
- **Grant-in-aids and Concessional Line of Credits:** For renewable energy and climate projects.
- **Facilitation in Election Processes:** E.g. supply of indelible ink to Papua New Guinea
- **Indian Technical and Economic Cooperation (ITEC):** E.g. Sagar Amrut Scholarship Scheme for 1000 training opportunities in FIPIC.
- **India-UN Development Partnership Fund (2017):** It provides assistance to LDCs and Small Island Developing States (SIDS)

Challenges in Cooperation

- **Increased China's strategic foothold** poses a challenge to India. E.g. China signed security pact with Solomon Islands (2022)
- **India's need for domestic investment** may restrict its ability to provide substantial international aid.

- **The vast geographical distance** between India and the PINs.
- **These nations face disproportionate impact in terms of vulnerability** of coastal and commercial centres due to natural disasters, supply chain disruptions etc.

Way forward

- **Collaboration on Climate Resilience Projects.**
- India can collaborate on **issues like illegal fishing, piracy, and marine pollution, etc.**
- **Strategic resource allocation** in infrastructure and sustainable development.
- **Fostering people-to-people exchanges** can deepen historical and cultural ties, building long-term relationships.
- India can focus on **demand-driven projects** in IT, cyber security, desalination, etc.

2.8. WESTERN INDIAN OCEAN

Why in the news?

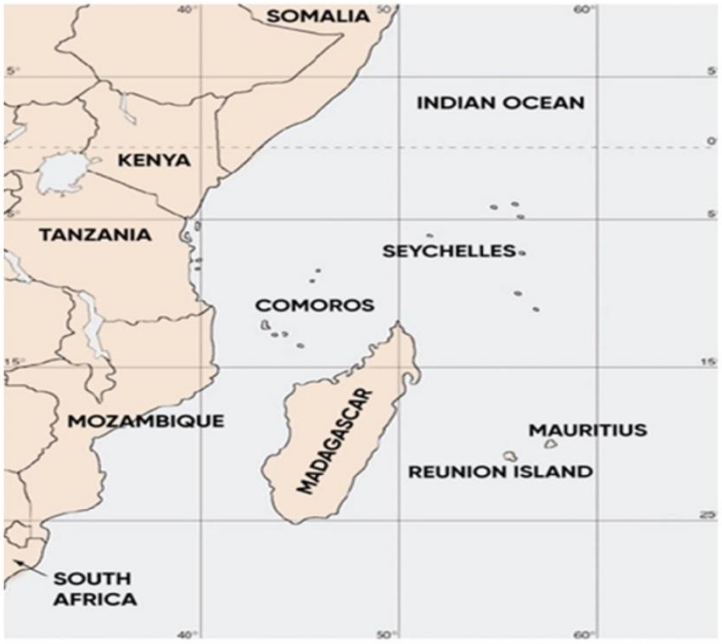
Western Indian Ocean is emerging as a key region for US-India Indo-pacific cooperation.

About Western Indian Ocean Region (WIOR)

- It stretches from the east coast of Africa to the western shores of India.
- It comprises **Kenya, Mozambique, Somalia, South Africa, Tanzania (**Eastern African coastal states), **Comoros, Madagascar, Mauritius, Seychelles (**island states) and **French territories** (Mayotte and Reunion).

Significance of Western Indian Ocean Region

- **Trade and Transportation:** comprises of major trade routes and choke points. E.g. **Cape of Good Hope, Mozambique Channel** (carries ~30% of global oil trade) etc.
- **Cornerstone of Indo-Pacific Cooperation:** Real-time exchange of information through **Information Fusion Centre – Indian Ocean Region (IFC-IOR)**
- **Ocean assets:** offshore oil and gas reservoirs, fisheries.
  E.g. **Gross Marine Product** is at ~US$20.8 billion annually.
- **Significance of WIOR for India**
  - **Strategic Location:** bridge the gap between the Indo-Pacific and the Middle East. E.g. **India-Middle East-Europe Economic Corridor (IMEEC).**



- **Countering Chinese influence**: by neutralizing Chinese advances in the region **E.g. India's military base in Madagascar**
- **Blue Economy:** Immense natural resources can contribute to India's **Deep Ocean Mission and Blue Economy 2.0.**
- **Energy Security:** WIO provides connectivity to routes such as Suez Canal essential for India's energy security.
  - ✓ **90 % of the energy trade** happens through Indian Ocean mainly through Suez Canal.
- **Net security provider:** can help enhance India's image and influence as a regional power.

Challenges in WIOR

- **Emerging Maritime Threats:** piracy, smuggling of exotic flora and fauna, drug & human trafficking, unauthorized fishing. E.g. Recent rise in pirate attacks **off Somalia's coast.**
- **Climate Change Impacts:** Vulnerability of WIOR to **rising sea levels, ocean acidification**, & **extreme weather events**.
- **Chinese Debt Trap:** Increased risk of default due to high debts to fragile economies in East Africa. E.g Kenya
- **Militarization:** Presence of external powers may undermine collective efforts to provide security at sea leading to regional instability. E.g., US, and China both have military base at **Diego Garcia**, and **Djibouti** respectively.

India-WIO Region Engagement

- **Security and Growth for All in the Region (SAGAR):** Under Mission SAGAR, India has delivered Covid-19-related assistance such as food aid, medicines
- **Capacity Building:** India offers **training and equipment** to coastal guards and navies of WIO countries. E.g., **Indian Air Force Training Team deployed in Mauritius** provides training assistance to police.
- **Joint military Exercises:** E.g., **Africa India Field Training Exercise (AFINDEX-19)**
- **Operation Sankalp:** Indian Navy conducted maritime security operations in areas like Gulf of Aden, Arabian Sea and off the East Coast of Somalia.
- **Information Fusion Centre – Indian Ocean Region (IFC-IOR):** acts as a principal hub for information exchange.
- **Memberships in common multilateral forums:** E.g. Indian Ocean Rim Association (IORA), Indian Ocean Naval Symposium (IONS).

Conclusion

The Western Indian Ocean region is rapidly emerging as a critical nexus of geopolitical and economic activity and there is a need to enhance maritime security through joint naval exercises, information sharing, capacity building etc. Joint research can be also be conducted on the impacts of climate change on the WIO region for better development of adaptation strategies.

2.9. INDIA-JAPAN RELATIONS AT A GLANCE

India-Japan Relations

PM of India and Japan held bilateral meeting on the side-lines of the **G-7 Summit in Apulia, Italy.**

2024 marks 10 years of **India-Japan Special Global and Strategic Partnership**

Bilateral Trade: US$ 21.96 billion (FY 2022- 23)

Significance of India-Japan Bilateral Relationship

- **Convergence of Strategic Interests:** Japan's 'Free and Open Indo-Pacific' (FOIP) strategy and India's Indo-Pacific Oceans Initiative (IPOI).
- **Strategic Connectivity: Linking South Asia & Southeast Asia** by India's 'Act East' and Japan's 'Partnership for Quality Infrastructure' policy.
  - **Asia-Africa Growth Corridor (AAGC)** aims to bring East Asia, Southeast Asia and South Asia closer to Africa
- **Defense:** 2+2 dialogue, Acquisition and Cross-Servicing Agreement, Military Exercises: Dharma Guardian, JIMEX.
- **Energy Cooperation: E.g., India-Japan Clean Energy Partnership (CEP), India-Japan Agreement for Cooperation in the Peaceful Uses of Nuclear Energy (2017)**
- **Science & Technology:** E.g. Lunar Polar Exploration Mission (LUPEX) by ISRO and JAXA.

Challenges in Indo-Japan Relationship

- **Bilateral Trade:** Low trade despite CEPA (2011).
- **Strategic divergences:** Divergent approaches in tackling China, Stand on Russia-Ukraine war(Japan has joined sanctions against Russia).
- **India boycotted 'Osaka Track' s**uggested by Japan at G20 summit (2019)
- **Delayed Project Implementation:** E.g. Asia Africa Growth Corridor.

Steps to be taken

- **Accelerate trade and investment:** Review CEPA, relook at the rules of origin
- **Enhanced defense collaboration:** Co-production and Co-development
- **Coherence towards Indo-Pacific Policy :** freedom of navigation, rule based order
- **Deepening cooperation in new and emerging areas:** modern biology, biotechnology, etc.

- Both countries should recognize the need for concerted efforts to utilize the natural partnership and translate positive developments into an 'Arc of Advantage and Prosperity' involving growth, prosperity, stability and closer integration in Asia.

2.10. INDIA-EURASIA RELATIONS AT A GLANCE

India-Eurasia Relations

- **Eurasia:** A vast landmass combining Europe and Asia, E.g., Ukraine, Tajikistan, Turkmenistan, Uzbekistan, Armenia, Azerbaijan, etc. There is no one definition of Eurasia.

Changing geopolitics of the Eurasian region

- **Hotbed of conflicts:** E.g. **Russia-Ukraine conflict.**
- **Growing Chinese influence:** China's **BRI** extending Central Asia, Russia has strengthened its influence.
- **Changing strategic priorities of US:** E.g. shifting focus from Middle East to Eurasia and Indo-Pacific.

India's Eastern European Pivot

- India expands engagement with **Ukraine, Poland, and Greece, aligning with** Europe's peace efforts in the region.
  - **India and Poland** have elevated their ties to **Strategic Partnership.**
- **India's strategic autonomy at display:** The Indian PM visit Ukraine shows **India's view of** Ukraine is independent from that of Russia (India's attempt to de-hyphenate Russia and Ukraine relations).
- **India's Stand on Ukraine-Russia Conflict:** India Is Not Neutral, We Have Chosen The Side Of Peace': PM, India.

Evolving Eurasian landscape and Challenges for India?

- **Slow progress** on projects like INSTC, IMEC.
- **Threats from China:** E.g., BRI.
- **Challenges in Indo-Russia relations:** E.g. Russia's growing proximity to China.
- **Ensuring autonomy while managing divergent interests.** E.g. Aligning with both maritime (e.g., QUAD) and continental coalitions (e.g., SCO).

Opportunities for India in Eurasian region

- **Creation of Eurasian energy grid** E.g. Green Grids Initiative (GGI).
- **Mitigating non-traditional security threats** E.g., food security, environmental security
- Cooperation in the **Arctic region and peace building in Afghanistan.**
- **Bringing peace between Russia-Ukraine: E.g.,** Ukraine PM has proposed India as venue for next peace summit.

Way Forward

- **Enhance connectivity:** India can consider joining **Russia's Greater Eurasian corridor & Northeast Passage.**
- **Central Asia as the Core of India's Eurasian Strategy:** The **India-Central Asia Summit** can be **held annually instead of biannually,** similar to the India-ASEAN Summit.
- **Balancing different regions:** Balance Connect Central Asia policy with its Act East Policy and Indo-Pacific Strategy by utilizing membership of BRICs, SCO, etc.

2.11. INTERNATIONAL HUMANITARIAN LAW AT A GLANCE

International Humanitarian Law

- 2024 marks **75th anniversary of Geneva Conventions of 1949,** the cornerstone of International Humanitarian Law (IHL)
- **International Humanitarian Law** is a set of rules that seek for humanitarian reasons to limit the effects of armed conflict and protect persons who are not or who are no longer participating in hostilities.

Treaties Related to IHL Include:

1954 Hague Convention for the Protection of Cultural Property

1972 Biological Weapons Convention.

1993 Chemical Weapons Convention.

1998 Rome Statute for International Criminal Court

Important Principles of IHL

- **Principle of distinction:** between civilians and civilian objects and combatants and military objectives.
- **Principle of proportionality:** Parties should anticipate incidental harm that might be caused directly and indirectly by an attack
- **Principle of precaution:** Constant care to spare civilian population, civilian objects in the conduct of all military operations

Challenges in effective enforcement of IHLs

- **State Interests vs. Humanitarian Concerns:** States often prioritize national security over humanitarian obligations
- Rise of **Non-State Actors and armed groups who do not** recognize IHLs or adhere to them.
- **Jurisdictional Issues:** Principle of **state sovereignty limits international jurisdiction.** E.g. Rohingya conflict in Myanmar.
- **Lack of effective enforcement mechanisms and issues with Global Governance: E.g.** During the Syrian Civil War, Russia and China repeatedly used their veto power in UNSC to block resolutions aimed at addressing war crimes.
- **Technological:** Use of autonomous weapons such as lethal autonomous drones.

Way Forward

- **Global Governance**
  - **Reforms in UNSC:** Restricting use of veto power in mass atrocities as asserted by G4 Nations.
  - **Enhanced role of regional organizations** to take more active roles in enforcing IHLs
- **Political**
  - **Strengthen national legal systems** to prosecute violators.
  - **Encourage non-state actors to sign 'Deeds of Commitment'** to ensure respect for IHL norms.
  - **Mandating IHL compliance in Peace agreements:**
- **Technological:**
  - Develop specific guidelines for applying IHL in cyber warfare

2.12. ENERGY DIPLOMACY

Why in the News?

The destruction of Nord Stream's pipelines and attacks on oil tankers and vessels in the Red Sea underscore the need for enhanced energy diplomacy and India's energy security.

What is Energy Diplomacy?

- It is an act of diplomacy aimed at sustaining and promoting energy engagements with hydrocarbon rich countries and international organizations dealing with energy matters to secure energy security of a country.
  - Presently, it is also used as a tool to **boost renewable energy transition in international settings** among sovereign states.
- **Energy Security** is defined as the uninterrupted availability of energy sources at an affordable price.**(IEA)**

Nord Stream

- Nord Stream is a network of offshore pipelines (Nord Stream 1 and 2) supplying natural gas from **Russia to northern Germany via Baltic Sea.**
- It passes through the territorial waters and/or Exclusive Economic Zones of Russia, Finland, Sweden, Denmark and Germany.

Destruction of Nord Stream and its Implications

On European Union

- Reduced dependency on **Russian gas**.
- EU's **active engagement and energy dialogue** with its partners. (E.g. North Africa, Eastern Mediterranean
- Significant **financial costs** for Europe.
- USA, UK have criticised Nord Stream 2 as "a **Russian geopolitical project intended to weaken European energy security".**

On Russia

- **Decline in revenue** due to loss of European market
- **Exit of major European energy companies** from Russian joint ventures (e.g. BP, Shell, Equinor)
- **Exploration of new markets** as a promising alternative. (E.g. Asia-Pacific)

Status of India's Energy Diplomacy

- **Regional Power Grid Integration with neighbours:** E.g. Cross-border electricity trade with **Nepal, Bhutan, and Bangladesh.**
- **Oil and Gas Diplomacy**: India has strategic oil reserves agreements with countries such as UAE, Saudi Arabia.
  - **India's** PSUs such as ONGC Videsh Ltd, IOCL, GAIL etc., have 48 assets in 22 countries with total investment of US$ ~38 billion (March 2023).
- **Championing Climate change diplomacy through Renewable energy Cooperation**: E.g. India launched One Sun One World One Grid (OSOWOG) under International Solar Alliance (ISA) initiative for global solar grid.
  - Countries such as USA, Germany, France, Australia, Japan and UK are collaborating with India under **National Green Hydrogen Mission.**
- **Nuclear Energy Partnerships**: India imports uranium fuel from Russia, Kazakhstan, Uzbekistan, France, and Canada and have also signed agreements such as **Indo-US nuclear deal, Indo Japan civil nuclear deal.**
- **Engagements with International Organisations and Multilateral Groupings** like International Energy Agency (IEA),

Concerns related to India's Energy Diplomacy

IEA identifies key concerns in energy diplomacy as ensuring the robustness, sovereignty, and resilience of energy systems to maintain price stability and protection from external threats. Some of the concerns which India faces in energy diplomacy includes:

- **High Dependency on imports:** India's reliance on imported crude has increased to a record 87.3% (2022-23) up from 85.5% (2021-22) and 84.4% (2020-21) making it vulnerable to global price fluctuations.
- **Complex Geopolitics:** It involves balancing and managing relationship with major energy suppliers and strategic partners who may have conflicting interests. E.g. India had to cut oil imports from Iran due to US sanctions.
- **Infrastructure constraints**: India's energy supply management is hindered by insufficient domestic infrastructure for energy storage, transportation, and distribution. E.g. High transmission and distribution (T&D) losses.
- **Energy Transition and Climate Change Commitments**: India faces challenges in balancing energy demands with environmental commitments due to high financing costs, lack of renewable market, etc.
  - Moreover, India's renewable sectors such as solar industry are heavily **dependent on Chinese imports.**
- **Competition with China:** India's competition with China for energy resources, especially in Africa and Central Asia, may restrict its access to vital energy assets.

Way Forward

- **Diversification of Energy Sources of Imports:** India should diversify its energy mix by investing in renewable energy, nuclear power, and exploring new natural gas and oil sources to reduce dependence on any single source.
- **Integration of energy diplomacy into foreign policy:** Strengthening of strategic partnerships with key nations, regional organizations, and international forums will help India secure reliable and long-term energy supplies.
- **Strengthening of Energy Infrastructure:** By investment in power grids, pipelines, ports, LNG terminals to ensure efficient energy distribution, resilience against supply disruptions and volatility in prices.
- **Increased Outreach** and coordination with reliable producers and large consumers to promote relevant infrastructure and action to reduce methane emissions, without undermining long-term climate neutrality goals.
- **Strengthen Technological Collaboration:** to strengthen foresight capability to anticipate new security and geopolitical challenges.

2.13. SPACE DIPLOMACY

Why in the News?

India and Nepal signed MOU to provide grant assistance for the launch of Nepal's Munal satellite.

More on the News

- The collaboration highlights the **growing role of space technology in diplomacy.**
- Munal Satellite is an **indigenous satellite developed in Nepal** that aims to build a vegetation density database of the Earth's surface.
- The satellite will use **NewSpace India Limited's (NSIL) Polar Satellite Launch Vehicle.**

About Space Diplomacy

- It involves leveraging space science and technology to achieve foreign policy goals and strengthen national space capabilities**.**
- **Significance for space diplomacy for India**
  - **Global south cooperation:** India is investing in building resources and building consensus on common space tech for space exploration. E.g., South Asia Satellite Project.
  - **National Security:** E.g., The India-US space situational awareness agreement can provide access to the U.S. radar and sensor network to mitigate risk to India's space assets.
  - **International cooperation and Capacity building:** to utilise space resources for the expanding population.
    - ✓ E.g., **UNispace Nanosatellite Assembly & Training by ISRO' (UNNATI)** makes an effort to educate Foreign Engineers/Scientists in space sciences.
  - **Conflict free space:** India is committed to using outer space for peaceful purposes and keeping it conflict-free.
- **Challenges:** lack of private participation, few missions for deep space exploration, lack of multilateral space partnerships, etc.

Conclusion

In the changing world where technology is directing the relations with other countries, space diplomacy can provide another avenue to further strengthen relations and autonomy.

2.14. UPDATES

2.14.1. INDIA-RUSSIA RELATIONS

Why in the news?

Prime Minister of India officially visited Russia in July 2024 for the **22nd India-Russia Annual Summit.**

Key Outcomes of the Visit

- **Trade and Economic partnership**: '**Enduring and Expanding Partnership**' focusing on economics.
  - Set the bilateral trade **target of USD 100 billion by 2030**.
  - Promote **bilateral settlement system using national currencies**.
  - Signed **Program of India-Russia cooperation** in trade, economic and investment spheres in the **Russian Far East** for the period from 2024 -2029, and **cooperation principles in the Arctic zone of the Russian Federation.**
- **Military cooperation**: Boost joint manufacturing in India of spare parts of Russian origin arms and equipments under Make-in-India program.
- **On Ukraine**: Peaceful resolution of the conflict **through dialogue and diplomacy**
- New consulates in Kazan and Yekaterinburg by India.

3. ECONOMY

3.1. LABOUR, EMPLOYMENT AND SKILL DEVELOPMENT

3.1.1. NOBEL PRIZE IN ECONOMICS: WOMEN IN LABOUR FORCE

Why in the news?

The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2023 has been awarded to **Claudia Goldin for advancing understanding of women's labour market outcomes**.

More on the news

- Over the past century, the proportion of women in paid work has tripled in many high-income countries. This is one of the **biggest societal and economic changes** in the labour market in modern times, but **significant gender differences remain**.
- Claudia Goldin's research has given us **new and often surprising insights** into women's historical and contemporary roles in the labour market.

Status of Gender Differences

- **Global Status:** Globally, around **50% women are in paid employment**, while the equivalent figure for men is 80%.
- **Status in India:** In India, the labour force participation rate among **females is 24% and among males is 73.6% for 2022.**
- **U-shaped relationship:** There is a posited U-shaped relationship between development (proxied by GDP per capita) and female labour force participation.
  - Women's labour force participation is **high for the poorest countries (higher share of agriculture), lower for middle income countries, and then rises again among high income** countries.
- **Earnings Gap:** When women work, they **usually earn less**. In India, the gender earnings gap is **most skewed amongst self-employed workers**.
- **Opportunities:** Women are **less likely to work in formal employment** and have fewer opportunities for business expansion or career progression.

Factors influencing female labour force participation

- **U-shaped curve:** Previously, it was concluded that there was a clear positive association between economic growth and the number of women in paid employment.
  - Goldin's U-curve demonstrated that there is **no historically consistent association between women's participation in the labour market and economic growth**.
- **Social norms:** Legislation or customs known as **"marriage bars"** often prevented married women from continuing their employment despite increased demand for labour.
  - Also, women often **leave the workforce for an extended period after marriage**.
- **Technological innovations:** Innovation of the contraceptive pill resulted in women delaying marriage and childbirth, **thus increasing their education and career prospects.**
  - However, this **did not mean that the earnings gap between women and men completely disappeared**, though it has become significantly smaller since the 1970s.
- **Parenthood effect: Women taking greater responsibility** than men for **childcare** (care economy) makes their career progression and earnings increases more difficult.

Way forward - Reducing gender differences in the workforce

- **Assessment:** Policymakers who want to affect these differences must first understand why they exist.
- **Investment:** Investments in providing women equal access to information, education and healthcare reaps large dividend in terms of gender parity.
  - E.g., Brazil introduced the Emergency Aid cash transfer program early in the pandemic, which provided double the benefits to women-led households, decreasing poverty rate.
- **Congenial environment:** Reforms to taxation, public spending, financial infrastructure and regulations, as well as labour markets that removes institutional barriers.
  - For instance, In Norway, the expansion of universal childcare increased the likelihood of mothers' employment by 32 percentage points.
- **Tackling biases and social norms:** Such costs can be reduced through social and legal actions such as curbing underage marriage, criminalizing domestic violence, and increasing the number of elected female officials.
- **Access to microfinance:** An International Growth Centre (IGC) project in India found that greater access to microfinance loans led to a significant increase in female labour force participation.

3.1.2. BRIDGING GLOBAL WORKFORCE GAPS

Why in the news?

The India Employment Outlook 2030 by ORF has highlighted that about 24.3% of the incremental global workforce over the next decade will come from India.

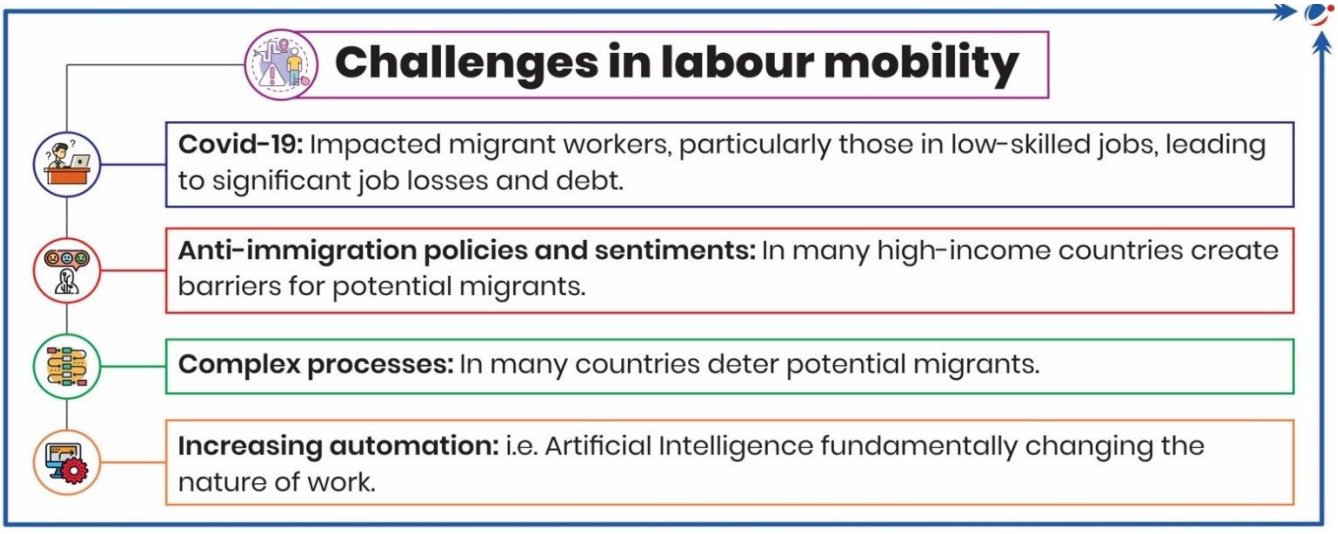
Global labour market scenario	India's demographic advantage
• **Shrinking working age population Demographic shifts are rapidly changing high-income countries.** Birth rates are falling, leading to a projected decline of over 92 million working-age people by 2050. • **Ageing population:** Elderly populations (65 and older) will grow by over 100 million in many **high-income countries.** • **Globalized Job Market:** Increasing accessibility to digital systems, alongside increasing acceptance of teamwork with colleagues who are not co-located, has enabled **more globalized talent value chains**. • **Shifting international trade:** due to geopolitical situations, trade restrictions and friendshoring.	• **Working population:** India's population exceeds 1.4 billion, nearly 65% of whom are of working age (15–64 years), and more than 27% between the ages of 15 and 24. • **Bridging Skill Gap:** The 'Global Skill Gap Study' by National Skill Development Corporation (NSDC) showed a **growing demand for Indian talent** across diverse sectors worldwide. • **Dual advantage:** India's young population (median age 28.4) offers a competitive workforce advantage and a potential for significant consumer spending growth. • **Previous Successes:** India's success in exporting IT and BPO services is a good example of how India has leveraged its demographic advantage.

Impacts of labour mobility

- **Global Productivity enhancement:** Labour mobility can connect potential migrants with employers in need, enhancing global equity and productivity.
- **Poverty alleviation:** Workers moving to richer countries can **expect to increase their incomes by 6 to 15 times**, significantly alleviating poverty.
- **Social welfare: Remittances (**India **received over US$ 111 billion in 2022) sent back home by migrant workers** can play a crucial role in improved healthcare, education and welfare.
  - **India introduced Liberalised Remittances Scheme** in 2004 under which all resident individuals, including minors, are allowed to freely remit up to USD 2,50,000 per financial year
- **Brain Drain:** Mass migration of workers may result in **potential brain drain**, adversely affecting the sectors like healthcare and construction.

Initiatives taken for utilization of India's demographic advantage

- **Skill Development:** Ministry of Skill Development and Entrepreneurship has undertaken several programs for skill training such as Skill India Mission, Pradhan Mantri Kaushal Vikas Yojana etc.
- **National Education Policy 2020** provides for inclusion of vocational education in the school curriculum and imparting skill training at an early age.
- **Migration Agreements:** with various countries such as Italy, France, Germany etc.



Way Forward

- **Understanding global labour demand:** India can strategically align its labour supply with the demands of advanced economies, ensuring mutual economic growth and integration.
- **Skill Development:** India must **invest in skilling initiatives** to equip its workforce.
- **International agreements:** To facilitate labour mobility, simplifying immigration processes, providing clear information about migration opportunities etc.
- **Reducing costs: Reducing labour mobility transaction costs** and ensuring the smooth reintegration of returning workers into the Indian labour market.
- **Women empowerment:** Getting more women to enter the workforce will be pivotal, as only 24% were participating in 2022, according to ILO estimates.

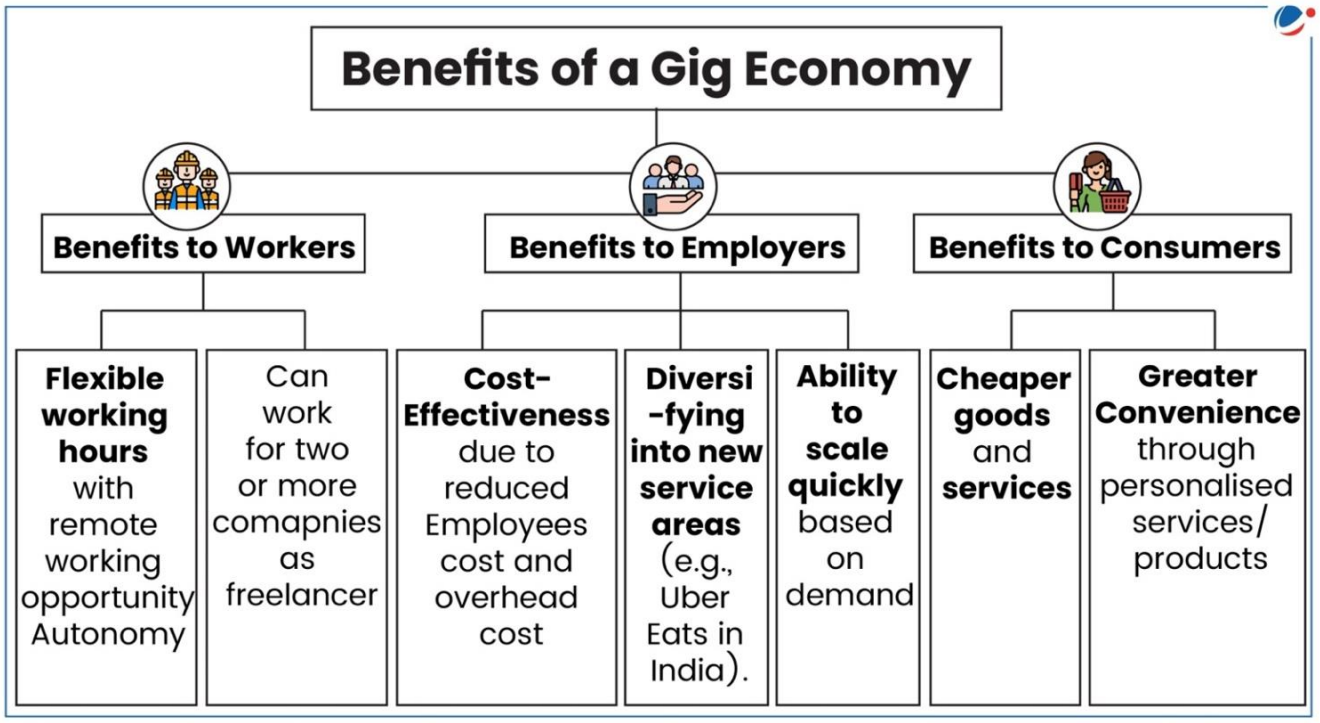
3.1.3. GIG ECONOMY

Why in the news?

Recently Karnataka government published **draft Karnataka Platform-based Gig Workers** (Social Security and Welfare) **Bill.**

Gig Workers

- As per **Code on Social Security, 2020,** it means a person who performs work or participates in a work arrangement and earns from such activities outside of **traditional employer-employee relationship.**
- **Broadly classified into 2 categories:**
  - **Platform based:** Whose work is based on online software apps or digital platforms. E.g., delivery workers of Zomato.
  - **Non-platform based:** Casual wage workers in conventional sectors, working part-time or full-time. E.g., domestic workers.
- **Drivers of Growth**: Technological advancements, urbanization, rising middle-class consumption demands, shifts in consumer preferences towards on-demand services, and desire for greater work-life balance among workers.



Challenges for Gig Workers

- **Digital Divide:** Access to internet services and digital technology can be a restrictive factor for workers.
- **Data protection: Opaque decisions made by platform companies** on how to collect; store and share personal data of workers impact Right to privacy of workers.
- **Lacking 'employee' status**: Has resulted in several consequences e.g. inability to form unions to represent their interests, exploitative contacts, etc.
- **Uncertain Nature of Job:** Lack of job security, irregularity of wages, and uncertain employment etc.
- **Lack of social Protection:** such as Health Insurance, Employees Provident Fund etc.
- **Algorithmic management:** Workers face stress due to **pressures resulting from algorithmic management practices** and performance evaluation on the basis of ratings.

Steps taken for Gig Economy in India

- **Code on Social Security, 2020:** Provides for extension of social security benefits to gig workers as well.
- **Code on Wages, 2019:** provides for universal minimum wage and floor wage across organized and unorganized sector which include gig workers.
- **e-SHRAM Portal:** which is a National Database of Unorganised Workers including gig workers.
- **Pradhan Mantri Suraksha Bima Yojana (PMSBY):** All eligible registered unorganised workers including gig workers are entitled to get benefit of an accidental insurance cover of Rs. 2.0 Lakh for a year.

Way Forward					
Proper Estimation of Gig Workers	**Introducing Platform India initiative** (like Startup India)	**Accelerate Financial Inclusion**	**Enhancing Social Inclusion in Digital Economy**	**Skill Development for Platform Jobs**	**Universal Social Security Coverage**

3.2. GROWTH AND DEVELOPMENT

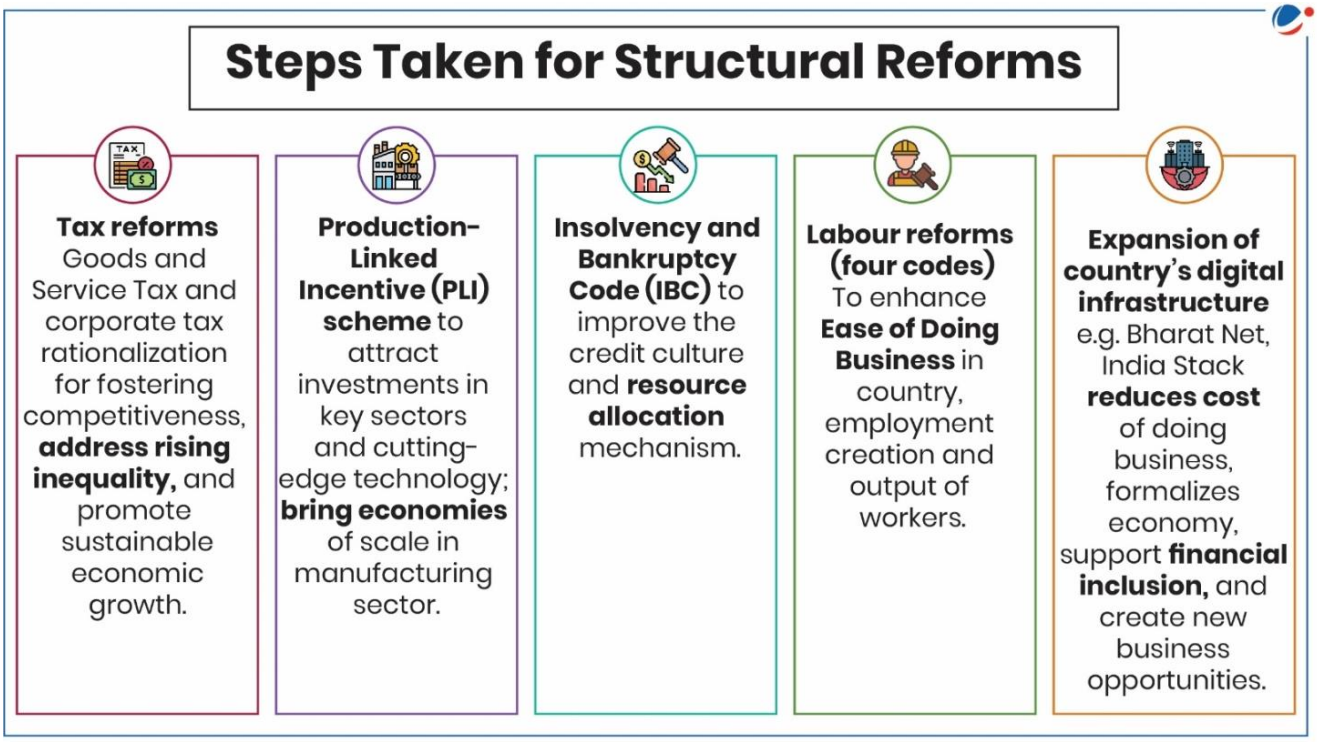
3.2.1. INDIA'S STRUCTURAL TRANSFORMATION

Why in the news?

IMF released a Working Paper titled '**Advancing India's Structural Transformation and Catch-up to the Technology Frontier**'.

India's Structural Transformation

- **Structural change in output:**
  - **Share of agriculture** and allied activities in output declined from 42% in 1972-73 to 15% in 2019-20.
  - **Share of industry** (consisting of mining, construction, manufacturing and utilities) rose from 24% in 1972-73 to 25.9% in 2020-21.
  - **Share of services** in output rose significantly from 34.5 in 1970 to 55.3% in FY 2020.
- **Structural change in Employment:**
  - **Share of agriculture** in employment declined from 73.9% in 1972-73 to 42 % in 2018-19.
  - **Share of industry** in employment rose from 11.3% (1972-73) to 24% (2019-20) in five decades.
  - **Share of services** in employment increased significantly from 14.8% in 1972-73 to 30.7% in 2019-20
- **Presence of informal sector:** Between 1983 and 2019, the share of the non-farm sector in employment rose 20%, but the majority of such jobs were of the informal variety.
- **Urbanization:** India is urbanizing rapidly. By 2036, its towns and cities will be home to 600 million people, or 40 percent of the population, up from 31 percent in 2011 & 20 % in 1971.



Key Issues Highlighted by paper in India's structural Transformation:

- **Sectorial Imbalance:** Aggregate output of agriculture has declined to 15% in 2019 however it still accounts for 42% of employment.
- **Uneven tech-adoption:** Services outperformed manufacturing in catch-up to technological frontier.
- **Rise of low skill jobs:** Construction has become an important employer, with about 12 % of workers in 2019.

- **Low Productivity:** Labour in 2019-20 in manufacturing and services was over **4.5 times more productive than in agriculture.**
- **Job creation:** India needs **at least 143-324 million jobs** for its growing population by 2050.

Key Policy Recommendations:

- **Strengthening Education and Skilling:** It can help workers transition to higher productivity sectors.
  - **India's labor force** still has **fewer years of formal education** than peers and quality of its education remains low **(ASER, 2023).**
- **Advancing Labor Market Reforms**: To further **enhance labor market flexibility**.
- **Fostering Trade Integration: E.g. Signing bilateral trade agreements, removing tariff and non-tariff restrictions** to integrate with global markets.
- **Removing Red Tape:** Simplifying regulations and reducing bureaucratic hurdles can spur private sector growth, leading to more job creation.
- **Continued Public investment Push:** Stronger physical public infrastructure, including DPI, will help increase productivity of private sector.
- **Others: Strengthening Social Safety Net, Facilitating Access to Credit** for MSMEs etc.

3.2.2. INCLUSIVE GROWTH

Inclusive Growth at a glance

- **What is Inclusive Growth?**
  - It refers to economic development that **benefits all sections of society** (Sabka Saath, Sabka Vikas), particularly the **marginalized and disadvantaged groups.**
  - It's a strategy aimed at **reducing poverty, inequality, and regional disparities.**

Initiatives taken to promote Inclusive Growth

- **Livelihood & Employment:** MGNREGA, National Rural Livelihood Mission (NRLM) etc.
- **Social Security Schemes:** Ayushman Bharat, NFSA, Atal Pension Yojana, NSAP etc.
- **Financial Inclusion:** Pradhan Mantri Jan Dhan Yojana
- **Skilling:** Skill India Mission, Pradhan Mantri National Apprenticeship Scheme, Pradhan Mantri Kaushal Vikas Yojana etc.
- **Agriculture & farmers:** PM-KISAN, Kisan Credit Card (KCC) Scheme, PM Fasal Bima Yojana etc.
- **Education:** Sarva Shiksha Abhiyan (SSA), New education Policy 2020, Beti Bachao beti padhao etc.
- **Infrastructure:** PM Gram Sadak Yojana, Shyama Prasad Mukherji Rurban Mission, Bharatmala etc.

Challenges

- **Economic Inequality:** The richest 1% of the Indian population owns 53% of the country's wealth.
- **Poverty:** 11.28% of the population still faces multidimensional poverty in India (NITI Aayog).
- **Rural-Urban Divide:** In terms of income, livelihood opportunities, modern amenities and services etc.
- **Exclusion:** Vulnerable groups such as transgender, Divyang, scheduled tribes face exclusion from various aspects of life.
- **Infrastructure Gaps:** Inadequate infrastructure, particularly in rural areas, hampers economic growth and development.
- **Informal economy:** About 85% of India's workforce operating in the informal sector.
- **Education and skill gaps:** Only 49% of Indian youth is employable (India Skill report)

Way Forward

- **Education and Skill Development:** Improve quality and access to education, especially in rural areas to enhance employability.
- **Financial Inclusion:** Expand banking services to underserved areas, Promote digital financial services and financial literacy etc.
- **Job Creation and Entrepreneurship:** Promote labor-intensive sectors to generate employment, Support MSMEs and start-ups through easier regulations and access to credit etc.
- **Rural Development:** Improve rural infrastructure (roads, electricity, internet connectivity) and enhance agricultural productivity and farmer incomes.
- **Improve Governance:** Improve transparency and accountability in governance, enhance efficiency in public service delivery, and strengthen local governance institutions.

3.2.3. MEASURING POVERTY

Why in the news?

The government in '**National Indicator Framework (NIF) 2024',** revealed that it is developing a **national indicator to measure "extreme poverty"**.

More on the news

- NIF tracks India's progress on Sustainable Development Goals (SDGs)' which aims to **eradicate extreme poverty by 2030.**

Need for a National Indicator

- **Lack of updated official poverty line:** India's official poverty line is based on the **Suresh Tendulkar Committee's report in 2009.**
  - Committees led by **D T Lakdawala (1993)**, and **C Rangarajan (2014)** also suggested criteria for "poverty line".
    - ✓ However, C. Rangarajan committee's report was not adopted by the Centre.
- **Varying global indicators:** According to **IMF less than 1% of Indians** lived in extreme poverty in 2021, whereas according to the **World Bank,** it was **12.92% in 2021.**
- **Policymaking and tracking progress:** A reliable poverty estimate is critical for designing, implementing and monitoring **anti-poverty programmes.**

Calculation of Poverty by Suresh Tendulkar Committee

- A person living on a monthly expenditure of Rs 1,000 per month or **Rs 33 or less per day in cities,** and Rs 816 per month **or Rs 27 or less per day in villages** is **considered poor.**
  - Rangarajan Committee raised this limit and set **an income of Rs. 32 for rural India, and Rs. 47 for urban India as the Poverty line limit.**

Measurement of Poverty in India

- The Official Poverty line is based on **consumption expenditure** (stated in rupees).
  - **Consumption Expenditure Surveys (CES)** are conducted **every five years by the National** Sample Survey Office.
- NITI Aayog has launched **National Multidimensional Poverty Index (NMPI)**.

Key findings: 'Multidimensional Poverty in India since 2005-06' – A discussion paper by NITI Aayog

- **Decline in MPI:** Headcount Ratio decreased from 29.17% in 2013-14 to **11.28% in 2022-23.**
  - **24.82 crore Indians escaped** multidimensional poverty in last 9 years.
  - **Intensity of Poverty is also declining** which shows that extent of deprivation among the deprived population is falling.
  - The **pace of decline** in poverty **headcount ratio** was **much faster between 2015-16 to 2019-21** compared to 2005-06 to 2015-16.
- **Poverty declining across indicators: All 12 indicators** of MPI have recorded significant **improvement.**
  - **Cooking Fuel** and **Housing** have the highest deprivation level of deprivation.
  - **Child & Adolescent Mortality**, **Electricity**, and **Bank Account** have the lowest deprivation levels.
- **Regional decline in MPI:** Poorer states record faster decline in poverty indicating reduction in disparities.
  - **Uttar Pradesh, Bihar, Madhya Pradesh, Odisha, and Rajasthan** saw fastest reduction in the proportion of multidimensional poor.
- **Attainment of SDG: I**ndia **on track to achieve SDG Target 1.2** (reducing multi-dimensional poverty by at least half) much ahead of 2030.
- **Factors responsible for decline in MPI:** Various government programs including **PM Ujjwala Yojana**, **Saubhagya,** and transformative campaigns like **Swachh Bharat Mission and Jal Jeevan Mission** have collectively elevated living conditions and overall well-being of people.

3.3. BANKING, PAYMENT SYSTEMS & FINANCIAL MARKETS

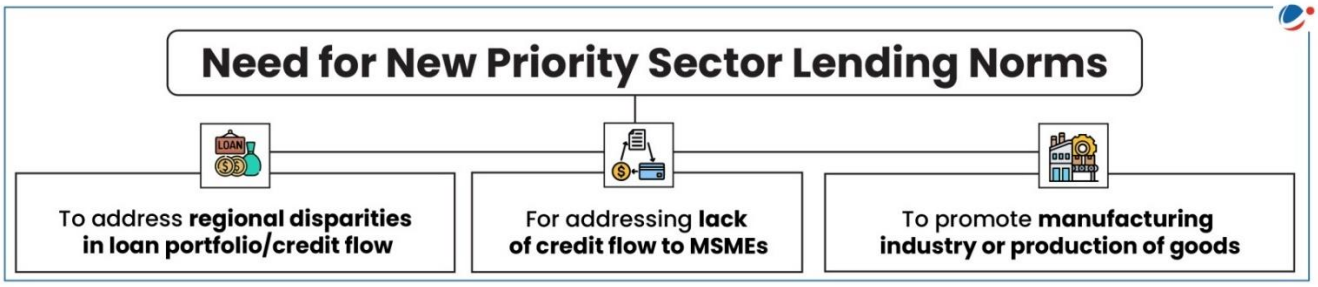
3.3.1. REVISED PRIORITY SECTOR LENDING NORMS

Why in the news?

RBI revises priority sector lending (PSL) guidelines to promote small loan in economically disadvantaged districts with low average loan sizes.

Revised Priority Sector Lending Norms

- **Incentive framework:** It establishes an **incentive framework for districts with lower credit flow** starting from FY25.
  - **More weight (125%) will be given to fresh priority sector loans** in districts where **loan availability is low** (less than Rs 9,000 per person).
- **Disincentive framework:** In districts with **high loan availability (more than Rs 42,000 per person),** the loans will have a weight of **90%.**
- **Other districts**: With **exception of outlier districts with low credit availability** and those with high loan sizes, all other districts will continue to have the current importance level of **100%.**
- **MSME loans:** All bank loans to MSMEs shall **qualify for classification under PSL.**



Positive Impact of priority sector lending on Indian economy:

- **Financial Inclusion:** PSL norms ensure that credit reaches under banked segments of population e.g. SMFs, women, and weaker sections.
- **Support to Agriculture:** Agricultural credit increased from 2000 to 2020 at a compound annual growth rate (CAGR) of 19.81% due to mandatory 18% lending by commercial banks & other policies.
- **Promotion of MSMEs*:*** By facilitating credit flow to MSMEs, PSL helps in creating jobs and boosting local economies.
- **Income Augmentation:** A case study of Andhra Pradesh showed that Beneficiaries reported enhanced income.

Issues with PSL

- **Non-Performing Assets (NPAs):** Outstanding loan in priority sector has significant negative impact on banks.
  - According to some studies, PSL was found responsible for **more NPA generation and writing-off of NPA** as well.
- **Increased costs**: PSL increased administrative and transactional cost of banks.
- **Other issues with PSL**: Low banks Profitability, increased Government Interference etc.

Way-forward

- **Strengthen Microfinance Institutions and Encourage Opening of "Small" Finance Banks:** MFIs could significantly increase the credit supplied to unbanked rural and semi-urban areas through their vast distribution network and business model of "last mile connectivity."

- **Use of Technology:** E.g. Mobile banking app for loan approval to farmers to Reduce Cost of Credit Delivery and increase the reach and efficiency of PSL, especially in rural and remote areas.
- **Create a robust credit infrastructure and Risk Assessment Tools:** To better evaluate the creditworthiness of borrowers and reduce the incidence of Non-Performing Assets (NPAs).

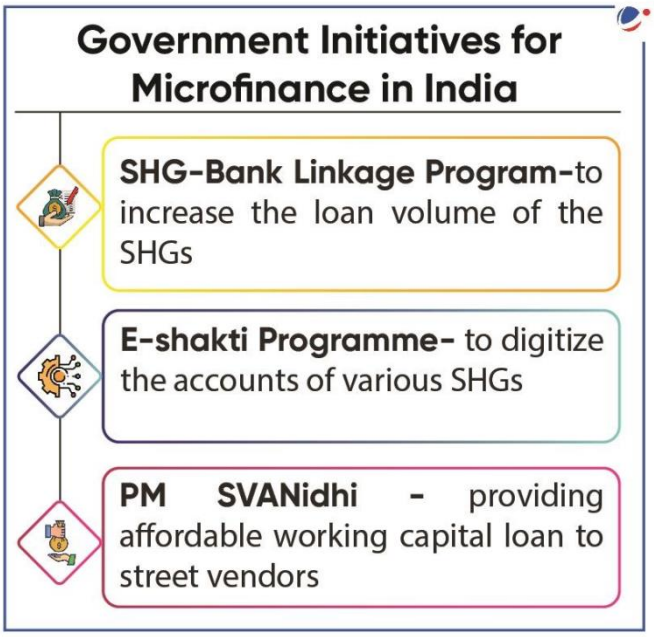
3.3.2. MICROFINANCE IN INDIA

Why in the news?

Recently a **report** titled **"Micro Matters: Macro View"** was released by **Microfinance Industry Network (MFIN)'**.

More on the news

- MFIN is an **Association of Non-Bank Finance Company Micro Finance Institutions (NBFC-MFIs)** established in 2009.
- It is an umbrella body of **Micro Finance Institutions (MFIs) of the country.**
- **Microfinance refers** to the financial services provided to low-income individuals or groups who are typically excluded from traditional banking.



The key findings of the report

- **NBFC-MFIs followed by banks** are the largest provider of micro-credit amongst other regulated entities.
- MFIs' **gross Non-Performing Assets (NPA)** decreased from 5.6% (FY22) to 2.7% (FY23).
- The **share of East and Northeast states** fell to 34.9% from 37.7% from last year.

Significance of Microfinance in India

- **Financial Inclusion:** Helps in bringing the unbanked and underbanked population into the formal financial system.
- **Women Empowerment:** A significant proportion of microfinance borrowers are women.
- **Poverty Alleviation:** Provide the poor with access to credit for income-generating activities, breaking the cycle of poverty and enabling economic mobility.
- **Community Development:** Through Self Help Groups (SHGs) and community-based approaches, microfinance has facilitated social cohesion and community development.

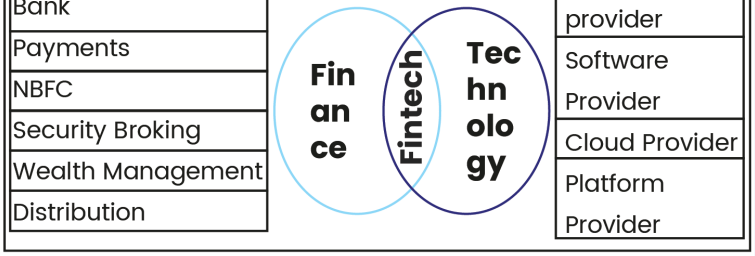
Issues with MFIs: Low outreach, high-interest rate, Negligence of urban poor, instances of ever-greening of overdue loans, etc.

3.3.3. FINTECH SECTOR

FinTech sector at a Glance

- Indian FinTech industry valued at **$50-60 Bn in FY21 and is estimated at around 150 Bn by 2025.**
- India had a Fintech **adoption rate of 87%** in March 2020, compared to a **global average of 64%.**
- **India has the 3rd largest FinTech ecosystem globally.**
- India accounted for **46% of all real-time transactions worldwide in 2022.**

Convergence of Financial Services and Technology



Growth Drivers of FinTech in India

- **Technological innovation** driven by technologies such as AI.
  - **E.g., Inter-Operable Regulatory Sandbox (IORS)** System by RBI.
- **Increasing internet and smartphone penetration** with India having the 2nd highest number of mobile internet users.
- **Favourable demographics** with India adding 140 mn middle income and 21 mn high-income households by 2030.
- **Financial Inclusion initiatives** such as PMJDY, DAY-NRLM, Direct Benefit Transfers, Atal Pension Yojana etc.

Initiatives taken to promote Fintech

- **ONDC (Open Network for Digital Commerce)** for all aspects of exchange of goods and services over digital or electronic networks.
- **Digital public infrastructure** such as Aadhaar, PM Jan Dhan Yojana, Video KYC, and UPI, etc helping
- sector to grow.
- **DIGIDHAN Mission** to enable digital payment infrastructure throughout the country.
- **International Financial Service Centre authority (IFSCA)** for development and regulation of financial products, financial institutions and financial services.
- **Global Fintech Fest** is a joint effort by NPCI, Payments Council of India (PCI),Fintech Convergence Council (FCC).

Challenges

- **Data leaks, platform downtimes, and information theft.**
- **Varied adoption** as it is not easy **for every type of business** to adopt FinTech.
- **Rapidly changing regulations** which increase compliance costs and reduce confidence.
  - Also, evolving regulations for **investment exits, cryptocurrency, payment regulations, data,** infrastructure security, and consumer protection.
- **Lack of financial literacy and awareness** as almost 2/3rd Indians live in the villages.
- **Growing role of Big Tech industries in financial system** can decrease the overall stability or can lead to monopolistic issues.

Way Forward

- **Strengthening foundational infrastructures** such as telecommunications.
- **Conducive Policy framework,** addressing the risks of **market concentration** and **interoperability** to facilitate large-scale adoption of technology.
- **Collaborate with industry players** to build consensus and **harmonise standards of visual representation** of payment systems in rural hinterlands.
- **Safeguard the Integrity of Financial Systems** by assessing and mitigating the risks of criminal misuse of fintech.
- **Regulatory Sandbox** as suggested by Watal Committee report.
- **India Fintech Credit Fund (IFCF)** to support small and medium-sized fintechs.

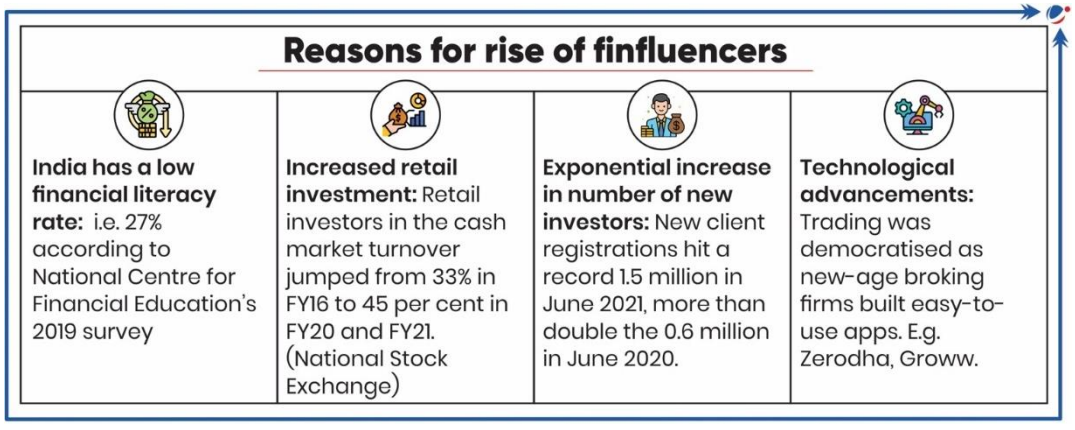
3.3.4. FINFLUENCERS

Why in the News?

The **Securities and Exchange Board of India (SEBI)** has set the ground rules for **unregistered financial influencers**, or **'finfluencers**,' prohibiting regulated entities from dealing with them.

About Financial influencer or 'FinFluencer'

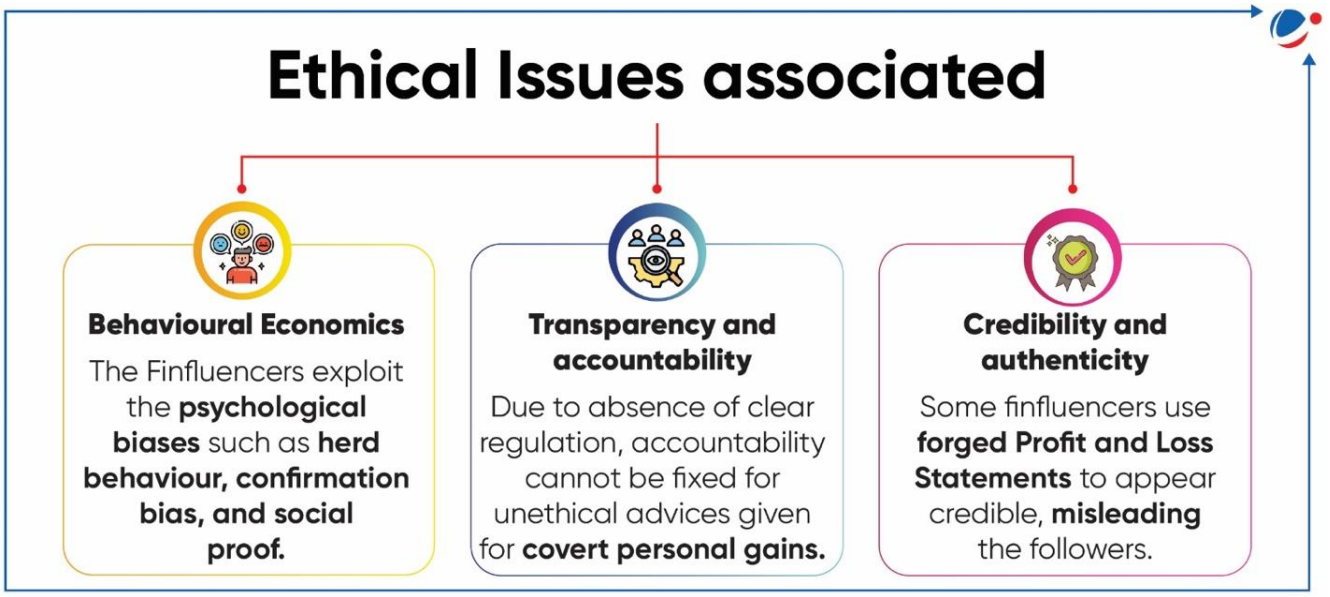
- It is a person who gives **information and advice** to investors on financial topics – usually on stock market trading, personal investments like mutual funds and insurance, primarily on various **social media platforms**.



- **Sources of income**:
  - **Advertisements**- passive income based on number of views.
  - **Collaborations** to promote a financial product
  - **Affiliate partnerships**: include links in the video description for viewers to buy a product or sign up for a service.

Issues arising due to rise of Finfluencers

- **Lack of regulation**: Difficult to gauge the expertise and qualification of the finfluencer, fix any liability on the finfluencer or protect an individual from the potential risks.
- **Market manipulation**: Finfluencers are also being **paid by the companies** to manipulate the stocks for personal gains.
  - E.g. **Salasar Technologies** stock prices manipulated by influencers, resulting in **huge losses**.
- **High-risk investments**: Finfluencers may promote high-risk investment opportunities that **promise high returns** without providing appropriate **risk disclosures**.
- **Views over reliability**: The financial advice shared by finfluencers is typically **geared towards generating views and likes**, rather than providing reliable, well-researched financial information.
  - This **content-first approach compromises the quality and reliability** of the advice provided.
- **Potential for unethical practices**: Finfluencers may promote certain stocks **in lieu of personal gains through market manipulation, insider trading** etc.



Regulatory action taken for Finfluencers

- The **SEBI (Investment Advisors) Regulations 2013** is a framework for people who give **financial advice for a fee**.
- **SEBI Consultation Paper to restrict the association** of SEBI registered intermediaries/regulated entities with **unregistered** 'finfluencers'.
- **Advertising Standards Council of India (ASCI)** revised its **guidelines**, mandating SEBI **registration** for influencers.
- **ASCI and YouTube in-house Rules mandate declaration of the content being paid or promotional to** make viewers better informed.

Way Forward

- **Clear definitions**: Of terms like **Finfluencers**, investment advice etc. so that they stand test of **judicial – regulatory scrutiny**.
  - **Including coverage of all mediums** that have consumer access for financial – investment communication. E.g. TV, Print and digital media.
- **Improve registration of financial advisors,** make mandatory certain disclosure requirements to avoid conflict of interest.

- **Transparency and data-led communication**: Like Real-time digital supervisory mechanism, having a **Code of Conduct** ensuring the financial information provided is "truthful, balanced, and data-led".
- **Investor education**: Equip investors with **knowledge and skills** needed to **critically appraise** digital financial guidance.
  - Broking firms, mutual funds as well as SEBI have been conducting investor awareness programmes in **Tier-II and Tier-III locations.**
- **Self-Regulatory Organizations (SROs)**: Industry bodies need to initiate self-regulation protocols to uphold their credibility.
- **Performance Validation Agency (PVA)**: Establishment of a PVA as a third-party entity to enhance trust and reliability within the financial ecosystem by verifying performance reports.

Global examples of regulation

- **Australia**: Upto 5 years jail for finfluencers providing financial advice without a license.
- **European Securities and Markets Authority**: Defined what constitutes investment recommendations, how to post those advice on social media, and has spelt out penalties for any breach.
- **New Zealand**: Defined **code of behavior** for finfluencers, tiered mechanism of **licensing** according to the complexity of advice provided, imposes liability to have content disclaimers require to prominently display risk warnings
- **Singaporean and Chinese** regulators also have **Guidelines for Finfluencers**.

3.4. EXTERNAL SECTOR

3.4.1. INDIA'S TRADE DEFICIT

Why in the news?

According to official **data from Union Ministry of Commerce and Industry**, in the **FY 2023-24**, India recorded **trade deficit with 9 out of its top 10 trading partners**.

Current Status of India's External trade (FY 2023-24)

- **Trade deficit** (also known as **negative trade balance**) occurs when country's **value of imports are more than that of exports**.
- **China, USA, UAE, Russia**, and **Saudi Arabia** are India's largest trading partners. (in **descending order**)
- India's **trade deficit with China**, **Russia**, **South Korea**, and **Hong Kong** increased as compared to 2022-23, while it narrowed with **UAE, Saudi Arabia, Indonesia,** and **Iraq**.
- **USA, Netherlands, UK, Belgium**, and **Italy** are top 5 trading partners with which India has **trade surplus**.

Impact of higher trade deficit on Economy

- **Negative**
  - **Depletion of Forex reserves** due to the need to pay for excess imports, raising concerns of **depreciation of domestic currency**.
  - **Widening current account deficit** which may adversely affect credit rating of the country and raise borrowing costs.
  - **Strategic implications** due to sustained trade deficit, particularly for essential products or critical sectors.
- **Positive**
  - **Access to wider range of goods**, increased **domestic investment** if deficit is driven by imports of capital goods, etc.

Reasons behind India's higher trade deficit

- **Reliance on imported inputs,** including crude oil and pharmaceutical ingredients.

- **Changing consumption patterns,** including increased demand for consumer durables, luxury goods etc.
- **Structural factors** such as sub-optimal growth of manufacturing sector, higher logistics cost, infrastructure bottlenecks etc.
- **Domestic policies** such as inverted duty structure, frequent bans on exports of commodities etc.
- **Others –** Sub-optimal utilization of FTAs, imposition of non-tariff barriers by developed countries etc.

3.5. AGRICULTURE AND ALLIED ACTIVITIES

3.5.1. HORTICULTURE CLUSTERS

Why in the news?

Union Agriculture minister announced Rs 18,000 crore for **100 export-oriented horticulture clusters** which will be set up in the next five years.

About Horticulture Cluster (HC)

- It is defined as a **regional/ geographical concentration** of targeted horticulture crops.
- **Benefits of HC**
  - **Reduce harvest and post-harvest losses,** facilitates innovative technologies
  - Facilitate stakeholders in the **global value chains.**
  - Offers **specialization in production, post-harvest management, marketing and exports.**

Status of horticulture of India

- It contributes about **33% to the agriculture Gross Value Added (GVA).**
- India ranks **2nd in fruits and vegetable production** in the world after China.
- Production in the country in 2022-23 is about **355.48 Million Tonnes while** India's share in the **global market is nearly 1% only.**

Challenges: Lack of high-quality seedlings and rootstock, persistent pests, climate change affecting crop productivity and overall financial viability.

Steps Taken by the government

- **Mission for Integrated Development of Horticulture (MIDH)** is a Centrally Sponsored Scheme under Ministry of Agriculture for the holistic growth of the horticulture sector.
  - **Clean Plant Programme** under MIDH provide farmers access to **virus-free, high-quality planting material, le**ading to increased crop yields.
- **Coordinated programme on Horticulture Assessment and Management using geoinformatics (CHAMAN)** to develop and firm up scientific methodology for horticulture crops production.
- **Capital Investment Subsidy Scheme** for construction/ expansion/ modernization of Cold Storages/ Storages of Horticulture Products.

3.5.2. PDS AND HOUSEHOLD EXPENDITURE

Why in the News?

Household Consumption Expenditure Survey (HCES) Data offers the scope to analyse the impact of social security programmes including Public Distribution System (PDS).

About Public Distribution System (PDS)

- **Food security program:** PDS is an important **social security programme** in India for ensuring food security.
  - Today, up to 75% of the rural population and 50% of the urban population are eligible for **subsidised foodgrains under the National Food Security Act (NFSA), 2013**.
- **Joint Responsibility:** PDS is operated under the **joint responsibility of the Central and the State/UT Governments**.

- **Central Government**, through **Food Corporation of India (FCI)**, has assumed the responsibility for procurement, storage, transportation and bulk allocation of food grains to the State Governments.
- **State Governments** are entrusted with the operational responsibility including allocation within State, identification of eligible families, issue of Ration Cards and supervision of the functioning of Fair Price Shops (FPSs) etc.

- **Commodities:** Under the PDS, presently **wheat, rice, sugar and kerosene** are being allocated to the States/UTs for distribution.
  - Some States/UTs also distribute additional items such as pulses, edible oils, iodized salt, spices, etc.

Impact of PDS on Household Expenditure

- **Share in Food Items:** Share of expenditure on food has gradually declined while the **share of non-food items has increased** for both urban and rural households, since the 1999-2000 survey.
- **Shift in Expenditure: Expenditure has shifted to high-value and nutritious animal and horticulture** products from cereals and pulses.
- **Diversifying Food Basket:** Among the food items, consumption is highest in beverages, refreshments and processed food in both rural and urban areas.
- **Prevalence of Rice and Wheat:** At All-India level, percentage share of rice and wheat in total per capital cereal consumption stands at around 96%.

Lakshya

PRELIMS & MAINS INTEGRATED MENTORING PROGRAM 2025

Lakshya Prelims & Mains Integrated Mentoring Program 2025

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3.6. INDUSTRY AND INDUSTRIAL POLICY

3.6.1. TEXTILE SECTOR

Textile Sector at a glance

Status of Textile Sector in India

- It contributes **2.3% to the Indian GDP**, 12% to the export earnings of India and **held 5% of the global trade** in textiles and apparel
- India is one of the **largest producers of cotton & jute in the world**, the second-largest producer of silk in the world the 5th largest producer of Technical Textiles
- **95% of the world's hand-woven fabric** comes from India
- It provides direct employment to over **45 million people (21 % of total employment)**

Steps taken by the Government for growth of Textile industry

- **Infrastructure development: Setting up of 7 Mega Integrated Textile Region and Apparel Parks (PM MITRA) parks** to create an integrated textiles value chain.
- **Production linked incentive (PLI) Scheme** for the Textile Sector.
- Startup Guidelines for Research and **Entrepreneurship across Aspiring Innovators in Technical Textiles (GREAT).**
- **Amended Technology Fund Upgradation Scheme (ATUFS)** to upgrade technology/ machineries of textile industry.
- **IndiaTex** (Innovative Business Practices and Economic Models in the Textile Value Chain in India) **for taking Textile sector towards circularity.**
- **Sector specific missions:** National Handloom Development Programme and National Technical Textile Mission
- **Capacity building and social security**: SAMARTH (Scheme for Capacity Building in Textile Sector), Scheme for Incubation in Apparel Manufacturing (SIAM) and Scheme for Textile Industry Workers' Accommodation (STIWA) etc.

Challenges Faced by the textile sector in India

- **High fragmentation** and is dominated by the **unorganized sector** and small and medium industries.
- **Increase in input costs**: Unpredictable market conditions, weather, policies etc. have resulted in a shortage in supply and an increase in costs.
- **Infrastructure bottlenecks**: Poor conditions of roads, highways, etc. increase lead time, inventory holding cost and inventory carrying cost.

- Tariff and non-tariff barriers coupled with a **lack of free/preferential trade agreements** are a major challenge to the Indian textile Industry. **Ex**: Vietnam and Bangladesh market.

Way Forward

- **Utilizing upcoming opportunities in non-wovens and technical textiles** with increasing emphasis on fitness, rising brand consciousness, fast-changing fashion trends, etc.
- **Infrastructure development** such as setting up mega apparel parks close to ports with `plug and play' facilities and common infrastructure for effluent treatment, etc. to scale up operations.
- **Correction of inverted duty** as proposed by the 45th GST Council Meeting.
- **Focus on technology up-gradation** by utilizing new and upcoming development in AI and automation.
- **Incentivizing production of sustainable fabrics and apparel** by promoting up-scaling and reuse of existing fabrics and adoption of natural dyes.

3.6.1.1. TECHNICAL TEXTILES

Why in the news?

The National Technical Textiles Mission's Empowered Programme Committee has approved seven startup proposals under the GREAT scheme initiative.

About GREAT Initiative

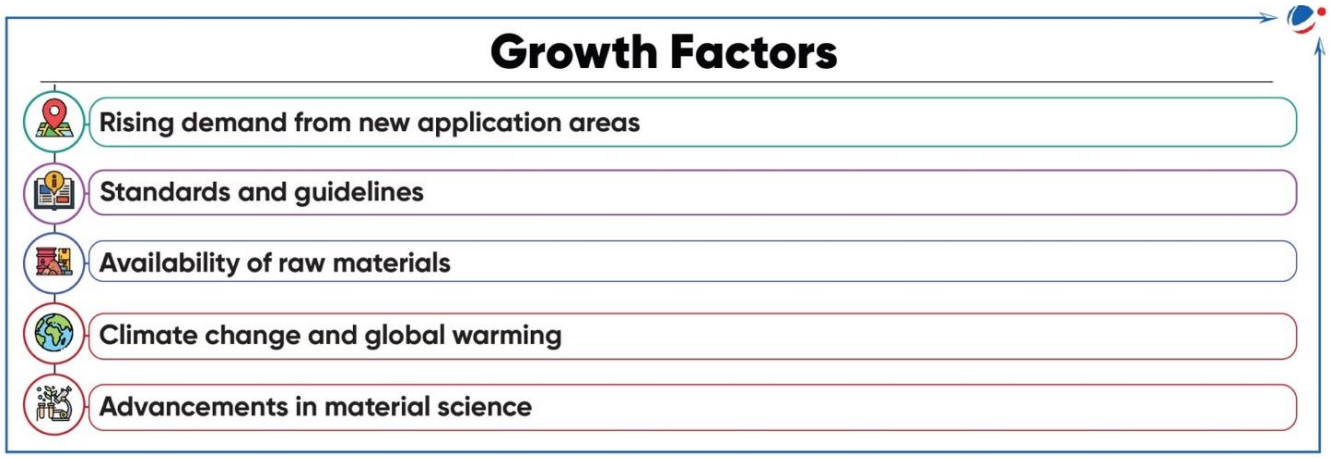
- **Objectives:** Encourages young innovators, scientists / technologists, and startup ventures in the field of Technical Textiles to translate their ideas into commercial technologies/products and make India self-reliant.
- **Grant in Aid:** Normally upto Rs.50 Lakhs for a period of 18 months.

About Technical Textiles

- Technical textiles are defined as textile materials and products used primarily for their **technical performance and functional properties rather than their aesthetic or decorative characteristics.**

Significance of Technical Textiles for India

- **Productivity Enhancement: Use of Agro-Textiles** in horticulture leads to increase in farm productivity by 2-5 times.
- **Convergence with government initiatives:** Like target of phasing out single use plastic items provide opportunity for **Pack-tech to supplement the efforts** by enhancing production.
  - India is dominating the Packtech segment with a global market share of 40-45%.
- **High Growth rate:** Indian technical textiles market is **fifth largest in the world and stood at USD21.95 billion in 2021-22.**
- **Export Potential:** India's exports of technical textile products grew from USD2.21 billion in 2020-21 to USD2.85 billion in 2021-22, registering a growth rate of 28.4%.
- **Others:** Ability to scale up in a short period; High wage workforce generating capacity, etc.



Challenges of Technical Textiles growth in India

- **Import dependence:** Majority of machinery used to manufacture technical textiles products is not available in India.
- **Lack of standardization and related regulations**: Several technical textile products do not have Standard Benchmarks, resulting in availability of sub-standard cheaper products and institutional buyers such as defence turning to import route.
- **Entrepreneurial Gap:** Limited entrepreneurial culture and skill training hinder investment attraction and expansion of production capacities.
- **Inadequate R&D facilities**: It stifles innovation in a field that is characterized by fast changes in products and processes.

Way forward

- **Skilling and education ecosystem:** The government needs to work with various entrepreneurship development institutes for initiating courses on entrepreneurship in technical textiles.
- **Developing India Brands:** Positioning Indian Brands as Global Champions to create customer specific products.
- **Facilitation of PPP modelled 'Centre of Excellence'**: Focus on designing, market linkages, capacity building, testing centres, research on sustainable materials and technology upgradation support in technical textiles.
- **Joint ventures**: Joint ventures would help in technology transfer, minimizing development cost of high-quality products, and provide access to new markets.
- **Promote Start-ups:** Creation of incubation centres and encouragement of start-ups for entrepreneur development in technical textiles.

3.6.2. SPECIAL ECONOMIC ZONES

Why in the news?

Recently, the Ministry of Commerce and Industry has notified **Special Economic Zones (SEZ) (Fifth Amendment) Rules, 2023** in the exercise of powers conferred by section 55 of the SEZ Act, 2005.

More on the news

- SEZs (Fifth Amendment) Rules, 2023 **amend SEZ Rules 2006.**
- The Centre has amended the SEZ Rules to allow the **demarcation of a portion of the built-up area in an Information Technology (IT) or Information Technology Enabled Services (ITES) SEZ as a non-processing area**.
    - The processing area in an SEZ is **for the manufacture of goods or rendering of services.** The non-processing area is for **supporting infrastructure.**

- **Significance of amendments: Increases flexibility** in carrying out business in SEZs, **protecting the interests** of both developers as well as occupiers of SEZ, and **better utilization** for a diversified set of occupiers.

About Special Economic Zones (SEZs)

- SEZ is a specifically **delineated duty-free enclave**, **deemed to be foreign territory** for trade operations, duties and tariffs.
- **Eligible entities: Any private/public/joint sector or State Government** or its agencies can set up SEZ.
  - SEZs have been **established in several other countries**, including China, Jordan, Poland, Kazakhstan, Philippines and Russia.
- **Regulation:** In India, **SEZ Act 2005** has been enacted followed by **SEZ Rules which** came into effect in 2006. These provide the basic framework for the establishment and management of SEZs in India.
- **SEZ Area:** The area under 'SEZ' covers a broad range of zone types, including Export Processing Zones (EPZ), Free Zones (FZ), Industrial Estates (IE), Free Trade Zones (FTZ), Free Ports, Urban Enterprise Zones and others.
- **Operational SEZs:** Presently, **280 SEZs** are operational in India and total **exports from SEZs stood at $163.69 billion in 2023-24.**

Challenges associated with SEZs in India

- **Policy Reversals:** The withdrawal of incentives such as exemption from minimum alternate tax, and dividend distribution tax in 2011-12 has led to a weakening of the SEZ concept in India.
- **Unutilised lands:** Public Accounts committee in 2021-22 found that 52% of the land allotted for SEZs was lying idle.
- **Absence of Single Window Clearances**: Many exporters have reported issues in documentation and procedures.
- **Inconsistent with World Trade Organization (WTO) norms:** WTO's dispute settlement panel in 2019 had ruled that India's export-related schemes (including SEZ scheme) are inconsistent with WTO norms.
  - India has appealed to the WTO's appellate body against this ruling.
- **Other issues:** Resistance to land acquisition, migration of business units to other ASEAN nations, and concentration of SEZs in developed states.

Way ahead

- **Recommendations of Baba Kalyani committee**
  - **Enhance competitiveness** by enabling ecosystem development through funding of high-speed multi-modal connectivity, business services, and utility infrastructure.
  - **Migration from export focus in SEZs** to focus on broad-based Employment and Economic Growth.
  - **Formulation of separate rules and procedures** for manufacturing and service SEZs.
  - **Granting infrastructure status to SEZs** to improve access to finance and to enable long-term borrowing.
  - **Dispute resolution** through arbitration and commercial courts.
  - **Procedural relaxations** for developers and tenants to improve operational and exit issues.
- **Providing incentives** such as removal of export obligation for units to operate in SEZs, allowing sales to **Domestic Tariff Areas (DTAs).**
  - Any area that lies outside of SEZ or any other custom bonded zone in India is known as the DTA.
- **Optimal utilisation of vacant land** in SEZ by allowing flexible land use and removing sector-specific constraints to develop industrial enclaves.
- **Integration of production-linked incentive schemes with the SEZ policy** can accelerate the industrialisation process of the Indian economy.

3.6.3. STANDARDIZATION FRAMEWORK

Why in the News?

India should be a Pioneer of Standards, says Union Minister for Consumer Affairs, Food and Public Distribution.

Significance of standardization:

- **Supports economic growth** and enhances competitiveness.
- Fosters **technological development** and **supports innovation**.
- **Addresses health, safety** and **environmental concerns**.

Process in India

- **Standards Development process** in India is largely government led with BIS acting as **National Standard Body.**
  - **Established** under **BIS Act 2016**, BIS is administered by **Ministry of Consumer Affairs, Food and Public Distribution**.
  - **Certifications of BIS** include ISI (industrial products), BIS Hallmark (precious metal), and ECO Mark (environment friendly products).
- **Other initiatives for standards development:**
  - Standards National Action Plan (SNAP)
  - Indian National Strategy for Standardization (INSS)
  - Quality Council of India (QCI) and its Scheme for Accreditation of Standards Developing Organizations (SDOs)
  - Quality Council of India (QCI) introduced QCI Surajya Recognition & Ranking Framework.
  - One Nation One Standard Scheme of BIS

About Quality Council of India (QCI)

- It was established as the **national body of accreditation in 1996** and is an **autonomous non-profit** organization under the **Societies Registration Act, 1860**.
- It was jointly set up by the **Government of India and the Indian Industry** (ASSOCHAM, FICCI, CII).
- **Role of QCI**
  - **National Accreditation Body (NAB)**: To promote quality through the National Quality Campaign in line with global standards.
  - **Create a mechanism for third-party assessment** of products, services and processes.

AHMEDABAD | BENGALURU | BHOPAL | CHANDIGARH | DELHI | GUWAHATI | HYDERABAD | JAIPUR | JODHPUR | LUCKNOW | PRAYAGRAJ | PUNE | RANCHI ©Vision IAS

- Improve the **quality of life and wellbeing** of the citizens of India.

Achievements of QCI:

- **Healthcare**: Worked with ICMR to expand **COVID-19 related testing labs**, **ABPMJAY quality certification** programme with NHA, **Kayakalp Certification** for cleanliness of healthcare facilities.
- **Sanitation**: Certification of **ULBs as ODF, ODF+, ODF++**.
- **Education**: Launched **eQuest: E-Quality Platform for Employability through Skill and Training.**
- **Agriculture**: Development of Standards and Scheme for **Good Agriculture Practice (GAP)** Implementation and Certification in countries of **SAARC** (project with **FAO**).

3.7. DIGITAL ECONOMY

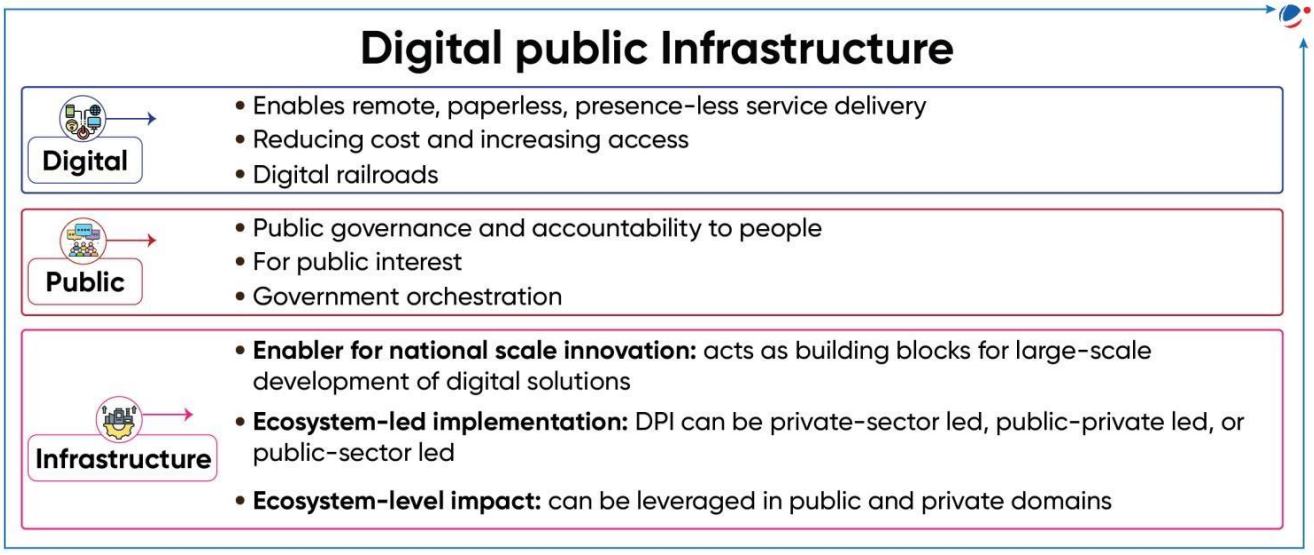
3.7.1. DIGITAL PUBLIC INFRASTRUCTURE (DPI)

Why in the News?

The '**Report of India's G20 Task Force on DPI'** was released by 'India's G20 Task Force on Digital Public Infrastructure for Economic Transformation, Financial Inclusion and Development'.

What is Digital Public Infrastructure (DPI)?

- It is a set of **shared digital systems** that-
  - Should be **secure and interoperable,**
  - can be built on **open standards and specifications** to deliver and provide equitable access to public and / or private services at societal scale ,
  - are **governed by applicable legal frameworks and enabling rules** to drive development, inclusion, innovation, trust, and competition and respect human rights and fundamental freedoms.



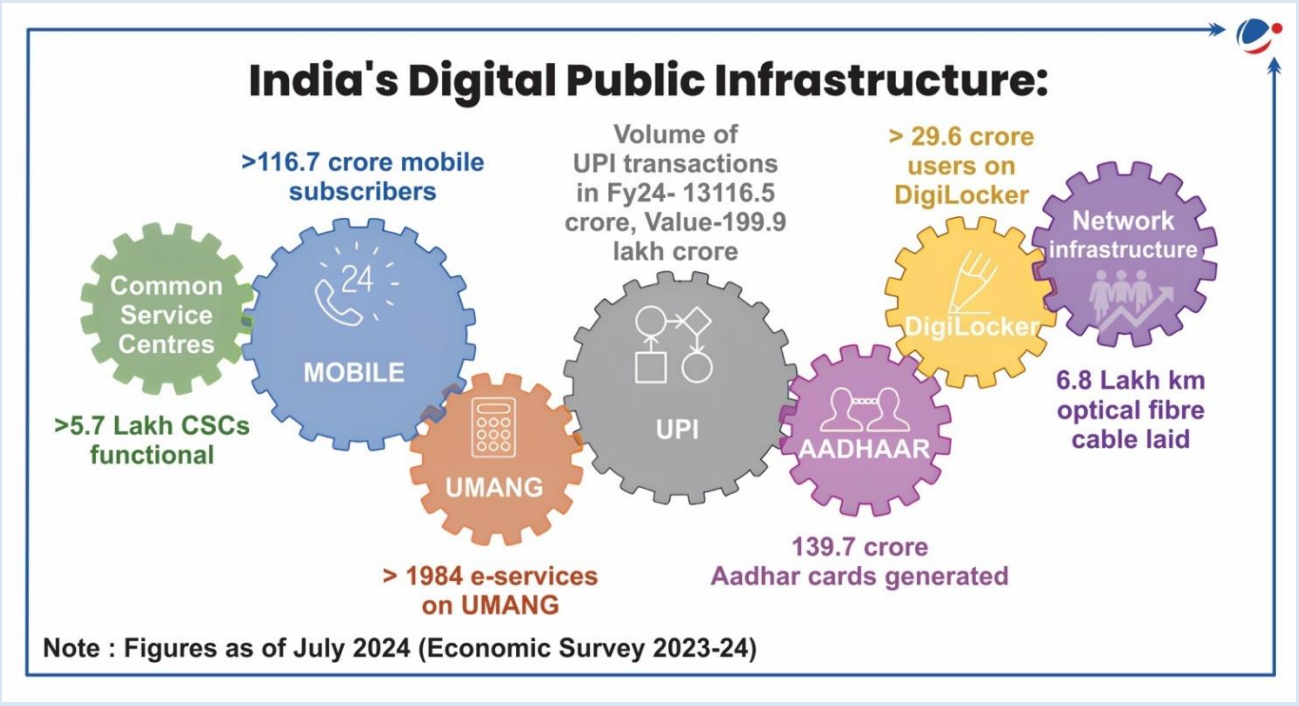
Significance of DPI

- **Accelerate Development:** It has a high multiplier on economic growth.
- **Spurs Innovation:** By reducing transaction costs, maintaining competition through interoperability, and attracting private capital.
- **Inclusive development:** DPI inclusively enables vulnerable groups (such as physically remote populations, women, SMEs etc.) to access services, helping close inter- group disparities.
  - E.g., **Number of Bank accounts opened in India tripled** from 147.2 million in 2015 to 508.7 million in 2023 where **women own 55 % of these accounts.**

- **Effective Public Service Delivery:** E.g., DPI enabled effective direct benefit transfer across several Central Government Schemes leading to $ 41 billion savings in India.
- **Empowers Individuals:** By **protecting individuals with economic mobility** and key **digital rights** such as control over their money and data.

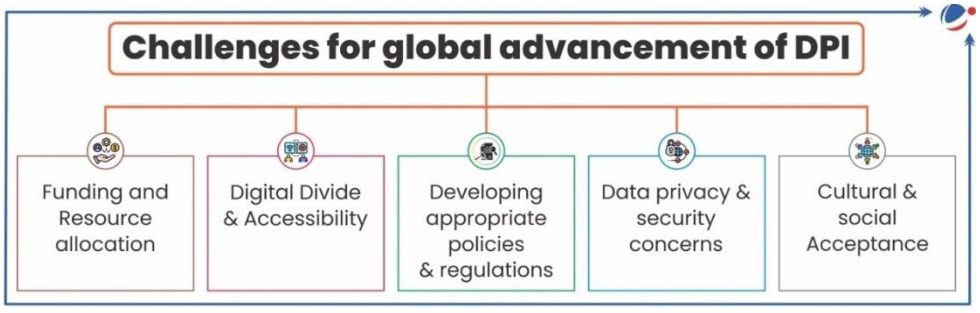
About India's DPI

- **India Stack:** It is India's own foundational DPI, consists of 3 interconnected layers:
  - **Identity** Layer – (e.g, Aadhar, e-KYC etc),
  - **Payment** layer (e.g., UPI, Aadhar Payment Bridge etc.) and
  - **Data governance** layer (e.g, DigiLocker, Account Aggregator etc.).



Global efforts for DPI

- **Digital Economy Working Group (DEWG):** First consensus on **DPI approach was formally accepted** by countries on any international forum.
- **One Future Alliance:** It's a voluntary initiative proposed by **G20 India Presidency**, aimed to **build capacity, and provide technical assistance and adequate funding support** for implementing DPI in Low and Middle-Income Countries.
- **Global DPI Repository (GDPIR):** Announced the launch at the G20 virtual leaders' summit in 2023 to establish a **focused institution working on DPI.**
  - **Social Impact Fund (SIF)** was also announced for accelerating DPI implementation across global south nations.



- **EU Trade and Technology Council (TTC):** India and the European Union agreed to take steps to accelerate the development and deployment of DPI in other countries.

India's role in promoting DPI at global level

- **Identity system:** International Institute of Information Technology (IIIT) in Bengaluru launched the Modular Open-Source Identity Platform (MOSIP) to **help other countries set up Aadhaar-like systems**.
  - More than 10 countries, from Sri Lanka to Sierra Leone, have initiated MOSIP projects so far.
- **Payment linkages:** India has signed agreements with various nations to **extend the reach of its UPI payment system**, like **Singapore, Malaysia, UAE, France** etc.
- **G20 Consensus:** Under India's presidency, G20 leaders arrived at a consensus regarding **promotion and adoption of DPI framework.**
- **Alternative Model:** India's DPIs offer an **alternative model to the traditional "big tech" approach**, emphasizing public ownership and control of critical infrastructure.
- **One Future Alliance (OFA):** India proposed OFA for **building capacity** and providing **technical assistance** and **funding** support for implementing DPI in LMICs.
- **Open Source Infrastructure:** India's commitment to open source technology has prevented the privatization of critical infrastructure and fostered innovation which enables their **flexible adoption at global scal**e.

Way Forward

- **Adopting 3 pillared DPI Approach** suggested by the report (see image).
- **Comprehensive and Phased Approach** informed by in-depth research and analysis of the global digital infrastructure landscape.
- **Supporting open & reusable technology frameworks**, allowing countries to deploy plug and play models of certain DPI.
- **Creating Dialogue and Alignment** through an **annual DPI forum** to share their experiences with deploying DPI.
  - Countries of the Global South may come together to establish **Global South Forum** to discuss and deliberate matters on DPI particularly to their needs and requirements.
- **Focused Institution** to work on policy dimensions, formulation and implementation of strategies with appropriate technical and academic expertise.

3.7.2. DIGITAL MONOPOLY

Why in the News?

A US District Court ruled that **Google has violated Sherman Act (US' anti-trust law)** by maintaining its **monopoly in** two product markets – **General Search Services (GSS) and General Text Advertising**.

- **Anti-trust laws prohibit Anti-Competitive Practices and monopolizing conduct** to protect consumers from predatory business practices.

Google's Monopoly (as highlighted by Judgement)

- **Google enjoys an 89.2% market share** for GSS, which increases to **94.9% on mobile devices**.
  - Google also controlled **88% of text advertising market in 2020**.
- **Google maintained its monopoly and stifled competition through:**
  - **Near-complete control of key distribution channels**, posing a major entry barrier for other search companies.
  - **Striking deals** with Apple, Samsung and Verizon to be default search engine on their respective devices.

What is Digital Monopoly?

- **Digital Monopoly:** Refers to a situation where a **single company or platform holds significant control** over their respective digital ecosystems and markets.
  - **Examples:** Big tech companies like Google, Amazon, Facebook, Apple, and Microsoft.

Key characteristics of a Digital Monopoly				
Dominance such as overwhelming market share	**High Barriers to Entry** like high costs, access to data etc.	**Network Effects** where a platform becomes essential and indispensable	**Control over data and information**	**Lack of Competition**

India's Initiatives to Prevent Digital Monopolies

- **Consumer Protection (E-Commerce) Rules, 2020:** Introduced to govern the operations of e-commerce platforms and digital marketplaces. These rules aim to prevent anti-competitive practices, ensure transparency, and protect consumer interests.
- **Competition (Amendment) Act, 2023**: Introduced new merger notification thresholds and deal value thresholds to capture acquisitions of high-value, data-rich firms that can potentially lead to digital monopolies.
  - **Competition Commission of India (CCI)** also investigates and takes action against anti-competitive practices by digital platforms.
- **Digital Personal Data Protection Act 2023:** It emphasizes the importance of data to prevent the concentration of data in the hands of a few dominant players.
- **Proposed Digital India Act (DIA):** The DIA proposes to regulate a vast array of digital enterprises including social media websites, artificial intelligence-based platforms, and e-commerce enterprises.
- **Draft National Data Governance Framework Policy:** It aims to create standardized data management and security for non-personal and anonymised data across all government bodies.
- **Draft Digital Competition Bill, 2024:** It aims at predictive regulation based on potential anti-trust issues and identifying **Systematically Significant Digital Enterprise (SSDE).**

Way Forward (Recommendations of the Committee on Digital Competition Law, 2024)

- **Introduction of a Digital Competition Act with ex-ante measures** (using a form of financial analysis that uses forecasting for future events as against the prevailing practice of ex-post framework in most cases).
- **Systemically Important Digital Intermediaries' (SIDIs):** Identification and designation of certain large digital platforms as SIDIs. They would be subject to ex-ante regulations and obligations.
- **Merger Control Reforms**: Introduction of a deal value threshold and the consideration of non-price factors like data and innovation in merger assessments.
- **Strengthening the Competition Commission of India (CCI):** Enhancing the institutional capacity and expertise of the CCI to effectively deal with competition issues in the digital domain.
- **Better coordination among various regulatory authorities**, such as the CCI, the Telecom Regulatory Authority of India (TRAI) etc.
- **Increased international cooperation** and alignment with global best practices in digital competition regulation.

3.7.2.1. DARK PATTERNS

Why in the News?

Report by Advertising Standards Council of India (ASCI), titled "Conscious Patterns," reveals that **almost all Indian apps use deceptive or dark patterns** in their business.

About Dark Patterns

- **Definition:** Business practices employing elements of **digital choice architecture,** that **impair consumer autonomy, decision-making or choice.**
- **Impact:** Users often suffer **financial losses, data breaches, and compromised privacy.**
- **Initiative:** ASCI and Department of Consumer Affairs issued **guidelines** for the prevention and regulation of **Deceptive Patterns in 2023.**

Key Dark Patterns Identified by ASCI Study

- **Privacy Deception:** Manipulating users into **unknowingly sharing more personal data** than intended (e.g., permission for location tracking).
- **Interface Interference:** Hiding certain parts of the platform to misdirect users into taking actions (e.g., unlock cashback).
- **Drip Pricing:** Revealing **additional fees gradually** and making the final price higher than that originally quoted (e.g., packaging charges).
- **False Urgency:** Creating a sense of artificial pressure (e.g., only a few seats available).
- **Confirm-Shaming:** Using guilt or social pressure to manipulate users into confirming an action (e.g., choice between upgrade now vs. I don't want a smarter software).

Conscious Pattern Website

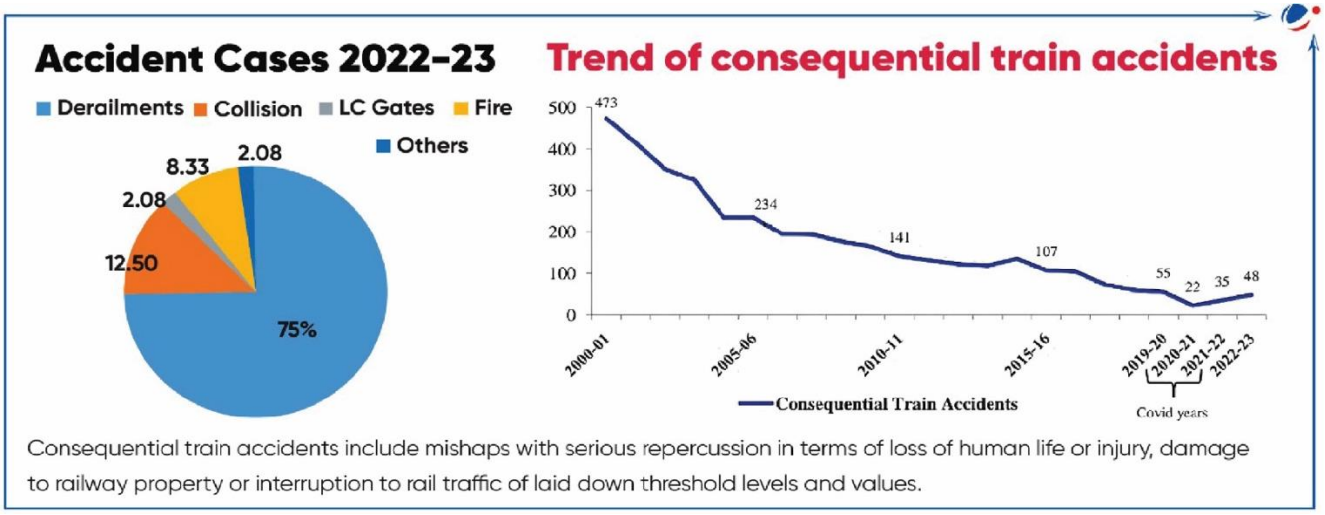
- Based on the study a ''Conscious Pattern Website' has been created.
- It enables makers to **build Digitally Conscious Products.**
- **Its vision is to enable informed consumer choices online.**

3.8. LOGISTICS AND INFRASTRUCTURE

3.8.1. RAILWAY SAFETY

Why in the news?

Recently, several incidents of train derailment/collision in last six months raised concern over railways safety.



Causes of Railway Accidents

- **Derailment:** Factors could be inadequate maintenance of locomotives, rolling stock, track, signals etc.; and other operational irregularities.
- **Human Error:** The error caused due to human failure, comprising both Railway Staff (responsible for around 75% derailments) as well as road users, passengers, miscreants etc.
- **Signal Failure:** Defective or damaged track circuits and axle counters are leading causes of signal failures.
  - **For example**- Faulty signal circuit modifications resulted in incorrect signaling, leading to the Balasore train collision in 2023.
- **Fire accidents in coaches**: Factors like inflammable material carried by passengers, Short circuit, Negligence by pantry car staff, lease contractor, etc.
- **Human Resources:** Vacancy of around 20,000 in safety-critical categories workforce of Indian railways.

Steps taken for Railway Safety

- **KAVACH System:** KAVACH an Indigenous Automatic Train Protection (ATP) system which has Cab Signalling features-useful for high speeds as well as foggy weather.
  - In technical terms, it is known as **Train Collision Avoidance System (TCAS) or Automatic Train Protection System (ATP) system.**
- **Rashtriya Rail Sanraksha Kosh (RRSK):** Launched in 2017-18, RRSK is a Rs. 1 lakh crore five-year fund dedicated to upgrading critical railway safety infrastructure.
- **Use of New Technology:** Such as **GPS-based Fog Safety Devices** alert locomotive pilots to upcoming signals and crossings in fog-prone areas, improving safety during low visibility.
- **Eliminated Unmanned level crossing:** All unmanned level crossings (UMLCs) on Broad Gauge (BG) route have been eliminated by January 2019.
- **Safety Information Management System (SIMS):** Developed to put in place a faster and efficient system for accident reporting, analysis and sharing of information between Zonal Railways (ZRs) and Railway Board (RB).
- **Use of fire retardant materials:** The Indian Railways have adopted fire retardant interior furnishing including, wall panelling, flooring, roof panelling etc. to minimize the risk of fire accidents.

Way Forward

- **Railway Safety Authority:** As recommended by **Kakodkar Committee**, need to create a statutory Railway Safety Authority with enough powers to have a safety oversight on the operational mode of Railways.
  - Currently, three vital functions (rule-making, operations and the regulation) are all vested in the Railway Board.
- **Detailed Outcome Framework:** CAG's 2021 report on **'Derailment in Indian Railways'** recommends creating a 'Detailed Outcome Framework' for safety works funded by RRSK.
- **Developing AI-enabled applications:** AI can analyze extensive digital data from stations and trains, flagging critical irregularities and promptly alerting top railway management for enhanced safety monitoring.
- **Track Safety Tolerances**: As recommended by Khanna Committee, efforts should be made by Research Design & Standards Organisation (RDSO) to draw out safety tolerances for different speeds and categories of track.
- **Implementing best practices**: Mumbai suburban's long-standing Automatic Train Protection Systems serve as successful model, which can be replicated nationwide for train safety.

Global Best Practices

- **Europe: European Train Control System (ETCS)** is a signalling and train control system that is being implemented across Europe to improve the safety and efficiency of railway transport.
- **United Kingdom: Train Protection and Warning System** aims to enhance safety by preventing trains from passing danger signals and controlling speed in critical areas.
- **Japan:** The **Automatic Train Control (ATC) system** is used to automatically control train speeds in accordance with those speed signals.

3.8.2. TRANSSHIPMENT PORT

Why in the News?

India welcomed its first cargo ship at its newly built semi-automated transshipment port in **Vizhinjam International Transshipment Deepwater Multipurpose Seaport**, Kerala.

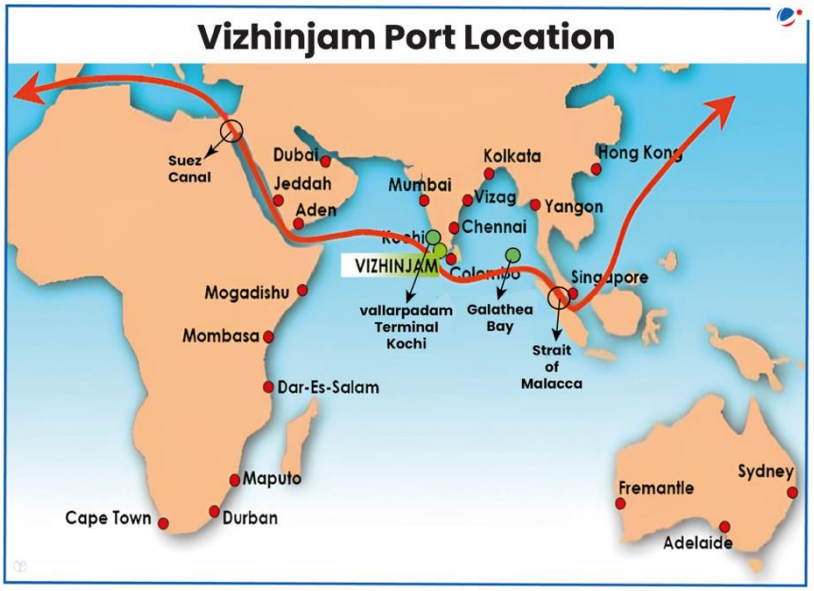
More on the news

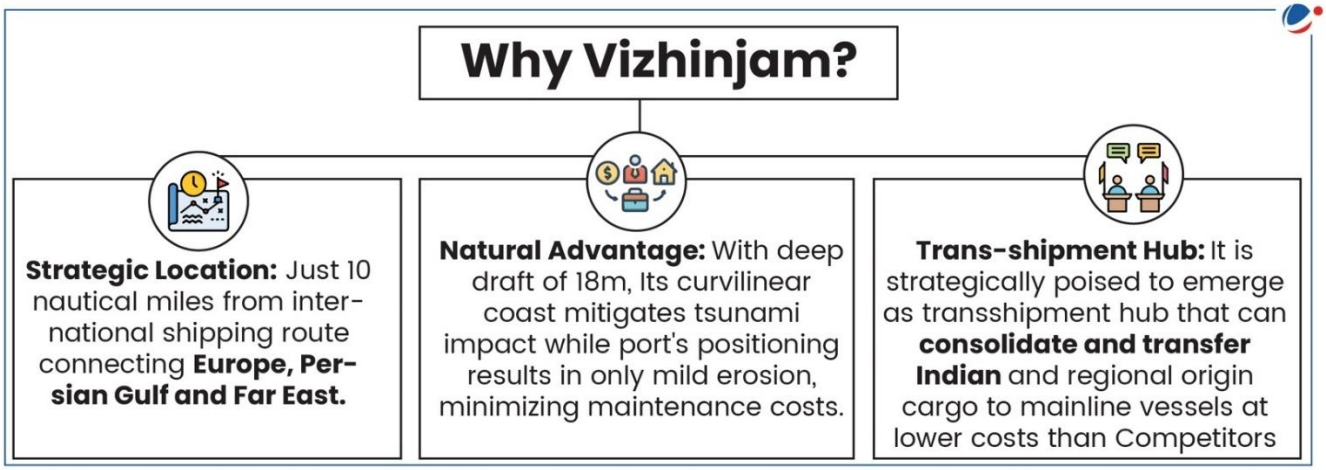
- The port is owned by **Government of Kerala.**
- Port has been developed in **landlord Port model** with a Public Private Partnership component on a **Design, Build, Finance, Operate and Transfer ("DBFOT") basis.**

- **Under landlord model**, port authority acts as regulatory body, while port operations are carried out by private companies.

Transshipment Port

- It is a **transit hub where cargo from one ship** is **transferred to another** on the way to its final destination. (includes rails, roads, etc.)
  - **Smaller parcels of cargo are loaded on a bigger ship** which is able to travel to distant ports in other countries.





Significance of India as a Transshipment Hub

- **Revenue Generation:** Transshipment hub has potential **to curb revenue losses for Major ports ($200-220 Million)** in transshipment handling.
  - Currently, nearly **75% of India's Transshipment cargo** is handled at ports outside India.
- **Reduced Logistic Costs:** It will help in **lowering logistic and shipping costs** by increasing efficiency.
  - Average turnaround time for Indian ports declined from **4.3 days (2012-13) to 2.1 days (**2022-23) which still need improvement (Global median ship turnaround time was 1.04 days in 2022).
- **Stimulating Economic Growth**: Port will significantly result in savings of foreign exchange reserves, attracting foreign direct investment etc.
- **Self-Reliance:** With **increasing Chinese influence** in port infrastructure in Indian Ocean as part of Belt and Road Initiative, dependence on foreign ports is a **potential national security challenge.**
- **Integration with Global Value Chain:** Poor shipping connectivity has hindered India's integration in global value chain. **(India's share in world trade is about 2%)**

Issues in development of Transshipment Port

- **Insufficient Natural Depth:** Major Indian ports like Mumbai, Chennai, Mangalore and Tuticorin have natural depths of only 10-14 meters while a good transshipment **hub requires 20-meter depth.**
- **Distance from international shipping lines:** E.g. Our major ports in eastern and western coast are at a distance from major international shipping lines.

- **Labor issues:** Major Indian ports are bogged with frequent labor strikes, congestions, inefficiency, lower productivity and a disparity in required skill levels for advanced port operations.
- **Other Issues:** Securing Funding, Land Acquisition Delays, Logistics and Connectivity Inefficiencies, **Competition from foreign ports (E.g.** Colombo, Dubai, Singapore, Jabel Ali, Port Kelang, etc.)

Steps Taken

- **Maritime Amrit Kaal Vision 2047:** Outlines a comprehensive plan to transform India's maritime sector.
- **New international Container Transshipment Terminal development** at Galathea bay in Great Nicobar (Island of Andaman & Nicobar) and Vallarpadam in Cochin.
- **Tariff Guidelines, 2021 provide flexibility of fixing market** determined tariff to PPP Operators thereby creating a healthy competition leading to rationalization of logistics costs.

Way-Forward

- **Infrastructure Investment**: By implementing **modern cargo handling techniques** for increased capacity at existing ports (**especially for dry cargo).**
- **Public Private Partnership (PPP) Projects:** Taxes should be **rationalized to attract foreign shipping companies** and a single window system should be set up **for approving PPP projects.**
- **Skill Development Initiatives**: Establishing **Centers for Coastal and Inland Maritime Technology** in collaboration with IITs/ NITs/ IIMs to provide opportunities in applied research and development.
- **Competing with International Ports**: Identify key areas for differentiation, such as cost efficiency, turnaround time, and customer service, to position Indian ports favorably.
- **Prepare Coastal Zone management Plan (CZMP):** Ports may be permitted to **prepare CZMP** taking into consideration future construction requirements based on earlier environment clearances issued.

3.8.3. E-MOBILITY

Why in the News?

The "**e-mobility R&D Roadmap for India"** report has been released by the Principal Scientific Adviser to the Government of India to achieve net-zero targets.

Proposed R&D Roadmap	
Sphere	**Measures Required**
Energy Storage Cell	• Accelerate the process of finding more Lithium reserves, implement globally available, established extraction technologies for lithium, utilize existing supply-chain strategies in Li-battery/ cell production etc.
EV Aggregates	• Emphasis on Hybrid Energy Storage Systems (HESS), combining different energy storage technologies such as batteries and supercapacitors etc.
Material and Recycling	• Economic analysis of recycling value-chain, implement methods for monitoring and reporting the environmental impact etc.
Charging and Refueling	• Proper road infrastructure for installation of a transmitting pad underneath the road, design scalable systems for dynamic wireless charging technology, design and development of adaptive charging techniques etc.

Need/Requirement of E-mobility in India

- **Environment Sustainability:** Transport sector contributes estimated 142 million tonnes of CO_2 emissions annually, out of which 123 million tonnes is contributed by the road transport segment alone.
  - Also, there will be reduction in emission of **particulate matter** and **NO_x (Nitrogen Oxides)** emission, a major cause of respiratory ailments.
  - **Alignment** with **global commitments** such as **SDGs** and **Panchamrit climate action plan**, presented at **COP26 (Glasgow)** to the **UNFCCC.**
- **Reducing Import Dependence:** Transport sector accounts for 18% of energy consumption in India, which is being met mostly through imported crude oil.

- Transition to EVs will **reduce the vulnerability** to the volatile international crude oil prices.

- **Export Potential:** India is the world's third-largest Automobile market. This strength and capability can be channelized in the direction of Export of EVs.
- **Other:** Job creation (create 10 million direct jobs and 50 million indirect jobs), lower maintenance cost etc.

Data Bank

- **Status of E-mobility in India**
  - **Less than 1%** of the total vehicle sales is contributed by EV **(Bureau of Energy Efficiency (BEE)).**
  - EV industry is expected to grow at a **CAGR of ~47% by 2030**

Challenges to the sector				
Higher Cost: **E.g.,** Expensive batteries	**Charging Infrastructure**: There are around 2000 charging stations in India. (NITI Aayog Report, 2021).	**E-Waste Management**: About 90% of used batteries are either processed by unorganized industry or end up in landfills.	**Complex Supply Chain:** Lithium resources are mainly concentrated in the **Lithium Triangle**.	**Lack of Standardisation**: Different manufacturers adopt varying battery chemistries, charging connectors, and powertrain configurations.

Government initiatives for promotion of EV Manufacturing Ecosystem

- **Electric Mobility Promotion Scheme 2024 (EMPS 2024):** Launched by the Ministry of Heavy Industries (MHI).
- **PLI Schemes:** Production Linked Incentive (PLI) Scheme for Automobile and Auto Components Industry in India to boost domestic manufacturing of Advanced Automotive Technology products.
  - PLI Scheme for manufacturing of Advanced Chemistry Cell (ACC) to bring down prices of battery in the country.
- **Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles (FAME) India:** Under FAME India Scheme Phase-II, Phased Manufacturing Programme (PMP) has been introduced.
- **Rationalization of Goods and Services Tax (GST):** On electric vehicles from 12% to 5%, and on chargers/charging stations for electric vehicles from 18% to 5%.
- **Promoting Charging Infrastructure:** Ministry of Power has issued "Charging Infrastructure for Electric Vehicles – Guidelines and Standards". BEE has been designated as Central Nodal Agency for National-level rollout of charging infrastructure.

Way Forward

- **Formulating Battery Technology swapping Policy**: Battery swapping involves switching out a depleted battery for a fully charged one at a swapping station within the battery swapping operator's (BSO) network.
- **Standardization**: All stakeholders shall come together to adopt common standard in the sphere of charging port, etc. to ensure interoperability.
- **Focus on Infrastructure**: Incentivise setting up of **charging stations** and setting up **dedicated manufacturing hubs** and **industrial parks** for manufacturing batteries, cells, and EV auto components.
- **Finance Availability**: EVs should be bought under the **priority sector lending**.
- **Vibrant Supply Chain Mechanism:** Government should take initiatives to accelerate the extraction of lithium.

3.9. MINING AND ENERGY

3.9.1. OFFSHORE MINERALS IN INDIA

Why in the news?

In exercise of powers under Offshore Areas Mineral (Development and Regulation) Act 2002, the Central Government framed Offshore Areas (Existence of Mineral Resources) Rules, 2024.

About Offshore Minerals in India

- **Offshore Mining:** It is the **process of retrieving mineral deposits from the deep seabed**, at a depth of more than 200 metres.
- **Extent:** India's **Exclusive Economic Zone (EEZ) of over two million square kilometers** holds significant recoverable offshore mineral resources.
- **Mineral Deposits:** India's offshore mineral reserves include **gold, diamond, copper, nickel, cobalt, copper, manganese, and rare earth elements** essential for development.
- **Reserves:** Geological Survey of India has delineated the resources of the following minerals in the offshore areas:
  - **Lime mud** within the EEZ off Gujarat and Maharashtra coasts.
  - **Construction grade sand** off Kerala coast.
  - **Heavy mineral placers** in the inner-shelf and mid-shelf off Odisha, Andhra Pradesh, Kerala, Tamil Nadu and Maharashtra.
  - **Phosphorite** in the Eastern and Western continental margins.
  - **Polymetallic Ferromanganese (Fe-Mn) nodules and crusts** in Andaman Sea and Lakshadweep Sea.

Offshore Areas (Existence of Mineral Resources) Rules, 2024

- **Applicability:** These rules apply to **all minerals except** mineral oils, hydrocarbons and **minerals specified in Part B of First Schedule** to the Mines and Minerals (Development and Regulation) Act 1957.
- **Definitions:** Rules use the modified version of **United Nations Framework Classification (UNFC) and Committee for Mineral Reserves International Reporting Standards (CRIRSCO) Template** for following:
  - **Exploration Stages:** Exploration for any mineral deposit involves four stages:
    - ✓ **Reconnaissance survey (G4)**
    - ✓ **Preliminary exploration (G3)**
    - ✓ **General exploration (G2)**
    - ✓ **Detailed exploration (G1)**
  - **Feasibility Studies:** Stages of feasibility study include: **Geological study (F3), Pre-feasibility study (F2) and Feasibility study (F1).**
- **Exploration Standards:** Rules mandate **rigorous exploration standards** to ensure accurate assessment and sustainable development of offshore mineral resources.
  - A minimum of **General Exploration (G2)** to establish indicated mineral resource is required to **grant mining leases**.
  - Completion of at least **Reconnaissance Survey (G4)** to estimate Reconnaissance Mineral Resource or mineral potentiality of mineral block is necessary for obtaining composite licenses.
- **Geological Study:** On completion of exploration operations, geological study report shall be prepared by the licensee to establish probable mineral reserve.
- **Specific Exploration Norms:** Rules set specific exploration norms for a variety of deposits and minerals, including construction-grade silica sand, calcareous mud, phosphatic sediments, deep sea minerals, rare earth element (REE) minerals, hydrothermal minerals, and nodules.

3.9.2. GAS-BASED ECONOMY

Gas-Based Economy at a Glance

Significance of a gas-based economy

- **CO2 emissions** (per unit of energy produced) from gas **are around 40% lower than coal.**
- **Natural gas-fired power plants have higher energy efficiency** compared to coal-fired plants.
- **Rapid and Efficient Transport,** when cooled to -161.5 °C, natural gas becomes liquid (LNG), filling only 1/600th of its original volume.
- **Natural gas fired generators can be backup power companions** to renewable energy as they provide clean source of power.

Schemes/Policies/Initiatives

- **Revised domestic natural gas pricing guidelines** based on recommendations of a panel headed by Kirit Parikh.
- **Hydrocarbon Exploration and Licensing Policy (HELP) 2016**
- **Launch of India Gas Exchange.**
- **Unified tariff for natural gas pipelines (One Nation, One Grid and One Tariff)**
- **Creating necessary Gas infrastructure** like National Gas Grid, City gas Distribution (CGD) network, CNG stations, LNG terminals etc.
- **Draft LNG Policy** to increase LNG usage in the transportation and mining sector.

Constraints

- **Goals have shifted frequently** from 20% by 2025 to 11% by 2032 and then to 15% by 2030.
- **Around 50% of our current LNG demand is met through imports.**
- **Infrastructure Constraints**.
- **Adoption challenges** like high initial cost compared to traditional systems, lack of availability of LNG retail outlets, hesitancy in the market, etc.
- **Environmental concern:** Extraction, production, and combustion still generate greenhouse gas emissions.

Way Forward

- **Consider other recommendations of Kirit Parekh Panel** such as completely **free and market-determined pricing** for natural gas etc.
- **Demand Stimulation** through policy incentives, such as **tax benefits and targeted schemes.**
- **Increase the utilization of current assets** (Parliament Standing Committee on Energy's report has identified 14.3 GW of stranded gas-based plants).
- **Encourage** and **incentivize** domestic gas exploration and production.
- **Research** and **development** to advance technologies related to natural gas extraction, production, and utilization.
  - E.g., Coal-to-SNG (Synthetic Natural Gas) Project in Burdwan (West Bengal).

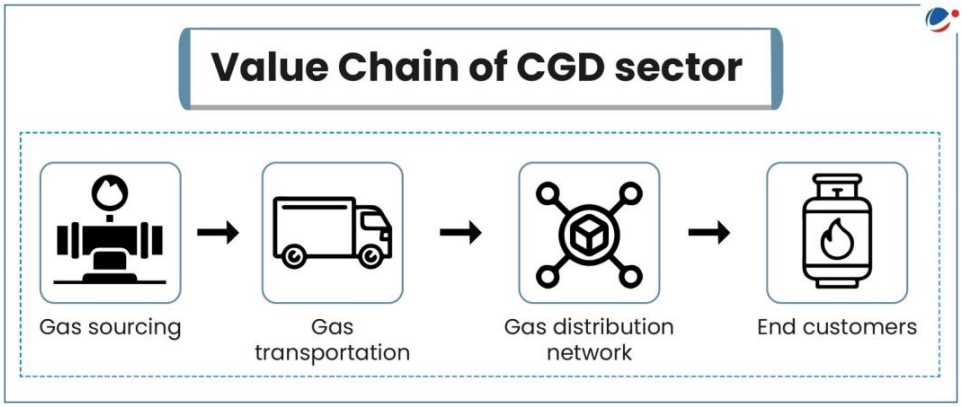
3.9.3. CITY GAS DISTRIBUTION (CGD) NETWORK

Why in the News?

Recently, FICCI in collaboration with PWC released a report titled 'Charting the path forward in city gas distribution: Emerging trends and insights'.

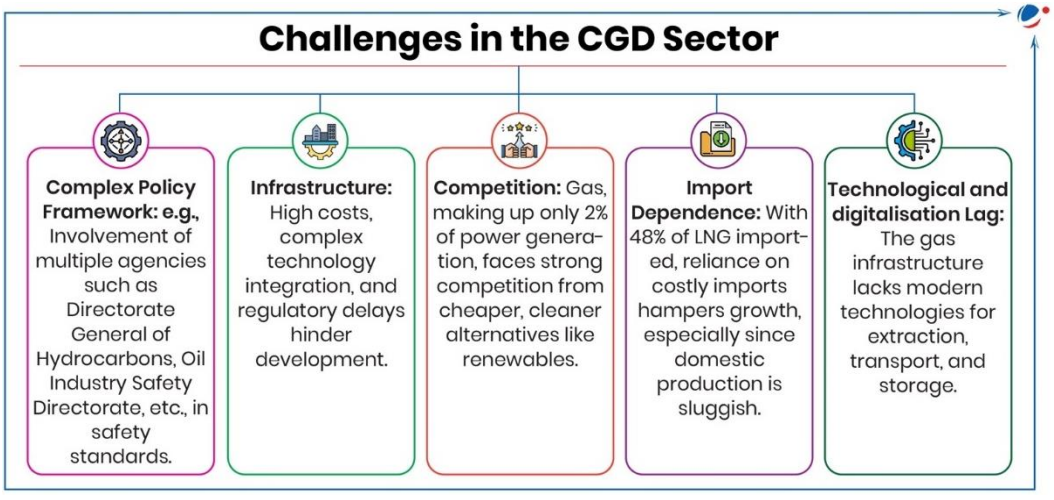
About CGD

- **Pipeline Network:** CGD network is an interconnected system of underground natural gas pipelines for supplying Piped Natural Gas (PNG) and Compressed Natural Gas (CNG).
  - Natural gas is a **relatively clean-burning fossil fuel** which mainly comprises **Methane (CH4) with a small percentage of other higher hydrocarbons**
- **Regulation:** Under the PNGRB Act 2006, **PNGRB** grants authorization to the entities for developing a CGD network in **specified geographical areas (GAs).**
- **Coverage:** Over 33,753 Kms of natural gas trunk pipelines are authorized in the country out of which around **24,623 Kms of pipeline are currently operational**
- **Growth:** The Government of India plans to raise the **share of natural gas in the energy basket from around 7% at present to 15% by 2030.**



Relevance of CGD Network

- **Clean Energy Transition:** Transitioning to a gas-based economy is expected to support India's climate action commitments.
- **Natural Gas as Transition Fuel:** Natural gas serves as a bridge between traditional and renewable energy sources in India.
  - It acts as a **critical energy source during the transition period,** complements renewables and helps meet growing energy demands.
- **Equitable Energy Access:** It will ensure adequate availability and equitable distribution of natural gas across the country.
- **Economical and Safe**: The natural gas pipeline infrastructure provides an economical and safe method for transporting natural gas from production sources to consumption markets.



- **Benefits of CNG:** Very low levels of emissions, unlikely to ignite due to high ignition temperature, lowest injury and death rate per vehicle mile etc.
- **Benefits of PNG:** Safe and assured supply, convenient to use, no wastage, no hassle for cylinder replacement etc.

Initiatives Taken to Promote CGD Network

- **Market Exclusivity to CGD companies:** Market exclusivity for a period of 8 years, extendable up to 10 years is given to companies selected in bidding for developing CGD network.
- **Infrastructure Status to Gas pipelines:** The status accorded by RBI facilitate financing from commercial banks and other financial institutions.
- **Priority for Gas Sourcing:** The government prioritizes domestic gas supply for households (PNG) and transport (CNG).
- **Unified Tariff Reform:** It will help achieve the objective of "One Nation, One Grid and One Tariff".
- **Financing:** Government has set an objective to invest $67 Billion in the natural gas sector in the next six years.

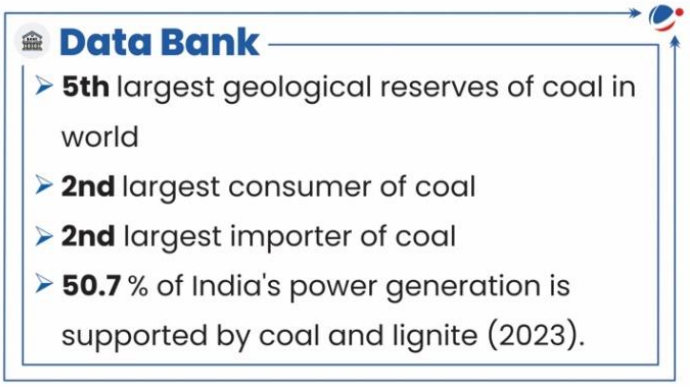
Way Forward for Promoting CGD Networks

- **Government and Regulators:** Developing a unified regulatory strategy is crucial to streamline the CGD sector, addressing issues like **skilled personnel shortages, slow approvals, and volatile gas prices.**
- **CGD Companies:** Companies need to shift towards **customer-led strategies** to meet market demands (including rise of EVs and alternative energy sources) and build loyalty.
- **Technology Companies:** Tech firms should focus on **developing advanced solutions l**ike smart meters and GIS mapping.
- **Financial Institutions and Investors:** Investors must **identify promising CGD projects** and develop strategies to mitigate risks from volatile market dynamics.

3.9.4. COAL SECTOR IN INDIA

Why in the News?

Ministry of Coal has informed that Compound Annual Growth Rate (CAGR) of imported coal share fell from 13.94% (2004-05 to 2013-14) to -2.29% (2014-15 to 2023-24).



Key Reforms/Initiatives in Coal Sector which helped decrease imports

- **Enactment of Coal Mines (Special Provisions) CMSP Act- 2015**: The Act permitted auction of coal mines for commercial mining by private entities.
  - In 2020, first commercial coal mining auctions were launched.
- **Mines and Minerals (Development and Regulation) Amendment Act, 2021**: It emphasized on enhancing transparency and efficiency in the allocation of mining licenses. Allowed **Composite Prospecting Licence-cum-Mining Lease (PL-cum-ML)** specifically for coal.
- **National Coal Index (NCI):** NCI is a **price index combining the prices of coal from all the sales channels**, which serves as a reliable indicator of market dynamics, providing valuable insights of price fluctuation.
- **FDI**: Allowing 100% FDI in coal mining has attracted global expertise and advanced technologies.
- **Integrated Coal Logistic Policy and Plan, 2024**: Formulated by the Ministry of Coal with the objective of developing resilient and cost -effective coal evacuation logistic system.
- **Investment in Coal Gasification**: Cabinet approved a comprehensive scheme with a Rs.8,500 crore outlay, promoting Coal/Lignite Gasification Projects.

Persistent Issues/Challenges in Coal Sector

- **High Import Dependence:** It is mainly because there is **less availability of high gross calorific value (GCV) coal** in India. This type of coal has low ash and sulphur content.
  - Major source countries for India's coal imports include – Australia, Russia, South Africa, the US, etc.
- **Dominance of Coal India Limited (CIL)**: **CIL** contributes over 80% of the country's indigenous coal production and supply.
  - Earlier, the Competition Commission of India in 2017 had contended that **Coal India and its subsidiaries operated independently of market forces and enjoyed market dominance**.
- **Lack of Upgradation:** Technological obsolescence in mining techniques resulting in lower productivity, higher costs, and safety hazards.
- **Logistics Issue:** Higher coal logistics costs owing to limited multi-modal transport approach.
- **Environment Issues:** The damage from **open-cast mining** is irreparable, rendering the land useless.
- **Other: Non-payment of outstanding dues** by power sector consumers, **frequent labour-industrial relations issues** and un-seasonal and extended **rainfall** in coal bearing areas.

Way Forward

- **Promoting Sustainable Practices**: **Miyawaki plantation** method can be used on large scale promote green cover near mines.
- **Encouraging Private players**: It will reduce burden on Coal India Limited (CIL). Also, they will promote technological upgradation in mining.
- **For Import Substitution**, the **Inter-Ministerial Committee** in its report has suggested-
  - Promotion of **Rationalization of coal linkage policy** to reduce the distance in transportation of coal.
  - Early operationalization of **Captive/Commercial coal blocks**.
  - Ministry of Power may need to mandate the **Domestic based coal power plants** for using domestic coal instead of imported coal. For this, Coal Ministry needs to adequate supply and no logistic constraint of domestic coal.
  - Enhance **coal gasification** in country to produce synthetic gas for steel sector which is mainly depended on imported coal.

3.10. INNOVATION AND ENTREPRENEURSHIP

3.10.1. CREATIVE ECONOMY

Why in the news?

Indian Chamber of Commerce launches All-India Initiative on Creative Economy (AIICE) for India's creative industries.

What is creative economy?

UNCTAD defines creative economy as an **interplay between human creativity, ideas, intellectual property, knowledge and technology**. Essentially, it is the **knowledge-based economic activities** upon which the 'creative industries' are based.

Status of Creative Economy in India				
Number of people working in various creative occupations is estimated to contribute nearly **8% of the**	Creative economy contributes about **20% to nation's overall GVA**	Creative workforce was found to be **highly concentrated** in the industries of Media, Entertainment, and Recreation; Computer Programming and Software Publishing; Architecture, Design, and Engineering;	Creative workforce is found to be **more urban-centric, younger, and less gender biased** as compared to the non-creative workforce	Creative occupations **also pay reasonably well—88% higher than the non-creative ones**

country's employment		Fashion; and Education and R&D industries		

Significance of Creative Economy

- **Economic Growth:** Creation of demand for products and services, fuels innovation, economic diversification and export earnings.
- **Social Development:** Promotes social inclusion, empowerment, encourage social mobility, cultural preservation and skill development.
- Promotes mutual understanding through cultural exchanges with other countries and **opens up avenues for diplomatic engagement**.
- **Promotes sustainable development** and environment friendly practices.

Hurdles hindering growth of creative economy

- **Digitalization challenges** including digital divide, cybersecurity concerns, gaps in digital literacy and inadequate protection of intellectual property.
- **Systemic issues** including lack of supportive policy frameworks, lack of reliable and comprehensive data and uneven funding.
- **Inherent issues** of the sector such as fragmentation of creative industries, ineffective market access and distribution, and lack of transparency in selection process etc.
- **Inadequate recognition** and lack of awareness or misperception about local culture and arts in India.

Initiatives to support creative economy

- **National Policy on IPR (2016)** to tackle administrative issues.
- **Zonal Cultural Centers** to protect and preserve various forms of folk art & culture.
- **Global Engagement Scheme** to promote Indian culture internationally.
- **UNESCO Creative Cities Network** to foster cooperation in various cultural domains like design, film, crafts, media arts, literature, music etc.
- **Startup India Scheme** to catalyze startup culture and build a strong ecosystem for innovation and entrepreneurship.

Way Forward

- **Defining and mapping creative industries** in India.
- **Credit guarantee schemes and crowdfunding** for financing entrepreneurs and MSMEs in creative sector.
- **Addressing issues of copyrights**, intellectual property protection and safeguard the interests of creators and innovators.
- **Establishing Creative Districts/Hubs** on the lines of creative district models in Thailand.
- Forming a **Specialized institution for Creative Industries** on the lines of UK (Creative Industries Council).
- **Adopt global best practices** such as "Crowdfunding4Culture" portal of European Commission.

3.10.2. ANGEL TAX

Why in the News?

In Budget 2024-25, government has announced to abolish the **angel tax for all classes of investors** to boost the entrepreneurial spirit and support innovation.

What is Angel Tax?

- **Definition:** Refers to the income tax that the government imposes on funding raised by **unlisted companies,** or **startups**, if their valuation exceeds the company's **fair market value**.
  - For instance, if the fair market value of a start-up share is Rs 10 a piece, and in a subsequent funding round they offer it to an investor for Rs 20, then the difference of Rs 10 would be taxed as income.
- **Objective:** It was introduced in 2012 to curb money laundering and tax evasion.

- **Legal Provision:** It was levied under Section 56 (II) (viib) of the **Income Tax Act, 1961**.
- **Coverage**: Earlier, it applied only to local investors but the Budget 2023-24 widened its ambit to include foreign investments (with some exceptions).

Key Sources of Funding for Start-ups

- Venture Capital/ Private Equity/ Angel Funds invest in young and fledging startups.
  - Venture capital Fund (including Angel Fund) is considered as Alternative Investment Funds (AIFs), which pool private funds for investment in startups and other companies.
- **Venture Capitalists:** They manage pooled funds from institutional investors and invest in large sums in startups that have already demonstrated market traction, have a validated business model, and are ready to scale.
  - They seek larger ownership stakes which would in turn give them more influence over strategic decisions.
- **Angel investors:** They typically invest their personal funds in smaller amounts at an earlier stage when the founder is trying to get his/her venture off the ground.
  - There may be more uncertainty and higher risk in investments done by Angel Investors.

Why Angel Tax has been abolished?

- **Improves Ease of Doing Business:** Angel tax imposed an additional financial and compliance burden on Start-ups thus affecting their growth potential as well as Ease of doing business.
  - It will promote **Reverse Flipping** of start-ups.
- **Streamlining Investment:** Indian start-ups witnessed over 60 % decline in funding in terms of value in 2023.
  - Also, imposition of Angel tax on foreign investors reduced opportunity for Funding. Foreign investor played key role in increasing the valuation of start-ups.

Concerns related with abolishing Angel tax

Abolition will primarily affect the revenue of the government. Additionally, there is an issue that start-ups can be used to launder money or shell start-ups can be created.

What more can be done to improve the financial ecosystem of startups?

- **Scaling up unicorns:** Expanding the **Small Industries Development Bank of India (SIDBI) Fund-of-Funds** to help disburse more funds to startups.
  - SIDBI Fund-of-Funds is a fund that invests in other funds such as **AIFs**.
- ***Listing of AIFs:*** AIFs should be allowed to list on capital markets to access a permanent source of capital.
- **Expansion of sectors for FVCI:** Foreign venture capital investors (FVCI) shall be allowed to invest in all the sectors where foreign direct investment (FDI) is allowed.
- **Mobilisation of domestic institutional funds:** Major banks should be allowed to **float fund-of-funds** and be allowed to invest in Category-III AIFs.

3.10.3. WOMEN ENTREPRENEURSHIP

Why in the news?

Women Entrepreneurship Program launched by National Skill Development Corporation (NSDC).

About the Program

- It aims to empower **25 lakh women entrepreneurs** with skill, knowledge, resources, and financial grants, etc.
- NSDC, with **National Institute for Entrepreneurship and Small Business Development (NIESBUD)**, will offer free **online self-learning entrepreneurship courses** through **Skill India Digital Hub (SIDH).**
  - The NIESBUD and SIDH under the **Ministry of Skill Development and Entrepreneurship (MSDE)** are engaged in providing training and apprenticeship opportunities.
  - **NSDC** is a not-for-profit public limited company.

Significance of Women Entrepreneurship

- **Economic:**
  - **Job creation** (women led enterprises could create around 170 million jobs, NITI Aayog),
  - **Increase in GDP** (50% of women in workforce could increase GDP by 1.5%, World Bank) **,**
  - **Foster innovative business practices**.
- **Social:**
  - **Empowerment** (breaking gender norms and stereotypes);
  - **Enhanced education, awareness, and networking opportunities**;, etc.
- **Political:** Policy advocacy, fostering strong women agency.
- **Cultural:** Participation in traditional crafts and arts can advance India's cultural heritage

Challenges faced by Women Entrepreneurs in India

- **Gender gap** in access to finance, male dominated family structure etc.
- **Social cultural barriers** dual burden of balancing work and traditional gender roles.
- **Others:** lack of literacy; safety at workplace, access to advanced technology, etc.

Some Initiatives for fostering Women Entrepreneurship

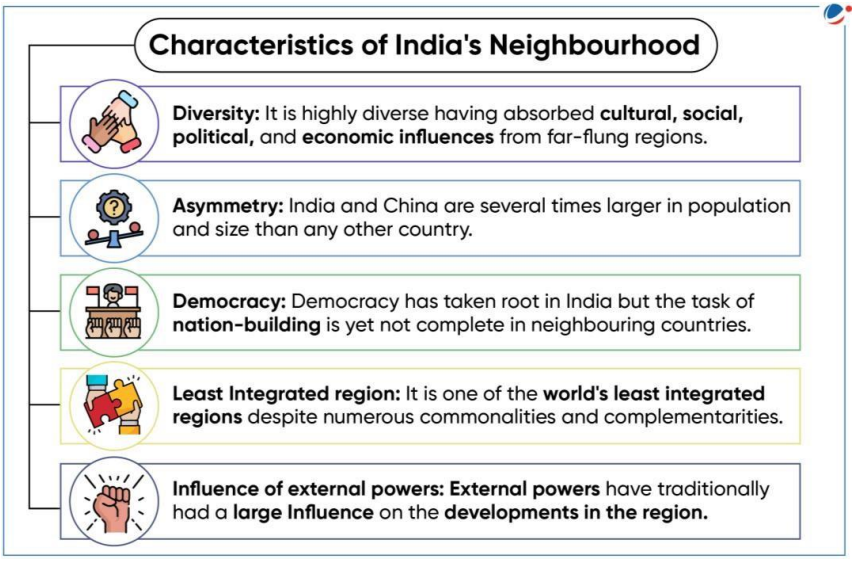
- **Mudra Loans:** with no collateral required by women for up to 10 lakh loans.
- **Stand-Up India:** financing Women Entrepreneurs.
- **Trade-Related Entrepreneurship Assistance and Development (TREAD):** financing women through NGOs.
- **Women Entrepreneurship Program** by NITI Ayog.

4. SECURITY

4.1. DISTURBANCE IN NEIGHBORING NATIONS AND INDIA'S INTERNAL SECURITY

Why in the news?

Recently, after a gunfight between Myanmar Army and pro-democracy militias, about 1,500 people sought refuge in Mizoram's Champhai district.



Impact of disturbances in the neighborhood on India's internal security

- **Illegal and influx of refugees:** As happened due to Rohingyas crisis in Myanmar; Bangladesh Liberation War of 1971.
- **Escalation of internal conflicts**: E.g., Refugees in Manipur may intensify Kuki-Meitei ethnic tensions.
- **Organised crimes:** Example, drug and human trafficking, smuggling of arms and counterfeit currency etc.
- **Cross-border terrorism:** Porous borders provide safe havens for groups like United Liberation Front of Assam (ULFA).
- **Economic risks:** For example, properties of many Indian companies were burned in Bangladesh.

India's engagement with its neighbors to bring peace

- **Support to people**: Example, shelter to Tibetan refugees and Central Tibetan Administration based in Dharamshala, Citizenship Amendment Act (2019).
- **Joint military exercise:** E.g., Sampriti exercise with Bangladesh.
- **Humanitarian aid:** Rapid disaster response. E.g., tsunami in Sri Lanka, water crisis in Maldives (Operation NEER), and Nepal earthquake.

Way forward to address threats due to disturbance in neighboring countries

- **Political risk management:** Indian journalists should be leveraged for anticipating the political turmoil, by filling the information gap and thus making informed decisions.
- **Border security:** Combining technology, human intelligence, and international cooperation to create a robust defence against cross-border terrorism, prevent infiltration.
  - Stability in border abutting villages through **Vibrant Village Programme.**
- **Utilize Diplomatic engagements:** Along with bilateral dialogue, leverage forums like UN, Commonwealth and SAARC for peaceful conflict resolution.

4.2. ROLE OF COMMUNITY IN BORDER MANAGEMENT

Why in the news?

A recent report by the Rural Development and Migration Prevention Commission of Uttarakhand reported that **11 villages in the state along the India-Tibet border have been abandoned.**

More on the News

- This has raised **concerns about India's security**, particularly in context **of China's establishment of Xiaokang villages** near the Indian border.
  - These new villages, similar to China's South China Sea tactics, are seen as **part of China's Salami Slicing** strategy (incremental territorial encroachments near border areas).
  - They **support military and strategic road networks**, and serve **as tools for China to strengthen its control and legal claims over the region**.
- **India's and Bhutan**'s interests have been adversely impacted by these developments.

Significance of Community Participation in the Border Management

- **Security and safety**: Familiarity with the local terrain, crossing points, and regular patterns of movement enables them to act as **additional eyes and ears** for border guarding forces.
- **Improved Situational Awareness**: They aid in **intelligence gathering** along the border and provide information about suspicious activities, smuggling attempts, or potential security threats.
- **Soldiers without Uniforms**: **E.g.** Residents of **Chushul village (Ladakh) in 2020 helped Army** to secure supplies for harsh winter season.
- **Response to China's Salami Slicing.**

Challenges in Engaging Local Communities in the border management

- **Inadequate State Capacity**: Poor border infrastructure, inadequate basic equipment, and poorly trained law enforcement personnel.
- **Feeling of alienation: R**estrictive nature of tasks performed by forces, **Communication Gap due to language barriers may create feeling of distrust and alienation among local people.**
- **Agitation Approach**: Criminals exploit local discontent to create conflicts between border authorities and the public.
- **ad hoc and informal cooperation: Existing** cooperation between border communities and authorities already is often **ad hoc and informal** making them **unreliable and slow.**

Initiatives for improving life of People living along International Borders

- **Vibrant Villages Programme (2023):** Ensure **comprehensive development of selected villages** along the northern border in the **States of Arunachal Pradesh, Himachal Pradesh, Sikkim, Uttarakhand and Ladakh**.
- **Border Area Development Programme (BADP):** To meet special development needs of people living **within 50 kilometers** of the International Border.
- **Border Infrastructure and Management (BIM) Scheme**: To strengthen the border infrastructure for improving border management, policing and guarding the borders

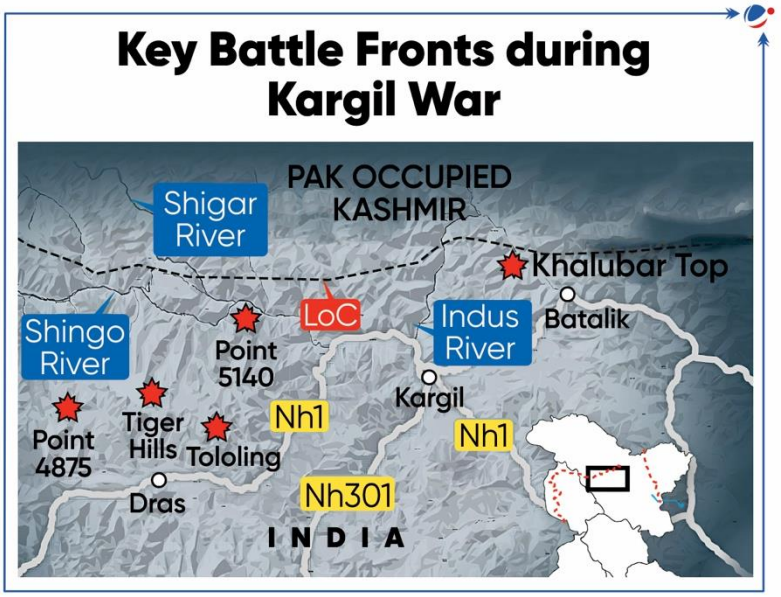
Way Forward

- **Cooperative Federalism:** Shift from **'border guarding' to 'border management,'** with shared responsibilities between Central and State Governments.
- **Ensuring development:** Accelerated infrastructure development as recommended by the **Report of task force on border management (2001).**
- **Community Centric Approach:** Improve security, amenities, and employment opportunities, and ensure **adherence to code of conduct and ethical standards by border authorities**.
  - Enhance **grievance redressal**, learn **local languages, respect local customs**, and **engage in civic activities** to improve relations.
  - Community involvement also ensures that **security measures respect human rights** and **do not unduly restrict the movement** of goods and people.

4.3. 25 YEARS OF KARGIL WAR

Why in the News?

India is celebrating 25 years of Kargil War victory (celebrated as Kargil Vijay Diwas) or success of Operation Vijay.



More on News

- **Operation Vijay** was launched by Indian Army in response to the **infiltration of Pakistani soldiers and militants into the Kargil** a **district of the Union Territory of Ladakh.**
  - **Indian Airforce** launched **'Operation Safed Sagar'** and **Indian Navy** launched **'Operation Talwar'.**

About Kargil War

- **War theatre:** It occurred between **India and Pakistan** in **Kargil district** along **Line of Control (LOC)** in **1999** when Pakistan forces occupied several points on Indian side of LoC in Mashkoh valley, Dras, Kaksar, Tiger Hill areas.
- **Commencement of war:** Shortly after the **signing of the Lahore declaration in** 1999 (to reduce nuclear risks and resolve their border disputes peacefully), the **Pakistan Army** surreptitiously **occupied the winter-vacated posts**.

Reasons for Pakistan's intrusion of India

- **Politico-strategic:** To **internationalize Kashmir, alter the Line of Control (LOC**), and **achieve a better bargaining position** for a possible trade- off against the positions **held by India in Siachen.**
- **Military/Proxy War Related Motives:**
  - To **interdict the Srinagar-Leh road** by disrupting vital supplies to Leh.
  - To outflank India's defences from the South and **rendering its defences untenable in Turtuk and Siachen.**
  - **To boost militancy in J&K** by diverting troops from the Valley to Kargil.

Shortcomings in India's defense architecture that contributed to the Kargil War

The **Kargil Review Committee (KRC)** Chaired by **K. Subrahmanyam** and its follow-up by the Group of Ministers highlighted following issues:

- **Intelligence failure:** Government of India did not anticipate the possibility of a war so soon after the Lahore Declaration.
- **Low technology:** Intrusion by Pakistan **could have been detected earlier if India had half-meter resolution satellite imagery capability**, appropriate UAV in addition to better Human Intelligence (HUMINT).
- **Decline in defence expenditure**: Compromise with the **defence modernisation** and replacement of obsolete equipment and **weapons systems**.
- **Lack of comprehensive security policy** despite the changing threat scenario because of the proxy war, nuclearisation in the sub-continent and RMA.

Suggestions made by KRC to strengthen India's defense architecture

- **Strengthen National Security Council** (NSC) and have a full time National security adviser (NSA).
- Enhance **satellite imagery capability** and induct UAVs.

- Create an **organization** focused on **electronic and communication intelligence** (like the National Security Agency in US).
- Create an **integrated defence intelligence agency (DIA)**
- More powers and **prominence to the Joint Intelligence Committee (JIC)**
- **Reduce the age profile in the army** and find ways to decrease the pension bill.
- **Establish a committee to study all the issues** related in order to have an **effective border management policy**
- **Publish war histories** and declassify official documents to establish the facts
- Create **synergy between military and the media.**
- **Create civil-military liaison mechanisms at various levels**, from Command HQ to operational formations on ground to smoothen relationships.

Major initiatives taken for strengthening India's defence architecture

Specification	Reforms taken
Intelligence	• **Task force** on Intelligence apparatus formed, • **National Technical Research Organisation (NTRO)** was formed in 2004 for the protection of **national critical infrastructure** and handling **cyber-related** issues. • **A 'Multi Agency Centre' (MAC) has been established**. Information sharing is done at the MAC on daily basis by all intelligence agencies ○ **Defence Intelligence Agency** (DIA) which is a tri-Service Intelligence Agency of MoD, is placed at MAC • RISAT-2: A **Radar Imaging Satellite with all-weather capability to take images of the earth.**
National security management and apex decision-making	• **NSC was reformed** to **adopt whole of government approach** and NSA holds the rank equivalent to Cabinet Minister. • **Nuclear Command Authority** (NCA), established in 2003, is the sole body which can **recognize the use of nuclear weapons.** • **Chief of Defence Staff (CDS)** created in 2019 is **the Permanent Chairman of the Chiefs of Staff Committee.**

Conclusion

Since Kargil War, the character and conduct of warfare have changed with the growing use of terror and other irregular methods of fighting by non-state actors and advancements in the cyber and space domains. Therefore, Indian armed forces must be prepared for future conflicts

4.4. TERRORISM IN J&K

Why in the News?

Jammu division of the Union Territory of Jammu & Kashmir (J&K) has been witnessing a rise in terrorist incidents and Resurgence of Militancy in Jammu: After two decades of relative peace.

Reasons for recent rise in terrorism in Jammu

- **Reactivation of proxy-war:** Pakistan wants to re-establish its relevance, which was severely diminished after abrogation of Article 370 in 2019.
- **Thinning of Security Grid in Jammu: As security forces were moved to** from Jammu to the China border (post 2020 Galwan clashes).
- **Tightened security in Kashmir:** Tightened security in Kashmir pushes militants to attack Jammu where security is relatively low.

Reasons for persistence of terrorism in J&K

- **External**
  - **State-sponsored terrorism** from Pakistan
  - **Porous borders facilitating infiltration** to create religious and ethnic tensions
  - **Ideological influence from global extremist groups**
- **Internal**
  - **Political instability**: Periods of President's Rule, and absence of democratically-elected popular governments created a political vacuum that terrorist groups exploit.
  - **Governance issues:** AFSPA, internet shutdowns, arbitrary detentions, etc., resulted in alienation of local population.
  - **Over Ground Workers (OGWs):** OGWs sustain militancy through logistical support and propaganda.
    - ✓ **Without directly participating in armed activities**.
    - ✓ **OGWs are difficult to counter** due to **blurring of lines between civilians and combatants**, their **community ties, technological adaptation** such as use of encrypted communications, etc.

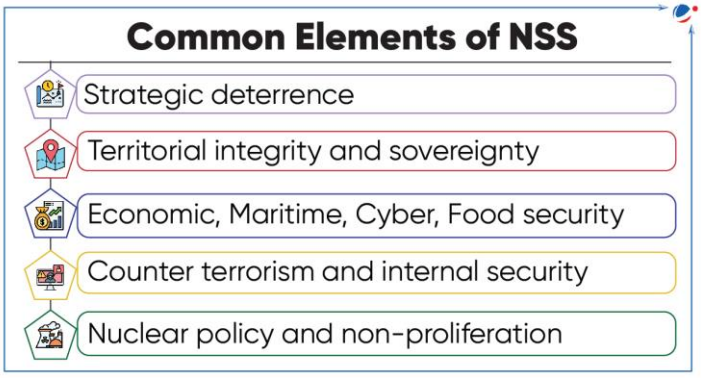
Way Forward

- **Security and Intelligence: Reinforcing HUMINT** (Human Intelligence) **to complement TECHINT** (Technological Intelligence)**,** implement the recommendations of **Madhukar Gupta Committee** on Border Protection.
- **Political:** Assembly election in J&K is set to be held in September and October 2024. This will be helpful in enhancing confidence people faith in democratic process.
- **Economic**: Implementation of **Jammu & Kashmir Industrial Policy 2021-30** for economic development and ensuring sustainable livelihood to people.
- **Diplomatic:** Proactive engagement with the international community including FATF to isolate terrorist groups and their sponsor states
- **Confidence Building Measures (CBMs): Involvement of Village Defence Guards and local religious leader to counter extremist narratives,** rehabilitation of former militants.

4.5. NATIONAL SECURITY STRATEGY

Why in the news?

The Chief of Defence Staff (CDS) contested the need of a written National Security Strategy (NSS), sparking debate about importance of a NSS document.



What is National Security Strategy (NSS)?

- An NSS is a **concise summary of a country's strategic vision and objectives** and encompasses domestic and external challenges and addresses **traditional, non-traditional threats and opportunities** and **updated periodically**.
  - **Major powers like the US, UK, and Russia** have published and regularly updated their NSS.

Why does India need a written National Security Strategy?

- **Framework for effective Long-term Planning:** Ensures coherent, non-adhoc decisions.
- **Strategic Signaling:** It will clarify India's **strategic intent to friends and foes**, highlight its role as a security provider in the Indian Ocean, and establish clear cooperation with partners.
- **Meet changing security dynamics**: Regular reviews of threats and global trends, addressing challenges like hybrid warfare and China's naval growth.
- **Operational clarity**: It can help guide **decision-making** in areas like delegation, operationalisation of theatre commands etc.
- **Adopt Whole of nation approach:** It can help build synergy for harnessing **comprehensive national power** and coordinate operations effectively.

Challenges in codifying NSS in India

- **Lack of Political Will**: Limited political consensus, fear of accountability, and inadequate expertise hinder NSS formulation.
- **Loss of strategic flexibilit**y: Codifying NSS may limit political flexibility, unlike ad hoc policymaking (e.g., Israel operates without formalized NSS).
- **Resource Allocation**: Effective NSS implementation necessitates adequate financial and human resources and capability-building to meet set objectives.
- **Weak Institutional support and policy feedback:** Only few defense and security think-tanks currently exist in India.
  - **The Kargil Review Committee Report** and **the Naresh Chandra committee on Security (2011)** failed to catalyse immediate formulation of NSS development.

Previous steps taken to draft NSS

- **The Defence Planning Committee (2018), chaired by National Security Advisor**: It is a permanent body tasked with **preparing a draft national security strategy** among others.
- **Hooda Committee:** It was set up in **2018** to suggest comprehensive **NSS**. **It suggested the following tenets to a draft NSS:**
  - **Assuming our Rightful Place in Global Affairs**: Playing a significant Global role.
  - **Achieving a Secure Neighbourhood**: Cooperation and stability in the neighbourhood.
  - **Peaceful Resolution of Internal Conflicts**: Integrating North East, combating terrorism, etc.
  - **Protecting our People**: Economic security, Cyber threats, Climate change, etc.
  - **Strengthening our Capabilities**: Maritime borders, space, strategic communications, etc.

Conclusion

As India enters Amrit Kaal, a term signifying a prosperous and self-reliant future, it is crucial to **discard hesitation and ambiguity** in national security planning.

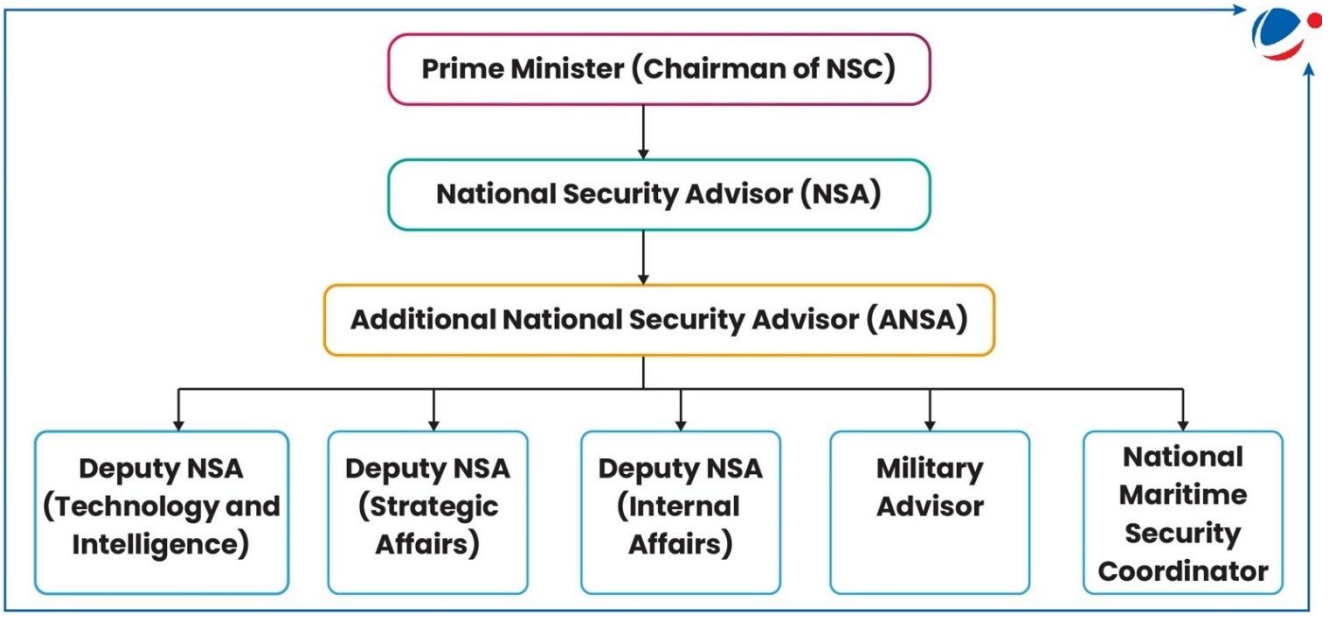
4.6. NATIONAL SECURITY COUNCIL SECRETARIAT (NSCS)

Why in the news?

Recently, the government has appointed the **Additional National Security Advisor (NSA)** to the National Security Council Secretariat (NSCS) for the first time.

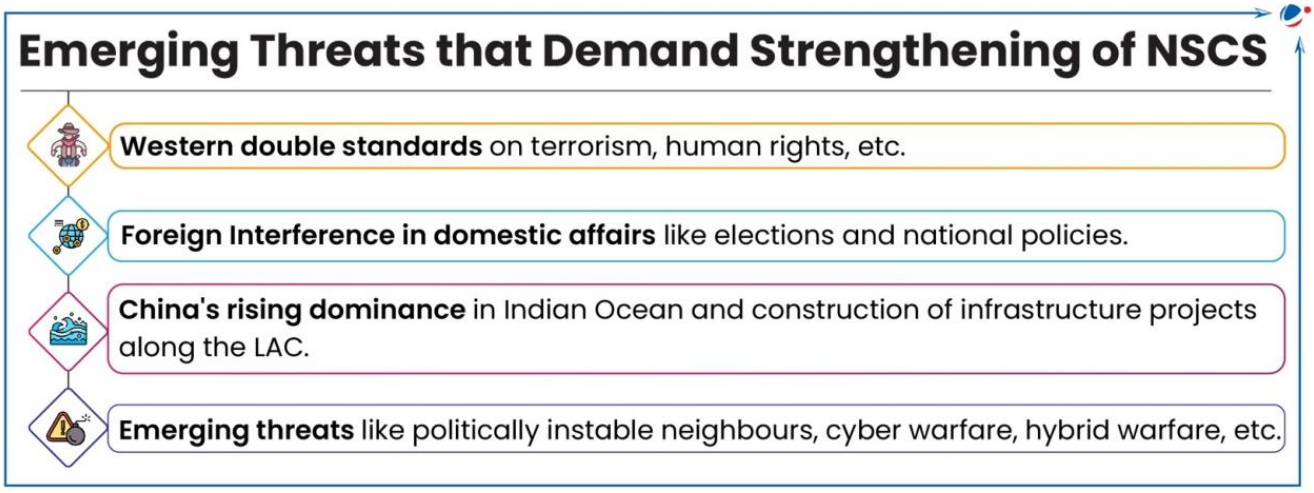
About National Security Council Secretariat (NSCS)

- **Genesis**: NSCS created in the late 1990s acts as the **secretariat** for the **National Security Council or NSC** (refer the box in the end).
- **Role**: It is the **apex advisory body on all internal and external security-related matters** and headed by the **National Security Advisor (NSA)** the Secretary of the NSC.
  - Since 2019, **NSA holds the rank of Cabinet Minister** and **NSA and NSCS can generate Cabinet notes, access relevant Cabinet papers, and participate in any Inter-Ministerial consultation.**
- **Aim:** To provide the **strategy, direction and long-term vision** so that **every ministry** concerned with national security may be **adequately prepared to address all possible threats.**
- **Compositions:** Three deputy NSAs, a Military Adviser and a National Maritime Security Coordinator (NMSC).



Significance of Appointing ANSA

- **Niche Role for NSA:** The ANSA will act as a key link between the NSA and other members of NSCS.
  - The NSA can now concentrate more effectively on overseeing key advisory bodies of NSC including the National Security Advisory Board (NSAB) and Strategic Policy Group (SPG).
- **Ensuring continuity:** The possibility of elevating the ANSA to the role of NSA would ensure continuity in the organisation.
- **Adapting to Emerging Needs:** Continuous institutional reforms are necessary to respond to evolving geopolitical realities.



Way Ahead

- **Strengthening the role of NSA:** Establish **objective selection criteria with clear qualifications,** define **specific duties**, and ensure a **transparent chain of command.**
- **Structural Changes in NSCS:** Recruiting specialists with expertise in emerging security challenges and enhancing interdepartmental coordination to facilitate better anticipation of security issues.
- **Implementing a 'Whole-of-Nation' approach:** Develop partnerships between citizens, government agencies, the private sector, and civil society for information sharing and joint national security initiatives.

National Security Council (NSC)

- **Genesis:** Constituted 25 years ago based on the recommendations of a task force headed by **K.C. Pant** (in 1999)**.**
- **Role:** It is an apex advisory body **headed by the Prime Minister** and comprising of the **Ministers of Finance, Defense, Home and External Affairs.**
- **Aim:** To promote **integrated thinking and coordinated application** of the resources of the State to protect and promote **national security** goals and objectives.
- **Composition:** It is a 3-tiered organization
  - **Strategic Policy Group (SPG):** It is the **principal mechanism for inter-ministerial coordination**. It is **headed by NSA.**
    - ✓ The **Cabinet Secretary coordinates the implementation of SPG decisions** by the Union Ministries and departments and State governments.
  - **National Security Advisory Board (NSAB):** Its principal function is to **undertake long term analysis and to provide perspectives on** the national **security issues.** It is **headed by the NSA.**
  - **Joint Intelligence Committee (JIC):** Its task is to **assess intelligence gathered** by various intelligence agencies including Intelligence Bureau (IB) and Research and Analysis Wing (RAW). It **functions under the NSCS.**

4.7. URBAN NAXALISM

Why in the news?

Recently, State Government of Maharashtra introduced Maharashtra Special Public Security Bill, 2024 aimed at curbing the increasing of Naxalism in urban areas.

Key Provisions of the Maharashtra Special Public Security Bill, 2024

- Targets a wide range of actions by suspects including **encouraging or preaching disobedience of the law**.
- Allows **declaring organizations unlawful** and gives power to District Magistrates or police commissioners to grant permission for prosecution.

- Currently, an organization can also be declared as unlawful under the **Unlawful Activities Prevention Act (UAPA), 1967.**
- However, **prosecution under UAPA requires approval from Central or State Governments**.

Urban Naxalism

- **Naxalism** [**Left-Wing Extremism (LWE)**] refers to an **extremist ideology** which **doesn't believe in democracy and democratic processes** and seeks to **overthrow the State through violent means**.
  - In India, it originated from the **1967 uprising in Naxalbari** (West Bengal).
- Although there is no standard definition of Urban Naxalism, it **generally refers to the presence of, and activities carried out by, Naxalites, or the CPI (Maoist), in urban areas**.
  - Naxalite activities in urban areas include **maintaining safe houses for leaders and cadres**, **providing logistics support to under-ground squads**; **mobilising and recruiting youth, students and workers** from industry and other bodies, etc.
- Although **Union Ministry of Home Affairs does not use the phrase 'Urban Naxal'**, Government of India's **National Policy and Action Plan addresses LWE in all its manifestations, including the urban activities**.

4.8. UN TREATY ON CYBERCRIME

Why in the News?

UN Member States have finalised treaty targeting cybercrime.

About UN Treaty on Cybercrime

- It is the UN's first treaty that aims to "**prevent and combat cybercrime more efficiently and effectively**," notably regarding child sexual abuse imagery and money laundering.
- The treaty would **enter into force once 40 member nations will ratify it**.
- Presently, **the Budapest Convention of 2001 (**negotiated by the Council of Europe**)** serves as the **guideline or reference for cybercrime legislation worldwide.**
  - It was signed on to mostly by member States within **Europe, Turkey, the US, Sri Lanka and Brazil.**

Key Provisions

- **Gives states permission to "collect or record"** relevant data **for a conviction** and **"compel" service providers** to hand over incriminating information or documents.
- **States are mandated to:**
  - **bring legislation** that will make it **illegal to breach an information and communications system** people don't have access to.
  - make it **illegal to produce, offer, sell, distribute, etc. child sexual content online.**
  - ensure that implementation of their obligations under this treaty is consistent with their obligations under international human rights law.

Significance of Treaty

- Establishes for the first time a **global-level cybercrime and data access-enabling legal framework**.
- Establishes "**a global criminal justice policy**," to protect society against cybercrime.

4.9. JOINT DOCTRINE FOR CYBERSPACE OPERATIONS

Why in the news?

Chief of Defence Staff (CDS) released India's first Joint Doctrine for Cyberspace Operations that lays **emphasis on understanding military aspects of cyberspace operations.**

AHMEDABAD | BENGALURU | BHOPAL | CHANDIGARH | DELHI | GUWAHATI | HYDERABAD | JAIPUR | JODHPUR | LUCKNOW | PRAYAGRAJ | PUNE | RANCHI ©Vision IAS

About Cyber Space

- Cyberspace refers to the **global volume of entities** (such as ICT systems**) processing, storing and transmitting digital information and code**, regardless of whether they are connected or not.
- **Military Advantages of operating in cyberspace:** Real time intelligence gathering, offensive and defensive operations, Improved Communication, Signal Intelligence etc.
- **Vulnerabilities of operating in cyberspace:** Cyberspace warfare or Cyber-attacks can **disable official websites and networks**, disrupt or disable essential services, steal or alter classified data, cripple financial systems etc.

Significance of the doctrine

- **Provides conceptual guidance** to commanders of armed forces, staff and practitioners in planning and conducting Cyberspace Operations.
- **Promotes Jointness and Integration** of three services (Army, Navy and Air Force).
- **Preventing hostile actions in cyberspace**, which can impact nation's economy, cohesion, political decision-making, and ability to defend itself.
- **Competing globally**, as counties like China have developed cyberweapons to degrade or destroy adversaries' military assets and strategic networks.

Other Measures taken for Strengthening cyberspace capabilities in India

- **Defence Cyber Agency (DCA)**: Established in 2019, the DCA is **a tri-service agency** responsible for handling cybersecurity threats and coordinating cyber defense efforts across the three services.
- **Others:** Cyber Emergency Response Teams (CERTs), **Cyber Security Operations Centre (CSOC),** Exercise Cyber Suraksha – 2024, etc.

Conclusion

The doctrine is poised to shape future military strategies and operations, reinforcing the integral role of cyberspace in national defence.

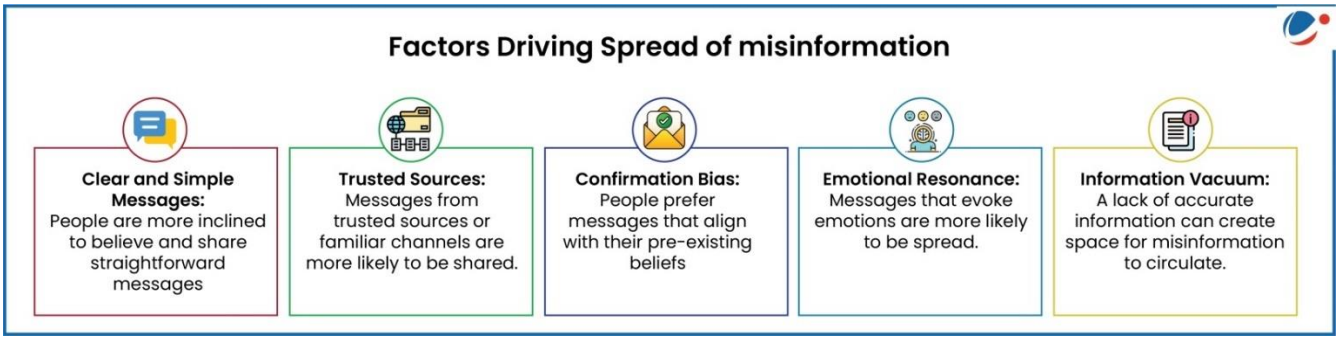
4.10. ONLINE MISINFORMATION

Why in the News?

United Nations unveiled the **"Global Principles for Information Integrity: Recommendations for Multi-stakeholder Action" for curbing the spread of online misinformation,** disinformation, hate speech.

About Online Misinformation

- Misinformation refers to **false or misleading content shared without harmful intent,** though it can still be harmful.
  - False or misleading content spread **with the intent to deceive or gain economically or politically, causing public harm** are termed as disinformation.



What could be negative impacts of online misinformation?

- **Information Bubbles:** Algorithms create information bubbles that **reinforce prejudices** like racism, misogyny, and various forms of discrimination.
- **Threats to Democracy:** By misleading voters about candidates, undermines trust in public institutions and media.
- **Difficulty in Achieving SDG:** For example, misinformation and coordinated disinformation campaigns **undermine climate action, with activities like green washing, etc.**
- **Adverse Impact on Economy:** Create panic causing unnecessary volatility and potential economic losses.

Challenges in tackling online misinformation

- **Rapid Digital Platforms:** The unprecedented speed of digital platforms, including artificial intelligence, poses significant threats to information integrity.
- **Remoteness of Readers:** Fact-checkers are often disconnected from readers, who may be unaware of any corrections or invalidations provided.
- **Data Encryption Technologies:** Encrypted platforms like WhatsApp make it difficult to monitor and counteract misinformation.
- **Media Illiteracy and Vulnerability:** Older adults are more susceptible to misinformation online.
    - For instance, those over 65 are three to four times more likely to share false news compared to younger individuals.
- **Engaging Content:** Simple and humorous memes, tweets, and multimedia messages (videos or audio) are easily digestible for all audiences.

Way ahead

UN's **"Global Principles for Information Integrity"** provides following **5 principles for curbing online misinformation** and upholding human rights such as freedom of expression:

- **Societal Trust and Resilience:** Enforce **innovative digital trust and safety practices** with focus on protecting **vulnerable groups** (women, children, etc.)
- **Healthy Incentives**: Adopt **business models guided by human rights** that do not depend on algorithm-driven advertising based on behavioural tracking and personal data.
- **Public Empowerment:** Technology companies should empower users to provide **input on trust, safety, privacy policy, and data** while ensuring interoperability and enhancing digital literacy training.
- **Independent, Free and Pluralistic Media:** States and tech companies should ensure press freedom and journalist safety.
- **Transparency and Research:** Tech companies should enhance transparency regarding data use and risk management, ensuring diverse researchers access quality data while protecting privacy.

4.11. FINANCIAL ACTION TASK FORCE (FATF)

Why in the News?

The Financial Action Task Force (FATF) plenary held in Singapore adopted 'Mutual Evaluation Report (MER) of India'.

More on News

- The first **Mutual Evaluation of India was adopted in 2010.**
- The **current MER places India in the regular follow-up category** and recognizes initiatives like JAM (Jan Dhan, Aadhaar, Mobile) Trinity and **stringent regulations on cash transactions** which have **significantly increased financial inclusion and digital transactions**, making transactions more traceable.
    - This category demonstrates the financial stability and integrity alongwith supporting UPI's global expansion and greater access to global financial markets.

What is MER of FATF?

- MER is an assessment of a country's measures **to combat money laundering and the financing of terrorism** and **proliferation of weapons of mass destruction**
  - The reports are **peer reviews**, where members from different countries assess another country.
- **MER has two main components:** Effectiveness rating; Technical Compliance assessment
- **Categorization of countries in MER**
  - **Regular follow-up:** The **top most category**. **Only 24** including **India, UK, Italy, France, and Russia** (members of G20) are in this category.
  - **Enhanced follow-up:** Countries with **significant deficiencies**. Includes even developed countries like the US, Australia, and several European nations.
  - **ICRG review**: For **High-risk and other monitored jurisdictions.** These have **a one-year Observation Period to address deficiencies** failing which they may be placed in the **Black or Grey list.**

Financial Action Task Force (FATF)

- **Genesis:** It was established in 1989, by a Group of Seven (G-7) Summit held in Paris.
- **Membership:** 38 member countries including India.
- **FATF Style Regional Bodies:** These are **9 regional bodies** established for the purpose of **disseminating the international standards** on combating money laundering, financing of terrorism, & proliferation.
- **Key Role:**
  - **Integrity of the international financial system**: It is international watchdog to **combat money laundering, terrorist financing, and other related threats** to international financial system
  - **Financial inclusion:** Bringing more people into the **formal financial system** where transactions can be more easily monitored.
    - ✓ FATF has also launched **'project on unintended consequences'** which includes a focus on financial exclusion.
- **Grey and Black List of FATF:** These are countries identified as **jurisdictions with weak measures to combat money** laundering and terrorist financing.
  - **Grey List (Jurisdictions under Increased Monitoring):** These are countries that have **committed to resolve the identified strategic deficiencies within agreed timeframes.**
  - **Black List (High-Risk Jurisdictions subject to a Call for Action):** Countries or jurisdictions with **serious strategic deficiencies**.
- FATF makes **decisions by consensus.**

What makes functioning of FATF less effective?

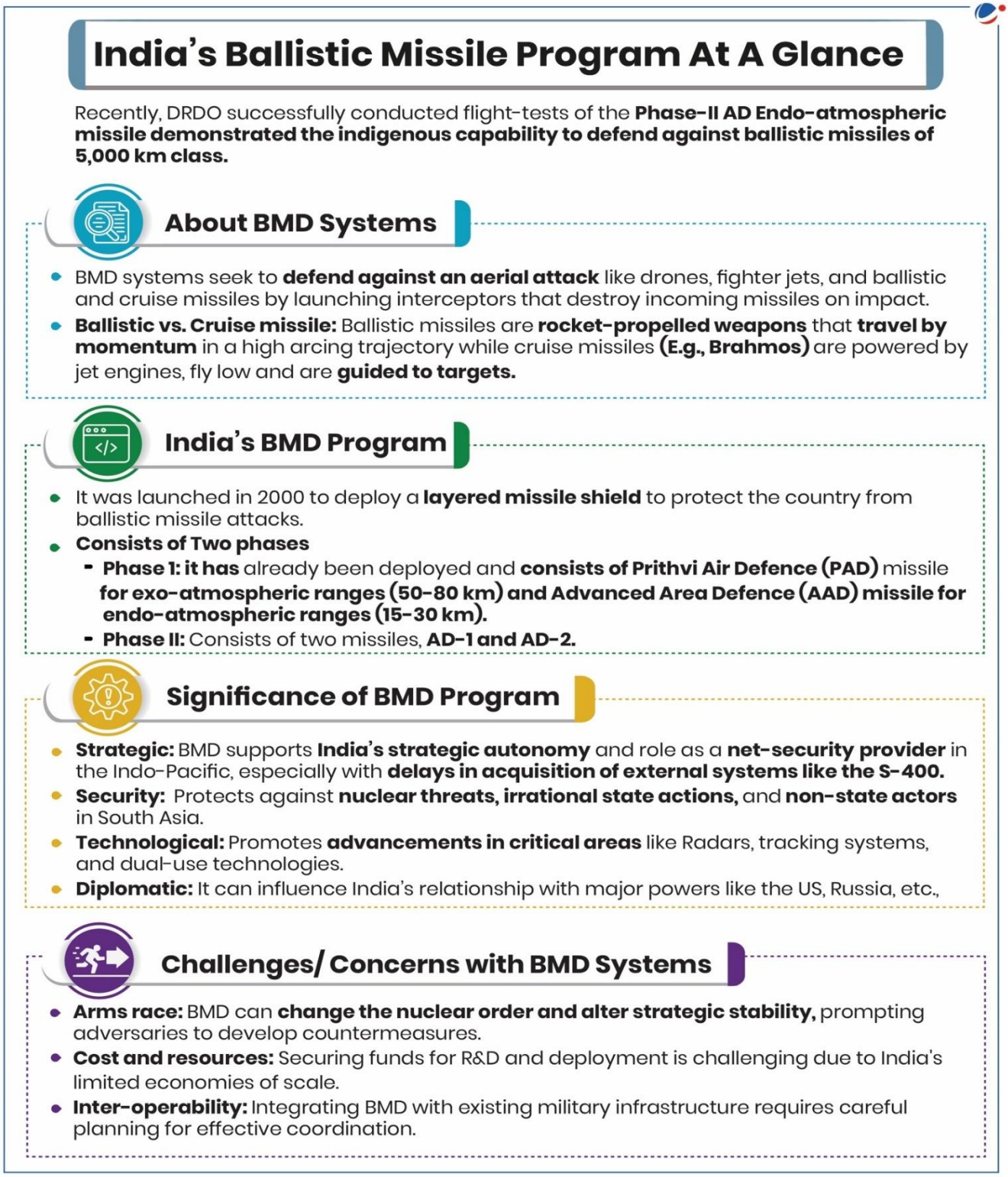
- **Perceived lack of objectivity:** No formal rules exist as to how many members must object to scuttle a proposal or spare a country from inclusion in grey list.
- **Weakness in Listing Regime**: No differentiation between countries lacking capacity and those unwilling to comply, leading to inflexible responses.
- **Lack of graduated response:** Placing non-compliant countries either in black list or the grey list doesn't allow for a flexible and graduated response against terror financing countries.
- **Lack of effectiveness:** Relies on technical compliance without considering actual performance, as seen with Pakistan's removal from the grey list despite ongoing state sponsored terrorism.
- **Other issues:** Marginalisation of Global South voices, emerging source of terror financing due to cryptocurrencies, deepwebs, etc.

Way forward for making FATF more effective

- **Enhance transparency in functioning:** Formalize appointments and ensure job security and independence within the secretariat.
- **Categorisation within grey list**: Differentiating countries based on willingness to comply for more targeted actions.

- **Tailored response to need of poor countries**: Provide special assistance to strengthen legal and financial frameworks in resource-limited countries.
- **Global cooperation:** Strengthen coordination with IMF, World Bank, UN, and FATF style regional bodies to enhance effectiveness.

4.12. INDIA'S BALLISTIC MISSILE DEFENCE PROGRAM



4.13. AIRCRAFT CARRIER

Why in news?

India's Defence Minister recently announced plans for India to commence building its 2nd indigenous aircraft carrier, with intentions to construct "five or six more" in the future.

About Aircraft Carrier

- An aircraft carrier offers a **wide range of strategic services** including surveillance, air defence, airborne early warning, protection of Sea Lines of Communication (SLOC), and anti-submarine warfare. They are of 3 types:
  - **CATOBAR (**Catapult Assisted Take-Off Barrier Arrested Recovery)
  - **STOBAR** (Short Take-Off Barrier Arrested Recovery)
  - **STOVL** (Short Take-Off and Vertical Landing)
- **Navy Perspective Plan (1985-2000) and Maritime Capability Perspective Plan (2012-27)** envisaged a requirement of **three aircraft carriers**, with two to be operational (East and West coast) and one in refit at any time.
- At present, the Indian Navy operates **two 45,000-tonne aircraft carriers**, the **INS Vikramaditya** and the **INS Vikrant**.
- Both are **conventionally-powered carriers** (not nuclear powered) that use **ski-jump ramps to assist aircraft takeoffs.**
- The **INS Vikrant** India's **first indigenous carrier** while the **INS Vikramditya** was **bought from Russia** and operationally deployed in 2014.
  - **INS Vikrant marked India's entry into a select group**—China, France, the US, and the UK—of nations capable of constructing their own aircraft carriers.
- **Cochin Shipyard Limited (CSL) is poised to begin construction** on India's third aircraft carrier (its 2nd indigenous aircraft), marking a significant step towards expanding India's naval fleet.

Why India needs a third aircraft carrier?

- **Enhancing Blue Water Navy Capabilities**: reinforce this capability of Indian Navy as **Blue Water Force** and India's goal of **a net security provider** in the Indian Ocean amid China's presence.
- **Continuous Operational readiness:** Three carriers ensure that at least two are always operational, providing coverage for both India's eastern and western seaboards.
- **Incorporation of advance technologies:** The third carrier (IAC-2) may feature advanced systems like the **Electromagnetic Aircraft Launch System (EMALS) and CATOBAR** for **launching heavier aircraft and enhanced capabilities.**
- **Facilitating projection of India's soft power:** In peacetime, they aircraft carrier act as providers of Humanitarian Assistance and Disaster relief (HADR), complementing the roles of amphibious and other air and sealift mechanisms.

Conclusion

India must navigate financial and operational challenges while advancing technology to maintain carrier capabilities amid regional competition.

Aircraft carrier verses Submarines

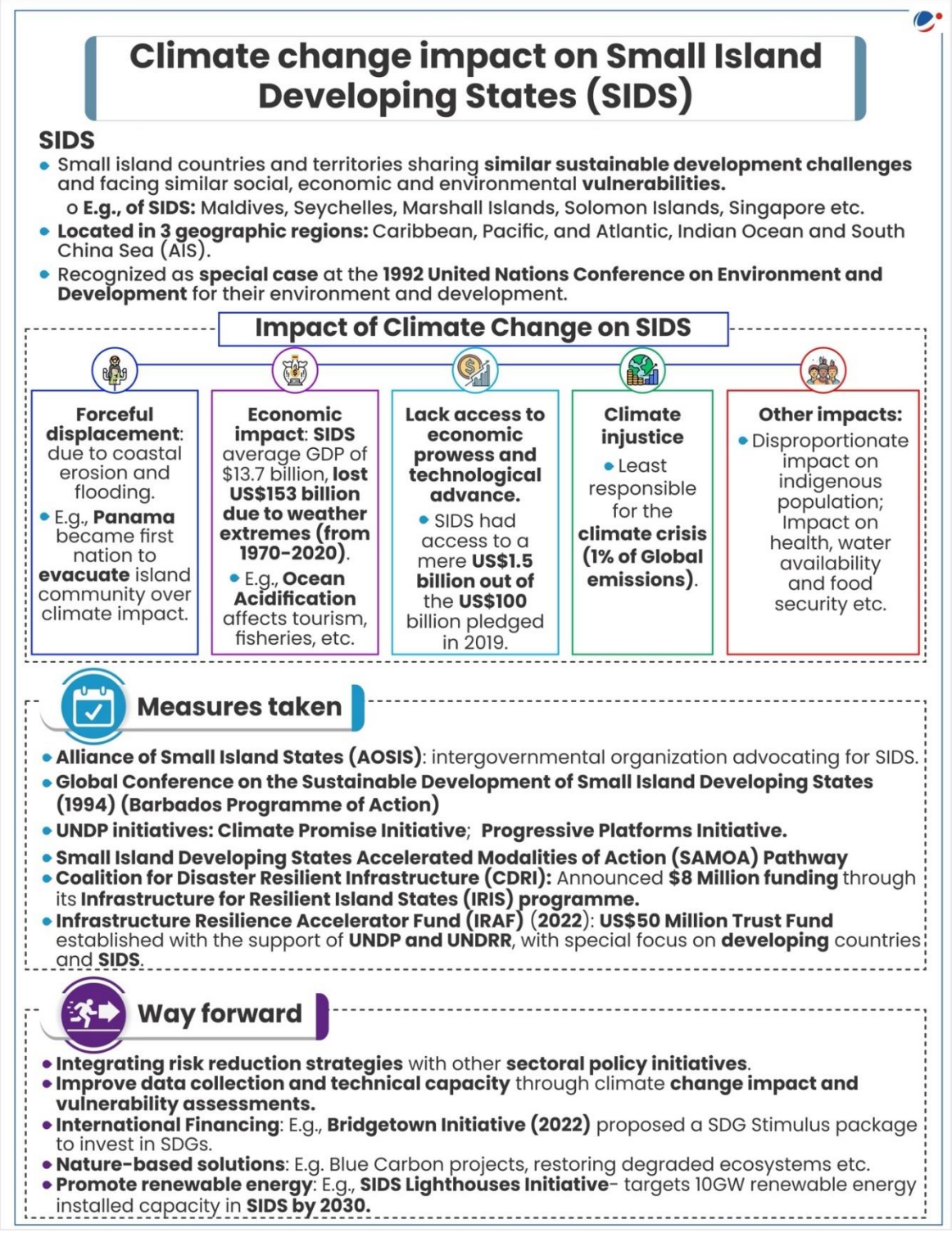
- **Cost and Vulnerability:** The first Chief of Defence Staff deemed carriers expensive and vulnerable to shore based missiles. Submarines, with their stealth capabilities and defensive armament, are less r**eliant on a protective screen of battleship**s compared to aircraft carriers that operate prominently on the surface.
- However, **both aircraft carriers and submarines** are essential components of a **balanced naval strategy.**
  - **Both have complementary roles:** submarines focusing on stealth and offensive capabilities, while aircraft carriers offer versatility and comprehensive mission support.

5. ENVIRONMENT

5.1. CLIMATE CHANGE

5.1.1. CLIMATE CHANGE IMPACT

5.1.1.1. IMPACT ON SMALL ISLAND DEVELOPING STATES (SIDS) AT A GLANCE



5.1.1.2. IMPACT ON MARGINAL FARMERS AT A GLANCE

Climate change Impact on Marginal Farmers

Impact on Marginal Farmers (Forum of Enterprises for Equitable Development)

- **Vulnerability:** Over 1/3rd of marginal farmers had to cope with **extreme weather events at least twice in five years.**
- **Reduction in agriculture income:** By 15-18% and by 20-25% in un-irrigated areas (Economic Survey of 2017- 18).
- **Altered Livelihood:** Over 86% of farmers altered their occupations to **temporal migration, seeking work under MGNREGA,** etc.
- **Hurdles in adoption of Climate Resilient Agricultural practices:** High up-front cost, small l and holdings, lack of physical resources, etc.

Way forward

- **Strengthening existing platforms** like Global Alliance for Climate-Smart Agriculture (GACSA) developed by the FAO.
- Shift focus from **land productivity to water productivity** (production/cubic meter of irrigated water).
- Mission mode approach on **Education, Training, Orientation, and Extension Support to farmers.**

5.1.1.3. IMPACT ON EDUCATION AT A GLANCE

Climate change Impact on Education

Impact on Education (World Bank Report- The Impact of Climate Change on Education)

- **Overlooked in Climate Policy Agenda: Accounted for less than 1.3% of climate assistance (2020)** and mentioned in less than 1 in 3 NDC plans.
- **School Closures: Schools closed in at least 75% of extreme weather events,** impacting more than 5 million people (2005-2024)
- **Exposure of Children:** Over **99 %** exposed to **at least one major climate/environmental** hazard.
- **Other impacts:**
  - **Impact on learning outcomes:** E.g. Students in hottest 10% of Brazilian municipalities **lost about 1% of learning per year.**
  - **Prevent at least 4 million girls** in low- and lower-middle-income countries **from completing their education.**

Way forward: Suggested Mitigation Measures

- **Invest in Early warning systems:** E.g. I**naRISK mobile app enhances disaster knowledge** for students and staff in **Indonesia.**
- **Strengthening School Infrastructure:** E.g. **Rwanda's Project** equipping school sites with **Retaining walls** to mitigate flood- and rainstorm-related landslides.
- **Classroom temperatures:** E.g. **Green Economy Strategy and Implementation Plan (Kenya)** promoting bioclimatic design, enhancing student comfort during high temperature.
- **Learning Continuity:** E.g. **Back-to-school campaign (Ghana)** achieved nearly 100% re-enrollment after COVID-19.
- **Others:** Integration climate change into the curriculum; **Recognize education's role in developing mitigation and adaptation** solutions; inclusion of education into climate finance programs.

5.1.1.4. SEA LEVEL RISE

Sea Level Rise (SLR)

About (SLR):

- **Gradual increase in average height of world's oceans and seas.**
- Average worldwide **SLR was 15 to 25 cm (1901-2018),** predicted to further rise by **15 mm per year by 2100.**

Trends in India (Centre for Study of Science, Technology and Policy , CSTEP)

- **Maximum SLR (4.44 cm)** witnessed by Mumbai (1987-2021).
- **>10% of land** in Mumbai, Yanam, and Thoothukudi would be **submerged by 2040**

Factors Responsible

- **Ocean Thermal Expansion:** Oceans absorb >90% of heat trapped by accumulating GHGs.
- **Ice melting:** From glaciers, ice caps, and ice sheets in Greenland and Antarctica.

Impact of SLR

Loss of beaches and coastal habitats due to **increased coastal erosion**	**Freshwater salinization**	Loss of coastal ecosystems like mangroves, coral reefs, salt marshes impacting fisheries and biodiversity

Mitigation Measures

- **Coastal Defences:** Sea walls, surge barriers, etc.
- **Efficient cities:** Sponge cities; use of technology like digital twin, etc.
- **Net Zero Targets:** Adhering to 2015 Paris Agreement.
- **Best Practices:** Like Floating homes experimented in South Korea and Maldives.

5.1.2. ECONOMIC SURVEY 2023-24 OBSERVATIONS ON CLIMATE CHANGE MITIGATION

Why in News?

The Survey highlighted that current global approach ignores interconnected nature of existence and is flawed.

Flaws in Current Global Approach

- **Inadequate Funding:** Only USD 100 billion pledged by developing countries (short of ~USD 6 trillion needed for meeting half of climate targets by 2030).
- **Ignores Per capita Emissions:** E.g., India, world's third-largest emitter, is urged to take greater responsibility, despite its **low per capita emissions** & cumulative historical contribution (1850-2019) i.e., 4 % of global emission.
- **Overestimate Probabilities:** Public **fear of rare accidents** due to Nuclear Energy hinders its adoption. E.g. Chernobyl and Fukushima disaster.
- **Focus on energy intensive technologies:** E.g., a single Chat-GPT search consumes **10 times more energy than a similar query on Google**
- **Overconsumption:** Current Climate Change strategy focus on replacing conventional fuel with renewables and clean energy with increasing energy need.
- **Lack of research on end-to-end lifecycle costs of renewable energy:** For e.g. Solar can need 300 times as much space as nuclear, and biomass more than 8,000 times.

Economic survey also highlighted Negative Environmental Implication of adopting Western Practices

- **Limitations of Market economy in achieving emissions mitigation**: Market economy is more focussed on financial outcomes.
- **Destruction of the food-feed balance:** Feed industry for meat account for **33% of the total arable land** on the planet that is now utilised for feed crop production, leading to issues like **food-feed competition, land squeeze, environmental impacts etc.**
- **Changes in housing:**
  - **Adoption of Western model of living:** Nearly 50% of all households in India are nuclear (1-4 members), up from 38% in 2008.
  - **Tendency of urban sprawl:** Have higher emission.
  - **Mimicking a universalised model of living.**

Suggestions

- Developing countries like **India need to balance developmental goals with meaningful climate action**.
- Global movement on climate change must be **accommodative of sovereign choices and economic needs**, but centered on individual behavior as envisioned in India's Mission LiFE.

5.2. AIR POLLUTION

5.2.1. GROUND-LEVEL OZONE (TROPOSPHERIC OZONE)

Why in the News?

As per a report, Ground Level ozone Pollution (GLO) is on the rise across India's major cities.

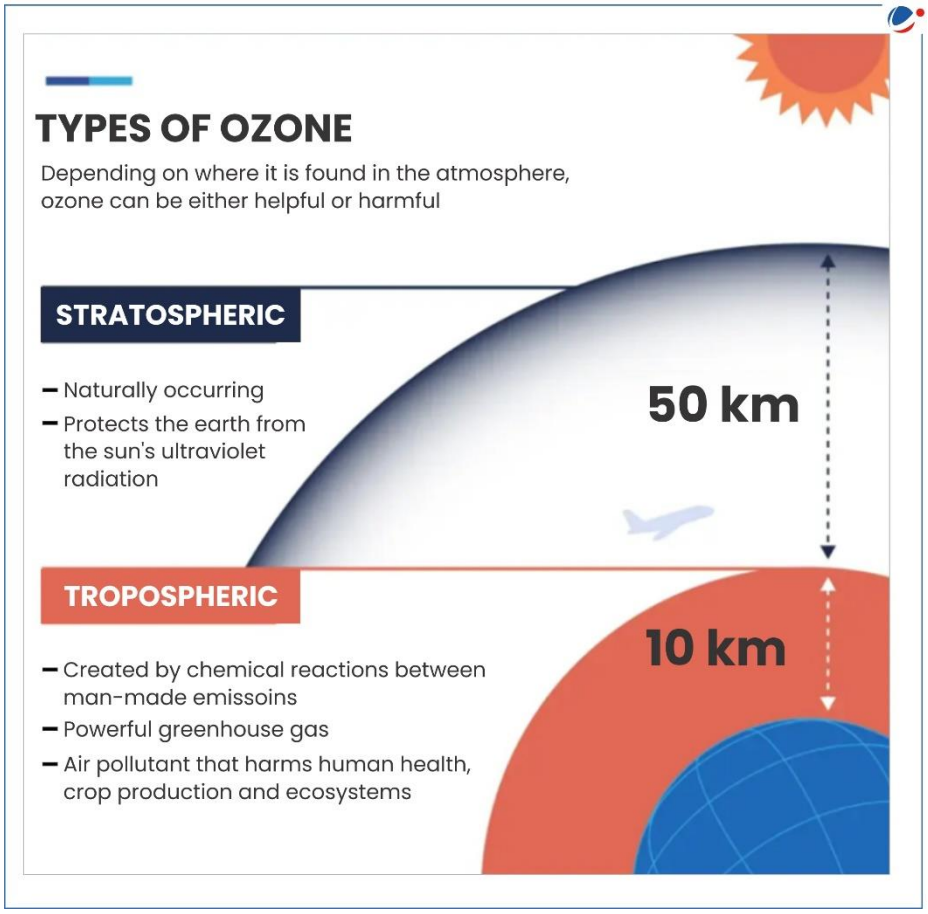
Key findings

- **India's 10 metropolitan** areas have exceeded the **national ozone standard, Delhi being most affected.**
- **GLO hotspots**: Located in areas with low levels of NO2 and PM2.5 (unavailability of NO2 hampers its dissipation)
- **Night-time GLO** continues to persist in all metropolitan areas.

Ground-level Ozone (GLO)

- **Secondary, short-lived pollutant** formed in the atmosphere **by reaction between oxides of nitrogen** and **volatile organic compounds (VOCs**) in the **presence of sunlight**.
  - **Peak O3 levels occur in summers**.
- **Source:** Cars, power plants, industries; electronic equipment, **e.g.,** photocopiers.

- **Impact of Ground-level Ozone (GLO)**
  - **Health:** Bronchitis, trigger asthma, and permanently damage lung tissue.
  - **Climate:** Absorbs radiation, acts as a strong greenhouse gas.
  - **Agriculture and Ecosystem Impacts:** Interferes with photosynthesis and stunts overall growth of some plant species.
- **Strategies to prevent Ozone pollution:** Methane reductions and cutting the levels of atmospheric pollution arising from cars, power plants and other sources.
- **India's initiatives:** GLO is being monitored at selected locations under **India's National Air Quality Monitoring Programme,** System for Air quality Forecasting And Research (SAFAR) etc.



5.3. WATER AND LAND DEGRADATION

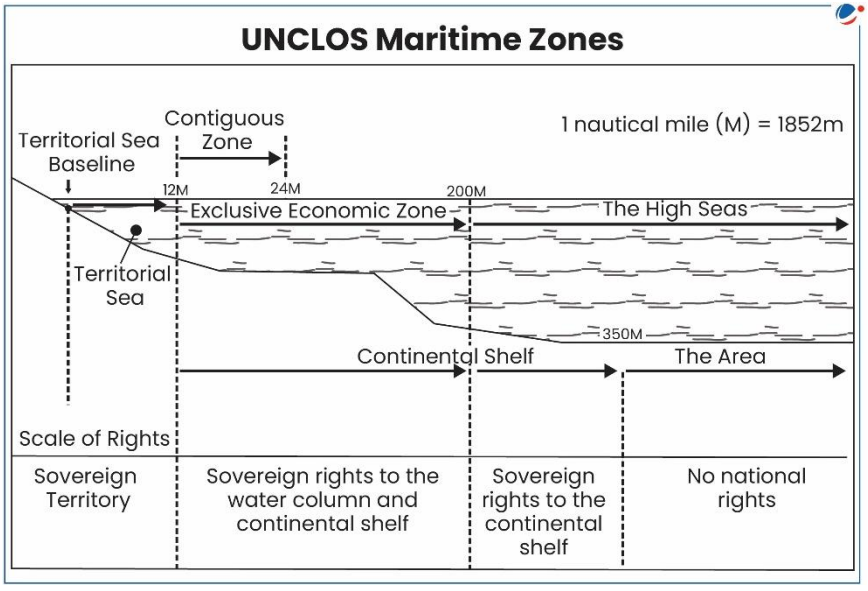
5.3.1. HIGH SEAS TREATY

Why in the News?

Union Cabinet approved **India to sign** the **Biodiversity Beyond National Jurisdiction (BBNJ) Agreement** or **High Seas Treaty** with the **Ministry of Earth Sciences** to spearhead its implementation.

About High Seas

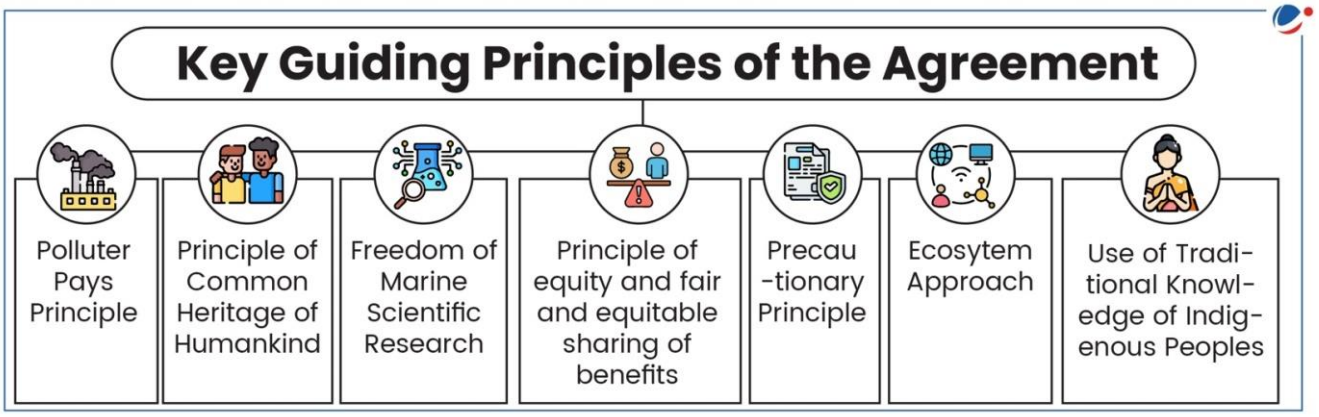
- **Definition:** High seas are areas **outside the national jurisdiction** of any country.
  - Typically, **national jurisdictions extend up to 200 nautical miles** (370 km) from the coastline, an area called **Exclusive Economic Zone (EEZ)**.



- High Seas Constitute **64%, roughly two-thirds**, of the total ocean area and are considered **global commons**.
  - Belongs to no one, and **everyone enjoys equal rights** for navigation, overflight, economic activities, scientific research, etc.

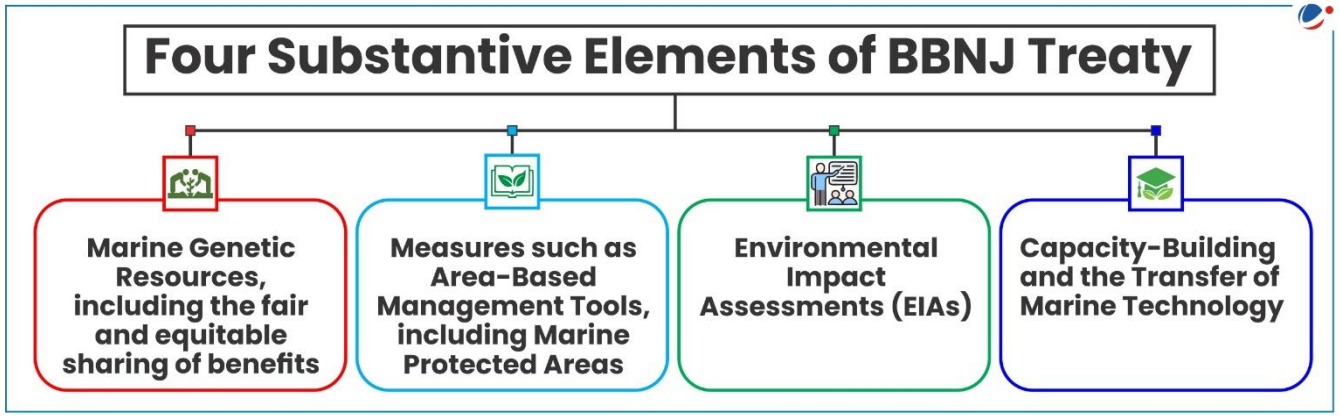
About BBNJ Agreement

- Agreement under **United Nations Convention on the Law of the Sea (UNCLOS)** on conservation and sustainable use of marine **Biological Diversity of Areas Beyond National Jurisdiction (BBNJ).**
- Formally adopted by **Intergovernmental Conference on Marine BBNJ in 2023** and will become international law only when it is **signed and ratified** by at **least 60 countries.**
  - As of June 2024, **91 countries have signed the BBNJ Agreement**, and eight Parties have ratified it.
- **Objective:** To ensure the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, for the present and in the long term.



Key Provisions of BBNJ Agreement

- **Applies to Areas Beyond National Jurisdiction (ABNJ),** which include the high seas.
  - It does **not apply to any warship, military aircraft or naval auxiliary**.
  - **Only Part-II**, dealing with Marine Genetic Resources, applies to any **government vessel in non-commercial service**.
- **Institutional Arrangement:**
  - **Conference of Parties (COP): Main decision-making body** (except for certain matters on environmental impact assessments).
  - **Clearing-House Mechanism (CHM):** An open-access and centralized platform for Parties to access, provide and disseminate information on the **4 substantive elements** of the BBNJ Treaty.
  - **Others: Scientific and Technical Body (STB); Subject-Matter Committees** like access and benefit-sharing committee, capacity-building and transfer of marine technology committee, etc.
- **Financial Mechanism:** Voluntary trust fund by COP, Special fund, Global Environment Facility trust fund.
- **Other key provisions:**
  - No country must claim or exercise sovereignty or sovereign rights over **Marine Genetic Resources** (MGRs) of ABNJ.
  - **EIA framework** (i.e., global standard) for identifying and evaluating the potential impacts of an activity in ABNJ.
  - **Mechanism for a fair and equitable sharing of benefits** associated with MGRs of ABNJ and associated Digital Sequence Information (DSI).
    - ✓ There is yet **no consensus on definition of DSI**.



Significance of BBNJ Agreement

- **Checking overexploitation of resources, biodiversity loss, pollution etc: ~17 million tonnes of plastics** were dumped in the oceans in 2021 (UN estimates).
- **Achieving targets of "30x30" initiative:** To protect 30% of marine ecosystems by 2030.
- **Mitigating impacts of Climate Change:** On marine ecosystems, such as warming, ocean deoxygenation, ocean acidification, etc.
- **Equitable economic order:** Taking into account the interests and needs of developing States, whether coastal or landlocked.
- **Significance for India:**
  - **Enhance strategic presence in areas beyond our EEZ** (Exclusive Economic Zone).
  - **Shared monetary benefits and strengthening India's marine conservation efforts** and collaborations, open newer avenues for scientific research, capacity building and technology transfer, etc.
  - **Promotion of traditional knowledge** through an inclusive, integrated, ecosystem-centric approach based on the precautionary principle.

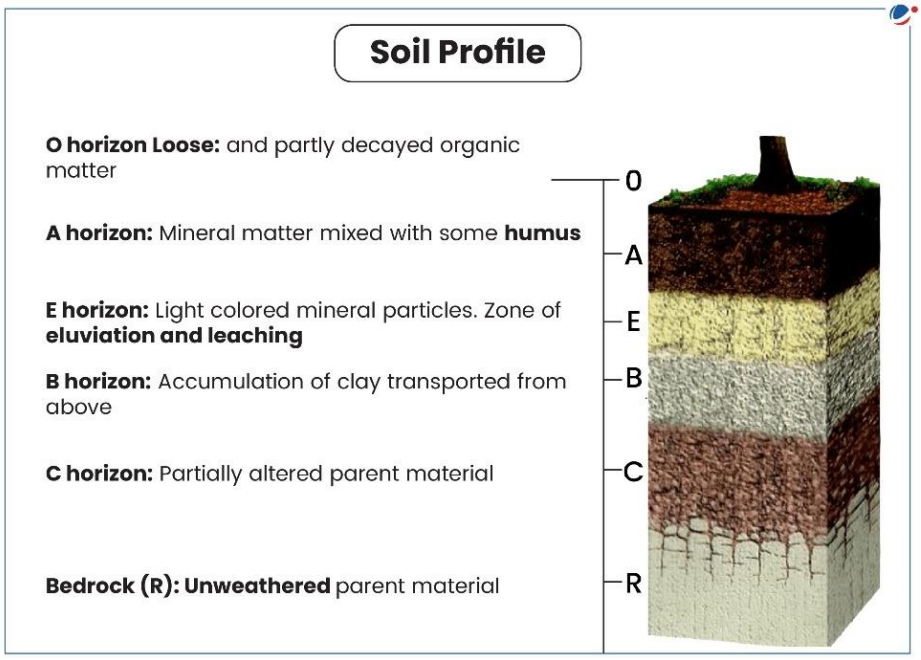
5.3.2. SOIL HEALTH

Why in the News?

UNESCO pledged to support its member states by establishing **'world soil health index'** at **International Conference on Soils, Morocco.**

More on the News

In addition, UNESCO would launch a pilot programme for **long-term soil and landscape management** in ten natural sites supported by its Biosphere Reserves Programme.



About Soil Degradation

- **Physical, chemical and biological decline** in soil quality, manifested as loss of organic matter, declining fertility, structural conditions, acidity or alkalinity, etc.

Status of Soil Degradation

- **75% of soils** are already degraded, impacting **3.2 billion people**, and with current trends will rise to **90% by 2050** (World Atlas of Desertification).
- **96.4 million hectares (29.32% of total geographical area)** is total degraded land (ISRO's Desertification and Land Degradation Atlas of India).

Reasons for Soil Degradation

- **Deforestation:** Around **30 Mha Desertification/Land Degradation in India (during 2018-19)** happened through Vegetation degradation (ISRO's Desertification and Land Degradation Atlas of India (June 2021)).
- **Salinization / Alkalization:** E.g., ~50 % of the arable land in Punjab damaged due to salinity.
- **Intensive cereal-based crop rotations** (rice and wheat) due to Population growth, land shortage, etc.
- **Overgrazing:** E.g., Degradation of Banni grasslands of Gujarat.

Way Forward

- **Sustainable Agricultural Practices** like diverse crop rotations.
- **Maximize Soil Cover** through protective vegetative cover, decreasing wind velocity and its eroding capacity.
- **Minimize Disturbance** by limiting tillage, optimising chemical input, etc.
- **Integrated land use planning** and allocate resources considering varied uses and demands across various sectors.
- **Precision Farming** for Utilizing sensors, data analytics to optimize the amount of water, nutrients, and pesticides applied.
- **Community-Based Soil Conservation** and participatory soil health assessment.

Steps taken for Promoting Soil Health in India

- **Promotion of Organic Farming:** Rashtriya Krishi Vikas Yojana (RKVY), Mission for Integrated Development of Horticulture (MIDH), National Mission on Oilseeds & Oil Palm (NMOOP) etc.
- **For Soil Health:** Soil Health cards, Pradhan Mantri Krishi Sinchayee Yojana etc.
- **Increasing Forest Cover:** National Afforestation Programme (NAP), the National Mission for a Green India (GIM) etc.
  - In 2 years total **forest and tree cover increased by 2261 square kilometre** in India (ISFR, 2021)
- **National guidelines** to prevent burning of crop residues
- **Bonn Challenge**: India joined the voluntary Bonn Challenge pledge to bring into restoration 26 million hectares (mha) of degraded and deforested land by the year 2030

5.4. SUSTAINABLE DEVELOPMENT

5.4.1. GREAT NICOBAR ISLAND

Why in the News?

NITI Ayog prepared a Draft Report on **Social Impact Assessment (SIA)** Study for Greenfield International Airport – Great Nicobar.

More on the News

- Part of proposed **"Holistic Development of Great Nicobar Island (GNI) in Andaman and Nicobar Islands"** project.
- **Key-findings of the report**
  - **Positive Impact:** Increase in **economic, employment, and business opportunities;** Increase in **land value** post development.
  - **Negative Impact: Loss of productive land** for agriculture and dwelling units; **Influx of outside population** and loss of privacy.

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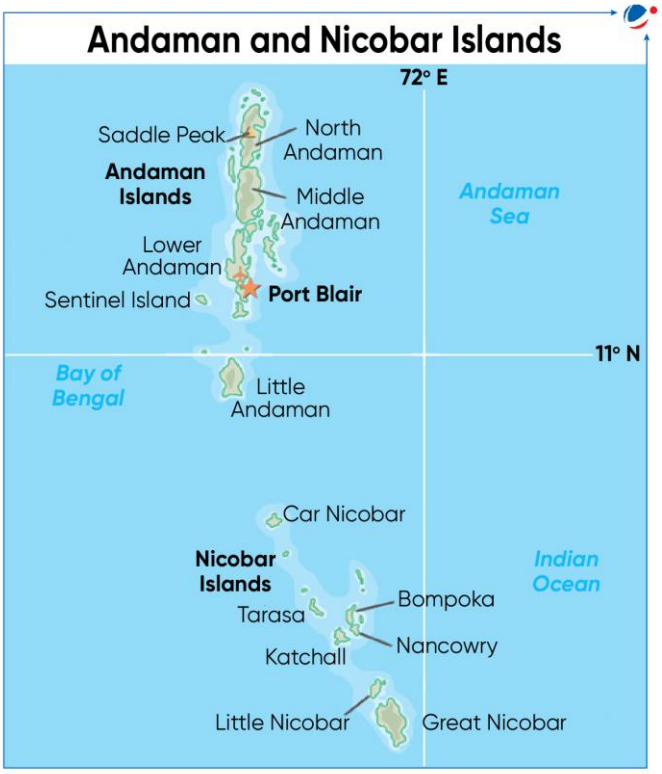
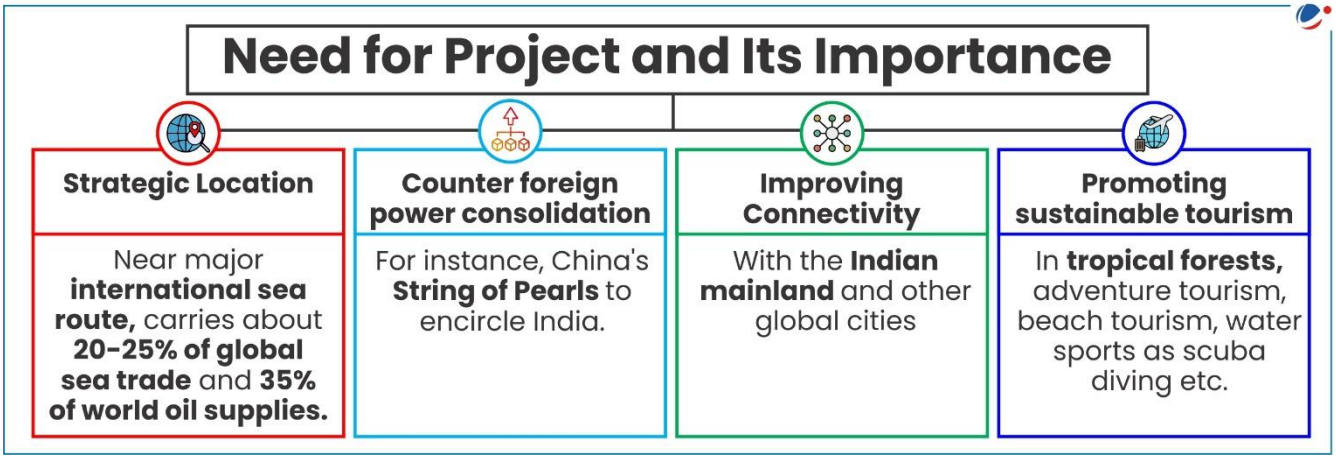
About the "Holistic Development of Great Nicobar Island (GNI) in Andaman and Nicobar(A&N) Islands" Project

- Proposed by **A & N Administration** under the guidance of GoI and NITI Aayog.
- Granted **in-principal forest clearance** and environmental clearance in **2022.**
- **Implementation Agency: Andaman and Nicobar Islands Integrated Development Corporation (ANIIDCO)** (incorporated under the **Companies Act 1956**).
- **Projects Proposed:** Container Transshipment Terminal (ICTT), Green Field International Airport, Township and Area Development, Power Plant.





Concerns related to the project

- **Environmental concerns:** Loss of top soil, sewage waste generation, impact on mangroves, artificial illumination on the beach might affect sea turtle nesting and hatching.
- **Threat to fauna:** Galathea Bay, one of the world's largest nesting sites for the **leatherback turtle, a** species listed under Schedule I of the Wildlife (Protection) Act, 1972.
  - GNI was included in the **World Network of Biosphere Reserves** as part of the Man and Biosphere Programme of UNESCO in 2013.
- **Social:** In 2022, the Tribal Council of Great Nicobar and Little Nicobar withdrew its NOC for the project due to the administration's lack of transparency and the hasty consent.
  - A portion of the land identified as "uninhabited" in the NITI Aayog plan is ancestral territory for the **Great Nicobarese people.**
- **Health:** The **Shompen (habiting the proposed site),** are highly vulnerable to **infectious diseases**.
- **Natural Disaster Vulnerability:** A&N are situated in a **high-risk seismic zone.**

Way forward (Suggested in Environmental Impact Assessment (EIA) report)

- Planning to **recognize major landscape changes** according to landscape planning concepts.
- **Halting offshore construction activities** during breeding season (Nov-Feb) of leather back turtles.
- **Using Sodium vapor lights** for lightings, as sea turtles are less affected by it.
- Implement Integrated **Solid waste management syste**m.
- Strict measures to ensure that **none of the worker ever trespasses the Shompen area.**
- Implement **Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013** for displaced people.

5.4.2. INDIAN HIMALAYAN REGION (IHR)

Why in the News?

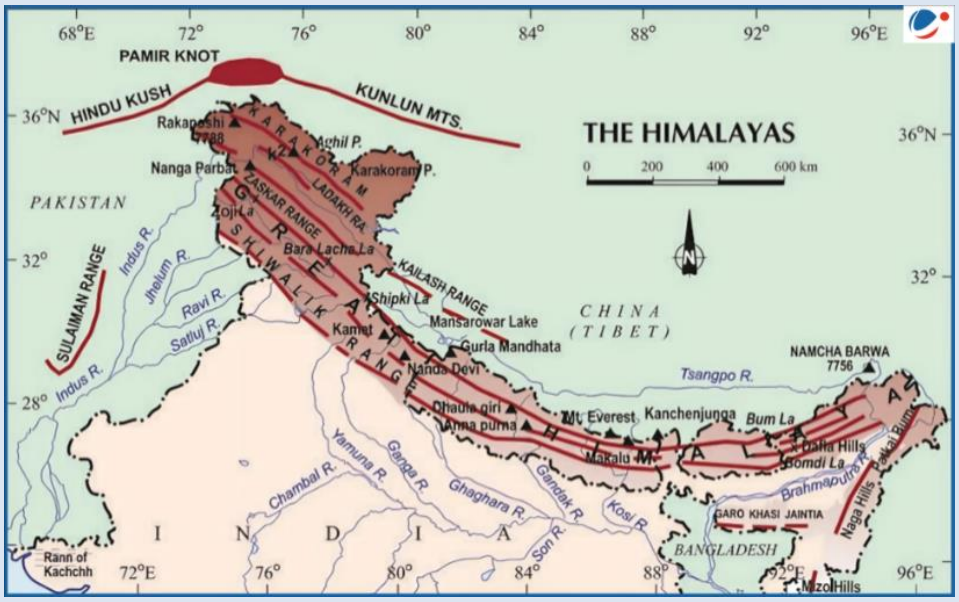
In view of recent judgments of the Supreme Court (SC), the new fundamental right to be free from climate change impact necessitates a sustainable development model for the **Indian Himalayan Region (IHR).**

Important judgments of Supreme court

- **MK Ranjitsinh vs. Union of India case (2024):** Recognized the right to be free from the adverse effects of climate change under Articles 14 and 21.
- **Ashok Kumar Raghav vs Union of India case (2023):** Asked central government to suggest a way forward to enable the Court to pass directions on the **carrying capacity** of the Himalayan States.
- **State of Telangana vs Mohd. Abdul Qasim case:** Need to adopt an ecocentric view of the environment (where nature is at the core).
  - Aligning Growth and development in the IHR with science and rights of people and nature.

About Indian Himalayan Region (IHR)

- **Young fold mountains that are tectonically active** formed due to **massive collision between Eurasia and the northward-drifting Indian plate** about 50 million years ago.
- Spread across **13 Indian States/Union Territories.**
- Occupies **18% of the India's total geographical area** and **50%** of its forest cover and biodiversity.

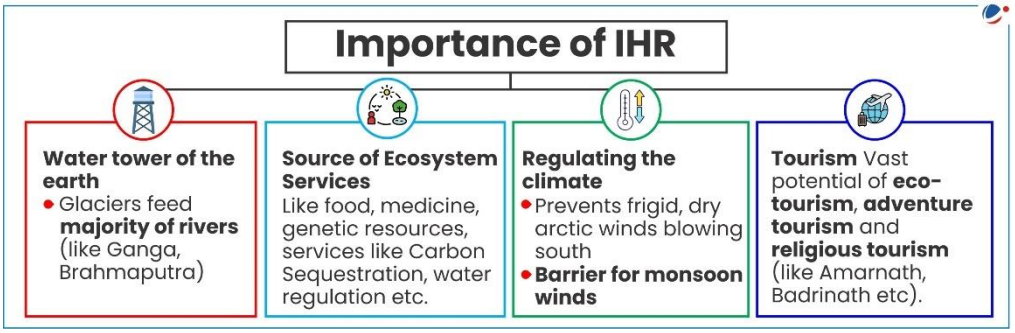


Challenges associated with IHR

- **Unsustainable development:** Leading to Sinking of Joshimath (UK), floods and landslides in Himachal Pradesh, a glacial lake outburst in Sikkim, Silkyara-Barkot tunnel in Uttarkashi etc.
- **Rising Tourism:** Witnesses **100 million tourists every year**; **expected to increase to 240 million by 2025**.
- **Water Crisis:** Of **4 million** springs at least **33%** are drying up and >**50%** have witnessed decline in water discharge. **For e.g.,** Water problems in **Shimla.**
- **Others:** Flaw in Environment Clearance; impact of climate change like melting of glaciers, etc.

Initiatives for IHR

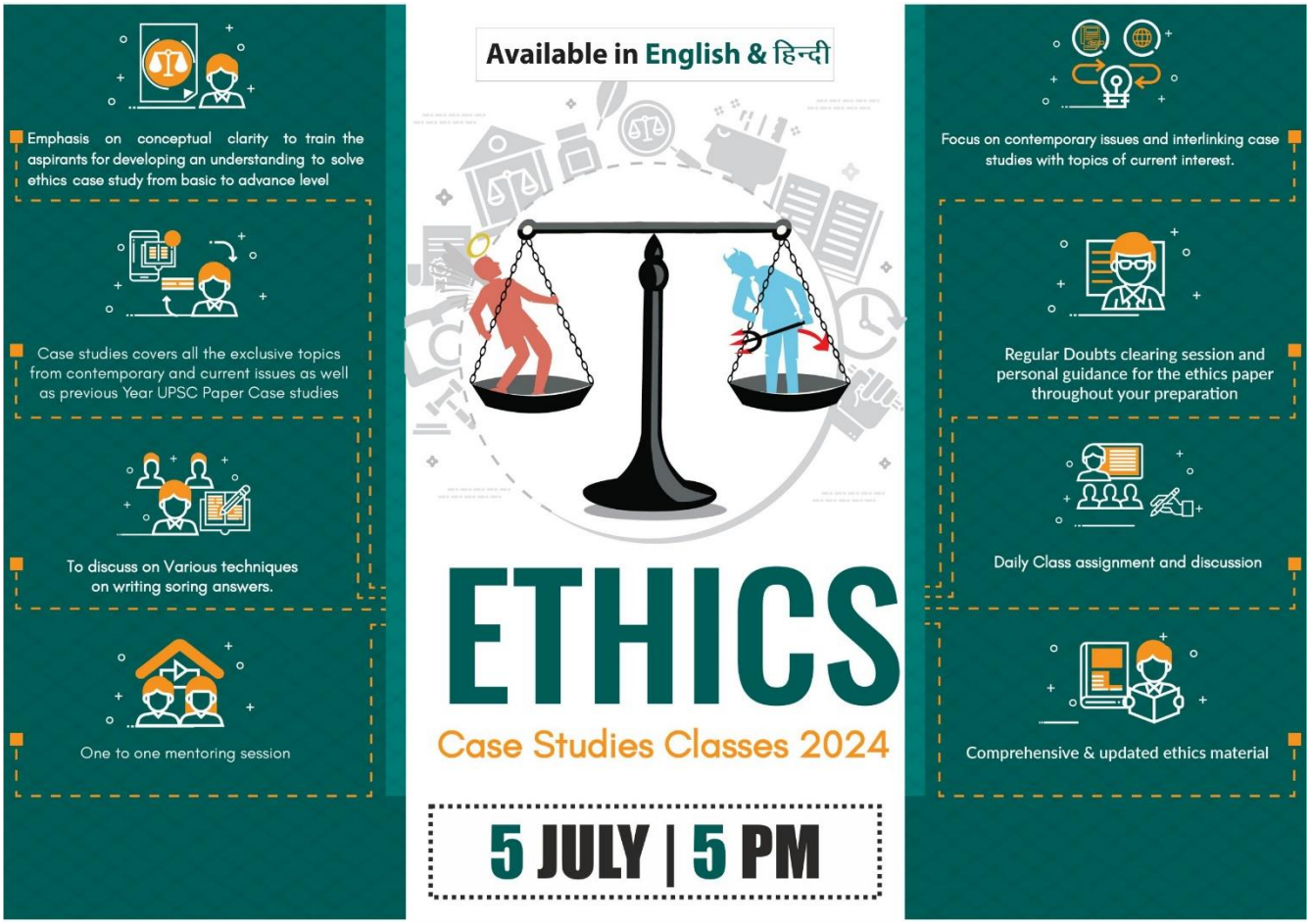
- National Mission for Sustaining the Himalayan Ecosystem (NMSHE)
- Indian Himalayan Climate Adaptation Programme (IHCAP)
- SECURE Himalaya Project
- Himalayan State Regional Council



Way Forward

- **Integrated development:** Establishing a **"Himalayan Authority"** for monitoring and guidance.
- **Sustainable Tourism:** Developing business plans for **"Smart Mountain Tourism Destinations"**.
- **Improve Water Security:** Best practices, (**e.g., Dhara Vikas in Sikkim**) for revival of springs.
- **Capacity building:** Blending traditional knowledge with modern approaches and focus on R&D.
- **Improve Clearance System:** IHR to have **its own** Environment Impact Assessment (EIA).

To know more about the Unregulated Tourism in the Himalayan Region, refer to Article 4.2.1. Unregulated Tourism in the Indian Himalayan Region (IHR) in the Mains365 Environment 2024.



5.4.3. SOLID WASTE MANAGEMENT

Solid Waste Management (SWM) in India

About Solid Waste:

- **Byproducts of household or commercial activities** that have **lost their value to the original owner(s) but may hold significance for others.** e.g., Municipal solid waste, industrial waste, etc.

Current state (CPCB, 2020-21)

- **Generation: 1,70,338 tons per day**, of which **91,512 TPD is treated.**

Management in India

- **Solid Waste Management Rules, 2016**
  - Mandates generators to **segregate waste at source into 3 streams -** Biodegradable, Non -biodegradable, and Sanitary and Domestic Hazardous waste.
  - Local authorities responsible for setting up waste collection, transportation, processing, and disposal systems.
- **Swachh Bharat Mission (SBM-U) 2.0**
- **Garbage Free Star Rating Protocol** to assess the City's Municipal Solid Waste Management.

Challenges in SWM in India

- **Inadequate Segregation of waste at** source resulting in increased cost of waste disposal.
- **Underdeveloped storage infrastructure,** limited door-to-door waste collection, etc.
- **Open dumps emitting methane gas,** contributing to fires, explosions, and global warming.
- **Low Municipal Finance** due to difficulty generating sufficient revenue, struggling to attract private capital due to poor creditworthiness, etc.

Way forward

- **Scaling waste-to-energy projects.**
- **Improve waste segregation.** E.g., CSIR-CMERI developed Municipal Solid Waste Processing Facility with advanced segregation techniques.
- **Financially strengthening municipal bodies.** E.g., Bruhat Bengaluru Mahangara Palike (BBMP) proposed a SWM Cess of ₹100 per month.

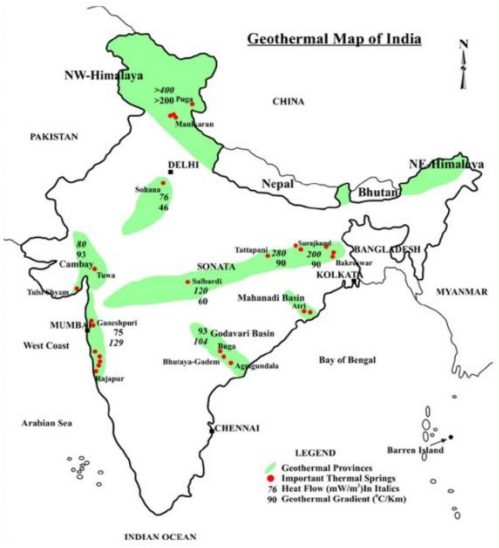
5.5. RENEWABLE AND OTHER ALTERNATIVE SOURCES OF ENERGY

5.5.1. GEOTHERMAL ENERGY AT A GLANCE

Geothermal Energy in India

About

- **Renewable heat energy generated** and stored in earth.
- Extracted by the geothermal technology for direct heating and cooling, or **convert it into electricity.**



Potential in India

- **Total estimated geothermal power potential India: 10,600 MW identified** (Minister of New & Renewable Energy)
- **Around 300 geothermal hot springs** exist in India (Geological Survey of India).
- **Puga and Chumathang in eastern Ladakh** are the **most promising** geothermal sites.

Advantages

- **Clean & inexpensive** renewable energy
- Ability to **operate year-round** at high capacity factors.

Disadvantages/issues of Geothermal Energy

- **Possible land subsidence, high transportation charges** (Due to remote plant location).
- **Possible release of toxic chemicals** e.g. mercury, arsenic, boron, and antimony.
- **Other Issues:** Higher capital costs, techno-economic viability issue due to remote location

Steps Taken in India

- **Renewable Energy Research & Technology Development Programme (RE-RTD)**
- **100% financial support by MNRE to government**/non-profit research organizations and up to 70% to industry, startups etc.
- **Renewable Energy Technology Action Platform** under US - India Strategic Clean Energy Partnership.
- **Mission on Advanced and High-Impact Research (MAHIR)**

Way Forward

- Adequate **geological mapping of potential energy.**
- Incentives for **Research and development** for developing low-cost extraction technology.
- Promoting **infrastructure construction** for distribution of power.

5.5.2. OFFSHORE WIND ENERGY AT A GLANCE

Offshore Wind Energy

About

- Use of **wind turbines** to generate **electricity in water bodies** like **oceans or large lakes**

Potential in India

- **Gross wind power potential ~695.50 GW** at 120 meter and **1163.9 GW** at 150 meter above ground level.
- **36 GW and 35 GW** of offshore wind energy potential exists off the coast of **Gujarat and Tamil Nadu coast** respectively.

Long-term target
- Addition of **30 GW by 2030**

- **Current Situation (Wind energy)Installed capacity (June, 2023): ~46 GW** (10.5% of total installed capacity in India).
- Globally, India **ranks 4th** in installed wind capacity.

Government Initiatives

- **National Offshore Wind Energy Policy – 2015 and Wind-Solar Hybrid Policy**
- **Declaration of trajectory for Wind Renewable Purchase Obligation** up to the year 2030.
- Cabinet recently approved **Viability Gap Funding (VGF) scheme for implementation of Offshore Wind Energy Projects**.

Offshore vs and Onshore wind energy projects

Offshore

Pros:
- Offshore turbines **generate 1MW more energy than onshore turbines.**
- **Stronger and uniform winds at sea.**
- **Fewer environmental impacts.**
- **No issues related to Land acquisition**

Cons:
- Lack **dependency and predictability**.
- **Tedious Transmission and distribution process.**
- **High maintenance costs** due to **corrosive** effect of moisture.

Onshore

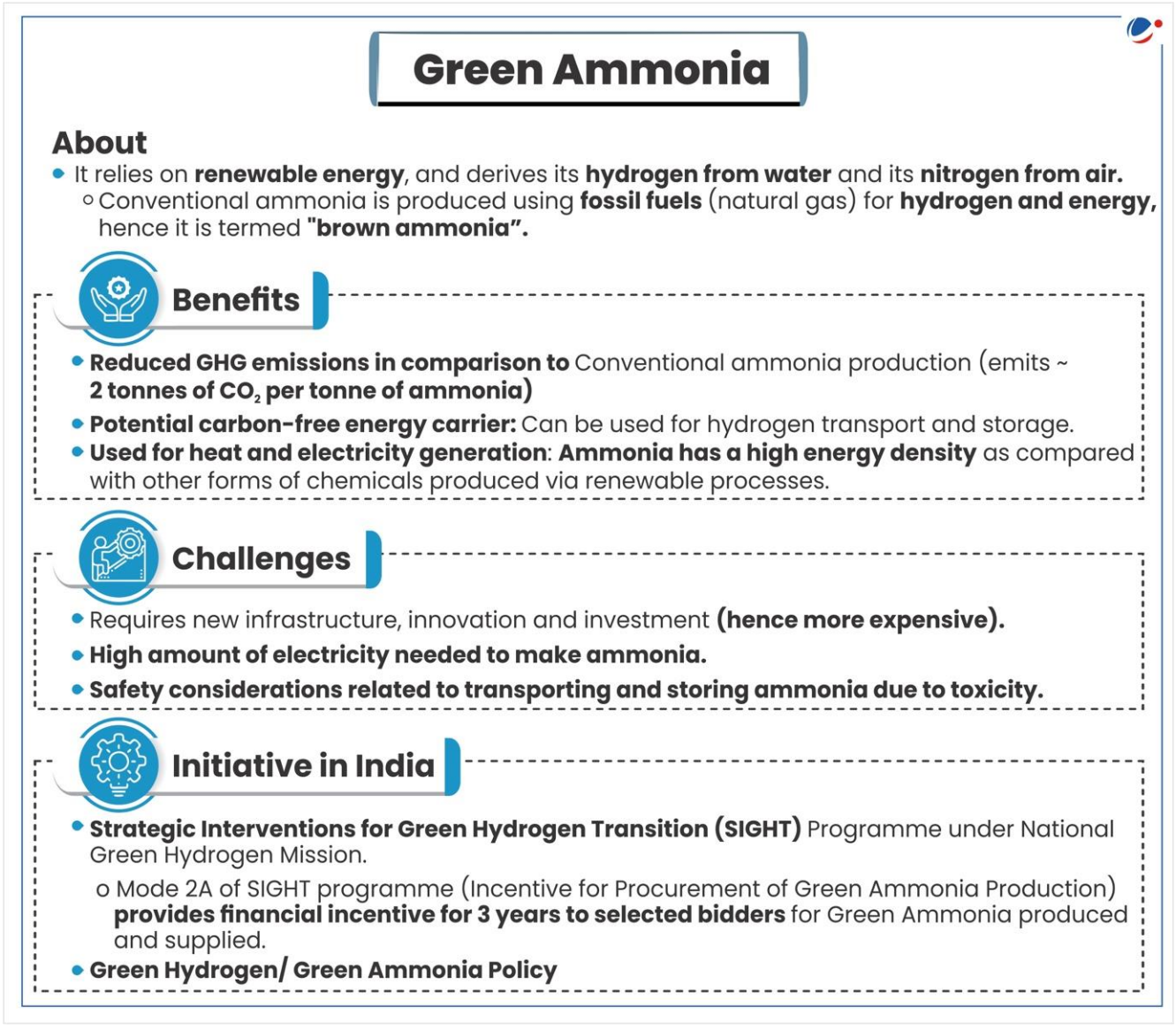
Pros:
- Cheaper with **lower infrastructure and maintenance costs**.
- **Boosts local economy** due to land utilization.
- **Less voltage drops** between wind turbine and consumer.
- Proven **technology** and **reduced wear and tear**

Cons:
- **Discomfort to locals** due to noise pollution.
- **Reduced efficiency** due to unpredictable **wind speeds and direction**.
- **Land availability and landscape** considerations.

Way Forward

- **Wind Resource Assessment** as wind is an intermittent and site-specific resource of energy.
- **Maritime Spatial Planning** with expert opinion and demonstration projects to assess the viability of projects.
- Discoms can **adopt FiT regulations** and make **offshore wind power procurement mandatory.**
  - **Feed-in tariff (FiT):** Price-driven policy where the government offers a guaranteed purchasing price for electricity produced from **Renewable sources for fixed periods of time.**

5.5.3. GREEN AMMONIA AT A GLANCE



5.5.4. GREEN HYDROGEN AT A GLANCE

Green Hydrogen

About

- Hydrogen produced through **electrolysis,** splitting water molecules (H_2O) into hydrogen (H_2) and oxygen (O2) using electricity from renewable sources like solar, wind, hydro etc.
  - o Another method of producing is the **gasification of biomass.**

Applications: Fuel Cell Electric Vehicles (FCEVs) Aviation and Maritime, Industry (Fertilizer Refinery, Steel, Transport (Road, Rail), Shipping, Power Generation.

Targets (National Green Hydrogen Mission)

- India's Green Hydrogen Production capacity to reach at **least 5 MMT per annum by 2030**.
- Renewable energy capacity addition of about **125 GW by 2030.**

Challenges in adoption

- **Economically viability**: **$4.10 to $7 per kg-** current cost of producing **Green Hydrogen** via electrolysis. (NITI Aayog)
- **Requires high-pressure tanks:** Due to very low boiling point of hydrogen**.**
- **Water Demand: Electrolyzing water,** can require up to **9 litres of water/kg of H2** (International Energy Agency).
- **Lack of global standards on Green Hydrogen** definitions.
- **Issues related to** transportation, storage, safety, usage, etc.

Initiatives taken

- **National Green Hydrogen Mission (NGHM), 2023** to make India a global hub for production, usage and export of **Green Hydrogen** and its derivatives.
- **Other initiatives under NGHM**
  - o **GAIL** started India's maiden project of blending H_2 in City Gas Distribution grid in Indore.
  - o **NTPC** initiated upto 8% blending of **Green Hydrogen** in PNG Network at **NTPC Surat.**
  - o **Hydrogen based Fuel-Cell Electric Vehicle (FCEV) Buses** in **Greater Noida and Leh** by NTPC.

Way forward

- **Reduce cost:** India aims to reduce **production costs to $1 per kg by 2030**.
- **Incentives:** E.g. Production-Linked Incentive (**PLI**) scheme for green steel targeting export markets.
- **Finance**: India should invest **$1 billion by 2030** to advance commercial technologies.
- **Initiate standards and a labelling programme:** E.g., **Digital (AI/ML equipped) labelling** and tracing mechanism certification of origin.
- **Create an interdisciplinary Project Management Unit (PMU)** with globally trained experts.

5.5.5. BIO-ECONOMY

Why in News?

Recently, BioE3 Policy was approved with the aim **to foster high-performance bio manufacturing** and broadly focuses on the **six strategic/thematic sectors.**

Key Features of the Scheme

- **Innovation-driven support** to R&D and entrepreneurship.
- Establishing **Biomanufacturing** & **Bio-AI hubs** and **Bio-foundry.**
- **Prioritizing regenerative bio-economy** models of green growth.
- **Facilitating the expansion of India's skilled workforce**.

Six Thematic Sectors of BioE3 Policy

1. Bio-based chemicals and enzymes
2. Functional foods and smart proteins
3. Precision bio therapeutics
4. Climate resilient agriculture
5. Carbon capture and its utilisation
6. Futuristic marine, and space research

About Bio-economy

- It is the **Knowledge-based production** and **use of biological resources** to provide **goods** and **services** in a **sustainable manner** in all economic sectors.
  - **Important sectors are:** Bioindustrial, Biopharma, Bioagriculture etc.
- **Status of India's bio economy**:
  - Grown from $10 billion in 2014 to over $130 billion in 2024**,** projected to reach **$300 billion by 2030**.
  - India **ranks 12th globally in terms of bio-manufacturing**.

Significance of Bioeconomy

- **Reduces reliance on fossil fuels,** enhance agricultural productivity, food security, etc.
- **Promote circular economy,** E.g. Conversion of agricultural waste into biogas
- **Role in India's economy,** contributing 4% to GDP and employing over 2 million people.
- **Role in propelling Industrial Revolution.**

Challenges

- **Uncertain regulatory structure** and **lack of uniform industry standards**.
- **Scarce state-of-the-art research centres** and insufficient R&D fund allocation.
- **Ethical challenges** on Responsible Research and Innovation. E.g. Genetic modification

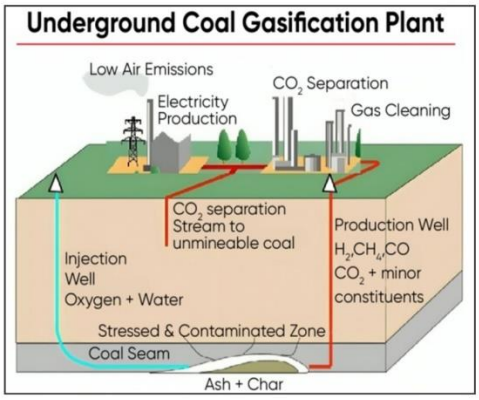
Initiatives and Policies to boost Bio-Economy

- **BIRAC** (Biotechnology Industry Research Assistance Council) has established various industry focused schemes like **Biotechnology Ignition Grant Scheme, BioNEST, etc.**
- **Policy measures:** National Biofuel policy, 2018; National Biopharma Mission, National Mission on Bioeconomy etc.
- **Biological Research Regulatory Approval Portal (BioRRAP**), single gateway for regulatory approval.

5.5.6. UNDERGROUND COAL GASIFICATION (UCG) AT A GLANCE

Underground Coal Gasification (UCG)

- **Energy manufacturing process** whereby coal is gasified or chemically converted into synthesis gas (syngas) in its **original coal seam.**
  - o **Similar to surface coal gasification gas**, typically a mixture of methane (CH4), carbon dioxide (Co2), hydrogen (H2) and carbon monoxide (CO).
  - o Done by **injecting steam and air/oxygen** into the seam requiring temperatures over **1000°C**.
- **Products of UCG: Electricity**; **Chemical Feedstock** to produce methanol, hydrogen, ammonia, etc.; **Production of hydrogen.**



Targets

- **National Coal Gasification Mission:** Coal gasification and liquefaction of 100 MT of coal by 2030.

Benefits

Reduced capital expenditure

- Does not require several **expensive process units** like in surface gasification complex.

Energy Density

- Needs less than 3% of the land area required by Coal Bed Methane.

Other benefits

- **Access to unmineable coal**
- **Reduce dependence** on imports
- **Limited environmental i**mpacts
- Potential of recovering heating value from high ash coal.

Concerns

- **Induced Subsidence:** Deforming both the remaining coal and surrounding rocks.
- **Contamination of Groundwater:** Due to Chemicals formed like phenols, benzene, carbon dioxide, etc.
- **Lack of proven Technology:** For conversion of coal to syngas.
  - o High technology cost affects Syngas & downstream products costs & Project viability.
- **Unsteady-state process dependent** on a number of parameters, like growth of the cavity, inherent variation in the properties of the coal along the seam, ash layer build-up, etc.

Government Initiatives for Coal Gasification

- **Scheme for promotion of Coal/Lignite Gasification:** Financial assistance by PSUs and the Private Sector.
- **Joint venture agreement (JVA):** Setting up of pilot ammonium nitrate plant using coal gasification (SCG) through JVA such as CIL and BHEL in Jharkhand.
- **Policy framework (2015) for development of UCG in coal and lignite bearing areas** approved by Ministry of Coal.

5.6. CONSERVATION EFFORTS

5.6.1. FOREST CONSERVATION FOR ACHIEVING NDCS

Why in the News?

Report titled **"Raising Ambition, Accelerating Action: Towards Enhanced Nationally Determined Contributions for Forests"** launched by United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation (UN-REDD).

Key-findings of report

- Only **8 of the top 20 countries** with highest rate of tropical deforestation have **quantified targets** on forests in **Nationally Determined Contributions (NDCs**) plan.
- **11 of the NDCs** contain quantified targets relating to afforestation and, reforestation, mitigating climate change requires **reducing deforestation first.**

Challenges in Forest Conservation to achieve NDCs

Global	India
• **Global demand for commodities:** such as soy, palm oil, etc. fuels deforestation. Prioritizing short-term profits over long-term sustainability, e.g. Overgrazing, etc. • **Insufficient finance:** Domestic and international finance for forest-based climate mitigation solutions averages **US$2.3 billion per year**, (**less than 1%** of the total). • **Different targets**: E.g., Brazil's updated NDC do not contain any forest-related targets, despite mentioning commitment to end deforestation by 2030. • **Non-inclusivity**: Only **1.4 %** of total public climate finance in 2019 and 2020 was allocated for **Indigenous Peoples (IPs) and local communities (LCs).**	• **Increased Fuelwood consumption: 503.45 million tonne** of **CO_2 equivalent** in 2020- estimated CO_2 emissions from fuelwood consumption. • **Fodder extraction: 1.05 billion tonnes** is total fodder annually extracted from forests. • **Role of Natural Factor**: like invasion of foreign species, forest fires (for e.g. Uttarakhand in 2024), climate extremities, soil degradation deteriorated the forests. • **Financial concern**: Underutilisation of fund under **Compensatory Afforestation Fund Management and Planning Authority (CAMPA).** • **India's afforestation programme** focusing on large-scale **monoculture plantations** of non-native, commercial species like eucalyptus, having minimal carbon sequestration capacity.

Way forward

- **Increase Finance**: To **30-50 USD/tonne** through **innovative mechanism** like Global tax regime for funding climate action, debt for nature swaps, etc.
- **Inclusivity: E.g.,** improved enforcement of existing laws through **intensified raids** on illegal activities led to reduction in deforestation in the **Brazilian Amazon** in 2023.
- **Clearly define targets:** Specify separate targets for primary and secondary forests, outlining the net or gross forest loss.
- **Increase Cooperation** between REDD+, developed countries and the private sector.
- **India specific measures**
  - NDC targets to be **distributed among** the states/UTs based on Culturable Non-forestry Area (CNFA) and forest and tree cover.
  - **Carbon Neutrality Policy** to be promoted at the national and state levels.
  - **Blue Carbon Initiative of IUCN to include blue carbon (CO_2 absorbed from the atmosphere and stored in the ocean).**
  - Implement **Minimum Support Price (MSP)** for **strengthening agroforestry.**

5.6.2. ECO SENSITIVE ZONES

Why in the News?

National Green Tribunal asks **Ministry of Environment, Forests and Climate Change (MoEF&CC)** to finalize deadline for declaring Western Ghats an eco-sensitive zone.

More on the News

- MoEFCC issued a draft notification on the Western Ghats as an ESZ in 2022, with provisions like-
  - **Regulation of Human activities**
    - ✓ **Activities Restricted:** Mining, quarrying and sand mining, 'Red' category industries, New thermal power projects etc.
    - ✓ **Regulated:** Hydropower project etc.
    - ✓ **Unrestricted:** Existing healthcare establishments, agriculture & plantation activity etc**.**
  - **Decision Support & Monitoring Centre for Western Ghats:** To assess and report on status of ecology of Western Ghats.

About ESZ

- **Ecologically important and fragile areas around protected areas** designated under Environment Protection Act (EPA), 1986.
- **As per National Wildlife Action Plan** (2002-2016), **land within 10 km of boundaries** of national parks and wildlife sanctuaries are **to be notified as ESZ.**
- **Regulation of Activities:** Activities in the ESZ are **generally regulated and not prohibitory in nature** barring a few such as-
  - **commercial mining**, **stone quarrying** and **crushing units**, **major hydroelectric project**, **handling of hazardous substances**, **discharge of untreated** effluents, setting up of brick kilns and setting up of polluting industries.

Significance of ESZ

- **Protection of natural heritage and biological diversity**.
- **Act as a transition zone** and create a kind of shock-absorber around protected areas.
- **Minimize impact of urbanization** and other developmental activities.
- **Help in in-situ conservation.**
- **Minimize man-animal conflict.**

Constraints

- **Opposition from States** due to their impact on **developmental activities** and state revenue.
- **Lack of participatory planning exercises** while implementing the ESZ.
- **Enforcing a one-size-fits-all** approach in all protected areas.
- Lack of **ground investigation** for proposals with areas being randomly marked on topographic sheets.
- **Restricts land-use change** and **affects livelihood prospects of peopl**e living in human settlements located close to the forest boundary.
- **Practical difficulties in ESZ implementation** due to high density of human population around the forest lands.

Way Forward

- **Undertaking participatory planning** of ESZs which addresses the needs and aspirations of the local and indigenous people.
- **Conducting on-ground investigations** to verify environmentally fragile zones.
- **Building capacity among locals** for eco-friendly livelihood practices such as natural farming, agroforestry etc. in areas lying in notified ESZs.
- **Building consensus among States** though negotiations.

- **Extensively studying the impact of infrastructural projects** on the forest and wildlife before giving permission.

Supreme court judgment regarding ESZ

- In 2022**, Supreme court** had mandated **a minimum 1-km ESZ around national parks or wildlife sanctuaries** but modified the order in 2023 stating that **ESZ cannot be uniform across the country and has to be "protected area-specific".**

Key highlights of modified order

- **2022 order will not be applicable:**
  - **To ESZs for which draft and final notifications have been issued** by Ministry of Environment, Forests and Climate Change (MoEF&CC) and in respect of **proposals which have been received** by Ministry.
  - **Where national parks and sanctuaries are located on inter-state borders** or share common boundaries.
- **No mining would be allowed**, either within national parks and sanctuaries or in a 1-km radius.
- **Any developmental activities undertaken** within ESZs **should follow the MoEF&CC 2011 guidelines** and also provisions of the 2022 Office Memorandum by MoEF&CC.

5.7. DISASTER MANAGEMENT

5.7.1. THE DISASTER MANAGEMENT (AMENDMENT) BILL, 2024

Why in the News?

It was introduced in the Lok Sabha to amend the Disaster Management Act, 2005 and align it with **15th Finance Commission Recommendations.**

Key Features of Bill

- **Provides for creation of Disaster database at national and state levels.**
  - Includes disaster assessments, fund allocation details, expenditure, preparedness and mitigation plans, risk register etc.
- Empowers **National Disaster Management Authority (NDMA) and State Disaster Management Authority (SDMA)** to prepare the disaster plan at national and state level.
  - National plan to be **reviewed every 3 years** and updated at least once in every 5 years.
- **Proposes "Urban Disaster Management Authority"** for State capitals and large cities having Municipal Corporations.
- **Statutory recognition to existing bodies – National Crisis Management Committee** (nodal body to deal with major disasters) and **High-Level Committee** (for approval of financial assistance).
- **Enables state government to constitute State Disaster Response Force.**

Key Provisions of DM Act, 2005

- **Establishes 3 tier Institutional Structure**
  - **National Level: NDMA**, headed by Prime Minister
  - **State Level: SDMAs,** headed by respective CMS
  - **District Level: District Disaster Management Authorities** (DDMAs), headed by District Collector/Magistrate/Commissioner.
- **Establishes National Disaster Response Force** (for Specialist reponse)
- **National Disaster Response Fund** (for meeting threatening disaster situation).

5.7.2. DISASTER RESILIENT CITIES

Why in News?

Rising frequency of various disasters, especially in Monsoon season, have brought to fore the unpreparedness of Indian cities to deal with disasters and seasonal extremities.

Vulnerability of Indian Cities

- **Population Centres:** Over **40% of people in India to reside in cities by 2030**.
- **Unplanned urbanization:** Megacities like Chennai, and Mumbai **reached their maximum threshold for environmental degradation** before 2014 (National Institute of Urban Affairs).
- **Increase in frequency and intensity of climate related disasters:** E.g., Torrential rains in Shimla and Solan, Himachal Pradesh, triggered landslides, flash floods and cloudbursts, in 2023.
- **Existing Vulnerabilities:** such as urban poverty, informality in urban employment, social inequality etc.

About Disaster Resilient City

As per **National Institute of Disaster Management**, a disaster resilient city:

- Follows **sensible building codes, avoids informal settlements in vulnerable areas** such as flood plains or steep slopes.
- Has an **inclusive, competent and accountable local government**.
- Maintains **shared, local information base** on disaster losses, hazards, risks and vulnerability.
- **Empowers people** to participate and plan with local authorities, **values local and indigenous knowledge**.
- Takes steps to **anticipate and mitigate the impact of disasters and is able to respond quickly to restore basic services.**

Challenges in building disaster resilience in Indian cities

- **Lack of planning: 65% of Indian cities** currently do not have a master plan (NITI Ayog).
- **Concretization:** Urban spaces covered with concrete and asphalt leading to **Urban Heat Island.**
- **Departmentalization in functioning:** Departments operating in silos focusing on resources such as water, transport, energy, etc. independently.
- **Lack of private funding:** Remained stagnant while the infrastructure funding gap has reached multi-trillion-dollar in recent years (Global Infrastructure Hub).
- **Other Challenges:** Governance issues leading to uncontrolled construction in disaster-prone zones; inadequate sewerage and drainage systems; poor health infrastructure; etc.

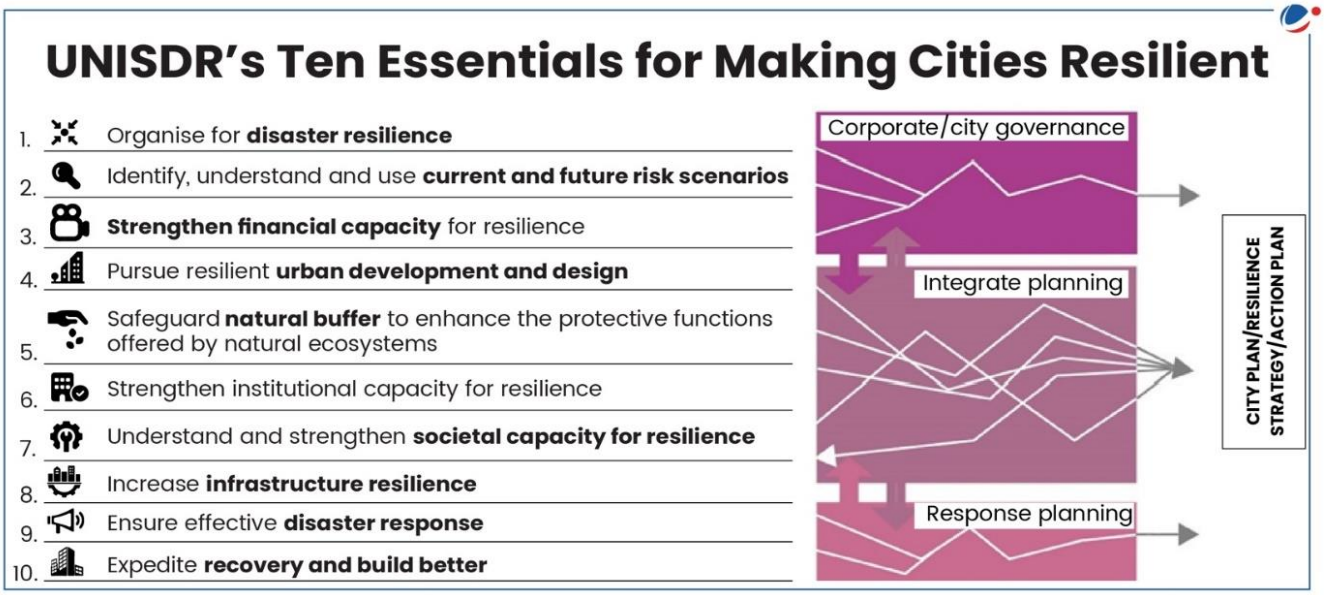
Initiatives for urban disaster resilience

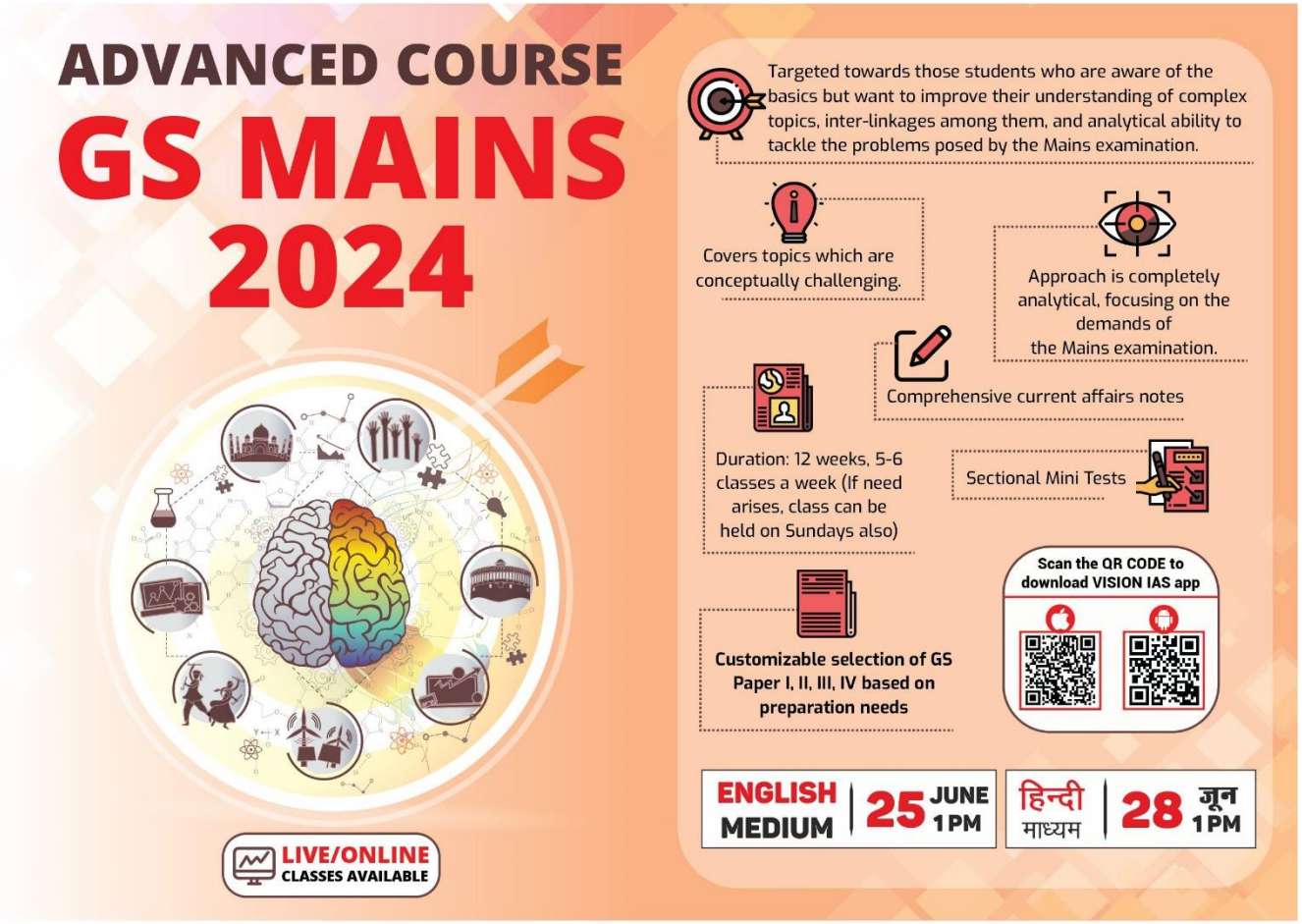
- **Governance:** Disaster Management Act, 2005; National Policy on Disaster Management 2009 ; National Disaster Management Plan (NDMP) 2016
- **Urban Local Government (ULG):** Responsible for setting and enforcing building codes, land use regulations, urban planning and zoning, basic infrastructure, etc.
- **Schemes:** Atal Mission for Rejuvenation and Urban Transformation (AMRUT); National Mission on Sustainable Habitat (NMSH) 2021-2030 etc.
- **Climate Smart Cities Assessment Framework; 'Ease of Living Index' (launched in 2018)**

Way Forward

- **Governance**: DM should be **devolved to municipalities**, with empowered functionaries'.
- **Finance:** Creation of **land banks** (owned by the municipalities); **Corporate Social Responsibility funding; Public-Private Partnerships (PPPs)** etc.
- **Participatory Planning: E.g.,** DM agencies work with communities to generate awareness in Japan.
- **Knowledge Management Networks**: Use of location-specific knowledge.

- **Other solutions:** Nature Based Developments; Greening of public and private spaces; shift to green mobility in public transport etc.





5.7.3. DROUGHT MANAGEMENT IN INDIA AT A GLANCE

Drought Management in India

Definition

- **Prolonged dry period** in the **natural climate cycle characterized by a lack of precipitation for a protected time, resulting in water shortage.**

Classification of Droughts

Meteorological Drought
Deficiency of precipitation from normal levels over an extended period.

Hydrological Drought
Deficiency in surface and subsurface water supplies.

Agricultural Drought
Soil moisture and rainfall are inadequate during the crop growing season.

Vulnerability in India

- **Over 68% of cropped** areas **vulnerable** to drought.
- Between 2016- 2019, **36.8% percent land area affected by drought**. (UNCCD Dash Board)

Impact

- **Deforestation:** Increased **deforestation by 7.6%** compared to years of normal weather.
- **Food insecurity** and Famines
- **Forced migration** or **extinction of species**
- **Long term reduction** of agricultural productivity
- Jeopardize primary **energy production** (hydropower); etc.

Initiatives undertaken

Global

- **"30x30" Target (Under Convention on Biological Diversity** to protect and restore at least **30% of Earth's land and water by 2030.**
- **International Drought Resilience Alliance (IDRA)** at UNFCCC COP27 Leaders' Summit in 2022.

India

- **Manual for Drought Management 2016 (updated in 2020)** involving use **of modern technology.**
- **Pradhan Mantri Krishi Sinchai Yojana, Rainfed Area Development Programme.**
- **Drought Monitoring: NADAMS (**National Agricultural Drought Assessment and Monitoring System); **FASAL (**Forecasting Agricultural output using Space, Agro- meteorology and Land based observations); **DEWS or Drough Early Warning System etc.**

Way forward (NDMA Guidelines)

- Establish separate **Drought Monitoring Cells (DMCs)** under State Disaster Management Authorities (SDMAs).
- **Integrate ground-based information** with space-based information.
  Standardize the unit of drought deceleration across states.

5.7.3.1. DECLARATION OF DROUGHTS

Why in the News?

Karnataka urges Centre to **re-evaluate drought declaration norms.**

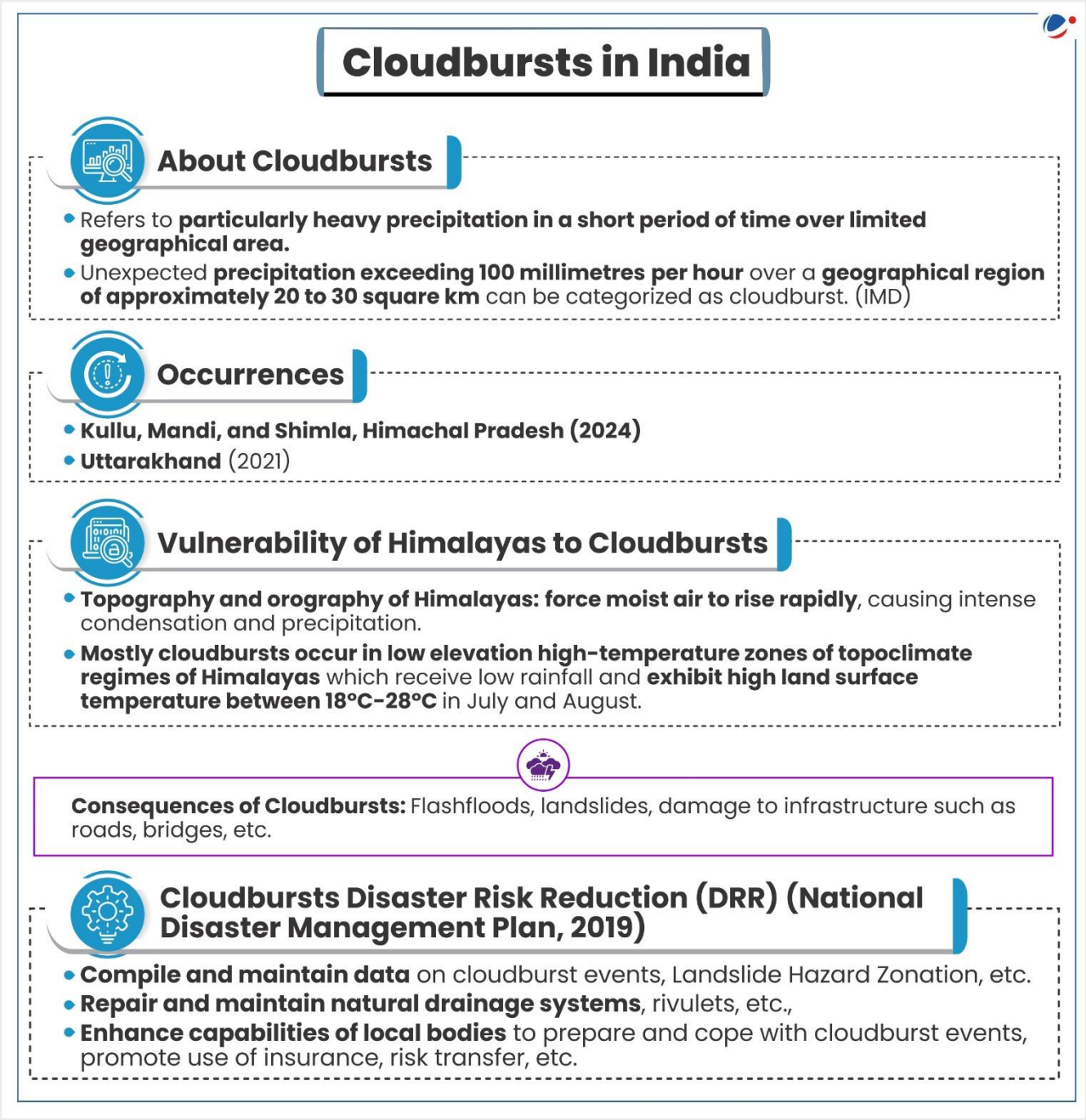
More on the News

- Amid a prolonged dry spell of monsoon rainfall, Karnataka urged the Centre to
  - Shift from **one size fits all approach** to **region specific criteria** for drought declaration.
  - **Redefine and reduce time duration** to declare dry spells.

How Drought are declared in India?

- **Ministry of Agriculture's Manual for Drought Management 2016** (updated in 2020) provides for **declaration of drought** by States **using a three-step approach:**
  - **Based on mandatory indicators** — rainfall deviation, Standardized Precipitation Index and dry spell, etc.
  - **Assessment of impact indicators** — agriculture, vegetation indices based on remote sensing, soil moisture, and hydrology.
  - States conduct **sample surveys for ground truthing** and for **judging the intensity of drought as 'severe' or 'moderate'**.
- Once determined, **state government needs to issue a notification specifying** the **geographical extent and administrative units.**
  - **Notification** is valid for **six months unless de-notified earlier.**

5.7.4. CLOUDBURSTS AT A GLANCE



5.7.5. URBAN FLOODING IN INDIA AT A GLANCE

Urban Flooding in India

Urban Floods

- Refers to **rapid rise of floodwaters in urban areas** due to **limited infiltration and heavy rainfall.**
- **Impact of Urban Floods**: Structural damage, disruption in transport, power and incidence of epidemic (dengue, malaria, chikungunya) etc.

Factors Causing Urban Floods

- **Meteorological Factors:** Unprecedented Rainfall (944 mm in 24 hours, **Mumbai floods 2005**); Cyclonic Storms (**Hyderabad floods 2020**); Global warming (Snowfall, snowmelt and sea level rise) etc.
- **Hydrological Factors:** Change in course of rivers; Landslides and soil erosion; etc.
- **Human factors:** Rapid rate of urbanization and deforestation; Unplanned release of water from dams/lakes (**Chennai Floods 2015** –water released from Chembarampakkam lake) etc.

EXAMPLE

Recent Examples Bengaluru (2022); Hyderabad (2020); Chennai (2015); Mumbai (2005)

Steps taken by India to prevent Urban Floods

- **Management of urban floods** falls under the purview of **State Governments and Urban Local Bodies/Urban Development Authorities**.
- **State Initiatives:** Chennai Flood Warning System**;** Flood forecasting and early warning system for Kolkata City, IFLOWS-Mumbai.
- **AMRUT Mission:** includes a **Storm water drainage component**.
- **Standard Operating Procedure for Urban Flooding** by Ministry of Urban Development**.**
- **Flood Watch India** Application of Central Water Commission providing real-time information.
- Recently, **a High Level Committee** chaired by Union Home Minister approved **6 projects of 5 states** (Telangana, Gujarat, Karnataka, West Bengal, Maharashtra) on urban flood management.

Way Forward (NDMA Guidelines)

- Establishment of **Urban Flooding Cells** in the **Ministry of Housing and Urban Affairs**, **State Nodal Departments** and **Urban Local Bodies (ULBs).**
- **Maximize the real-time hydrometeorological network** to cover all the urban centers in support of the emerging priorities in dealing with urban flooding.
- **In situ flood management** approaches to ensure community preparedness, with participatory urban flood planning and management involving both local government and the community.
- **Removal of Encroachments on Drains and in Floodplains** etc.
- **Rainwater Harvesting** as an integral component of the Building Utility.

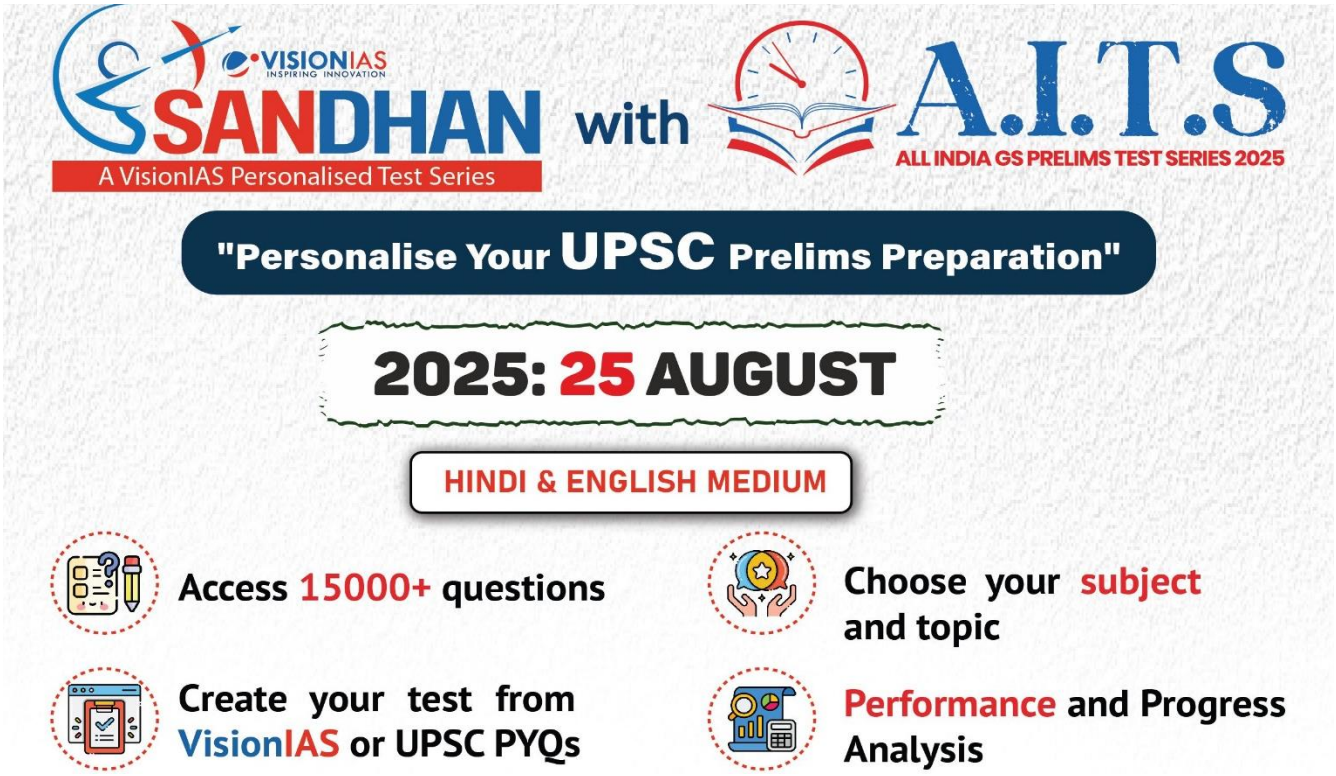
5.7.5.1. FLOODS IN NORTH EAST INDIA

Why in the News?

Recent Assam flooding and its magnitude have highlighted North East India's vulnerability to flood.

Reasons for flood vulnerability of North East India

- **River instability:** The Brahmaputra, Barak rivers are braided due to **high sediment charges, steep slopes and transverse gradients.**
- **Geology:** The entire area is part of a seismic zone and periodic **severe earthquakes**.
- **Hydrometeorology:** Subjected to **cyclonic storms** originating in the Bay of Bengal.
- **Effect of Climate change:** Districts north of the Brahmaputra in Assam show an increasing trend in rainfall in the last 30 years (CSE).
- **Drainage congestion:** Due to **heavy rainfall of short duration** coupled with **high flow levels.**
- **Anthropogenic factors:** Encroachment of river bodies, embankments obstructing natural flows, etc. also induce drainage congestion.



5.7.6. CYCLONES MANAGEMENT IN INDIA AT A GLANCE

Cyclone Management in India

About Cylones

- **Large-scale system of air that rotates around the centre of a low-pressure area** accompanied by **violent storms and bad weather** rotating **anticlockwise** in Northern Hemisphere and **clockwise** in Southern Hemisphere.
- **Favourable Conditions for cyclone formation:** High sea surface temperature **(> 27° C);** Presence of Coriolis force; Small variations in the vertical wind speed; Pre-existing weak low-pressure area or; low-level-cyclonic circulation
- **Cyclones in India:** Occur in the months of **May-June** and **October-November.**

India's vulnerability

- India is exposed to nearly **10% of the World's tropical cyclones.**
- Impacts **8% of the geographical area** in **13 Coastal States and Union Territories (UTs)**

Naming of Cyclones

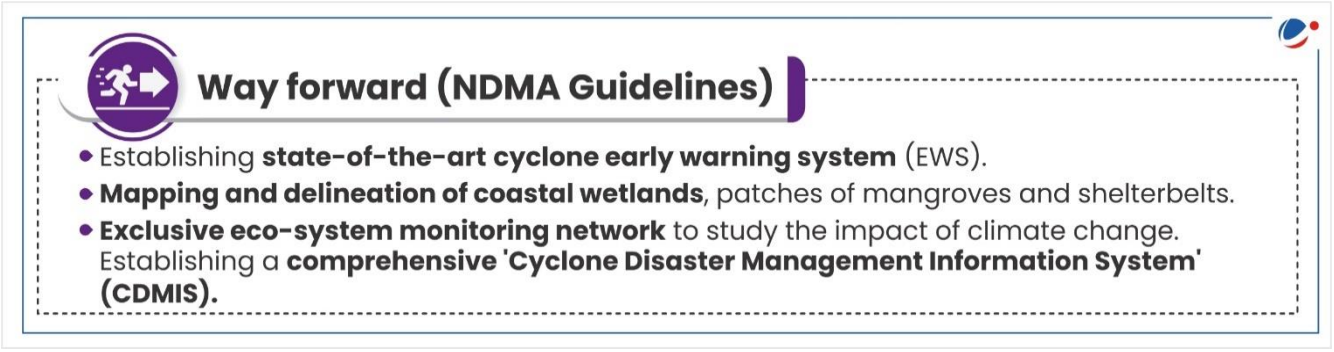
- **World Meteorological Organization / Economic and Social Commission for Asia and the Pacific** (ESCAP) **Panel on Tropical Cyclones** (2000 session in Oman), agreed to assign names to tropical cyclones in Bay of Bengal and Arabian Sea.
- **Regional Specialized Meteorological Centre (RSMC) New Delhi Tropical Cyclone Center** is responsible to name tropical cyclones over Bay of Bengal and Arabian Sea.

Recent Occurrences

- **Cyclone Remal** (2024) over Bay of Bengal.
- **Cyclone Michaung** (2023) in Andhra Pradesh and Tamil Nadu.
- **Cyclone Midhili (2023)**, in Bangladesh.

Management Framework

- **Institutional Measures: National Cyclone Risk Mitigation Project (NCRMP)** by MHA; **Project management and institutional support** at National, State and District level; etc.
- **Dynamic impact based Color coding warnings:** By IMD like Green (no action), yellow (be watchful), orange (be alert), and Red (take action).
- **Other steps:** Web Based Dynamic Composite Risk Atlas & Decision Support System tool covering 13 Coastal States and UTs; **Indian National Centre for Ocean Information Services (INCOIS)** set up **Storm Surge Early Warning System (SSEWS)**.



5.8. UPDATE

5.8.1. PROGRESS ON INDIA'S SUSTAINABLE DEVELOPMENT GOALS (SDGS)

Why in News?

SDGs- National Indicator Framework (NIF) Progress Report, 2024 was released by Ministry of Statistics and Programme Implementation (MoSPI).

Key highlights of SDG-NIF

SDG Goals	National Indicator	2015-16	2023-24
No Poverty (SDG 1)	Proportion of men, women and children of all ages living in poverty	**24.85 %**	**14.96 %**
	Number of Self-Help Groups (SHGs) provided bank credit linkage (in Lakh)	**18.32**	**44.15**
Zero hunger (SDG 2)	Gross Value Added in agriculture per worker (in ₹)	**61,427**	**87,609**
Gender Equality (SDG 5)	Exclusive women SHGs in bank-linked SHGs	**88.92%**	**97.53%**
Clean water and sanitation (SDG 6)	Percentage of population using an improved drinking water source in rural areas	**94.57%**	**99.29%**
Reduced inequalities (SDG 10)	Percentage of budget allocated for welfare of SCs and STs	**2.86%**	**6.19%**
Sustainable cities and communities (SDG 11)	Percentage of wards with 100% door to door waste collection	**43%**	**97%**

Progress in other Goals

- **Health and Well-being (SDG 3)**
  - **Maternal Mortality Rati: Declined** from 130 per 1,00,000 live births in 2014-16 **to 97 per 1,00,000 live births in 2018-20.**
  - **Under-five mortality rate:** Declined from 43 per 1000 live births in 2015 **to 32 per 1000 live births in 2020.**

- **Quality Education (SDG 4)**
  - **Gross Enrolment Ratio in higher secondary education: Increased** from 48.32 in 2015-16 **to 57.60 in 2021-22.**

Concerns

- **SDG 5: Average wage gap between male and female casual labourers widened** to Rs 178 (2022-23), compared with Rs 96 (2017-18)
- **SDG 12: Amount of hazardous waste generated per capita increased** to 9.28 metric tonnes (2022-23) from 7.19 metric tonnes (2017-18).

5.9. ERRATA

Mains365 Environment 2024

- In **Article 7.6. Landslide Management an India at a Glance,** due to a typographical error India's Landscape Susceptibility to Landslides has been mentioned as 3.17% of India's geographical area. The correct information is that India's Landscape Susceptibility to Landslides, as per Indian Landslide Susceptibility Map (ILSM), is **13.17% of India's geographical area.**

6. SOCIAL ISSUES

6.1. EMERGING TECHNOLOGIES AND CONTEMPORARY SOCIETY

Why in the News?

Emerging technologies such as ICT, Artificial Intelligence, etc., are playing significant role in shaping and transforming various aspects of the contemporary society.

Positive impact of technology on society

- **Communication and Connectivity: Social Media** platforms such as Facebook have changed the way people communicate, share information, and build relationships.
- **Information Access**: Internet has **democratized access to information**.
- **Work and Employment**: **Remote work**, transformed traditional office dynamics, rise of **Gig economy**, etc.
- **Social Relationships**: Interest-based forums facilitate connections with like-minded individuals, support for long-distance relationships, online spaces for marginalized groups to find support and connection, etc.
- **Sexuality**: **Contraceptive and assisted reproductive technologies** have freed sexuality from the needs of reproduction and played an important role for individuals to explore their sexuality.
    - Internet has also provided a **platform for individuals to explore and express their sexual identity**, including those who identify as LGBTQIA+.
- **Entertainment**: Rise of **streaming platforms** has **changed how people consume entertainment**, moving away from traditional TV and movie-watching methods.
    - **Online gaming** has created vast virtual communities, allowing gamers to connect and collaborate globally.

Negative impact of technology on society

- **Digital Divide:** Disparities in access to information, technology, and opportunities have exacerbated existing social inequalities.
- **Social Isolation**: Prevalence of online communication and social media contributes to reduced face-to-face interaction, potentially leading to feelings of isolation and loneliness.
    - **New parenting challenges**, such as managing screen time and navigating online safety for children.
- **Job Displacement**: **AI and Automation** may lead to job displacement in certain sectors, creating socio-economic challenges for affected individuals and communities.
- **Addiction and Mental Health issues**: Excessive use of digital devices, social media, and online entertainment can contribute to addiction adversely affecting mental health.
    - Online environment facilitate **cyber-bullying**, leading to mental health issues among victims.
- **Loss of traditional skills**: Reliance on technology leads to a decline in certain skills, potentially affecting employment prospects and self-sufficiency.
- **Social comparison and image concerns**: Promotion of unrealistic standards, contributing to feelings of inadequacy, body image issues, and social comparison.
- **Polarization and intolerance**: **Algorithmic biases** over social media reinforce users' existing beliefs by showing content that aligns with their perspectives, through **'Filter Bubbles'** and **'Digital Echo-chambers'.**
    - **Deepfakes and manipulated media** can be used to spread false and misleading information, contributing to intolerance and discrimination.
- **Sexuality and relationships:** Virtual relationships, secretive communications, digital intimacy, etc., **encourage adultery to sabotage existing monogamous relationships**.

Conclusion

Embracing the positives, understanding the pitfalls, and steering with ethical mindfulness pave the path to a future where technology uplifts humanity with compassion and inclusivity.

6.1.1. TECHNOLOGY AND EDUCATION AT A GLANCE

Technology and Education

About :

- Technology has changed the way of learning, empowered educators to deliver immersive, personalized learning experiences, and also enhanced the accessibility.

Key Initiatives

- National Education Policy, 2020
- National Programme on Technology Enhanced Learning (NPTEL)
- **ICT based Initiatives** such as DIKSHA (Digital Infrastructure for Knowledge Sharing), SWAYAM (Study Webs of Active –Learning for Young Aspiring Minds), etc.
- **Integration of AI in Education** with the help of India AI Mission

Positive Impacts

- **Personalized Learning Opportunities:** Classes can take place entirely online via the use of a laptop or mobile device).
- **Improved Teacher productivity and efficiency** (E.g. Projector, smart whiteboards, etc.)
- **Accessibility**
  - Online education during COVID-19 pandemic
  - Covering remote areas E.g. Distance Education
  - Access to foreign Universities, content, etc.
  - Breaking caste and class barrier.
- **Other:** Improved resource management, etc.

Negative Impacts

- **Digital divide** and unequal access.
- **Inadequate communication and interpersonal skills** due to reduced social interaction and peer collaboration.
- **Reduced critical thinking and problem solving** due to constant use of technological aids such as translation tools, or search engines.
- **Distraction and reduced attention span.** E.g. Instant gratification offered by technology makes it harder to engage in deep, focused learning.

Way Forward (by National Digital Education Architecture)

- **Blended** approach with **online** and **experiential learning.**
- **Educational programmes** to be made available **24x7** in **different languages.**
- **Availability** of **affordable computing devices** to **eliminate digital divide.**
- **Reasonable limits on screen time** to prevent physical and mental health issues.

6.1.2. TECHNOLOGY AND SOCIALIZATION AT A GLANCE

Technology and Socialization

Socialization refers to the process through which individuals **acquire social behaviors, norms,** and values from various social agents such as families, schools, peers, and the mass media.

- The new pattern is also sometimes referred as **socio-virtualization," blending virtual interactions with traditional socialization agents".**

Positive Impacts

- Enhanced exposure to different cultures, races, **socioeconomic** backgrounds, and **religions.** e.g., Social Media.
  - This exposure has also helped in comparing, analyzing social norms and issues from different perspective.
- **Increased peer interaction** as new dominant factor of socialization especially in young age.
- **Gamification of social skills** such as conduct of polls, offering rewards for engaging with social posts, promoting marketing games, etc., enabled real-time learning.
- **Democratized medium** to express one-self to make intended social impact.

Negative Impacts

Accepting **norms** and **values** without much scrutiny especially children	**FOMO** (Fear of Missing Out) as people see highlights of other people's lives without context	**Digital 'Echo-Chambers'** and **'Filter bubbles'**	**Superficial relationships** marked by lack of depth and support in real-life

Conclusion

- The negative consequences of the **Socio-virtualization** can be managed by balancing digital interactions with **genuine, in-person social experiences, fostering deeper human connections**

6.1.3. TECHNOLOGY AND FAMILY AT A GLANCE

Technology and Family

In the recent time, technology has affected different aspects of the families ranging from interaction to parenting

Positive Impacts

- **Enhanced communication and virtual bonding.**
- **Work-life Balance** through emergence of Work from Home and Hybrid Work culture.
- **Increased social empowerment and community** building for female members.
- **Leisure time for Women:** Domestic chores can be finished efficiently with the help of advanced machines such as IoT based devices.

Negative Impacts

Diminished Quality Time: Family dinners, conversations, and outdoor activities may be neglected in favor of screen time.

Increased Generational Gap within family as older family members may find it harder to adapt to new technologies.

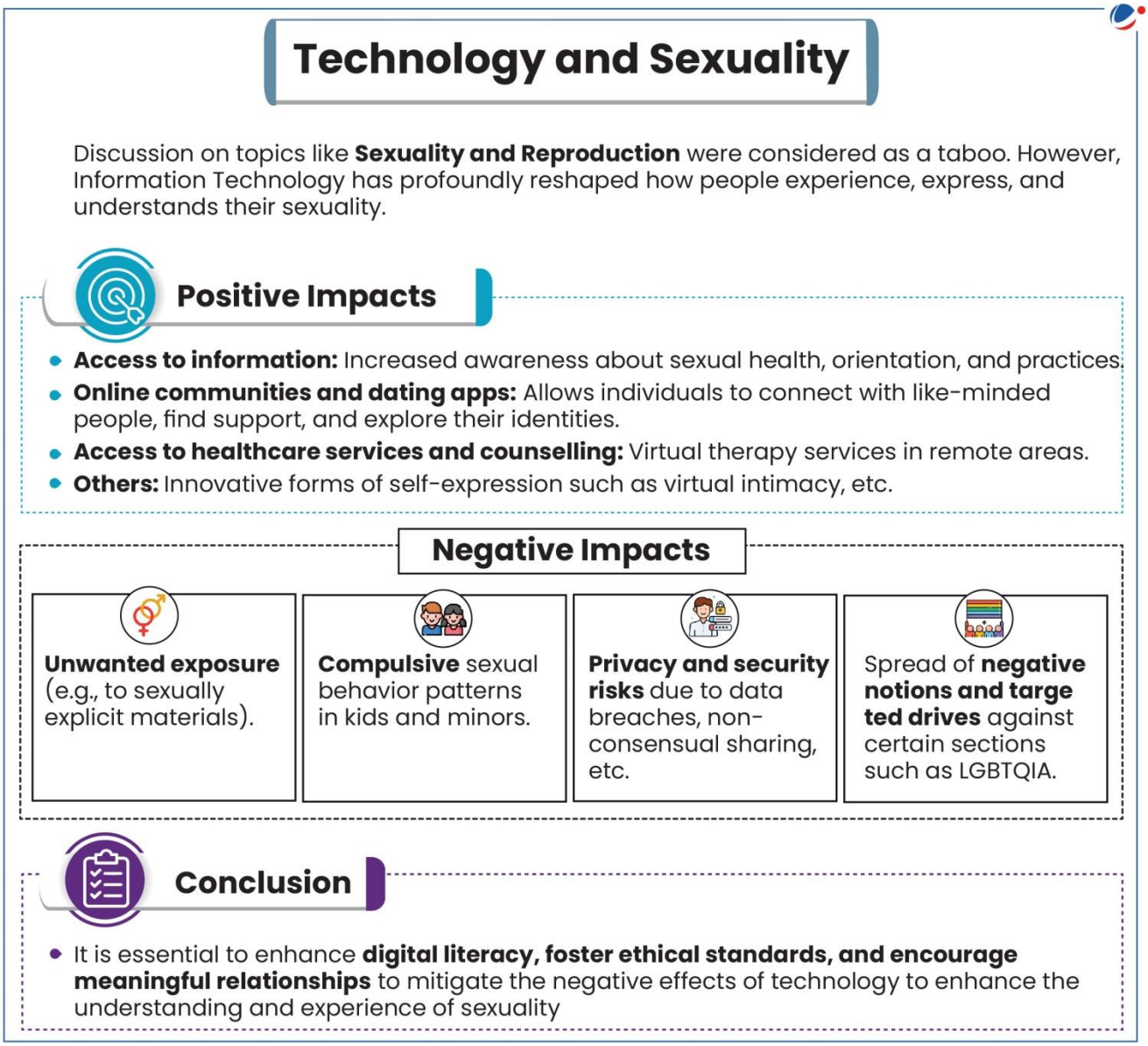
Weakened Parent-Child communication due to increased screen-time, '**digital babysitting**', '**technoference**', etc

Potential risks to privacy and security due to use of connected devices in homes (e.g., smart home systems).

Conclusion

- Striking a balance between leveraging technology's advantages and mitigating its potential harms is crucial for maintaining healthy family relationships

6.1.4. TECHNOLOGY AND SEXUALITY AT A GLANCE



6.2. NARI SHAKTI: FROM WOMEN'S DEVELOPMENT TO WOMEN-LED DEVELOPMENT

Why in the News?

Economic Survey 2023-24 highlights **India's transition from women's development to women-led development** with the vision of a new India where **women are equal partners in the story of growth and national progress.**

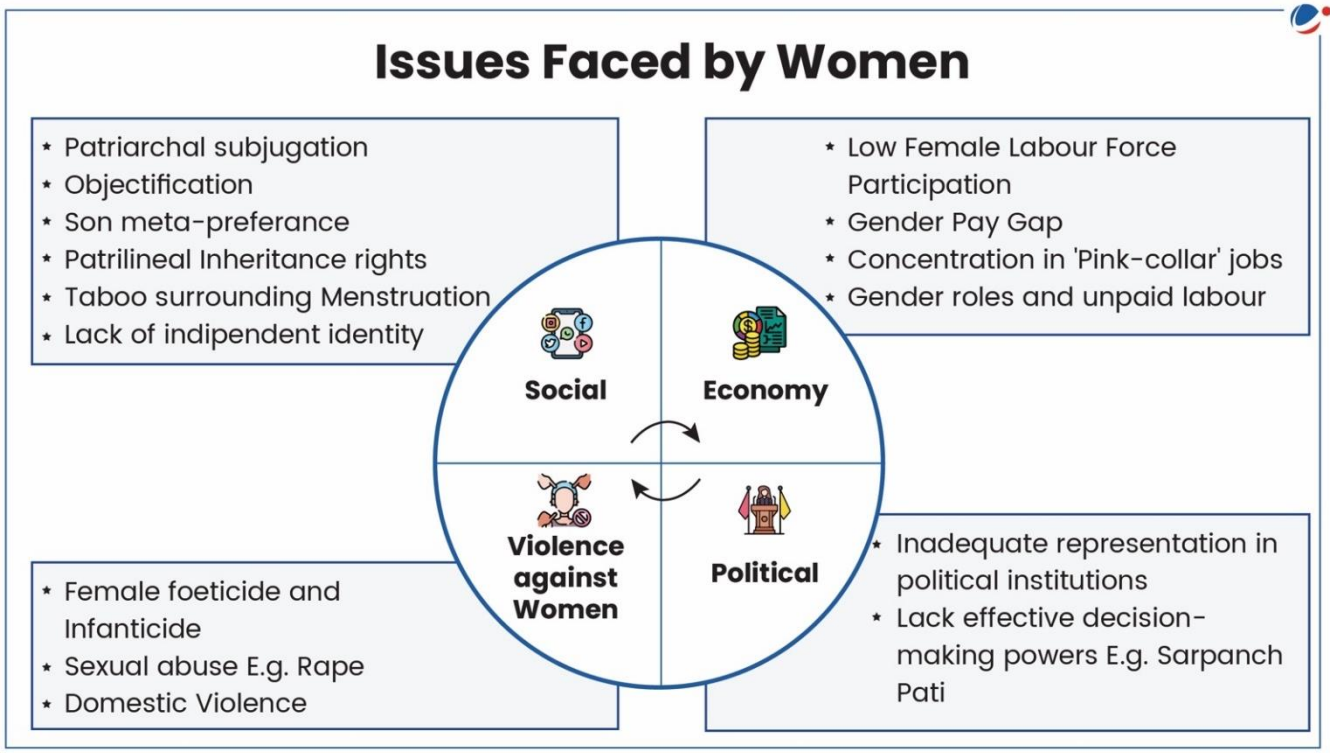
Women's Development vs. Women-led Development

Women's Development	Women-led Development
• Involves **programmes designed to help women**, without necessarily involving them in their planning, implementation, and evaluation.	• Marks a **paradigm shift** where women are seen not just as beneficiaries, but as **leaders, decision-makers, and innovators in the process of development**.

• **e.g.,** maternal health programs, girls' education projects, quotas for women in educational institutions, etc. • **Under this women are seen as passive recipients of development programs.** • **Top-down approach to decision-making** about women development **lacking women's adequate participation.**	• **e.g.**, enhanced women's representation in local governance, corporate leadership, etc. • Recognizes that **women often have unique insights into community needs** and can offer **innovative solutions based on their lived experiences.** • **Bottoms-up approach** to encourage **women's participation in decision-making. E.g., SHG movement.**

Significance of Women-led Development

- **Relevant and effective solutions**: Women's leadership can result in more contextually appropriate and effective development initiatives.
- **Gender equity:** Women in leadership positions can serve as role models and help shift societal norms about gender roles and capabilities.
- **Economic:** Advancing women's equality could lead to a **$28 trillion increase in global GDP,** with **India** potentially seeing a **$770 billion boost by 2025. (McKinsey)**
- **Sustainability:** Greater community buy-in and long-term commitment to sustainable initiatives.



Government initiatives towards Women-led Development

Dimensions	Initiatives taken
Social Empowerment	• **Healthcare:** Improved **Sex Ratio at Birth** from 918 (2014-15) to 930 (2023-24), increased Institutional delivery (incentivised by Janani Shishu Suraksha Karyakram), etc. • **Nutritional Security:** Saksham Anganwadi, Poshan 2.0 programme, etc. • **Basic Necessities:** Swachh Bharat Mission, PM Awas Yojana-Gramin, PM Ujjwala Yojana, Jal Jeevan Mission, etc.
Financial Empowerment	• **Financial Inclusion and Entrepreneurship:** Stand-Up India, PM MUDRA Yojana, Mahila Samman Savings Certificate, etc.

	• **Safety and Security:** Mission Shakti – Sambal, Sakhi Centres, etc. • **Education and skilling:** Sarva Shiksha Abhiyaan and RTE (2009), Women in Science and Engineering KIRAN (WISE KIRAN), Vigyan Jyoti Programme, etc.
Political Empowerment	• **Nari Shakti Vandan Abhiniyam (2023), 73rd and 74th Amendments** providing 1/3rd reservation for women in local bodies, etc.
Others	• **Permanent commission** granted to Women Officers in 12 Armed Forces, Women-led development was an **identified priority areas during India's G20 Presidency** in 2023, etc.

Conclusion

From addressing gender discrimination to promoting education, health, housing, entrepreneurship, and safety, these initiatives have brought about **tangible improvements in the lives of women**. Ultimately, women-led development in India is not just about women's empowerment—it's about unlocking the nation's full potential and creating a more equitable and prosperous society for all.

Phases of Women's Rights Movement in India

- **Phase - I (Social Reform Movements during freedom movement)**: During the **19th and 20th centuries** on specific issues such as sati, child marriage, improving access to education etc.
  - **Leadership**: Largely **middle-class educated men** E.g., **Raja Rammohan Roy.**
- **Phase – II (Freedom Struggle)**: Women accepted as political comrades in India's freedom struggle and given equal opportunities for participation.
- **Phase - III (Post-Independence): Focus on** women's liberation movement, legal and social equality of women.
  - **Peasant movements, tribal movements, student's movements**, etc., witnessed participation of women.
  - **Leadership: A new wave of autonomous women's movement with female leadership**. E.g. Eco-feminist **Chipko movement (1973), Self-Employed Women's Association (SEWA)**.
- **Phase - IV (During and after the International Decade for Women (Post 1970s)): It deconstructed the idea of "universal womanhood"** with the focus moving from communal objectives to **individual rights**.
  - **Proliferation of Women-led NGOs and organizations E.g.,** Stree Mukti Sanghatana in Maharashtra.
  - **Intersectionality:** refers to the **overlap of multiple forms of marginalization** E.g. Dalit women are marginalized due to both gender and caste.
- **Contemporary Women's Movement:** Widening its domain and getting involved with issues related to environment, population, child rights, globalization, marketization, etc.
  - Focus on issues like **sexual harassment**, **body shaming**, and **rape** through newer means like the internet. **E.g.**, #MeToo Movement, Nirbhaya case, etc.

6.3. MARKET SOCIETY

Why in the News?

Economic Survey 2023-24 posited that the principal reason for India's inherent ability to be resilient to economic, social, and historical challenges is that **India wants to become an efficient Market Economy, but not a Market Society**.

About Market Society

- **Market society** is a broader concept, where **market values and mechanisms are applied to non-economic areas** of life.
  - **e.g., Commercialization of healthcare services where** access to healthcare is largely determined by one's ability to pay leading to inequalities in healthcare outcomes.
- **Important features of Market Society**
  - **Commodification** of goods, services, ideas, and even relationships.

- **Consumerism marked by linking** acquisition of goods and services to identity and status.
- **Individualism marked by emphasis on individual well-being over collective well-being.**
- **Infiltration of market logic into morality such as value judgments shaped by cost-benefits analysis.**

Market Economy vs. Market Society

	Market Economy	Market Society
Focus	Economic transactions, efficiency and effectiveness	Market principles applied to all aspects of life
Role of Government	Minimal (to correct market failures)	Markets shape policy, social norms, and governance
What's for sale?	Goods and Services	Virtually everything (healthcare, personal data, etc.)
Impact on society	Can promote innovation, efficiency, accountability, etc.	Can erode social values and widen inequality.

Features defying India as a Market Society

- **Joint Family system:** It prioritizes shared responsibilities over individual economic pursuits and also acts as a social safety net, reducing reliance on market-driven services.
- **Limited commodification of intangible assets:** e.g., Marriages are typically guided by cultural and familial factors rather than purely economic considerations.
- **Traditional occupations**: Some communities in India still practice traditional occupations passed down through generations, driven by cultural and social obligations.
- **Social Taboos around Materialism:** Overt materialism is often frowned upon, and there is a cultural emphasis on modesty, charity, and spiritual wealth.
- **Role of Government:** Major role in providing essential services and public goods such as Right to Education, Right to Employment under MGNREGA, Right to Food under NFSA, etc.

Instances indicating shift towards Market Society in India

- **Commodification of Education and Healthcare:** Growth of private schools, colleges, healthcare facilities, etc.
- **Consumerism:** Increasing association of social status and success with wealth and consumption of goods and services.
- **Market in social relationships:** e.g., marriages in some sections of society are increasingly becoming transactional, where dowries, family wealth, and social status influence match-making.
  - **Platforms like Instagram and Facebook have commodified personal relationships**, where attention, likes, and followers have become forms of social capital.
- **Commercialization of environment**: Emergence of carbon trading markets, promotion of eco-tourism, etc.
- **Marketization of governance:** Corporate lobbying for favorable public policies, allegations of crony-capitalism, commodification of public services through PPP, etc.
- **Technological determinism:** e-Commerce platforms driving consumerism, algorithmic control on job assignments, pay rates, and working hours in gig economy, etc.

Conclusion

While market mechanisms can drive economic growth and innovation, unchecked market dominance can lead to inequality, exploitation, the erosion of public goods, and the weakening of democratic and ethical values. Balancing market forces with social responsibility, government intervention, and ethical considerations is crucial to mitigating these risks.

7. SCIENCE & TECHNOLOGY

7.1. IT, COMPUTER, ROBOTICS

7.1.1. FACIAL RECOGNITION TECHNOLOGY

Why in the news?

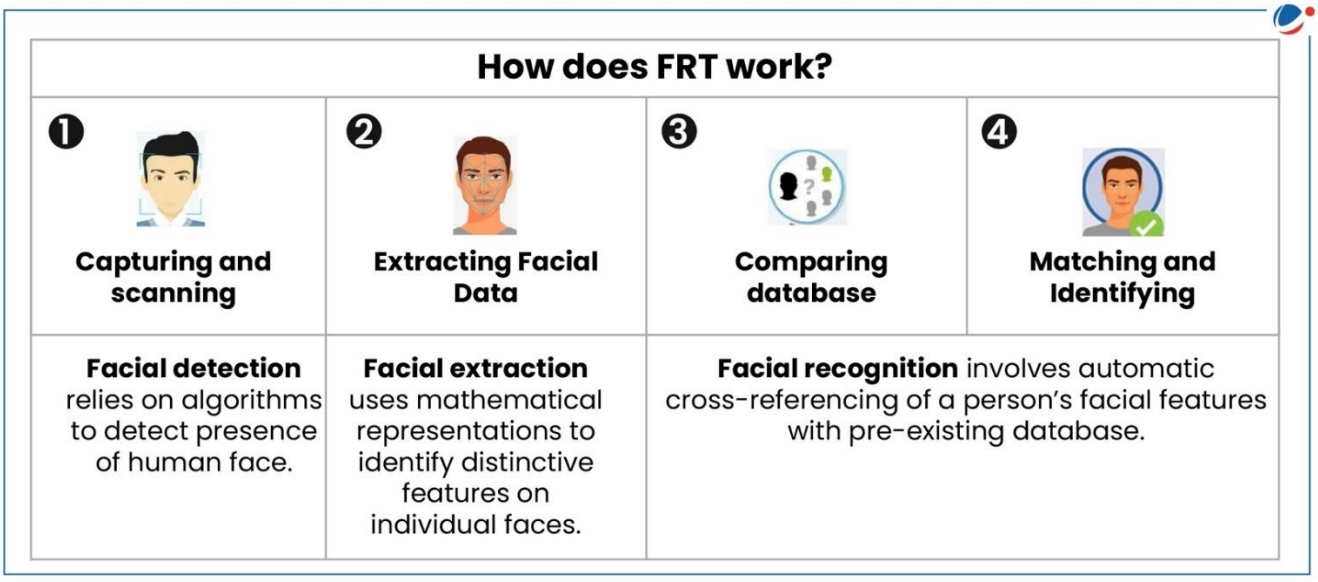
NITI Aayog released 'White Paper: Responsible AI for All (RAI) on Facial Recognition Technology (FRT)'.

More about the News

- The paper examines FRT as the first use case under **NITI Aayog's RAI principles** and aims to establish a framework for responsible and safe development and deployment of FRT within India.
- Report '**Responsible AI for All**' was released by NITI Aayog in 2021. It identified broad principles for responsible management of AI.
  - It includes principles such as **Safety** and **Reliability**, **Equality**, **Inclusivity** and **Non-discrimination**, **Privacy** and **security** etc.

About FRT

- An AI system which allows **identification or verification of a person based on certain images or video data** using complex algorithms.



Applications and use-cases of FRT

- **Security related Uses**
  - **Law and order enforcement**:
    - ✓ **Identification of Missing Persons and Persons of Interest**, including suspected criminals**.**
      - **E.g., Telangana's 'Darpan'** for matching photos and identifying missing children.
    - ✓ **Monitoring and surveillance. E.g., China's Skynet Project.**
    - ✓ **Immigration and border management**. E.g., **Canada's 'Faces on the Move'**
  - **Crowd Control**: E.g., Pan Tilt and Zoom Surveillance Cameras used in Prayagraj, Uttar Pradesh.
- **Non-Security related Uses**
  - **Verification and authentication** of individual identity **E.g., Using Aadhar Card for Authentication based on Facial Recognition.**
  - **Ease of access to services.** E.g., contactless onboarding **at airports through Digi Yatra**.

- **Ease in usability** such as **unique IDs in educational institutions**, etc. E.g., **Central Board for Secondary Education's 'Face Matching Technology Educational'**

What are the risks associated with FRT systems?

- **Inaccuracies: FRT systems may lead to** misidentification due to inaccuracies resulting from **Automation bias and underrepresentation in databases** etc.
- **Concerns regarding Accountability, legal liability and grievance redressal**: Due to complexity in computational algorithms.
- **Rights-based issues:** May violate these rights due to **Purpose creep (**Use of personal data in contrary to or in addition to its stated purpose), etc.

Way Forward: Recommendations of NITI Aayog

- Establish **data protection regime** fulfilling a **three-pronged test** of **legality, reasonability and proportionality** set by the SC in the **Puttaswamy judgement**.
  - **E**.g., **Digital Personal Data Protection (DPDP) Act 2023**
- **Holistic governance framework to s**et out **extent of liability** arising from any harms/damages caused by the use of an FRT system.
- **Adopting Privacy by design (PBD) principles** such as collection of user's explicit consent.
- Constitute **ethical committee** to assess ethical implications and oversee mitigation measures.

7.1.2. SUPERCOMPUTERS

Why in the News?

Researchers from the **IIT Bombay** and **C-MET, Pune** have developed ceramic based cold plates that could replace copper cold plates used to cool supercomputers.

More about News

- High-Performance Computing systems (HPCs) or supercomputers resort to **cooling using liquid coolants** and **cold plates** that dissipate heat.
  - Cold plates are used like a **heat sink** transferring heat from circuit components into the coolant liquid and **copper is presently the preferred material**.
- **Use of LTCC for cold plates**
  - LTCC is a technology used to manufacture **ceramic substrates for circuits**.
  - LTCC can **effectively cool microprocessor chips** in supercomputers.

What is a supercomputer?

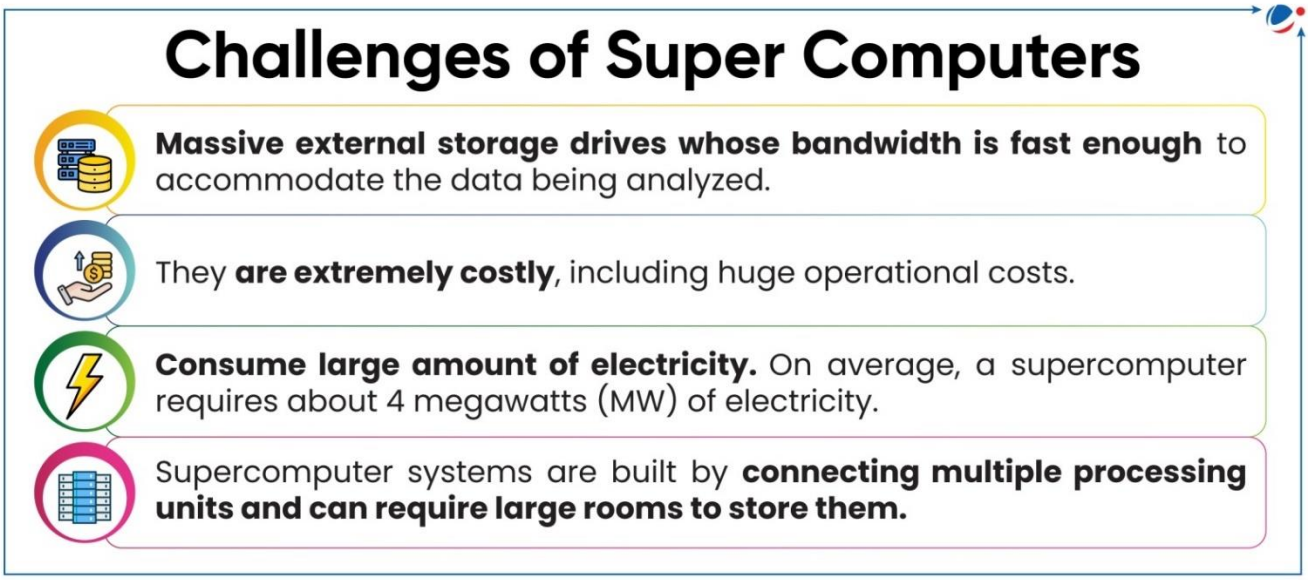
- A **high-performance computing system** that delivers exceptional processing power and computational capacity compared to a general-purpose computer.
- Performance is measured in **floating-point operations per second (FLOPS)**.
- Perform **billions and trillions of calculations** or **computations per second**.
  - Since information moves quickly between processors in a supercomputer (compared to distributed computing systems) they are **ideal for real-time applications**.
- **India and Super computers**
  - **Indigenous development of supercomputers began in 1980**, with the involvement of organisations such as BARC, C-DAC etc.
  - There are **four** supercomputers in the Top 500 list, namely, **AIRAWAT** (India's largest and fastest AI supercomputing system)**, PARAM Siddhi-AI, Pratyush** and **Mihir.**

National Supercomputing Mission (NSM), 2015

- **Objectives:** To make **India one of the world leaders in Supercomputing**
- **Implemented by**: Centre for Development of Advanced Computing (C-DAC); Indian Institute of Science (IISc), Bangalore.
- **National Knowledge Network (NKN)**: These supercomputers will be networked on the National Supercomputing grid over the NKN.

Applications of Supercomputers

- **Cutting edge research**: **Data-intensive** and **computation-heavy scientific** and **engineering purposes** such as quantum mechanics, weather forecasting, etc.
- **Aerospace and Engineering**: Used for detailed simulations in real time, processing complex algorithms and Big Data from sensors.
- **Weather forecasting**: For example, 'Pratyush' Supercomputer housed at Indian Institute of Tropical Meteorology (IITM), Pune helps in weather and climate forecasts.
- **Energy Exploration**: Detects and accelerate deeper geological insights; hence improve the exploration and production processes.
- **Health and medicine**: Employed to look through databases of existing drug compounds.
- **Defence and military**: Used in nuclear weapons design and cryptograph. It helps to simulate complex weapons systems.



Conclusion

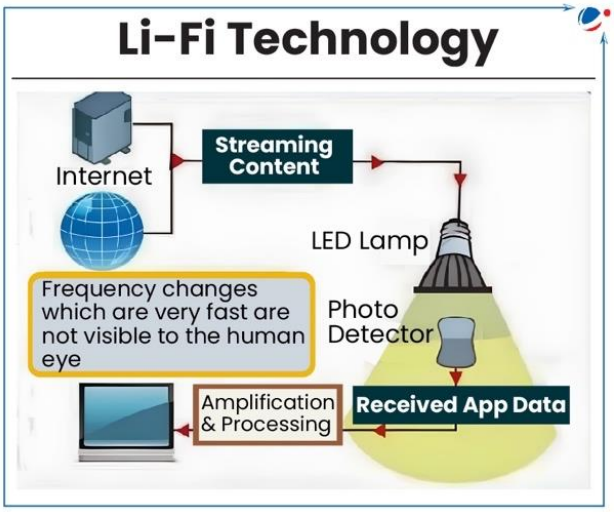
Countries around the world, including India, have been ramping up supercomputing capabilities over the past few years. For India to become a knowledge-driven, multi-trillion-dollar economy, which is able to support cutting-edge science to benefit its economy, its society and the businesses, investment in supercomputing is a necessity.

7.1.3. LI-FI TECHNOLOGY

Why in the News?

Ministry of Defence (MoD) funded a start-up under the **Innovations for Defence Excellence (iDEX)** to secure Li-Fi technology for the Indian Defence sector, particularly focusing on the Navy.

About Li-Fi (Light Fidelity) Technology



- A **bidirectional** wireless system that uses **visible light** (400-800 Terahertz) for communication, unlike **Wi-Fi which** uses **radio waves.**
  - Transmits data with the help of **Light Emitting Diode (LED)**.
- **Working:**
  - On/off activity of **the LED transmitter** enables data transmission in accordance with the **incoming binary codes** (switching ON is a logical '1', switching it OFF is a logical '0').
- **Applications:**
  - **Medical Applications**: In Operation theater, facilitating robotic surgery, etc.
  - **Aircrafts**: The passengers travelling in aircrafts get access to low speed Internet that too at a very high price.
  - **Underwater applications**: For the operation of underwater ROVs (**Remotely Operated Vehicles**)
  - **Other:** Disaster management, Traffic management, etc.

Advantage of Li-Fi over Wi-Fi

- **Faster:** Combination of low interference, high bandwidths provide high data rate.
- **Cheaper and sustainable:** It is up to 10 times cheaper than Wi-Fi, requires fewer components and uses less energy.
- **Secure:** Since light does not pass through walls like radio waves do, it prevents interception.

Disadvantages

- **Much shorter range** than Wi-Fi
- **Can't be accessed** beyond the **illumination range** of light, etc.

7.1.4. DATA CENTRES

Why in the News?

The report "The strategic role of data centres in empowering India's digital revolution" released by ASSOCHAM and PwC, highlights role of **Data Centres in advancing India's digital landscape.**

About Data Centre & their Significance

- Data Centre is a **dedicated secure space** where computing and networking equipment is concentrated for the purpose of collecting, storing, processing, distributing or allowing access to large amounts of data.
- **Significance**
  - **Key enablers to the digital revolution in India**, transforming Government services, enabling remote work and education and Fostering start-up innovation.
    - Indians will consume the most data in the world by 2028, ahead of developed markets such as the US.
  - Integration of emerging technologies such AI, IoT etc. into different services.
  - Facilitating **data localisation** by enhancing storage facility.

Key Challenges

- Data centre are **mainly concentrated** in cities like Mumbai, Chennai, etc.
- **Complex regulatory frameworks** including land acquisition, environmental clearances etc.
- **High operational expenses** due to high power consumption, infrastructure maintenance etc.

Key Recommendations

- **Regulatory Compliance:** It can be done through Practices like audit trails, data governance, etc.
- **Increased investment in R&D**: Developing efficient technologies to reduce power consumption.
- **Other**: Create a data centre ecosystem in Tier 2 cities, etc.

Initiatives taken to promote Data Centre Ecosystem

- **Digital India (2015):** Provides for enhanced online infrastructure and internet connectivity.
- **Draft Data Centre Policy (2020):** Seeks to promote domestic manufacturing of data centre-related products.
- **Other:**
  - **National Informatics Centre (NIC)** has set up state-of-the-art National Data Centres
  - Government has accorded infrastructure status to data centres (with more than 5 MW capacity of IT load)
  - State's policies like Maharashtra's IT and ITES Policy 2023 offers benefits to the data centre industry.
  - India's first hyperscale data centre **'Yotta D1'** has been set up in Greater Noida, Uttar Pradesh.

7.2. AWARENESS IN THE FIELD OF SPACE

7.2.1. NAVIGATION BY INDIAN CONSTELLATION (NAVIC)

Why in the News?

Defence Research and Development Organisation (DRDO) has commissioned a Bengaluru-based firm to indigenously develop a receiver chip for NavIC.

About NavIC

- NavIC, earlier known as **Indian Regional Navigation Satellite System (IRNSS),** is designed with **constellation of seven satellites**.
  - **Three satellites** are **placed in geostationary orbit** and **four satellites** are placed in **inclined geosynchronous orbit.**
- **NavIC offers two services** - **Standard Position Service (SPS)** for civilian users and **Restricted Service (RS)** for strategic users.

Need of Indigenous Navigation Satellite System

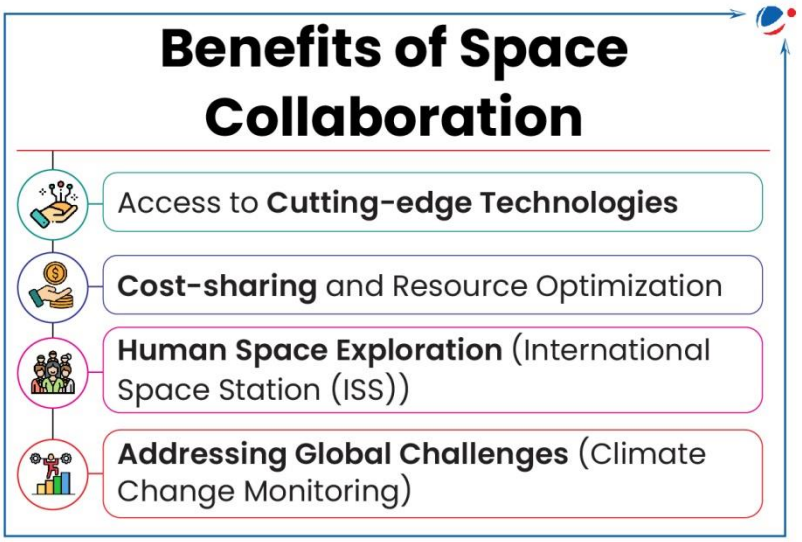
- **National Security:** GPS and GLONASS are operated by defence agencies of the respective nations. It is possible that the civilian service can be degraded or denied.
- **Self-reliant**: NavIC does not depend on other systems for providing position service within the service region.
- **Accuracy**: NavIC signals will be accurate up to 5 metres and restricted signals will be even more accurate.
  - GPS signals by contrast are accurate up to around 20 metres.
- **Wider Applications**: Includes sphere like Terrestrial, Aerial and Marine Navigation; Disaster Management; Precise Timing; Scientific research; etc.
- **Other**: Helping neighbouring countries, etc.

Navigation System Around World

- There are **four global satellite-based navigation systems** — US's **Global Positioning System** (GPS); Russian **GLONASS (GLObalnaya NAvigatsionnaya Sputnikovaya Sistema),** European **Galileo**, and Chinese **Beidou**.
- **Japan's Quasi-Zenith Satellite System** is a regional navigation system.

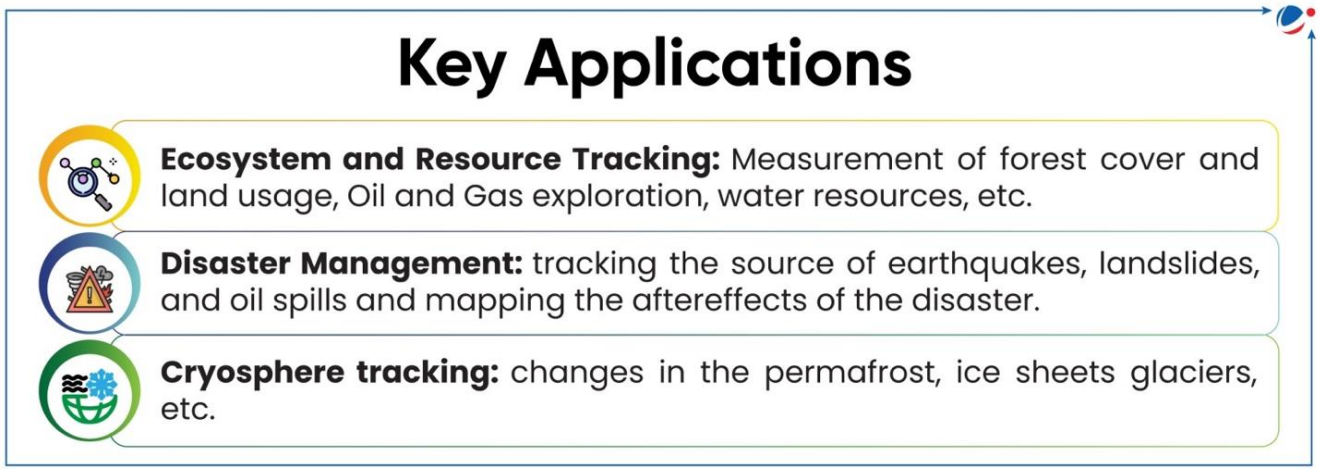
7.2.2. NASA-ISRO SYNTHETIC APERTURE RADAR (NISAR) SATELLITE

ISRO chief said that NISAR satellite will be able to monitor tectonic movements accurately.



About NISAR

- It is a **Low Earth Orbit (LEO)** observatory being **jointly** developed by **NASA** and **ISRO**.
  - It is one of the **Space Collaboration** of ISRO with other space agencies.
    - ✓ Other important space collaboration includes MEGHA-TROPIQUES (Indo-French joint satellite mission), etc.
- NISAR will **map** the **entire globe in 12 days** and provide **consistent data** for understanding **changes** in **Earth's ecosystems**, **ice mass**, etc.
- It **2,800 kilograms satellite** consists of both **L-band and S-band synthetic aperture radar (SAR)** instruments, which makes it a **dual-frequency imaging radar satellite**.
  - **L band** radars operate on a **wavelength of 15-30 cm**, used for **clear air turbulence studies**.
  - **S-band** radars operate on a **wavelength of 8-15 cm** useful for **weather observation.**
- It has a **39-foot gold mesh antenna** reflector that focuses radar signals from the upward-facing instrument.
- **Significance of NISAR**
  - Large imaging area **(>240km)** allows full earth **imaging in 12 days.**
  - **High precision** and **resolution** (<1cm) due to **dual-band radars.**
  - Monitors **Indian coasts, Antarctica**, and deltaic region **bathymetry** changes.
  - Observe **ecosystem disturbances**, ice sheet collapses, and natural hazards.



7.2.3. GLOBAL PLANETARY DEFENSE

Why in the News?

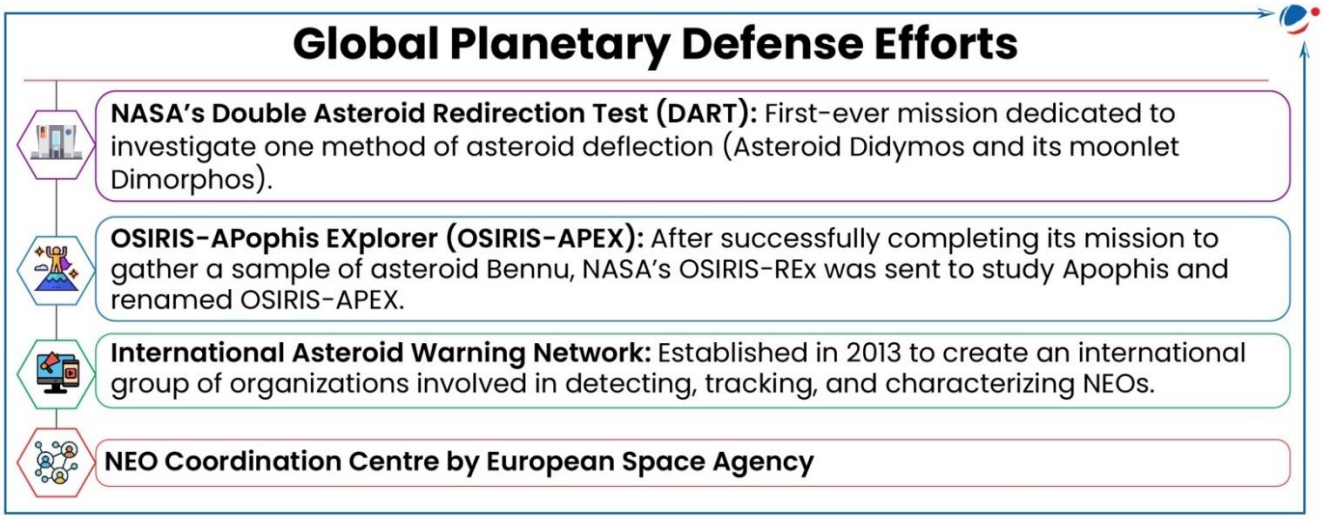
During the occasion of Asteroid Day 2024, ISRO Chairperson said that ISRO is looking to study **asteroid Apophis** when it is **32,000 km away from Earth in 2029** to prepare for planetary defense efforts.

About Asteroid Apophis

- A **near-Earth object (NEO)** and was identified as one of the most hazardous asteroids that could impact Earth.
  - There are billions of comets and asteroids in our solar system. The vast majority never approach Earth. When a **comet or asteroid's orbit brings it close to Earth, it is classified NEO**.
- However, a radar observation campaign in March 2021, combined with precise orbit analysis, allowed astronomers to conclude that there is **no risk of Apophis impacting our planet for at least a century**.

Planetary Defense

- Refers to **efforts and strategies aimed at protecting Earth from potential impacts by NEOs** such as asteroids and comets.
  - It involves **multiple strategies** including detection, tracking, impact assessment, deflection, etc.
- **Need of Planetary Defense**
  - If **NEOs path intersects with that of Earth's orbit,** then depending on their size, speed, angle and impact region, could threaten billions of lives on impact and in the ensuing tsunamis, earthquakes and fires.



7.3. HEALTH

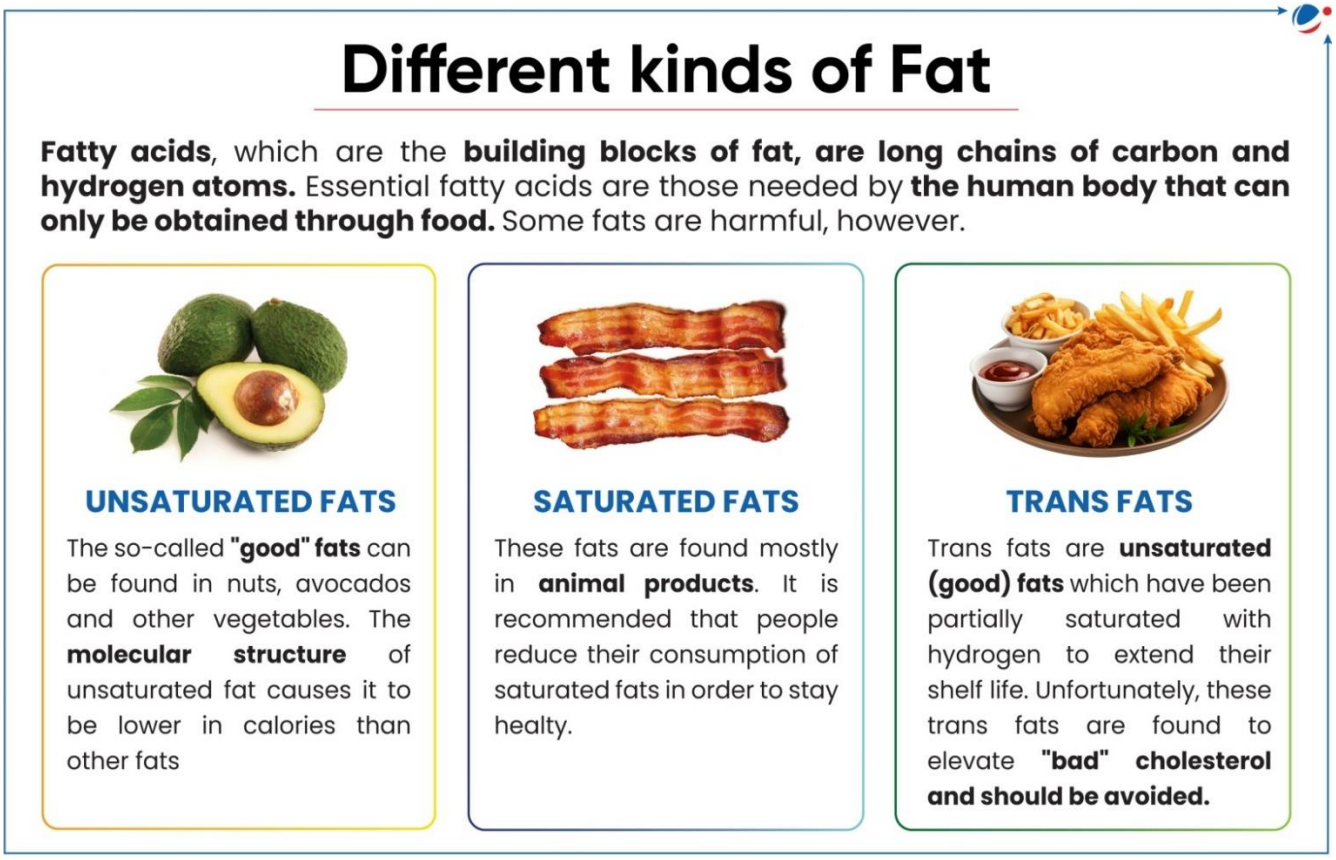
7.3.1. TRANS-FAT ELIMINATION

Why in the News?

World Health Organisation (WHO) has published the **fifth milestone report** on **progress** towards **global trans-fat** elimination, covering the period from 2018–2023.

Key Finding of the report

- A total of **53 countries had best practices and policies in place** for tackling industrial trans-fat in food (As of 2023).
- These policies have vastly improved the food environment for 3.7 billion people, or **46% (it was only 6% in 2018) of the world's population.**
- Report also highlighted that **WHO's ambitious target** to fully eliminate trans-fat from the global food supply by the end of 2023 has **not been fully met.**



About Trans-fat (or Trans-fatty acids (TFA))

- **Types**:
  - **Natural:** Also called ruminant trans fats, as they are present in small quantities in meat and dairy products. These are not generally considered harmful.
  - **Artificial:** Also called **industrial produced trans fat** as they are formed in an industrial process that adds **hydrogen** to **vegetable oil**, converting the liquid into a solid and resulting in partially hydrogenated oil (PHO).
    - ✓ On average, **trans fat concentrations in PHO is 25–45%.**
- **Health Impacts**:
  - **Raises the level of the bad cholesterol** and **lowers the good cholesterol**.
    - ✓ Bad cholesterol can **build up in the walls of arteries, making them hard and narrow,** it increases the risk of heart attack or stroke.
  - Also, it is **linked** to **inflammation, overweight/obesity, high blood pressure, diabetes and some types of cancers.**

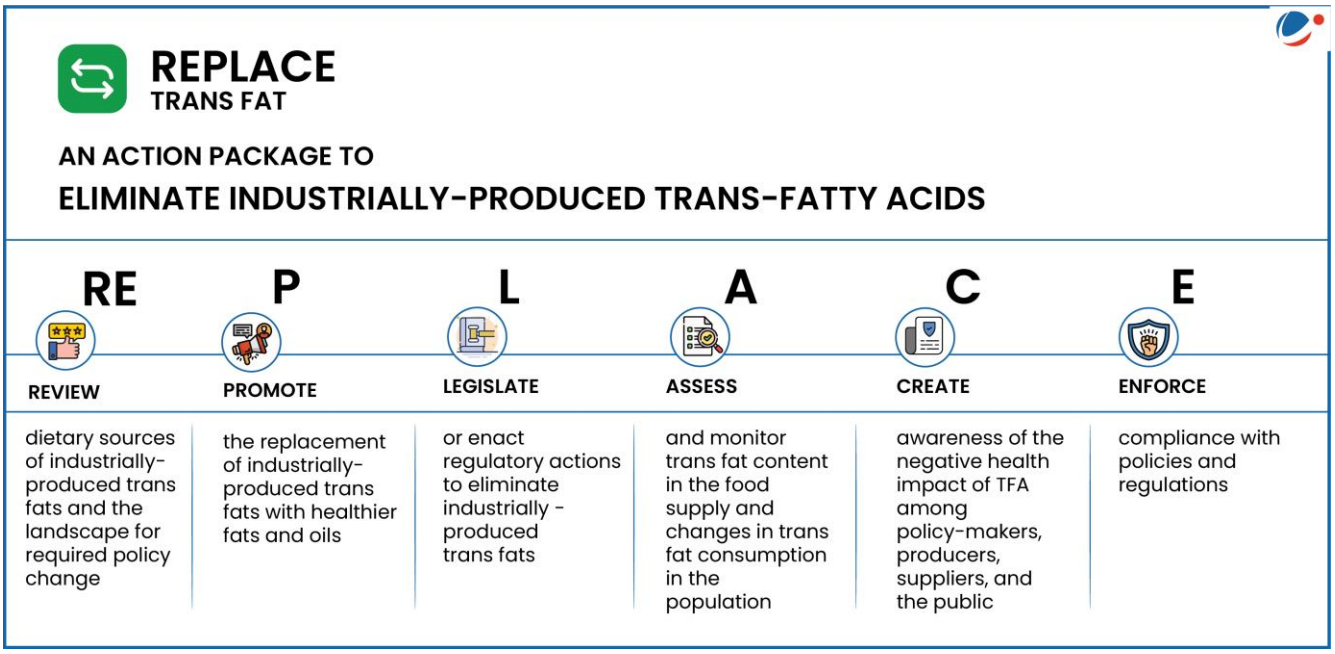
Steps taken to regulate Trans fat

India

- Initiative taken by the **Food Safety and Standards Authority of India (FSSAI)**
  - **Trans fat free logo – Voluntary labeling to promote TFA-free products**
  - **Heart Attack Rewind** – Mass media campaign to eliminate industrially produced trans fats
  - **Eat Right India Movement**
  - In 2021, the amount of TFA in oils and fats was capped at 3% for 2021 and 2% by 2022
- **Revised Dietary guidelines** by the Indian Council of Medical Research (National Institute of Nutrition)

Global

- **REPLACE action framework by WHO (2018)**
  - WHO also calls for best-practice policies in countries that together account for at least 90% of the total global TFA burden and at least 70% of the total TFA burden within each region by the end of 2025.
- **WHO Validation Programme** for Trans Fat Elimination to further drive policy progress.



Challenges in Eliminating Trans fat

- **High demand in Food Industry**: Extensively used in the food industry due to their **long shelf life** and desirable texture they impart to food products.
  - Also, are cheaper in comparison to other alternatives.
- **Poor enforcement of policies**: Many countries have not yet adopted a best-practices elimination policy.
- **Consumer preferences:** Growing inclination towards processed food is a looming challenge towards governments as well as health regulators.

Conclusion

All countries shall **enact best practice policies**, especially those with the highest estimated remaining burden of disease attributable to trans fat intake. Sub-regional bodies must pass **mandatory trans fat elimination policies.**

7.3.2. NEGLECTED TROPICAL DISEASES (NTDS)

Why in the News?

World Health Organization has recently published report titled **Global report on Neglected Tropical Diseases 2024.**

More about the Report

- Report offers an update on the advancements achieved in 2023 towards the implementation of the **Road map for neglected tropical diseases 2021–2030.**

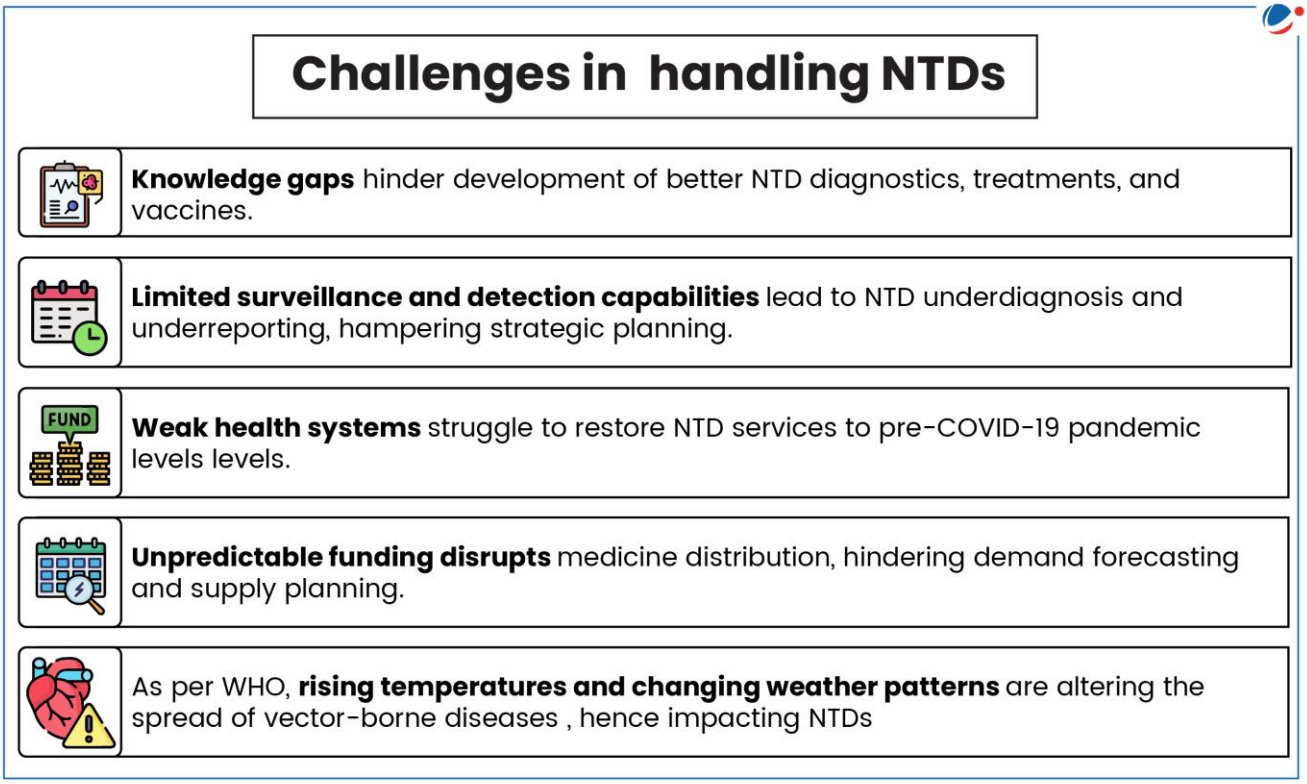
Neglected Tropical Diseases (NTDs)

- A diverse group of **conditions** mainly prevalent in tropical areas.
- Caused by a variety of pathogens including **viruses, bacteria, parasites, fungi** and **toxins**.

- Referred as **Neglected** because they are almost absent from the global health agenda.
- **India** has high **burden of NTDs** such as hookworm, dengue, lymphatic filariasis, leprosy, etc.
  - **About 40%** of people require interventions in India, which is **highest in the world.**
  - **WHO certified India as free of Guinea Worm disease (2000) and Yaws (2016).**

Why eliminating NTDs is important?

- **Affecting large Population:** Impact over 1 billion people globally, with 1.6 billion needing preventive or curative interventions. (WHO)
  - 80% of the NTD's burden concentrated in low- and middle-income countries.
- **Socio-economic Impact:** Eliminating NTDs by 2030 would save affected individuals over **$342 billion in healthcare costs and productivity losses.** (WHO)
- **Affecting Gender Equality:** E.g. Female genital schistosomiasis affects an estimated 56 million women, increasing HIV risk and causing organ damage.



Steps Taken

- **Global**
  - **Global NTD Annual Reporting Form (GNARF):** Introduced by WHO in 2023.
  - **Global vector control response 2017–2030 (GVCR):** Provides a new strategy to strengthen vector control worldwide through increased capacity, improved surveillance, etc.
  - **Others: Kigali declaration on NTDs** (2022); etc.
- **India**
  - **National Vector Borne Diseases Control Programme (NVBDCP):** For prevention and control of vector borne diseases namely Malaria, Japanese Encephalitis, Dengue, etc.
  - **Others: Vector-control measures s**uch as **Indoor Residual Spraying rounds; Wage compensation schemes by** State and central governments to Kala-Azar patients, etc.

Conclusion

NTD's can be tackled by Repositioning them within the global health agenda by building links with other **global programmes** (e.g. health emergencies), crosscutting approaches (e.g. **One Health**), and emerging global priorities (e.g. climate change).

7.4. MISCELLANEOUS

7.4.1. GEO-SPATIAL TECHNOLOGY

Why in the News?

Union Minister of State for Agriculture launched **Krishi-Decision Support System (Krishi-DSS).**

About Krishi-DSS

- Krishi-DSS is a **geo-spatial technology** based **platform** to provide **real-time information on crop conditions, weather patterns, water resources**, and **soil health**.
- It has been developed by **Union Ministry of Agriculture and Farmers Welfare** and **Department of Space** using **RISAT-1A** and **Visualization of Earth observation Data and Archival System (VEDAS)** of the space department.

About Geo-spatial Technology

- Geospatial technology helps in collecting **geographically referenced data** and uses it for analysis, modelling, simulation, and visualisation.
- Some of the most common geospatial technologies include:
  - Remote Sensing (E.g. Aerial Photographs)
  - Geographic Information Systems (GIS)
  - Navigation systems (E.g. Global Positioning System (GPS))

Key Applications	
Sector	**Applications**
Agriculture	• Enabling precision farming techniques. • **E.g.** Used in Pradhan Mantri Fasal Bima Yojana for various activities like qualitative crop loss and health assessment.
Natural Resource Management	• **E.g. India-WRIS Web GIS** provides all water resources & related data and information
Infrastructure	• Predict possible service disruptions and optimize maintenance. • **E.g. Gati shakti-National Master Plan**
Planning	• **E.g. Smart Cities Mission** utilizes GIS datasets to build smart infrastructure.
Energy	• Utilities providers can analyse and optimize performance of power lines. • **E.g. NITI Aayog in collaboration with the ISRO** has developed GIS enabled **Energy Map** of India
Health	• **Building Disease surveillance systems** for monitoring disease outbreaks, facilitating contract tracing, and evaluating the efficacy of interventions.
National security	• Enhances the precision and reliability of **intelligence**, **surveillance**, and **reconnaissance** activities.

Measures taken to promote geospatial capabilities in India

- **National Geospatial Policy, 2022:** Released by **Department** of **Science And Technology**
- **Developing Indigenous Navigation System:** E.g. NavIC

- **Development of Policy Framework to regulate Geographic Information:** E.g. National map policy (2005) **Convergence with Government Schems: E.g. Gram Manchitra** and **SVAMITVA scheme** by Ministry of Panchayati Raj
- **Other:**
  - **Bharatmaps** by **National Informatics Centre (NIC)**
  - **Earth Observation Satellites** (E.g. EOS-08' launched by the Small Satellite Launch Vehicle (SSLV)-D3)

Challenges in adopting Geo-spatial Technologies

- **Limited Expertise:** Lack of **technical expertise and capacity**
- **Data Reliability:** Accurate & **up-to-date geospatial data**, including land records, etc. are not available.
- **Cost Barrier:** Acquiring geospatial technologies, software, internet, etc. creates an additional financial burden.
- **Other**: Lack of Continuously Operating Reference Stations (CORS) Network, etc.

Conclusion

Geo-spatial technologies will play role in development of the nation. Implementation of National Geospatial Policy 2022 in letter and spirit will promote Geo-spatial Technologies ecosystem in country.

Related News

National Pest Surveillance System (NPSS)

- NPSS will provide regular **correct pest management advisories** and will promote Integrated Pest Management.
  - It is under **Directorate of Plant Protection, Quarantine & Storage** (Ministry of Agriculture & Farmers' Welfare (MoA&FW)).
- It will **automate and speed up process** of regular and systematic wide-area **pest surveillance** with use of AI ad other technologies.
  - Pest attacks causes **losses up to 20% in food production**.

7.4.1.1. LIDAR

Why in the News?

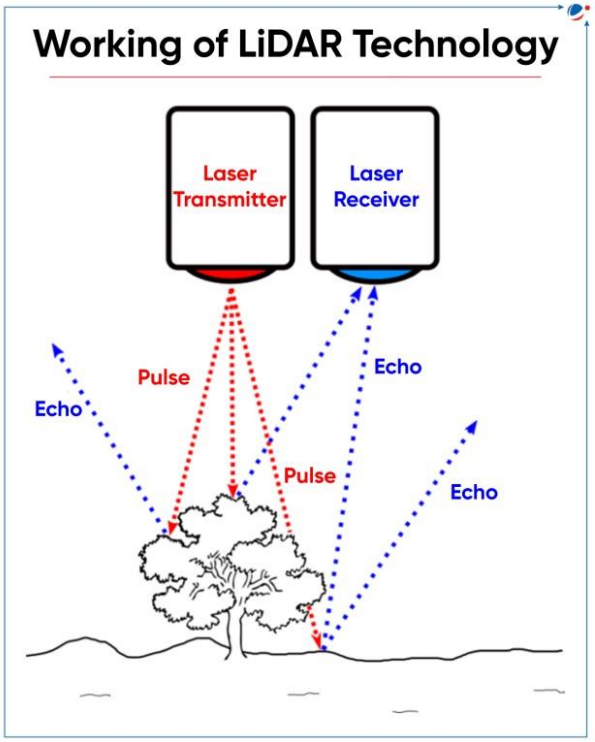
China's dominance in LiDAR raises national security concerns around the world.

About LiDAR

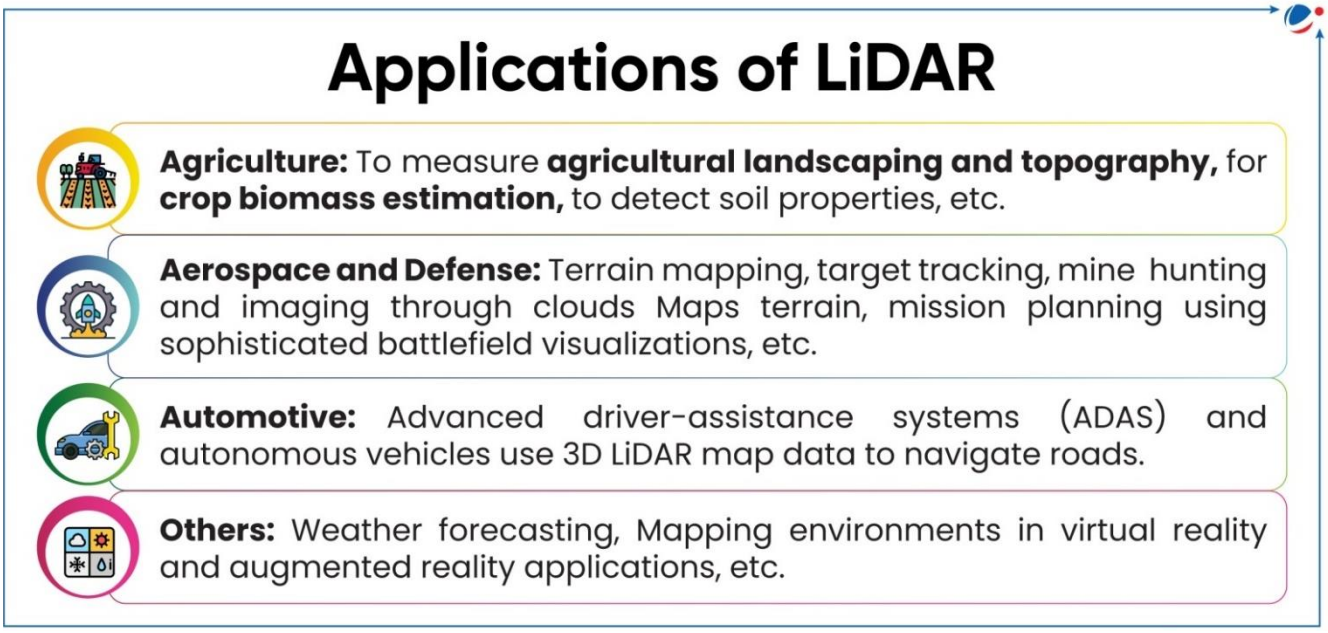
- **LiDAR** is a **dual-use optical remote sensing technology** that uses **light in the form of a pulsed laser** to measure distances and maps the surrounding environment.
- **Types of LiDAR**
  - **Topographic:** Typically uses a near-infrared laser to map the land
  - **Bathymetric:** Water-penetrating green light to also measure seafloor and riverbed elevations.

Working of LiDAR Systems

- **Consist of three main components:** Laser emitter, scanning mechanism, and Specialized GPS receiver.
- **Works on same principles** as **RADAR and SONAR, i.e., emit waves of energy to detect and track objects.**



- **RADAR (**Radio Detection and Ranging**)** uses **microwaves**; **SONAR (**Sonic Navigation and Ranging**)** uses **sound waves** whereas **LiDAR uses Light waves**.



7.4.2. RESEARCH & DEVELOPMENT ECOSYSTEM IN INDIA

Why in News?

Recently, Union Cabinet approved continuation of the three umbrella schemes, merged into a **unified central sector scheme** namely 'Vigyan Dhara' of Department of Science and Technology (DST).

About Vigyan Dhara Scheme:

- **Objective:** To promote S&T capacity building as well as research, innovation and technology development
- **3-broad components**: Science and Technology (S&T) Institutional and Human Capacity Building; Research and Development; and Innovation, Technology Development, and Deployment.
- Research and development component of scheme will be **aligned with the Anusandhan National Research Foundation (ANRF).**
- **Significance of Scheme**
  - Merger of schemes would enhance **efficiency in fund utilization and establish synchronization** among the sub-schemes/ programs.
  - Contribute to building **critical human resource pool** to strengthen the science and technology landscape and **expand R&D base** of the country towards **improving the Full-Time Equivalent (FTE) researcher count**.

Need for Expanding R&D base in India:

- **Limited Private sector participation:** Government emerges as the primary contributor (56% contribution) to R&D activities in India.
- **Insufficient Funding and Resources:** Only 0.7% of GDP in India (NITI Aayog), while in other countries funding GDP ratio is way more e.g. South Korea (4.3%), Israel (4.1%), USA (2.7%) etc.
- **Teaching-Research Imbalance in Universities:** Overshadowing of research pursuits by the predominant focus on teaching responsibilities.
- **Limited interdisciplinary collaboration:** within State Universities and Institutes significantly curtails the potential for holistic research outcomes.

Other Steps Taken

- **Setting up of the Anusandhan National Research Fund (ANRF):** ANRF has been established ANRF Act, 2023 to seed, grow and promote R&D throughout India's universities, colleges& research institutions.
- **Promoting Innovations in Individuals, Start-ups and MSMEs (PRISM) Scheme** to support individual innovators
- **SERB-Ramanujan Fellowship, SERB-Ramalingaswami re-entry Fellowship and SERB-Visiting Advanced Joint Research Faculty Scheme (VAJRA), etc.,** have been devised to promote brain gain
- **Research Parks at IIT Madras, IIT Bombay, IIT Kharagpur etc.** to augment the research ecosystem in the country.

Further way-forward for expanding R& D base in India:

- **Addressing University/ Institute-level Challenges:** Establishment of R&D Committee/ Cell, Improved Infrastructure and Instrumentation Facilities & Incentivizing student participation.
- **Strengthening Industry Partnerships:** Establishing a streamlined mechanism for technology transfer.
- **Support Intellectual Property Creation and Technology Transfer:** Streamline and expedite patent filing processes
- **Create a Culture of Innovation and Entrepreneurship:** Institutions should prioritize the establishment of incubators and accelerators on campus.
- **Accelerating NEP 2020 Implementation:** Alignment of Curricula with Research Goals, Infrastructure Augmentation, etc.
- **Leveraging CSR funds** for R&D to augment private sector investment.

7.4.3. FORENSIC SCIENCE

Forensic Science At A Glance

- Recently, Cabinet approved the **'National Forensic Infrastructure Enhancement Scheme' (NFIES) for 2024-29.**
  - The scheme addresses **increase in forensic workload** due to the **Bharatiya Sakshya Adhiniyam, 2023,** which **mandates forensic investigations** for offences punishable **by 7 years or more.**

About Forensics Science

- Forensic science is the **use of scientific methods to investigate crimes or examine evidences.**
- **Techniques used in Forensics:** DNA analysis, Fingerprint analysis, Ballistics, Toxicology, Digital forensics, etc.

Challenges of Forensics in India

- **Budget: Inadequate funding** for modernizing state police and forensic capabilities.
- **Infrastructure and resources:** E.g., ~40% shortage of staff in forensic labs across India (BPRD).
- **Quality: Lack of standardized procedures and protocols, contamination and improper handling** across different forensic laboratories.
- **Bureaucratic hurdles:** Lack of effective interagency coordination often leads to inefficiencies and miscommunication.

Government initiatives for Forensic Science

- **e-Forensics IT platform** which connects **117 forensic science laboratories (Central and State)**
- **Assistance to States/ UTs for strengthening the DNA analysis, Cyber-forensics** and related facilities in their forensic laboratories under **Nirbhaya Fund Scheme.**
- **Scheme for Modernisation of Forensic Capacities (SMFC)** under the umbrella scheme of **'Modernisation of Police Forces**.

Way Forward

- **Recommendations by Malimath Committee (2003)**
  - **Institutional:** Establish a **mechanism for coordination amongst investigators, forensic experts and prosecutors** at the State and District level for effective investigations.
  - **Training and capacity building:** Implement a **year-long induction training program** for new prosecutors and judges, including exposure to police, forensic labs, courts, and prisons.
  - **UGC** should consider the **creation of Forensic Science departments** in major universities, with **potential introduction at the school level.**
- **Others**
  - **Cybercrime investigation:** Expand **Indian Cyber Crime Coordination Centre (I4C)** initiative with a focus on training more cybercrime investigators and establishing more cyber forensic labs.
  - **Public-Private Partnerships:** To expand capabilities and reduce backlogs.
  - **International collaborations:** For knowledge exchange and **transfer of technology in digital forensics.**

7.4.4. BRIDGE RECOMBINASE MECHANISM

Why in the News?

Scientists discovered naturally existing DNA editing tool - Bridge Recombinase Mechanism.

More about the News

- Bridge Recombinase Mechanism (BRM) **utilizes mobile genetic elements or "jumping genes"**, which cut and paste themselves into genomes, performing **on-the-go DNA manipulation and are present in all forms of life**.
  - **Jumping Genes** are small DNA segments with a **recombinase enzyme** along with **extra DNA segments at the ends of the genes that binds and manipulates DNA.**

About BRM

- **Extra DNA** at the ends of jumping genes **gets joined together** and converts the DNA double helix structure into a **single-stranded RNA molecule**.
- This bridge RNA molecule can **bind to two DNA segments (donor and target)**, allowing for **flexible DNA modifications**.
- **Donor and target loop can be programmed independently**, offering great flexibility in inserting or recombining sequences to DNA.

Significance of BRM

- It will allow researchers to **rearrange, recombine, invert, duplicate, move, and perform other editing operations** on **very long DNA sequences.**
- It can lead to development of more **advanced gene editing therapeutics and treatments for diseases.**

7.4.5. THORIUM MOLTEN SALT NUCLEAR POWER STATION

Why in the News?

World's first thorium molten salt nuclear power station will be launched in Gobi Desert by China in 2025.

More about the News

- Instead of Uranium, this nuclear power station uses **thorium as fuel.**

- Its reactor **does not need water** for cooling because it **utilizes liquid salt or carbon dioxide** to transfer heat and make electricity.
- Unlike the water-cooling model, this design **significantly reduces the chances of meltdowns.**

Thorium as a Fuel

- Thorium, a **naturally occurring element with radioactivity**, is found at trace levels in soil, rocks, water, plants and animals.
- Due to its physical characteristics, thorium **cannot be used directly to produce nuclear energy**. It has to be first converted to **U-233 in a nuclear reactor**.

Significance of Thorium based reactors

- **Abundant Supply** unlike Uranium. In India, **Kerala and Odisha** have rich reserves of **monazite**, which contains **about 8 – 10% thorium.**
  - Monazite is also prominent in **Andhra Pradesh, Tamil Nadu, West Bengal and Jharkhand**.
- **Chemically safe,** due to higher melting point, better thermal conductivity, better fuel performance characteristics, chemical inertness and stability.
- **Environmentally safe,** generates lesser toxic and short-lived radioactive wastes.

Role of Thorium in India's Nuclear Programme

- **Third stage of India's nuclear power program** envisages **large scale power production from thorium.**
  - First stage involves use of **natural Uranium** in Pressurised Heavy Water Reactors (PWHRs), while second stage involves use of **Plutonium** in Fast Breeder Reactors.
- India has **well established the processes** for producing thorium from monazite.
  - **Advanced Heavy Water Reactor**, currently under development with BARC, would serve as a **technology demonstrator for thorium fuel cycle**.

7.4.6. NUCLEAR TECHNOLOGIES FOR FOOD SAFETY

Why on the News?

Role of Nuclear technologies has been highlighted at the **International Symposium on Food Safety and Control**, held in Vienna, Austria.

More about the News

- Event was organized by the **Food and Agriculture Organization (FAO)** and the **International Atomic Energy Agency (IAEA)**.

Nuclear technologies

- **Nuclear technologies** offer solutions to combat hunger, reduce malnutrition, enhance environmental sustainability etc.
- Also, technologies are complimentary to the **One Health approach.**
  - **One Health** is an integrated, unifying approach that aims to sustainably balance and optimize the health of **people, animals** and **ecosystems.**

Role of Nuclear Technologies in Food system

- **Animal health: Polymerase Chain Reaction (PCR) tests,** a molecular nuclear technique, will rapidly detect diseases.
- **Soil and water management: Radioactive nuclides** left behind after nuclear events can help scientists determine the **health of soil** and **rate of erosion**.
- **Insect pest management**: Nuclear based **Sterile Insect Technique (SIT)** to manage pest.
  - Technique involves **mass-rearing the insects** then sterilizing them through **ionizing radiation** before releasing them.

- **Food safety and control: Food irradiation** (the application of ionizing radiation to food) improves the safety and **extends the shelf life** of foods by reducing or eliminating microorganisms and insects.
- **Plant Breeding and Genetics:** Desired Genetic changes can be done by irradiation.

Key Initiatives

Indian Initiatives

Food Safety and Standards Authority of India (FSSAI) brought **Food Safety and Standards (Food Products Standards and Food Additives) Sixth Amendment Regulations, 2016,** to harmonize food irradiation rules with the international regulation.

Technology demonstration plants were set up for Irradiation: KRUSHAK at Lasalgaon, Nashik for low dose radiation treatment, **Radiation Processing Plant (RPP) in Navi Mumbai** for high dose radiation treatment.

Global Initiatives

Joint FAO/IAEA Centre of Nuclear Techniques in **Food and Agriculture**

Atoms4Food Initiative, by FAO and IAEA

8. ETHICS

8.1. FRAUDS IN CIVIL SERVICES EXAMINATION

Introduction

Recently, some civil servants have been alleged of faking certificates to enter into prestigious civil services. Also, cases have surfaced where aspiring Civil Servants have used ChatGPT to cheat in the examination. Such issues point to the increasing instances of fraud and dishonesty in Civil Services Examination.

Stakeholders and their Role/Interests	
Stakeholders	**Role/Interests**
Recruiting agencies (such as UPSC)	• Fair and open competition, loss of trust reposed by public, Constitutional obligations.
Public at large	• Credibility and transparency of selection process, Faith on Meritocracy etc.
Government	• Trust reposed by Public, increasing instances of dishonesty in public services, detrimental to growth of nation & society at large.
Aspiring Civil Servants	• Aspiring Civil Servants are expected to uphold the standards of Civil Services when engaging in the examination process. ○ These values have been codified by **All India Services (Conduct) Rules, 1968** and **PC Hota Committee** among others.

Ethical Issues Involved

- **Detrimental to Social Justice: Use of fake certificates** can lead to questioning the validity and fairness of affirmative actions.
- **Administrative implications: Entry of unethical candidates in civil services** can lead to Corruption and dishonesty, Inefficient Bureaucracy, etc.
- **Against Kant's Categorical Imperative & Deontology:** As per Immanuel Kant's categorical imperative one should only **act in accordance with rules** that s/he could hold for everyone.
- **Violates Utilitarianism:** Morality of an action is determined solely through assessment of its consequences. Since cheating/abuse of power is detrimental to society at large, it is unethical to do so.

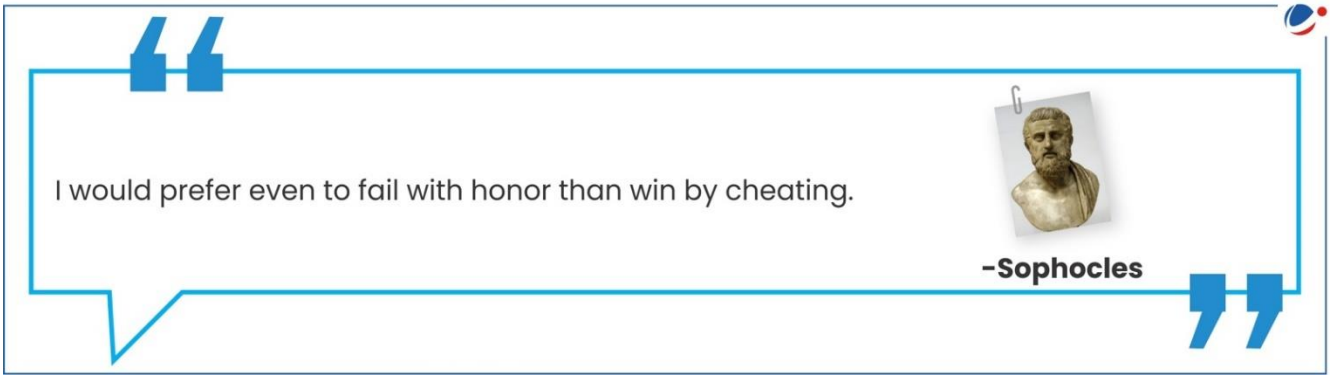
Steps taken to nudge aspiring Civil Servants towards ethical conduct

- **Introduction of ethics paper:** Ethics was introduced in 2013 as a recruitment filter in civil services.
- **Public Examinations (Prevention of Unfair Means) Act, 2024:** Aims to **prevent the use of** unfair means in public examinations and bring greater transparency, fairness and credibility.
- **Use of digital technologies by UPSC to deter cheating:**
  - UPSC plans to use Aadhaar-based fingerprint authentication, facial recognition.
  - CCTV surveillance using AI to check impersonation

Way Forward

- **Values like honesty, integrity, truthfulness & self-dignity** should be inculcated among students from the very beginning of education.
- **Exam Reforms:**
  - **Stringent verification processes** after selection of candidates
  - **Aptitude and leadership tests** may be introduced for selection to curb abuse of power during civil servant deputation **(Hota Committee).**
  - **Technologically based solutions:** New strategies need to be considered and employed to better manage the advancement of technology use for illegitimate purposes.
- **Regular review and updates of the rules** can help address emerging challenges and ensure their relevance.

- **Following International Best Practices** (Australian Public Service Act prescribes a set of Public Service Values).



8.2. CONFLICT OF INTERESTS OF PUBLIC OFFICIALS

Introduction

Recently, a US-based firm accused the Chairperson of SEBI of violating SEBI's Code of Conduct, leading to a potential conflict of interest. The situation presents a new potential for conflict of interests between civil servants or individuals in high-ranking positions, involving their private interests in public duties.

What is Conflict of Interest?

It involves a conflict between the public duty and private interests of a public official, wherein, public official's private interests can improperly influence the performance of his/her official duties and responsibilities **(OECD).**

Stakeholders Involved and their Interests

Stakeholders	Interests
Public Officials	• Maintain professional integrity, **impartiality** and **neutrality**, follow Code of Ethics and Code of Conduct, Career advancements, etc.
Government	• Enforcement of **ethical standards**, efficient and effective public service delivery, maintain public trust and confidence in governance, Good Governance, etc.
Citizens	• **Unbiased access** to public services, effective utilization of public funds, transparent and accountable administration and governance, etc.
Businesses	• Fair opportunities in government contracts, **favorable business environment**, nimble yet effective regulation etc.
Regulatory Bodies	• Maintain the integrity of regulatory processes, **ensure fair competition** and protect public interest, etc.

Ethical Issues Involved in Conflict of Interests

- **Undermining of Public trust:** Any perception or reality of biased decision-making erodes the trust by making it difficult for the public to believe in the fairness and impartiality of government actions. E.g., Insider Trading.
  - This loss of public trust can also result in **loss of legitimacy of government decisions and institutions**.
- **Corruption and abuse of power: May lead to corrupt practices, such as bribery, favoritism and nepotism** which go against the ethical and legal standards. **E.g., Adarsh Housing Society Scam.**
- **Neutrality and impartiality:** Conflict of Interest can result in biased and skewed decision-making by public functionaries, effectively compromising neutrality and impartiality.
- **Violation of the Constitution and democratic principles**: It can lead to decisions that favor a few at the expense of the many, undermining the principles of equality and fairness.
- **Adverse impact on brand recognition:** May impact businesses' brand image and reputation negatively due to potential scandals, negative media coverage, etc.

Legal Framework to prevent Conflict of Interest in India

For Public Servants

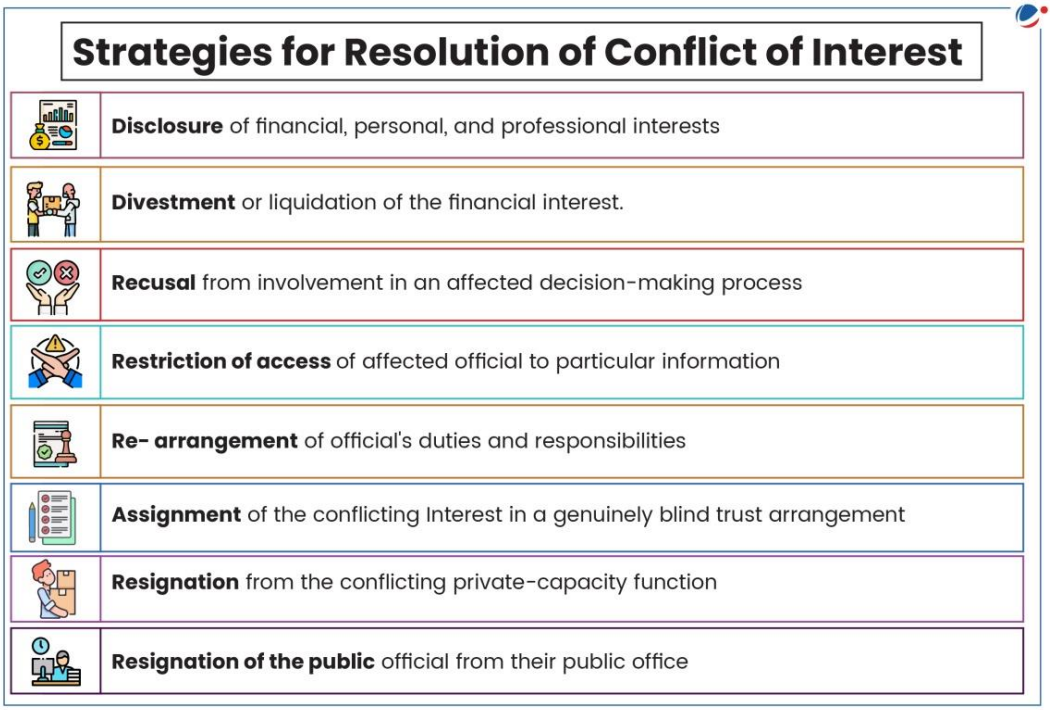
- **Central Civil Services (Conduct) Rules, 1964:**
  - **Civil Servants** must **declare any private interests** relating to their public duties.
  - **Civil Servant should not misuse his/her position** as civil servant and not take decisions in order **to derive financial or material benefits for himself, his family or his friends.**
- **Central Vigilance Commission guidelines** for various procurements, bidding, etc.
- **SEBI's Code** on **Conflict of Interests** for **Boards Members**

For Businesses

- **Section 166 of the Companies Act, 2013**: A director of a company shall not involve in a situation in which he may have a direct or indirect interest that conflicts with the interest of the company.
- **SEBI Guidelines** for dealing with conflict of interests of various entities such as stock exchanges, intermediaries, etc.

Way Forward to ensure effective resolution of Conflict of Interests

- **Identification of Conflict of Interest**: Establish effective, complete, and prompt disclosure process.
- **Demonstrate Leadership Commitment:** All public officials should keep their private interests in a manner that preserves public confidence of the organization rather than mere compliance in letter.



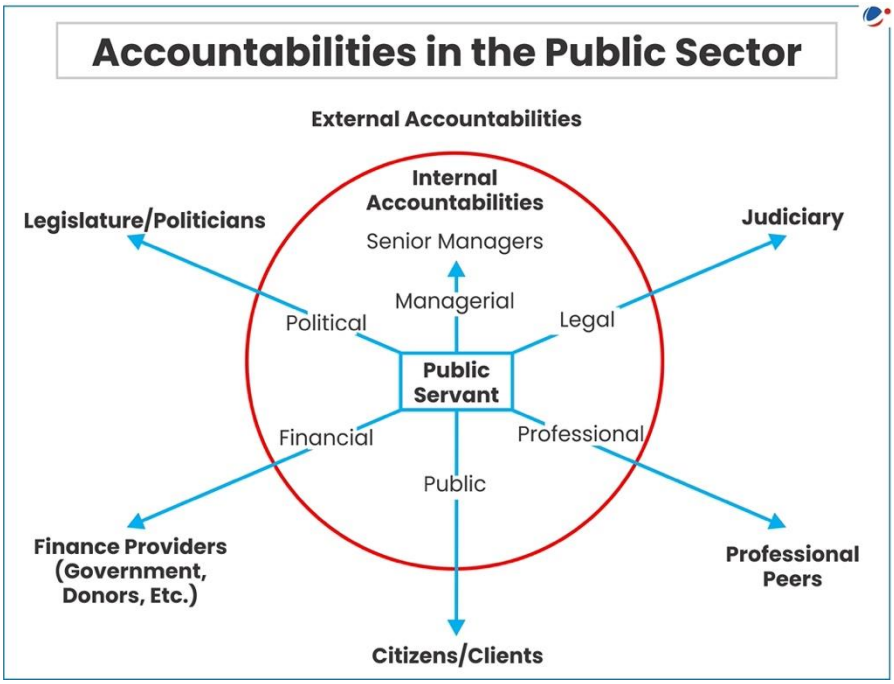
- **Ensure wide publication and understanding of the Conflict of Interest policy:** E.g. by publishing the Conflict of Interest Policy, giving regular reminders etc.
- **Periodic review of 'at-risk' areas for potential conflict of interest situations:** E.g., Inside information, gifts and other forms of benefit, etc.
- **Introduction of Cooling off period for public servants to prevent from revolving door**: **Revolving door** refers to the movement of individuals from government to the private sector and from the private sector to government.
- **Creation of independent of oversight bodies:** E.g.**,** Several States in the US have Ethics Commission as guardians of the standards of conduct for public officials.

> The need for justice grows out of the conflict of human interests. That is to say, if there were no conflict of interests among mankind, we should never have invented the word justice, nor conceived the idea for which it stands.
>
> — **Thomas Nixon Carver**

8.3. PUBLIC INFRASTRUCTURE AND PUBLIC SERVICE DELIVERY

Introduction

Recently, more than **15 bridges have collapsed in Bihar**, around 15 engineers were suspended for negligence and ineffective monitoring. Previous incidences of **failure of public infrastructure** like the **Morbi bridge collapse in Gujrat (2022), airport roof collapse** at Delhi, etc. have resulted in loss of lives and property. These incidences highlight the **compromised quality of public infrastructure** and **failure** of government in ensuring **quality public service delivery**.

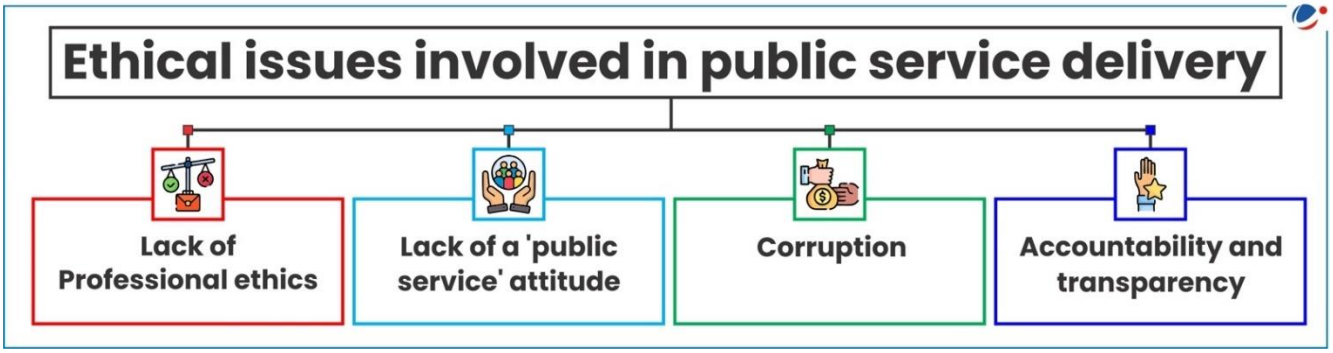


About Public Service delivery

- In line with the **social contract theory**, the **government** is charged with the **responsibility of provision of various public services to the citizens.**
- **Public Service Delivery** is the mechanism through which public services are delivered to the public by local, municipal, or federal governments**. E.g. Sewage and trash disposal, public education, and health services.**
- **Significance:**
  - **Economic Growth:** Helps in **poverty alleviation, human capital formation and eliminating corruption.**
  - **Ensure equitable distribution of resources: E.g. Targeted service delivery with TPDS to ensure food security.**

Ethical Issues in the governance of infrastructure development

- **Inefficient administrative machinery**: E.g. **negligence of responsibility.**
- **Policy issues**: Focus is on doing the **bare minimum** to complete the duty assigned.
  - **L1 contract method** (lowest bidder wins) prioritizes **cost over quality and safety**.
- **Lack of probity**: Mechanism for **fixing accountability** and ensuring **transparency** are either absent or not effectively implemented.
  - E.g. **Delhi floods** caused by jammed gates of Yamuna barrage- **lack of maintenance** due to **multiple authorities** involved and lack of fixed **accountability**.
- **Attitudinal** issues **like indifference, lack of motivation for striving for excellence**.



Why are issues persistent in public service delivery?

- **Lack of effective implementation** of various service improvement systems, including rules and regulations for civil servants.
- **Resistance** of administration to reforms and **change**.
- **Political interests** prioritized above public interest hinder equitable public service delivery.
- **Neglect of reforms for ethical grassroot bureaucracy:** Most reforms and changes cater to administrative reforms at higher levels of bureaucracy.

ARC Seven Step Model for Citizen Centricity (2nd Administrative Reforms Committee)

1. **Define** all services which you provide and **identify** your clients.
2. Set **standards** and norms for each service.
3. Develop **capability** to meet the set standards.
4. **Perform** to achieve the standards.
5. **Monitor performance** against the set standards.
6. **Evaluate** the **impact** through an independent mechanism.
7. **Continuous improvement** based on monitoring and evaluation of results.

Case Studies

- **Commission for Right to Services** constituted by states like **Maharashtra, West Bengal, Punjab** etc.
- **Right to Public Services Legislations** passed by more than 20 states. E.g. **The Haryana Right to Service Act, 2014.**

Measures to ensure Good Governance

- **Administrative reforms**: Measures like **Citizen's Charter, a responsive grievance redressal** mechanism and **fixing accountability** of every public servant.
- **New Public Management (NPM):** Involves the adoption of **efficient practices** from the **private** sector to apply in the public sector.
- **Human capital development**: Recruitment and training of capable public servants and inculcating **ethical values of public service**. E.g. **Mission Karmayogi**
- **E-governance**: E.g. **SMART** (Simple, Moral, Accountable, Responsive and Transparent) governance, 'Aaple Sarkar' App of Maharashtra.
- **Monitoring project implementation**: E.g. ICT-based, multi-modal platform for Pro-Active Governance and Timely Implementation (**PRAGATI**).

"The **quality of public administration** of a country largely depends on the **honesty and integrity of its administrators.**" - The Standards and Techniques of Public Administration, published by the United Nations (UN), 1951

8.4. ETHICS OF WHISTLEBLOWING

Introduction

Recently, Julian Assange was freed by the US Court in WikiLeaks espionage case. From Edward Snowden to Satyendra Dubey, many whistleblowers have acted on their conscience, but have their acts always been ethical?

What is Whistleblowing?

- It is the **disclosure of information** to the public or some higher authority about any wrongdoing, which could be in the form of a fraud, corruption, etc. in a company or government.
  - Whistleblower is the person who reports/discloses the wrongdoing or the unethical act. E.g., Late Shanmugam Manjunath among others.

Stakeholders and Their Interests	
Stakeholder	**Interests**
Whistleblower	• Exposing wrongdoing or misconduct and protecting themselves from retaliation.
Citizens/Society	• Access to information about government activities.
Government	• Balancing national security concerns with transparency.
Organization	• Protecting their reputation, addressing the reported issues internally, if possible, etc.
Regulatory Bodies	• Enforcing compliance with laws and regulations.
Media Interests	• Reporting on newsworthy allegations and protecting sources.
Advocacy groups/NGOs Interests	• Promoting transparency and accountability and supporting whistleblowers.

Ethical dilemmas involved in Whistleblowing

- **Protection of whistleblowers vs. National security:** Balance between safeguarding individuals who expose wrongdoing and ensuring government responsibility while considering threats to national security.
- **Media responsibility vs. Ethical Information handling:** The media has a moral duty to tell the people about government action while handling dangerous or sensitive information in a responsible manner.
- **Public Right to information vs. Government need for confidentiality:** Balance between citizens' right to know about government's actions and the government's necessity to uphold confidentiality in certain matters.
- **Duty of loyalty vs. Moral obligation:** Conflict between an employee's duty to their employer and their moral obligation to report wrongdoing.
- **Protection vs. Accountability:** Ethical considerations in protecting whistleblowers from retaliation and Ensuring accountability for false or malicious reporting.

Laws to protect Whistleblowers in India

- **Whistleblowers Protection Act, 2014:** Aimed at protecting whistleblowers in India.
- **The Companies Act, 2013 (Section 177)**: Stipulates listed companies to establish a vigil mechanism for directors and employees to report genuine concerns.
- **SEBI (Securities and Exchange Board of India) Regulations, 2015:** Mandates listed companies to frame whistleblower policies.
- **Protected Disclosures Scheme for Private Sector and Foreign Banks**: Scheme of RBI wherein the banks are required to formulate a whistleblower policy/vigil mechanism.

Way Forward

- Implementing the **Whistleblowers Protection Act, 2014** effectively.
- Develop **comprehensive legislation** covering both public and private sectors.

- Strengthen **laws protecting journalists** who work with whistleblowers.

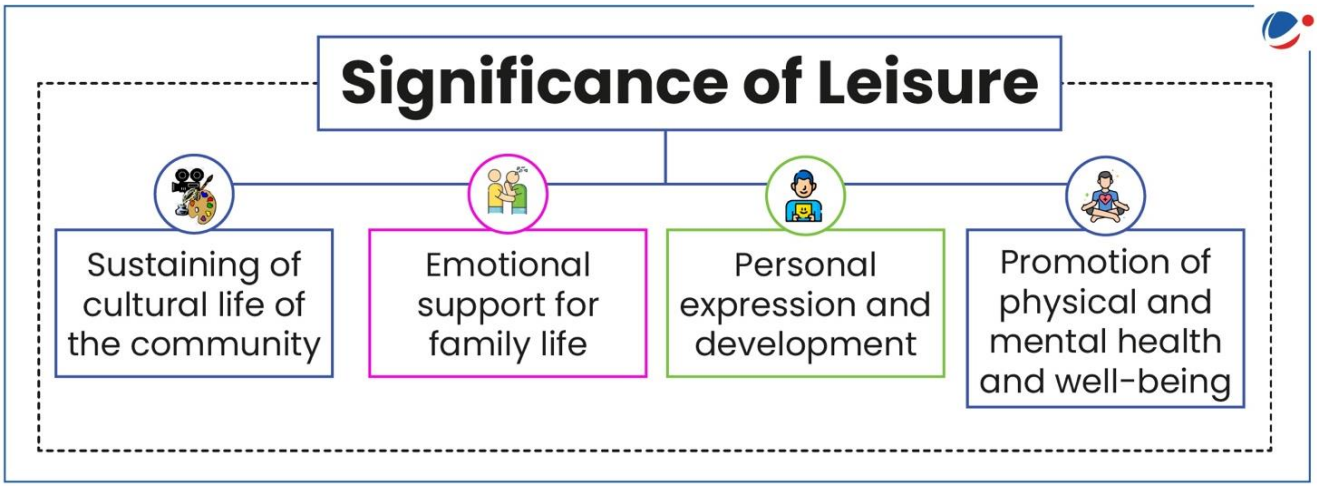
Need to ensure **freedom, liberty, and access to information to public** at the same time **maintain secrecy about national security.**

> The humanities teach us the value, even for business, of criticism and dissent. When there's a culture of going along to get along, where whistleblowers are discouraged, bad things happen and businesses implode.
>
>
>
> -Martha C. Nussbaum

8.5. GOOD LIFE: THE ART OF BALANCING WORK AND LEISURE

Introduction

Recognising the importance of play for children's development, the **UN Convention on the Rights of the Child,** which has set out "the right of the child to rest and leisure," **declared June 11 an International Day of Play**. Also, recent research by Anglia Ruskin University suggests **that leisure activities** like painting, knitting, or pottery can **enhance well-being more than work**.



Relationship between work and leisure	
Complimentary Relationship	**Contrasting Relationship**
• **Freedom of choice and intrinsic motivation:** For example, writing novels or columns for newspapers might feel like leisure to persons who enjoy reading and writing. • **Ensuring well-being**: For example, **employment allows people to form relationship**s and improve emotional control, which helps overcome trauma and improves problem-solving skills.	• **Freedom vs. Responsibilities:** Leisure characterised by **freedom and enjoyment, improves creativity, performance,** and job satisfaction. • **Self-Expression vs Personal growth:** For example, **school education ceases to be a joyful learning activity** when students are forced to cram information without understanding its meaning, solely for the sake of excelling in academics and future careers.
The complimentary and contrasting relationship of work and leisure underscores the necessity of striking a balance between the two in order to have fulfilling good life.	

Factors that make it difficult to maintain a balance between work and leisure

- A **capitalist workplace** culture pushes employees toward **job creeps, expectation of perfectionism and encourages extra hours** to get noticed or promoted.
  - **Job creep** happens when a person performs tasks that are outside the agreed scope of their job.
- Technology like email and cell phones has blurred the line between work and home.
- **Desire** for **overearning.**
- **Society often glorifies being busy** as a sign of success, encouraging people to constantly push themselves.

Way ahead for ensuring work and leisure coexist harmoniously

- Promote **positive work culture** by adopting participative democratic leadership styles, fostering open communication, etc.
  - Giving workers an extra day off a week actually increases productivity, boosts physical and mental health (WEF).
- **Bounded rationality:** Instead of pursuing perfectionism, bounded rationality should be accepted and people should be allowed to fail sometimes in some works.
  - The term **'bounded rationality'** refers to rational decision-making that considers the **cognitive limitations of the decision-maker.**
- **Embrace flexibility:** While technology has blurred boundaries, it also offers flexibility (E.g. hybrid working).
- **Set boundaries:** Clearly define work hours and stick to them. Avoid checking work emails or taking calls outside these hours to maintain a separation between work and home life.

8.6. ETHICS OF CLINICAL TRIALS

Introduction

Central Drugs Standard Control Organisation (CDSCO) waives local clinical trials for new drugs approved in developed countries. This reform will ensure availability of latest medicines to treat diseases like cancer, rare and autoimmune disease, etc. However, there are many concern such uninformed consent, etc. associated with clinical trials in country have been not resolved completely.

About Clinical Trials

- **Clinical trial** can be defined as a **set of practice that helps certify a new drug molecule as safe and efficacious** before reaching the market.
- **Four phases of Clinical Trials**
  - **Phase I:** Small group of volunteers to **evaluate drug's safe dosage range** and **identify side effects.**
  - **Phase II:** Drug given to larger group (100 to 300), including patients with particular disease to see its effectiveness.
  - **Phase III**: Drug given to large groups (1,000 to 3,000), including patients to compare it to other commonly used treatments, etc.
  - **Phase IV**: Drug/Treatment has been **approved by DCGI** and marketed for public use.

Regulatory Mechanism

- **Drugs and Cosmetics Act (DCA), 1940** and **Drugs and Cosmetics Rules, 1945**
- **DCGI (**head of CDSCO**)** is **final regulatory authority for approval of clinical trials** in country.
- **The CT Rules 2019** is issued under the **DCA.**
- All forms of medical research including clinical trials are required to be overlooked by an independent ethics committee.
  - All ethics committees for the purpose of medical research must be registered with the **Clinical Trial Registry of India (CTRI)** maintained by the **ICMR**.

Concern related with Clinical Trials

- Medical research often entails minor pain, discomfort, etc. from drug side effects.
- Some researchers and sponsors may bypass the regulatory framework to **expedite trials**.
- **Targeting Vulnerable Populations (**those in desperate financial situations)
- **Lack of Informed Consent (**Complex language in consent forms can make them difficult to understand)
- Participants sometimes fail to **receive compensation** when clinical trials do not succeed.
- **Stem Cell Research** (E.g. harvesting human embryos)
- **Drug Trials in Neonates (**their higher risk of mortality and morbidity, and the difficulties in obtaining informed parental consent)

Various Ethical principles involved in Clinical Trials as per stakeholders	
Shareholder	**Ethical Principles**
Clinical Trial Patients	• **Informed Consent** (Patients have the right to receive comprehensive information about the research) • Beneficence • Compensation for Research-Related Harm • **Privacy** and **Confidentiality**
Sponsors	• Avoiding Conflict of Interest • Post-Research Access and Benefit Sharing • **Distributive Justice**
Researchers	• Principle of Essentiality • Privacy and Confidentiality • Environmental Protection
Regulatory Agencies	• Benefit-Risk Assessment • Transparency and Accountability
Society	• Post-Research Access and Benefit Sharing • Transparency and Accountability

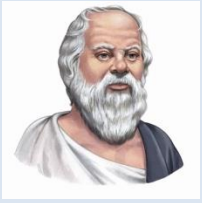
Way Forward

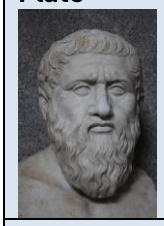
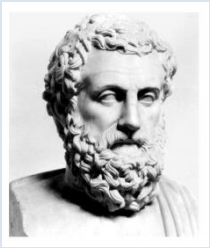
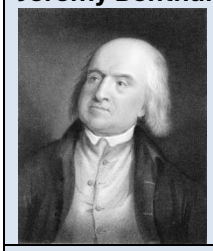
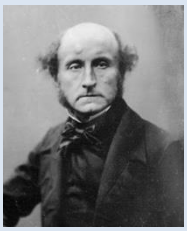
- Institutional ethics committees (ECs) should make effort to understanding ethical issues.
- Development of **National Clinical Trial Infrastructure**
- Clear and unambiguous **regulatory provisions applicable** to diverse situations would enhance the efficiency of trial approval.
- Adequate compensation for trial-related death or injury.

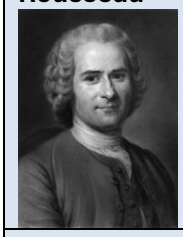
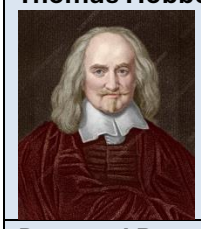
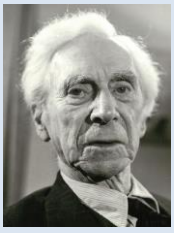
International Rules and Regulations regarding Clinical Trails

- **Belmont Report:** Promotes principles of respect of persons, beneficence and justice.
- **Declaration of Helsinki:** by the World Medical Association
- **Nuremberg Code:** Adopted following World War II, in response to the abusive and exploitative clinical trials undertaken by Nazi scientists.
- **International Ethical Guidelines for Health-related Research Involving Humans, 2016:** Prepared by the **Council for International Organizations of Medical Sciences (CIOMS)** in collaboration with the **World Health Organization (WHO)**.

8.7. WESTERN MORAL THINKERS AND PHILOSOPHERS

Western Moral Thinkers and Philosophers		
Philosopher	**Ethical Ideas/Vision/Values**	**Quotes**
Socrates 	• **Virtue**: Relation between **virtue** and **knowledge** is inseparable. • **Wisdom**: Believed that **wealth**, **beauty**, **courage**, etc., which are considered to be various forms of good, are good only if they are guided by wisdom.	• The unexamined life is not worth living. • Falling down is not a failure. Failure comes when you stay where you have fallen. • Be the kind of person that you want people to think you are.

Plato 	• **Propounded Four Cardinal Values**: wisdom, courage, moderation, and justice • **Justice** is both a 'public' and 'private' virtue. It aims at highest good of the individual (private), and of the whole society (public).	• The price good men pay for indifference to public affairs is to be ruled by evil men. • I am the wisest man alive, for I know one thing, and that is that I know nothing.
Aristotle 	• **Golden mean**: Every **ethical virtue** is a condition intermediate between two other states, one involving **excess**, and the other **deficiency.** • **Parts of Soul**: Consist of three parts i.e. rational, spirited and appetitive parts. ○ The rational part corresponds to the guardians in that it performs the executive function in a soul	• To be a good leader you must be a good follower • The value of life lies in the power of contemplation and not mere survival
Jeremy Bentham 	• **Principle of Utility**: Action that does not maximize the greatest happiness morally wrong. • **Hedonic Calculus**: A method of working out the sum total of pleasure and pain produced by an act, and thus the total value of its consequences	• Stretching his hand up to reach the stars, too often man forgets the flowers at his feet. • The greatest happiness of the greatest number is the foundation of morals and legislation.
John Stuart Mill 	• **Utilitarianism**: Greatest happiness of the greatest number. • **Happiness**: Regarded individual's self-development and diversity as the ultimate ends, as important components of human happiness.	• It is not because men's desires are strong that they act ill; it is because their consciences are weak. • A person may cause evil to others not only by his actions but by his inaction, and in either case he is justly accountable to them for the injury.
Immanuel Kant 	• **Means and End**: human beings should be treated as an end in themselves and not as a means to something else. • **Categorical imperatives:** Commands or moral laws all persons must follow, regardless of their desires or extenuating circumstances.	• One who makes himself a worm cannot complain afterwards if people step on him. • Rules for happiness: something to do, someone to love, something to hope for.
John Rawls 	• **Two Principles of Justice as Fairness** ○ **First Principle:** Each person has the same indefeasible claim to a fully adequate scheme of equal basic liberties ○ **Second Principle:** Social and economic inequalities are only justified if they benefit the least advantaged members of society.	• The principles of justice are chosen behind a veil of ignorance. • The fairest rules are those to which everyone would agree if they did not know how much power they would have.

Jean-Jacques Rousseau 	• Social Contract: Serving as a system for development and existence of a society. • **General Will**: Depends on the interests of all in contrast to the **Particular Will** that takes into account only selfish and vested interests of individuals.	• Man is born free, and everywhere he is in chains. • What wisdom can you find greater than kindness.
Thomas Hobbes 	• **Psychological Egoism**: Human beings are driven by self-interest, primarily the desire for self-preservation. ○ He believed that it is necessary and rational for individuals to seek peace to satisfy their desires.	• Words are the counters of wise men, and the money of fools. • A man's conscience and his judgment are the same thing, and, as the judgment, so also the conscience may be erroneous
Bertrand Russell 	• **Logical Atomism**: He proposed that the world is composed of facts that are utterly simple and comprehensible. ○ He sought to show that philosophical arguments could be solved in much the same way mathematical problems are solved.	• Fear is the main source of superstition, and one of the main sources of cruelty. To conquer fear is the beginning of wisdom. • No one gossips about other people's secret virtues.

8.8. TEST YOUR LEARNING

1. An honest and dedicated civil servant working in the public work department comes across the gross irregularities in the construction of road in border areas. On the further investigation, he found that there is a nexus between other officials with local contractors who use sub-standard material for the construction. On the completion of construction, road is supposed to serve the military. It would facilitate the smoother movement of troops in the time of emergency and contribute to the national security. However, complaining about the irregulars to higher authorities or exposing in the media would delay the project and he may face threat of retaliation from associated stakeholders.

On the basis of the above case study, answer the following questions:

- Identify various stakeholders and their interests involved.
- Discuss ethical issues involved in the case and discuss the options available to the civil servant with their merits and demerits. For reference**- Ethics of Whistleblowing**

2. The Education Secretary of a state comes across gross irregularities in the recent State Public Service Examination. Further investigation reveals a nexus between examination officials and some candidates who used unfair means to pass the examination. This examination is crucial as it recruits candidates for various civil services in the state. Ensuring the integrity of this examination is essential for maintaining the quality and credibility of the state's administration. However, exposing this scandal to the public or higher authorities could delay the recruitment process and tarnish the image of the public service commission.

On the basis of the above case study, answer the following questions:

- Identify various stakeholders and their interests involved.
- Discuss the ethical issues involved in the case and the course of action Education Secretary should take.

For reference- **Frauds in Civil Services Examination**

3. You are currently employed in a well-paid MNC that requires you to travel to different cities based on the location of the client. The monthly bonus and long term promotion to the higher post is solely based on the number of clients served within a month. Recently, your mother has been diagnosed with stage 2 cancer that not only requires care but also a stable and good source of income. However, continuous travel, work targets, and frequent hospital visits leave little time to practice for an upcoming city play. You have been a great admirer of theatrics and have pursued it since your childhood. Practicing it regularly gives you great joy and makes you feel detached from the nuances of the fast moving world. Work burden and family responsibilities have not only reduced your chances of bagging a role there but have also overburdened you with anxiety and mental exhaustion reducing your performance at work.

On the basis of the above case study, answer the following questions:

- Discuss the causative factors responsible for the occupational stress among the people in the present times.
- Citing examples, suggest measures that MNCs must take to ensure effective work-life balance for their employees.
- What steps should you take to ensure an optimum performance towards your work, passion, and family?

For reference- **Good Life: The Art of Balancing Work and Leisure**

4. You are a SDM of a district with high rate of poverty. You are in charge of overseeing the implementation of the food distribution program. On analysis of the program implementation through site visits, it was seen in X village that the Sarpanch of the village appropriated the free grains allotted for the program. Households from the lower caste community were provided only half of the allotted grains. The Sarpanch is in good books with the DM and the MP of the district.

Based on the above case, answer the following questions:

- What are the ethical issues involved in the above case?
- Critically examine the options available to you in the above situation.
- Which of the above options would you choose and why?

For reference- **Public Infrastructure and Public Service Delivery**

5. You are a senior official in a government regulatory body. Recently, one of your close friends, who run a successful private company, has approached you with a business proposal. He wants to start a new venture in a sector that your department regulates and seeks your guidance on navigating the regulatory landscape. He assures you that this is just friendly advice and offers you a small stake in the company as a token of appreciation for your expertise.

Meanwhile, your department is in the process of formulating new policies that could significantly impact businesses in this sector. You possess insider knowledge about these upcoming changes.

On the basis of the above case study, answer the following questions:

- Identify the ethical issues and potential conflicts of interest in this situation.
- What course of action would you take in this scenario? Justify your response based on ethical principles and guidelines for public servants.
- Suggest three systemic measures that can be implemented to prevent such conflicts of interest in public administration.

For reference- **Conflict of Interests of Public Officials**

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