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Current Affairs
Quarterly
REVISION

SEPTEMBER 2024 TO NOVEMBER 2024

AHMEDABAD BHOPAL CHANDIGARH DELHI GUWAHATI HYDERABAD JAIPUR JODHPUR LUCKNOW PRAYAGRAJ PUNE RANCHI SIKAR

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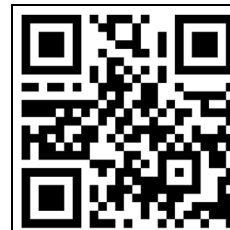
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Note to Students

Dear Students,

In our endeavour to streamline your preparation and revision, we are pleased to announce our new repackaged initiative — the **"Quarterly Revision"** document.

This curated compilation is designed to reinforce your learning journey and make your revision more structured and effective for the Civil Services Examination.

The Quarterly Revision gathers all the insightful articles from our latest three Monthly Current Affairs Magazines, offering you a comprehensive yet concise resource to revisit pivotal topics.

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Let this Quarterly Revision be your reliable companion in staying updated and confident throughout your preparation.

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Warm regards,
Team Current Affairs,
VisionIAS

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1.1. 'SOCIALIST', 'SECULAR' IN THE PREAMBLE

Why in the News?

The Supreme Court in **Dr Balram Singh Vs Union of India (2024)** dismissed challenges against the words "socialist" and "secular" added to the Preamble **under the 42nd Amendment Act.**

Petitions' Arguments

- These words were **added during the Emergency (1975-1977)**, thus not representing public will.
- As the date of adoption (26th November 1949), was mentioned in the Preamble, and no additional words could be inserted later to it.

Supreme Court (SC) Observations

- **Dismissed retrospectivity:** The date of adoption doesn't limit Parliament's amendment rights under Article 368.
- **SC Defined:**
  - **Secularism:** A facet of **right to equality** where the state neither has its own religion nor restricts religious freedom.
    - ◊ Recognized as **a basic feature** in **'Kesavananda Bharati' and 'SR Bommai' cases.**
  - **Socialism:** Reflects state's commitment to welfare state and equality of opportunity.
- **Living Document:** The Constitution adapts to changing interpretations of terms like 'secular' and 'socialist'.

> **Secularism & Socialism**
> - **Indian Secularism:** It follows the concept of **Neutrality and positive role** towards the religion.
>   - Contrasting with **Western non-interference.**
> - **Indian Socialism:** It supports a **mixed economy**, welfare for the needy alongside private enterprise,
>   - Shaped by **Nehru and Gandhi.**
>   - **Differs from Marxist socialism** due to **non-violent reform, private property,** and **democratic processes** in India.

Key changes under 42nd Amendment Act, 1976 (Mini Constitution)

- **Preamble:**
  - Added '**Socialist', 'Secular', and 'Integrity'**
  - Changed **'unity of nation'** to **'unity and integrity of the nation'.**
- **7th Schedule:** Transferred **Education, Forests, Wildlife, Weights and Measures, and Judiciary** (excluding Supreme and High Courts) **from State to Concurrent list.**
- **Emergency:** Amended Article 352 for emergency declarations in any part of the country.
- **New DPSPs:**
  - **Article 39:** Healthy development of children.
  - **Article 39A:** Equal justice and free legal aid.
  - **Article 43A:** Participation of workers in management of industries.
  - **Article 48A:** Environment and wildlife protection.
- **New Parts:** Added **Part IV-A (Fundamental Duties)** and **Part XIV-A (Administrative Tribunals).**

Preamble

- **Gives a glimpse of Constitution's Philosophy:** Originally declared India as a sovereign, democratic, republic.
- **Rights and Enforcement:** No substantive rights, not enforceable in courts, signify power vested in the people.
- **Cases on Preamble's Status as part of the Constitution:**
  - **Berubari Case (1960):** Preamble is not a part of the Constitution
  - **Kesavananda Bharati Case (1973):** Preamble is part of the Constitution and can be amended
  - **LIC of India Case (1995):** Reaffirmed that the Preamble is part of the Constitution.

Conclusion

- Constitutional values like socialism and secularism adapt to modern challenges like inequality and environmental issues, while upholding core principles of justice, liberty, and equality.

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1.2. PROPERTY RIGHTS IN INDIA

Why in the News?

Supreme Court in a significant ruling in **Property Owners Association v State of Maharashtra**, limited state powers in acquiring private property.

More on the News

- **Overruled previous judgments**: suggesting private properties could be community resources in **Ranganatha Reddy case (1978)** and **Sanjeev Coke Manufacturing case (1983).**

Key highlights of the judgement

- **Article 39(b) Scope:** Private property isn't automatically a "material resource" for community use.
- **State's Acquisition Authority:** Not from Article 39(b), but from eminent domain and Entry 42 of List III.
- **Property Classification as Private:** Depends on nature, scarcity, impact, and concentration of resources in private hands.
- **Flexibility in Economic Policies:** Constitution supports adaptable economic policies.
- **Validity of Article 31C:** Still valid as held in Kesavananda Bharati case.
- **Balancing Public Welfare with Private Property Rights:** It involves ensuring societal needs are met while respecting individual ownership (property rights under Article 300A) and rights (equality under Article 14).
  - ➡ Also applied the **Public Trust Doctrine**, mandating responsible resource management for the public good.
- **Limits of Eminent Domain**: Broader application of this doctrine in land acquisition was questioned.

Evolution of Right to Property

- **Originally:** Fundamental Right under **Articles 19(1)(f) and 31.**
- **25th Amendment (1971):** Introduced **Article 31C,** protecting laws under DPSP from fundamental rights challenges.
- **Post-44th Amendment (1978):** Right to property became a **constitutional right under Article 300A.**

Doctrine of Eminent Domain: Allows government to take private property for public use with conditions:

- **Public Use:** Must serve a public purpose.
- **Just Compensation:** Fair payment required.
- **Due Process:** Owners must be notified and have rights to contest.
- **Government Authority:** Only government or authorized agencies can exercise this power.

Public Trust Doctrine: Ensures state manages natural resources responsibly

- **State as Trustee:** Manages resources for public benefit (in **T.N. Godavarman v. Union of India**, the Supreme Court affirmed)
- **Citizens as Beneficiaries:** Resources used sustainably for all, including future generations.

Implications

- **Legislative Impact:** Could affect future property laws, land reforms, and welfare programs.
- **Economic Reforms:** Promotes market-oriented economy by restricting state acquisition powers.
- **Political Debates:** May affect political agendas on land and property rights.
- **Judicial Role:** Strengthens scrutiny over government actions concerning property rights.

Conclusion

The ruling clarifies that **labeling private property as a "material resource" requires case-by-case analysis**, urging government actions to respect constitutional rights and resource management principles.

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1.3. ONE NATION ONE ELECTION

Why in the News?

The **Union Cabinet** accepted the recommendations of the **High-Level Committee on Simultaneous Elections**, chaired by **former President Shri Ram Nath Kovind**.

About Simultaneous Elections

- **Definition**: Holding elections for the **Lok Sabha, State Assemblies, and local bodies (Municipalities & Panchayats) together**.
  - **Clarification**: Does not require voting on a **single day** but within a synchronized timeframe.
- **History**: Held in **1951-52, 1957, 1962, and 1967**.
  - The cycle was **disrupted** due to **premature dissolution of State Assemblies (1968-69) and Lok Sabha (1970)**.

Need for Simultaneous Elections

- **Governance & Development**: Frequent elections delay **development programs** due to the **Model Code of Conduct (MCC)**.
- **Economic Impact**: Affects **growth, investments**, and **economic decisions**.
- **Workforce Disruptions**: Avoids **supply chain disruptions** caused by **migrant workers** taking leave to vote.
- **Financial Burden**: Reduces **massive election expenditures**.
- **Human Resource Diversion**: Prevents prolonged deployment of **security forces & electoral officers** (e.g., teachers).
- **Judicial Efficiency**: Fewer elections reduce **court cases & legal workload**.
- **Identity Politics**: Limits **caste & class-based polarization**.
- **Voter Participation**: Prevents **voter fatigue**, ensuring higher turnout.

Key Highlights of High-Level Committee on Simultaneous Elections

- **Objective**: Reduce the burden on **Government, businesses, Courts, political parties, and civil society** due to frequent elections.
- **Synchronization of Elections**:
  - **Phase 1**: **Lok Sabha & State Assembly elections** together.
  - **Phase 2**: **Local body elections** (Panchayats & Municipalities) within **100 days** of general elections.
- **Constitutional Amendments**:
  - **Proposed changes** to **three Articles**.
  - **Insertion of 12 new sub-clauses** in existing Articles.
  - **Tweaks in three laws** related to **Union Territories with Legislative Assemblies**.

Insert Article 82A	Amendment of Article 83 and Article 172 (related to duration)	Introduction of Article 324A
- **Article 82A(1)**: On the **first sitting of the Lok Sabha after a general election**, the **President** will issue a notification bringing **Article 82A** into effect. This date will be called the **"Appointed Date."** - **Article 82A(2)**: All **State Legislative Assemblies** elected after the **Appointed Date** will have terms synchronized with the **full term of the Lok Sabha**.	- In case of a **hung House, no-confidence motion, or defection**, fresh elections will be conducted for the **unexpired term** of the previous full term. - Ensures **continuity** in the **Simultaneous Elections cycle**.	- Mandates **simultaneous elections** for **Municipalities & Panchayats** along with **general elections**. - Requires **ratification by states** for implementation

- **Single Electoral Roll**: To be prepared by **ECI & State Election Commissions** by **amending Article 325**.
- **State Ratification Requirement**:
  - **Not required** for amendments related to **Parliament & State Assemblies**.
  - **Required** for amendments affecting **Local Bodies** (7th Schedule, Part IX & IXA) under **Article 368(2)** (needs approval from at least **half of the states**).

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- **Logistical Arrangements**:
  - ➡ **Lok Sabha & State Assemblies**: **ECI** to plan **EVM/VVPAT procurement, polling personnel, & security deployment**.
  - ➡ **Municipalities & Panchayats**: **State Election Commissions**, in coordination with **ECI**, to handle logistics.
- **Implementation Group**: To **monitor & oversee execution** of **Simultaneous Elections**.

Challenges and Complexities of Simultaneous Elections

- **Overshadowing Regional Issues**: National issues may dominate, sidelining **state-specific concerns**.
- **Impact on Regional Parties**: National parties may gain an **electoral advantage**, weakening regional representation.
- **Political Accountability**: Fixed terms reduce **frequent accountability**, potentially undermining democratic principles.
- **Federalism Concerns**: Amendments to **Article 172** (State Legislature terms) **do not require state ratification**, limiting state influence.
- **Logistical Issues**: Requires large number of **EVMs, trained personnel, and security resources** for nationwide execution.

Conclusion

A **balanced approach** is needed to ensure the **efficiency** of simultaneous elections while upholding **federalism, democratic integrity, and political plurality** through **detailed legislative deliberations**.

Committees recommended for simultaneous elections

170th Report of Law Commission of India, 1999	National Commission to Review the Working of the Constitution, 2002	Parliamentary standing committee report, 2015	Working Paper of NITI AAYOG in 2017
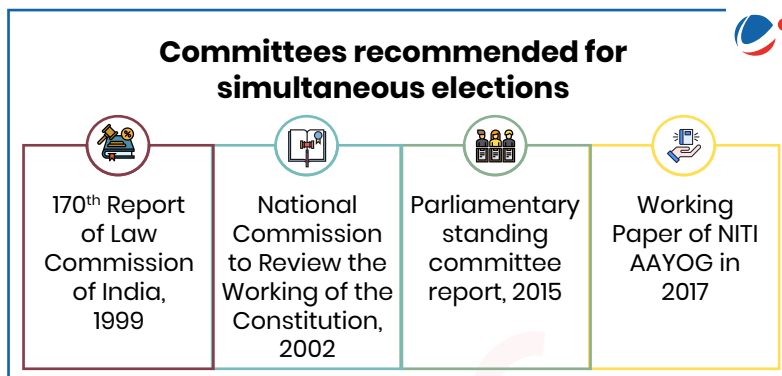
1.4. USA PRESIDENTIAL ELECTION

Why in the News?

Recently, U.S. Presidential election was conducted through the Electoral College system.

Comparison of USA and Indian Presidential Elections

Parameters	USA	India
Composition of Electoral Members	● Electoral College with 538 electors ● Electors chosen by state voters, vary by state's Congressional representation. ● Requires 270 votes for presidency.	● Electoral College includes **elected members** of both Houses of Parliament and State Legislative Assemblies (SLAs). ● Excludes nominated members from both House and SLAs
Governing Act/Rules	● Decentralized; each state has its own election rules.	● Governed by **the Presidential and Vice-Presidential Elections Act, 1952.**
Nomination Process	● Candidates gain nominations via primaries and caucuses.	● Nomination requires 50 electors as proposers and 50 as seconders.
Election Methods	● Mostly winner-take-all system, except in Maine and Nebraska. ● Presidency can be won without a popular vote majority (e.g., Trump, 2016).	● Uses Proportional Representation by single transferable vote, secret ballot. ● Needs over 50% of votes to win.
Frequency of Election	● Every 4 years on a fixed schedule.	● Every 5 years, barring exceptions.
Running Mate	● President chooses a Vice-Presidential running mate.	● Separate election for Vice President.

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1.5. FREE LEGAL AID

Why in the News?

The Supreme Court (SC) issued directions for Legal Services Authorities (LSAs) to ensure access to free legal aid for prison inmates.

SC Directions to ensure access to free legal aid for prison inmates

- **Effective implementation of SOP-2022** with periodic upgradation.
- **Strengthen the monitoring** of Prisoner Legal Aid Clinics (PLACs)
- Periodical **update statistical data**
- **Inspection and audit of the work** of the Legal Aid Defence Counsels
- **Awareness generation** about available schemes and legal aid services in local languages
- **Periodic reporting** to be submitted by the DLSAs to the SLSAs

Free Legal Aid in India

- **Legal aid** in India refers to the provision of **free legal services** to individuals who are **unable to afford legal representation or access to the justice system.**
  - Legal aid can include **legal advice, representation in court proceedings, mediation, negotiation, and alternative dispute resolution mechanisms.**
- **Constitutional provisions :** Article 21, 39A
- **Statutory provisions:**
  - Legal Services Authorities Act, 1987
    - ◊ Three tiered structure – NALSA, SLSAs, DLSAs.
  - Bhartiya Nagarik Suraksha Sanhita, 2023 (sec 341)
- **Significance:** Social welfare and justice, Protection of rights, Strengthening rule of law, and Legal awareness.
  - **Government Steps:** Designing Innovative Solutions for Holistic Access to Justice in India (DISHA) scheme, Tele-Law, Nyaya Bandhu (Pro Bono Legal Services) programme , Nyaya Mitra programme, Lok Adalat, etc.
  - **Important Judgements: Hussainara Khatoon v. State of Bihar, 1979** (fundamental right to speedy trial), **Khatri & Others v. State of Bihar, 1981** (highlighted importance of legal aid), etc.
- **Eligibility:** Women and children, Scheduled Castes/Scheduled Tribes, Persons with Disabilities, etc.

Issues with access to free legal aid

- Lack of awareness in undertrial prisoners of their rights
- Poor quality of legal aid
- Insufficient funding
- complex eligibility criteria
- bureaucratic hurdles
- Barriers to access for marginalized communities (Geographical distance, language barriers)

1.6. JAN YOJANA ABHIYAN

Why in News?

Ministry of Panchayati Raj launched the People's Plan Campaign (Jan Yojana Abhiyan) for the preparation of Panchayat Development Plans (PDPs) for 2025–26.

About Jan Yojna Abhiyan

- **Aim:** To accelerate **people's participation** in the process of preparation of the Panchayat Development Plan.
- **Implementation**: At all three tiers of Panchayats with involvement of Elected Representatives, Government Frontline workers, and Community-Based Organizations.

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Features

- **Structured Sabhas** by adopting a 'Whole of Government and Whole of Society approach.'
- Preparation of **Gram Sabha wise calendar** and identification of **Thematic developmental gaps** based on the **Panchayat Development Index (PDI),** to be presented in the Gram Sabha.
- **Inclusive participation**: Engage the youth and the elderly (more than 75 years) and collaboration with Unnat Bharat Abhiyan: Involving 15,000+ students from HEIs
  - **Forms of participation:** As a right(vote), as a process(audit), as an end(affirmative action).
- **e-Gram Swaraj portal** for publishing approved GPDP.

Significance of People's participation in Development Planning

- **Implementation Efficiency:** Example - MGNREGA with Gram Sabha reviews and MIS monitoring
- **Inclusive decision-making:** Example - MyGov Saathi 2.0 for citizen participation
- **Self-reliance:** Example - Self-Help Groups under NRLM
- **Coverage:** Example - Swachh Bharat Abhiyaan's community volunteers
- **Sustainability:** Example - Joint Forest Management (JFM)
- **Improved design:** including local knowledge

Challenges in people's participation

- Local governments lack the necessary funds and capacity.
- Complex bureaucratic procedure.
- Non-obligatory nature of participation in various programmes.
- Lack of a direct incentive for people to be involved.
- Historic patron-client attitude can create attitudinal rigidity.

Way Forward

- Policy integration with conventional planning
- Strengthening local governance
- Technological integration: participatory GIS
- Community Capacity Building
- Behavioural change initiative

1.7. MUNICIPAL CORPORATIONS IN INDIA

Why in the News?

The report titled **"Own Sources of Revenue Generation in Municipal Corporations: Opportunities and Challenges"** was released by the RBI.

Key Findings of the RBI Report

- **Low Revenue Generation:** Municipalities generate only 0.6% of GDP (in 2023-24), much less than central and state governments.
  - **Tax revenues:** 30% of municipal income, followed by significant dependence on grants, contribution, etc. (24.9%) and fees, user charges (20.2%).
  - **Property tax collection efficiency**: low, at 56% of demand (CAG Report).
- **Reliance on Transfers**: Heavy reliance on Central and State government grants, which increased in 2022-23.
- **Municipal Borrowing**: Increased from 1.9% to 5.2% of receipts from 2019-20 to 2023-24.
- **Municipal Bonds**: Market is underdeveloped, with green bonds in early stages.

Other Issues

- **Financial Challenges:**
  - **Ad-hoc implementation** of State Finance Commission (SFC) recommendation.
  - **Low fund utilization** as 11 out of 18 states have utilized only 61% of the funds (CAG Report).

- **Governance Challenges:** Limited devolution of powers delayed municipal elections, high vacancy rates in staffing, and insufficient focus on urban development.

Municipal Institutions in India

- Urban areas house over 400 million people, expected to double by 2050, contributing significantly to GDP despite occupying only 3% of land.
- **Revenue and Fiscal Powers:**
  - **Article 243X:** Allows states to authorize ULBs to levy taxes, duties, and fees.
  - **Article 243Y:** State Finance Commissions (SFCs) review tax devolution.

Revenue Sources of Urban Local Bodies

- **Own Sources:**
  - **Tax Revenue:** Property tax, water benefit tax.
  - **Non-Tax Revenue:** User charges, developmental charges.
- **Other Receipts:** Lease rent, sale of rubbish.
- **Assigned (Shared) Revenue:** Entertainment tax, professional tax.
- **Grants-in-aid:** From Central and State Finance Commissions, specific urban programs.
- **Borrowings:** From state/central governments and banks.

Way Forward

- **Enhance Own-Source Revenue:** Improve property tax systems with technology, adjust non-tax revenues for cost recovery.
- **Timely Transfers:** Predictable state funding, regular SFC formation.
- **Diversify Funding:** Increase municipal bonds, explore climate finance for sustainable projects.
- **Transparent Financial Management:** Standardize accounting practices as per NMAM.
- **Human Resources:** Address staffing and training issues, promote specialized municipal cadres.

1.8. DIGITIZATION OF LAND RECORDS

Why in News?

Union Minister of Rural Development recently notified that nearly 95% of the land records have been digitized in Rural India since 2016.

More on the News

- This milestone is credited to the **Digital India Land Records Modernization Programme** (DILRMP).
- **Cadastral map digitization** stands at **68.02%** nationally.
- **87% of Sub-Registrar Offices (SROs)** are now linked with land records.

About Digital India Land Records Modernization Programme (DILRMP)

- **Launched:** In 2016, by revamping the National Land Records Modernization Programme.
- **Ministry:** A Central Sector Scheme managed by the Department of Land Resources, Ministry of Rural Development.
- **Extended from 2021-22 to 2025-26, including new components:**
  - Computerization of Revenue Courts and their integration with land records.
  - Consent-based linking of Aadhaar with Records of Rights (RoR).
- **Aim:** To shift from a manual presumptive title system to a digital conclusive land titling system.

Need for Digitization of Land Records

- **Socio-economic relevance:** Essential for the livelihood of vulnerable groups.
- **Land ownership disputes:** Over 60% of litigation in India involves land, exacerbated by forgery and Benami properties.
  - Conclusive land titling provides clear ownership, government granted.
- **Inefficient administrative processes:** Complex updates foster corruption and land grabbing.

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- **Outdated mapping**: Records do not reflect current land possession and ownership.
- **Targeted public service delivery**: Improves access to schemes like PM-Kisan for farmers.
- **Strengthening revenue administration**: Enhances property tax collection and local government financing.
- **Infrastructure development**: Reduces delays caused by land disputes, discourages black market land transactions.

> **Land Reforms in India:** Land reforms have been a focus in Five-Year Plans and by the J. C. Kumarappa Committee (1949), encompassing:
> - **Abolition of intermediary tenures (Zamindari)**: Land redistribution with 'land to the tiller' in the 1950s-1970s.
> - **Tenancy reforms**: Preventing tenant evictions and ensuring fair rent, though with limited success.
> - **Ceiling of land holdings**: Capping land ownership and redistributing surplus, with challenges in implementation.
> - **Consolidation of holdings**: Merging fragmented lands for better farming practices, met with resistance.
> - **Compilation and updating** of land records.

key initiatives under DILRMP

- **Bhu-Aadhar - Unique Land Parcel Identification Number (ULPIN):** A 14-digit alphanumeric code for each land parcel to streamline real estate transactions, resolve property disputes, etc.
- **National Generic Document Registration System (NGDRS):** E-Registration system for deeds/document registration for a uniform process.
- **E-Court Integration:** To aid faster dispute resolution and reduce land disputes.
- **Transliteration of Land Records:** In **22 scheduled languages** to overcome language barriers.
- **Bhoomi Samman:** Awards (Platinum Grading) for districts achieving saturation of core components of DILRMP.

Challenges in the Digitalisation of Land

- **Presumptive land titling**: Registration of sales deeds doesn't guarantee ownership.
- **Centre-State coordination**: Land being state-managed, cooperation is crucial but often lacking.
- **Silos approach of Departments**: Multiple documents across departments complicate access.
- **Legal provisions related to registration**: Non-mandatory registration leads to more litigation.
- **High Cost of registration**: High fees deter formal registration, causing discrepancies.
- **Others**: Legacy data, resistance to change, regional infrastructure gaps, procedural and technological issues.

Way Forward

- **Conclusive land titling**: Towards transparency and accuracy with NITI Aayog's Model Act support.
- **Legal reforms**: Update laws for property title registration.
- **Technological integration**: Enhance GIS for better mapping, implement NGDRS.
- **Training and awareness generation**: Educate personnel and public for effective digital implementation.

1.9. RIGHT TO INFORMATION (RTI) ACT, 2005

Why in the News?

Right to Information (RTI) Act, 2005 approaches its 20th anniversary in 2025.

About RTI Act

- It provides citizens the right to secure **access to information** under control of Public Authorities (PAs).
- **Coordinating agency**: Department of Personnel and Training under Ministry of Personnel, Public Grievances and Pensions.
- **Supreme Court Judgement**: **'Raj Narayan v/s Uttar Pradesh Government' case,** established right to information as a fundamental right under the Article 19.

Key Provisions of the RTI Act

- **Institutional framework**: Central and State Information Commissions and Central Public Information Officers (PIO) or State PIOs.

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- **Rights provided**: right to request information from and obligations of Public Authorities to maintain records and proactively disclose .
- **Exemptions from Disclosure**(Section 8): see infographic
- **Other key Provisions**: Penalties(incorrect, incomplete information); Time (Within 30 days); Appeals , etc.
- **Amendments**:
  - **Right to Information (Amendment) Act, 2019**: Central Government to prescribe the Terms, Salaries, Allowances and other terms of service of Chief Information Commissioners (ICs) and ICs.
  - **Digital Personal Data Protection (DPDP) Act, 2023**: exempted all personal information from disclosure.
- **Significance of Right to Information:** Empowerment of Citizens, Transparency, Accountability, Expose Corruption, Effective Implementation of Policies and Welfare Schemes

Information exempt from disclosure (Section 8)

- **Affects sovereignty and integrity, security,** strategic, scientific or economic interests of India.
- Affects r**elations with foreign State**
- Leads to **incitement of an offence**
- Causes **Breach of privilege** of Parliament/State Legislature
- May **constitute contempt of court**.

- Information received in confidence from foreign Government
- **Endangers the life or physical safety** of any person.
- **Impedes investigation process** or apprehension/ prosecution of offenders etc.
- **Expressly forbidden** to be published by any court of law/ tribunal

Challenges in implementation of RTI Act

- **Functional Issues**: Defunct ICs and vacancies, Inordinate delays, Backlogs, Skewed gender composition.
- **Structural Issues**: Exemptions, Authorities outside 'Public Authority' definition(e.g. PM CARES Fund), Dilution through amendments(2019 Amendment), etc.
- **Procedural Issues**: Bureaucratic Resistance, corruption , Non-Compliance (Political parties), Lack of Awareness and Education, etc.
- **Other issues**: Lack of protection of RTI activists; Inadequate training of PIOs; Contradiction with Official Secrets Act, 1923 etc.

Way Forward

- Recommendations of 2nd ARC, Example- National Coordination Committee (NCC); Awareness campaigns, etc.
- Recruitment of adequate staff
- Proper record keeping by experts
- Rigorous training to officials, Digitisation etc.

1.10. GRIEVANCE REDRESSAL MECHANISM

Why in the News?

The **Ministry of Personnel, Public Grievances & Pensions (MoPPG&P)** issued **new guidelines** to make **public grievance redressal** more **time-bound, accessible, and efficient**.

Key Highlights of the Guidelines

- **Integrated Grievance Filing Platform**: CPGRAMS to serve as a **single-window system**, reducing **duplication and workload**.
- **Nodal Officers for Public Grievances**: Each **Ministry/Department** will have **designated officers** for quick and fair grievance handling.
- **Dedicated Grievance Cells**: Ministries/Departments must **set up grievance cells** with trained personnel familiar with government schemes.
- **Reduced Timelines**: Grievance resolution timeline **reduced to 21 days** from **30 days**.
- **Grievance Redressal Index**: **Monthly ranking** of Ministries/Departments based on grievance resolution performance.
- **Technology-Driven Reforms**: The **2024 guidelines** reflect **10-step CPGRAMS reforms** adopted in **2022** for better efficiency.

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10-step reforms of CPGRAMS

Universalization of CPGRAMS 7.0	Technological Enhancements using **AI/ML**	Language Translation of CPGRAMS portal into **22 Scheduled languages**	Operationalization of **Grievance Redressal Index**	Operationalization of a **Feedback Call Centre**
One Nation One Portal by integration of State Portal/Other Grievance Portals with CPGRAMS	**Inclusivity and outreach** with availability of CPGRAMS in all Common Service Centres	**Training and Capacity Building** of Grievance Redressal Officers under Sevottam scheme	**Publishing monthly reports** for Central Ministries/Departments and States/UT's	Establishment of a **Data Strategy Unit** for data analytics

About Grievance Redressal Mechanism (GRM)

- GRM is a key **feedback mechanism** that evaluates an organization's **efficiency** in service delivery.
- **Core Principle**: If a **service commitment** is not met or a **citizen's right** is violated, they should have **a structured mechanism** for grievance redressal.
- **Nodal Agencies for Grievance Handling**
  - **Department of Administrative Reforms and Public Grievances (DARPG)** – Under **MoPPG&P**.
  - **Directorate of Public Grievances** – Under **Cabinet Secretariat**.
- **Status of Grievance Redressal**
  - **CPGRAMS (Centralised Public Grievance Redress and Monitoring System)** has resolved **~60 lakh grievances** (2022-2024).
  - **1.01 lakh grievance redressal officers** mapped across **Ministries/Departments & States/UTs**.
  - **CPGRAMS** is a **24x7 online portal**, providing a **single-window** access for citizens to lodge grievances **related to service delivery**.
  - It is **integrated** with all **Ministries/Departments & States** through a **role-based access system** for grievance resolution.

Importance of Grievance Redressal Mechanism (GRM)

- **Builds Trust**: Strengthens government-citizen relations.
- **Ensures Accountability**: Holds officials and institutions responsible.
- **Identifies Bottlenecks**: Improves policies through feedback.
- **Tackles Corruption**: Provides a secure complaint platform.
- **Protects Rights**: Ensures justice and fairness.
- **Prevents Unrest**: Resolves issues before escalation.

Other Initiatives for Grievance Redressal

- **Statutory Bodies**: CVC, Lokayuktas, NHRC, SHRC address corruption, misconduct, and rights violations.
- **Grievance Redressal Assessment Index (GRAI)**: DARPG initiative for evaluating GRM effectiveness.
- **PRAGATI**: Multi-modal platform for grievance redressal and project monitoring.
- **E-Nivaran**: CBDT initiative for speedy taxpayer grievance resolution.
- **Citizen Charter**: Ensures transparency in public service delivery.

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Issues in Grievance Redressal Mechanism

- **Delays**: Bureaucratic inefficiencies and resource constraints weaken trust.
- **Corruption**: Manipulation and bribery hinder fair redressal.
- **Lack of Integration**: Multiple platforms make grievance tracking difficult.
- **Digital Divide**: Limited internet access and digital literacy exclude many citizens.

Way ahead

- **2nd ARC Recommendations**
  - **Independent Authorities**: States should establish **public grievance redressal bodies**.
  - **Root Cause Analysis**: Identify and address systemic issues causing grievances.
- **Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice, (25th Report)**
  - **Statutory Framework**: GRM should be **legally mandated** like RTI.
  - **Efficiency & Accessibility**: Ensure a **simple, quick, and fair** grievance system.
- **Decentralization**: Empower local offices for faster resolution.
- **Simplification**: Reduce paperwork and formalities.
- **Monitoring & Feedback**: Set **key performance indicators** to track efficiency.
- **Tech Integration**: Use **AI & data analytics** for better grievance handling.

1.11. NON-GOVERNMENTAL ORGANIZATIONS (NGOS)

Why in the News?

The Ministry of Home Affairs (MHA) has mandated NGOs under the Foreign Contribution (Regulation) Act (FCRA), 2010, to report changes in key office bearers, even if their FCRA license application is pending.

More on the News

- NGOs can submit new applications to replace pending ones.
- Several NGOs lost registration due to FCRA violations.

NGOs and their Regulation in India

- **Definition:** NGOs are non-profit organizations with humanitarian or development goals, operating independently from government.
- **Formed under:**
  - **Societies**: Under **Societies Registration Act, 1860**.
  - **Trusts**: Private under **Indian Trusts Act, 1882**; public under state legislation.
  - **Charitable Companies**: Under **Section 8 of Companies Act, 2013**.
- **FCRA Registration**: Mandatory under FCRA, 2010 for NGOs receiving foreign contributions.
  - **Regulation under FCRA, 2010:** Controls foreign funding to prevent misuse affecting national security or public interest. **2020 Amendments** include
    - ◊ Mandated specific bank accounts for foreign contributions.
    - ◊ Prohibited fund transfers to others.
    - ◊ Reduced admin expenditure from foreign funds to 20%.
    - ◊ Empowered government to restrict fund utilization after inquiries., requiring Aadhar number as identification, etc.

Constitutional Provisions related to NGOs:

- **Seventh Schedule:** Trust and Charities/Charitable Institutions fall **under the Concurrent List**.
- **Article 19(1)(c):** Right to Form Associations or Unions

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Roles and Responsibilities of NGOs

- **Governance**: Enhancing democracy, supporting government initiatives.
- **Social Reforms**: Human rights, women's empowerment, poverty alleviation.
- **Human Development**: Education, health improvement.
- **Other Activities**: Research, cultural preservation, environmental advocacy.

Government Support for NGOs:

- **Funds** for welfare schemes, cultural grants, and NGO.
- **Darpan portal** for unique NGO identification.

Challenges/Issues

- **Functional**: Donor-driven agendas, interference in national projects (E.g., Kudankulam atomic energy programme), security concerns.
- **Regulatory**: Strict FCRA rules, potential for financial mismanagement.
- **Operational**: Donor dependency, volunteer engagement, tech limitations.

Recommendations for Improvement

- **Vijay Kumar Committee (2017):** Light regulation, modernized registration, nodal body for oversight, accreditation, database for transparency, promoting volunteerism.
- **2nd ARC Recommendations:** Decentralize FCRA implementation, balanced legislative interpretation.

1.12. GLOBAL AI GOVERNANCE

Why in the News?

The **Council of Europe (COE) Framework Convention on AI**, the **first legally binding international treaty** on AI, was **opened for signature**.

More on the News

- **COE**: Formed in **1949**, with **46 members**, including **Japan, U.S., and EU nations**.
- **Initiation**: Began in **2019** under **CAHAI (Ad Hoc Committee on AI)** to assess feasibility.
- **Alignment**: Complements **G7 AI Pact, EU AI Act, and Bletchley Declaration**.

What is the need for global AI governance?

- **Risk Mitigation**: Prevents **job losses, bias, misuse in surveillance, AI arms races**, etc.
- **Threat to Democracy**: Tackles **disinformation and deepfakes** that undermine elections.
- **Addressing Inequities**: Ensures **developing nations** have a say in AI policies.
- **Transboundary Issues**: AI-related **data privacy & security** concerns affect multiple nations.
- **AI Misalignment**: Prevents **biased algorithms, unsafe medical AI, and flawed content moderation**.
- **Widespread AI Adoption**: Regulates AI in **healthcare, finance, and law enforcement** for ethical use.

What are the challenges in global AI governance?

- **Representation Gap: Many nations, especially from the Global South, lack participation** in AI governance, affecting decision-making and funding.

Key Provisions of the Framework Convention

- **Scope**: Applies to **AI use by public authorities** and **private actors acting on their behalf**.
- **Obligations of Signatories**:
  - Ensure AI activities **align with human rights laws**.
  - Prevent AI misuse that **undermines democracy and institutions**.
  - **Technology-neutral** approach, avoiding direct regulation of AI tech.
- **Risk-Based Approach**: Covers **AI design, development, and decommissioning** globally.
- **Exceptions**: Excludes **national defense** and **R&D**, unless AI testing affects **human rights, democracy, or the rule of law**.
- **Core Principles**: Establishes **fundamental guidelines** for AI system lifecycles.
  - Human dignity and individual autonomy
  - Equality and non-discrimination
  - Respect for privacy and personal data protection
  - Transparency and oversight
  - Accountability and responsibility
  - Reliability
  - Safe innovation

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- Example: Only **seven** countries participate in all AI initiatives, while **118 nations** are entirely excluded.
- **Coordination Gap**: Absence of a **global mechanism for AI standards** leads to:
  - **Fragmentation** – Different AI policies create **interoperability issues**.
  - **Ad hoc responses** – Lack of a unified approach to AI challenges.
  - **Narrow focus** – Limits tackling AI's broader global impacts.
- **Implementation Gap**:
  - **Weak accountability mechanisms** for governments and corporations in AI governance.
  - **Limited resources and networking** in national AI strategies, leading to ineffective execution.
  - **No dedicated global funding** for AI capacity-building at scale.

Way forward

- **Suggestions from UN Report 'Governing AI for Humanity'**
  - **Flexible Global AI Governance**: Promote a **globally connected approach** fostering shared understanding and benefits.
  - **Independent International Scientific Panel on AI**: Diverse voluntary experts to guide AI governance.
  - **Biannual AI Policy Dialogue at UN**: Engage **governments and stakeholders** on best practices for AI development.
  - **AI Exchange**: Maintain a **register of AI definitions and standards** for evaluation.
  - **AI Capacity Development Network**: Connect UN-affiliated centres for **training and expertise-sharing**.
  - **Global Fund for AI**: Collect **public and private contributions** to enhance local AI accessibility.
- **Other Steps**
  - **Formulating AI Law**: MeitY is drafting an **AI-specific law** balancing **economic benefits with risk mitigation**.
  - **Ensuring AI Alignment**: AI systems should align with **human values, ethics**, and address risks like discrimination and misinformation.

Potential of AI to Transform Governance in India

- **Efficient Service Delivery**: AI automates public services, reducing government workload and improving service quality.
- **Education**: AI can personalize learning, create smart content, and automate grading and assessments.
  - For example, NCERT has listed 31 metadata elements for each resource in its NROER repository.
- **Healthcare**: AI improves delivery and accessibility, especially through telemedicine in remote areas.
  - NITI Aayog with DBT aims to build a database of cancer-related images for AI use in cancer management.
- **Agriculture**: AI offers predictive insights for weather, pest management, and resource use.
  - The National Pest Surveillance System uses AI and ML for timely crop intervention.
- **Inclusivity and Accessibility**: AI-powered DPI systems bridge linguistic and accessibility gaps.
  - For example, the Bhashini platform uses AI for regional language government services.
- **Data-Driven Policymaking**: AI analyzes large datasets for policy formulation, enhancing transparency.
  - The India Urban Data Exchange uses AI for urban service optimization.
- **Judicial Efficiency**: AI automates case management, predicts outcomes, and streamlines legal research.
  - SUVAS is an AI-based translation tool for legal proceedings.
- **Disaster Management**: AI systems like RAHAT provide early warnings and support emergency responses.

Initiatives to Promote AI in India

- **National Strategy for AI (NSAI):** NITI Aayog's #AIforAll strategy focuses on sectors like healthcare, agriculture, and education.
- **India AI Program:** MeitY's initiative for AI innovation, skill development, and ethical practices.
- **Digital Personal Data Protection Act**: Strengthens data privacy concerning AI.
- **Global Partnership on AI (GPAI):** India collaborates to align AI strategies globally.
- **Skill Development**: Programs like Responsible AI for Youth and Future Skills expand AI education.
- **International Partnerships**: Such as the US-India AI Initiative for AI in healthcare and agriculture.

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1.13. NEWS IN SHORTS

1.13.1. Section 6A of Citizenship Act

Constitution bench of Supreme Court (SC) upheld the validity of Section 6A of Citizenship Act.

- **Section 6A:** added through **Citizenship Amendment Act, 1985** in furtherance of **'Assam Accord'** (citizenship to migrants from East Pakistan to Assam).

SC judgment

- **Legislative competence of Parliament to enact section 6A**: under Article 246 (Entry 17 of Union list)
- **Article 14 (Equality)**: Not violated because the migrant situation in Assam was unique.
- **Impact on Culture (Article 29 (1)):** No evidence
- **Cutoff date of 24 March 1971**: Reasonable because Pakistani Army launched Operation in East Pakistan on 26 March 1971.

Test of Proportionality requires that Measures to restrict Fundamental rights must satisfy

Legitimacy: Evaluates if the law serves a valid government objective.

Suitability: Checks if the law effectively addresses that objective.

Necessity: Considers whether the law is essential, or if less restrictive alternatives are available.

Balancing: Weighs the benefits of the law against the rights it may infringe upon.

1.13.2. Aligarh Muslim University's (AMU) Status as Minority Institution

Recently, Supreme Court (SC) overturned its decision which denied AMU's status as a minority institution.

Background:

- **Overturn of 1967 Ruling:** Reversed its 1967 decision that AMU wasn't a minority institution due to its statutory establishment.
- **Legal Contests:** An attempt to restore status via the 1981 amendment was voided by the Allahabad High Court in 2006, leading to a 2019 Supreme Court appeal.
- **Reconsideration:** The issue is now referred back to a bench for further review under this judgment's guidelines.

Key Highlights of the Judgment:

- **Administration**: Not necessary for minorities to control administration.
- **Origin**: Focus on who established the institution.
- **Statutory Creation**: Doesn't cancel minority status.
- **Historical Rights**: Pre-independence institutions have Article 30(1) protections.

Fundamental Rights under the Constitution:

- **Article 30(1):** Allows minorities to manage educational institutions.
- **National Commission for Minority Educational Institutions (NCMEI) Act**: Ensures minority educational rights under Article 30(1).

1.13.3. 2023 amendment to Rule 3 of IT Rules 2021

Bombay HC struck down the 2023 amendment to Rule 3 of the IT Rules mandating **Fact Checking Units (FCU)** in **Kunal Kamra vs Union of India (2024)** case.

Background

- **2023 Amendment** [(Rule 3(1)(b)(v)] to **IT (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021** empowered Govt. to **flag fake news** about its business on social media via **FCU**.
  - **Intermediaries** had to **remove flagged content** or face **legal action** and loss of **safe harbor** protection.
- **2023**: **SC stayed** the establishment of **FCU** in **Press Information Bureau (PIB)**.

Key Observations by the HC

- **Ultra Vires**: Rules exceed the powers granted by the **IT Act, 2000** and are **unconstitutional**.
- **Violation of Fundamental Rights**:
  - **Article 14** – Equality before law.
  - **Article 19(1)(a)** – Freedom of speech & expression.
  - **Article 19(1)(g)** – Freedom to practice any profession.
  - **Article 21** – Right to life & personal liberty.
- **Vague Definition**: Lacks clarity on **fake or misleading news**.
- **No "Right to the Truth"**: **State** is not responsible for ensuring **only accurate information** via FCU.
- **Fails Proportionality Test: Restrictions** imposed are **excessive** and **not justified**.

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1.13.4. 23rd Law Commission Constituted

President approves the constitution of the **23rd Law Commission** for a **three-year term (1st Sept 2024 – 31st Aug 2027)**.

- **Mandate**: **Review and recommend legal reforms** to improve the Indian legal system.
- **Composition**: **Full-time chairperson**, **four members**, and additional **ex-officio & part-time members**.

Terms of Reference (ToR)

- **Review/Repeal of Obsolete Laws**: Develop SOPs for periodic review, recommend amendments or repeals based on relevance and economic needs.
- **Law and Poverty**: Assess laws affecting the poor and conduct post-enactment audits of socio-economic legislation.
- **Judicial Administration**: Ensure speedy case disposal, reduce delays, and harmonize High Court rules.
- **Directive Principles of State Policy (DPSPs)**: Recommend legal reforms for effective DPSP implementation and Preamble objectives.
- **Gender Equality**: Strengthen laws through amendments.
- **Central Acts Revision**: Remove anomalies and inequities.
- **Globalization Impact**: Analyze effects on food security, unemployment, and suggest protective measures for marginalized communities.

Law Commission of India (LCI)

Type: It is a non-statutory body constituted by a notification of the Ministry of Law and Justice.

Aim: Reform laws to maximize justice and promote good governance under the rule of law.

It conducts **research and provides recommendations** based on the defined ToRs.

History: First constituted in 1834 by the Governor-General under the Charter Act of 1833, chaired by Lord Macaulay.

1.13.5 'Black Coat Syndrome' in Courts

The President highlighted **delays in justice**, describing the **anxiety** experienced by ordinary citizens in courts as **'Black Coat Syndrome'**, analogous to **White Coat Hypertension**, where hospital visits trigger a rise in blood pressure.

Reasons for Such Perception

- **High Pendency**: **82,887 cases** pending in SC (as of Aug 31, 2023)(National Judicial Data Grid).; delays in serious crimes like **rape** create public distrust.
- **Frequent Adjournments**: **Increases mental & financial burden**, especially for rural litigants.
- **Issues in District Judiciary**: **Only 6.7%** of courts have **female-friendly** infrastructure, affecting accessibility.
- **Public Perception**: **District courts** shape trust in the judiciary, but delays and lack of inclusivity create **insensitivity concerns**.

Steps Taken to Address These Issues

- **Modernizing Judiciary**: e-Courts Integrated Mission Mode Project, Tele-Law Programme.
- **Alternative Dispute Resolution**: Lok Adalats and pre-litigation dispute resolution.
- **Infrastructure Development**: Centrally Sponsored Scheme for Judicial Infrastructure.
- **Legal Reforms to Reduce Pendency**: SC's retrospective application of **Section 479** of **BNS** for bail accessibility.
- **Institutionalizing Pro Bono Culture**: Nyaya Bandhu Programme for free legal services.

1.13.6. Report on Prisons in India

Recently, President of India released report on 'Prisons in India: Mapping Prison Manuals and Measures for Reformation and Decongestion'.

- **Crafted**: by the **Supreme Court's (SC) Centre for Research & Planning**

Key Findings of the Report:

- **Stereotyping**: Sanitation jobs labeled as "menial" in prison manuals.
- **Bail Rejection**: High rejection rates for bail (32.3% Sessions, 16.2% Magisterial).
- **Slow Trials**: Over 52% of cases pending evidence after a year in custody.
- **Other Issues**: Manual scavenging, caste-based work division, and underused open prisons.

Technology in Prison Reforms

- **E-prisons**: National Informatics Centre's system for prison management.
- **Model Prison and Correctional Services Act, 2023**: Advocates for electronic monitoring for prison leaves.
- **SC's FASTER (Fast and Secured Transmission of Electronic Records) System**: Improves bail order communication from courts to prisons.
- **Interoperable Criminal Justice System (ICJS):** Aims to link courts, police, and prisons to reduce delays in custody.

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1.13.7. Rights of Detenu in Preventive Detention

In Jaseela Shaji vs Union of India (2024), the Supreme Court reaffirmed the rights of detainees to make an effective representation against **preventive detention** (detention without trial).

Key Highlights of the Judgment

- **Right to Grounds of Detention**: Detenu must receive **grounds of detention** along with **supporting documents**.
- **Timely Disclosure**: Delay or failure in providing documents **violates Article 22(5)**, denying effective representation.
- **Obligations Under Article 22(5)**:
  - Inform detenu of detention grounds **as soon as practicable**.
  - Provide **earliest opportunity** for representation against detention.

Preventive Detention

- **Article 22(3)** permits **preventive detention** for reasons like **public order** or **national security**.
- **Safeguards Under the Constitution**
  - **Time Limit**: Detention **beyond 3 months** requires **Advisory Board approval**.
  - **Right to Information**: Grounds for detention must be **communicated at the earliest**.
  - **Right to Representation**: Detenu must get the **earliest opportunity** to challenge detention.

Laws for preventive detention

- National Security Act, 1980
- Unlawful Activities (Prevention) Amendment Act, 1967
- Conservation of Foreign Exchange and Prevention of Smuggling Activities Act (COFEPOSA), 1974
- Prevention of Black Marketing and Maintenance of Supplies of Essential Commodities Act (PBMSECA), 1980

1.13.8. Plea Bargaining

Only **0.11% of cases** were resolved through **plea bargaining** in **2022** (Ministry of Law and Justice).

About Plea Bargaining

- **Definition**: Agreement where **accused pleads guilty** in exchange for a **lesser offense** or **reduced sentence**.
- **Introduced**: **2006** through **CrPC amendments**.
- **BNSS Provision**: **Section 290** mandates a **30-day limit** for filing after charge framing.

- **Application**:
  - **Applicable**: Offenses **punishable up to 7 years**.
  - **Exclusions**: Crimes against **women, children, and socio-economic offenses**.

1.13.9. Supreme Court Questions Feasibility of Gram Nyayalayas

SC raised concern regarding the feasibility of setting up Gram Nyayalayas (village courts), as mandated by the Gram Nyayalayas Act of 2008.

Key Concern raised by SC

- Whether **establishment of Gram Nyayalayas by States/UTs** is mandatory or not under Gram Nyayalayas Act of 2008.
- **Resource Crunch for State governments** to fund additional gram nyayalayas.
- **Rising Burden on high courts** with appeals and writ petitions.

About Gram Nyayalayas

- **Objective:** Ensures that opportunities for securing justice are not denied to any citizen by reason of social, economic or other disabilities.
- **Seat:** Establish at intermediate level Panchayat with 'Nyayadhikari' (appointed by State government in consultation with High Court) at the top.
- **Jurisdiction**: Both civil and criminal jurisdiction
- **Dispute Process:** Disputes are to be preferably settled with the help of conciliation.
  - Not bound by the **Bharatiya Sakshya Adhiniyam** but by **Principles of Natural Justice**.
- **Implementation Status** : Initial target of around 2,500 gram nyayalayas, however, less than 500 have been established.
- **Initiative to Support Gram Nyayalayas**: '**Gram Nyayalayas scheme'** for financial assistance to States by Union.

1.13.10. Prior Sanction Mandatory to Prosecute Public Servants

Supreme Court ruled that **prior sanction is mandatory to prosecute public servants** in **money laundering cases.**

- Thus, adds **procedural safeguards** to PMLA prosecutions.

Key Points from 'Directorate of Enforcement vs. Bibhu Prasad Acharya' Case:

- PMLA doesn't override CrPC's sanction requirement (now Section 218, BNSS, 2023).
- Section 197 CrPC protects public servants but allows prosecution with government sanction.

Civil Servant Protections: Articles 311(1) & 311(2) of the Constitution, and Public Servants (Inquiries) Act, 1850 provide safeguards.

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About PMLA, 2002:

- **Aims:** to prevent money laundering, confiscate crime proceeds.
- **Implementing Authorities**: Enforcement Directorate (ED) and Financial Intelligence Unit- India (FIU-IND).
- **Defines money laundering** as activities like concealing, possessing, or acquiring proceeds of crime to make illegally earned money appear legitimate.

1.13.11. Civil Registration System (CRS)

Recently, Union Home Minister launched Civil Registration System (CRS) mobile application.

- **Developed**: By **Registrar General and Census Commissioner of India** (RGCCI)
- **Objective**: To **reduce the time** required for these registrations seamlessly.

About CRS

- It is a unified system for continuous, mandatory, and permanent documentation of vital events, including births, deaths, and stillbirths, along with their associated details.
  - **Under which Act**: Registration of Births and Deaths Act, 1969
- **Authority**: RGCCI
- **7th Schedule List**: Concurrent List

1.13.12. Asian Organization of Supreme Audit Institutions (ASOSAI)

16th ASOSAI Assembly: Hosted by **CAG of India** in **New Delhi**, attended by the **President of India**.

About ASOSAI

- A **regional group** under the **International Organization of Supreme Audit Institutions (INTOSAI)**
- Established in **1979** with **11 members**, now expanded to **48**.
- India **chairs ASOSAI** and hosted its **first Assembly & Governing Board meeting** in **New Delhi**.
- **Key Decision**: Approval of **ASOSAI Rules & Regulations** at the Assembly.

1.13.13. Universal Postal Union (UPU)

150th anniversary of the Universal Postal Union.

About Universal Postal Union (UPU)

- A United Nations specialized agency (second oldest international organization) established in 1874 as General Postal Union (**Treaty of Bern**).
- **HQ**: Bern, Switzerland.
- **Members**: 192 countries including India

1.13.14. International Telecommunication Union (ITU)

ITU's World Telecommunication Standardization Assembly (WTSA) 2024 held in New Delhi.

- WTSA is the governing conference for the standardization work of the ITU, organized every four years.

About ITU

- **Genesis**: In 1865, the first International Telegraph Convention signed in Paris established International Telegraph Union (the first incarnation of ITU).
- **Role**: UN's specialized agency for digital technology and harnessing innovation.
- **Members**: 193 Member States (including India)
- **Headquarters**: Geneva (Switzerland)

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1.14. TEST YOUR LEARNING

MCQ

1. **With reference to Indian secularism, consider the following statements:**

   1. It ensures complete separation of religion and state.

   2. It aligns closely with Western secularism in its approach to religious freedom.

   Which of the statements given above is/are correct?

   (a) 1 only

   (b) 2 only

   (c) Both 1 and 2

   (d) Neither 1 nor 2

2. **Consider the following features regarding NGOs under the Foreign Contribution (Regulation) Act (FCRA), 2010:**

   1. NGOs must open a specific bank account for receiving foreign contributions.

   2. Administrative expenses from foreign contributions are capped at 20%.

   3. FCRA applies to both private and public trusts.

   Which of the statements given above is/are correct?

   (a) 1 only

   (b) 1 and 2 only

   (c) 1, 2, and 3

   (d) 2 and 3 only

3. **Which of the following statements about the Digital India Land Records Modernization Programme (DILRMP) is/are not correct?**

   1. The DILRMP has led to the creation of a 6-digit Unique Land Parcel Identification Number (ULPIN).

   2. The program aims to shift from a digital presumptive title system to a manual conclusive land titling system.

Select the correct answer using the code below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

4. **Regarding Section 6A of Citizenship Act, which of the following statements are correct?**

   1. It was added through Citizenship Amendment Act, 1985 following the Assam Accord.

   2. It confers citizenship to migrants from East Pakistan to Assam between 1966 and March 1971.

   3. Recently, the Supreme Court of India declared it unconstitutional under Article 14.

   Which of the above statements is/are correct?

   (a) 1 and 2 only

   (b) 2 and 3 only

   (c) 1 and 3 only

   (d) 1, 2 and 3

5. **Consider the following list:**

   1. Women and children

   2. Members of Scheduled Castes

   3. Members of Other Backward Classes

   4. Industrial workmen

   5. Persons with Disabilities

   How many of the above are eligible for free legal aid under the Legal Services Authorities Act, 1987?

   (a) 1 and 2 only

   (b) 1, 2, 4 and 5 only

   (c) 2, 4 and 5 only

   (d) 1, 2, 3, 4 and 5

Questions

Discuss the objectives and significance of the Jan Yojana Abhiyan in empowering local self-governments in India. (10 marks/150 words)

Critically analyze the financial challenges faced by Municipal Corporations in India. Suggest measures to enhance their revenue generation capabilities. (250words, 15 marks)

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INTERNATIONAL RELATIONS

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2.1. INDIA-CHINA AGREEMENT ON LINE OF ACTUAL CONTROL (LAC)

Why in the News?

India and China agreed to resume patrolling in Depsang Plains and Demchok areas along LAC, reverting to pre-May 2020 positions.

More on the News

- Agreement marks the **first step of three-step process**: disengagement, de-escalation, and de-induction.
- **Significance of Depsang Plains**: proximity to Daulat Beg Oldie road and its flat terrain is suitable for launching military offensives.

About 2020 India-China Stand off

- Initial clashes at Pangong Tso followed by Naku La and Galwan clashes.
- Led to massive troop deployment and infrastructure build-up by both sides.

India-China Border Dispute

- The 3,488-km border lacks clear demarcation with no mutually agreed LAC.
- India–China boundary is divided into **three sectors**:
    - **Western (Ladakh):** China rejects Johnson Line and claims Aksai Chin based on McDonald Line.
    - **Middle (Uttarakhand and Himachal Pradesh):** Largely undisputed with agreed maps.
    - **Eastern (Arunachal Pradesh and Sikkim):** China rejects McMahon Line and claims entire Arunachal Pradesh.

India-China Border

INDIA-CHINA BORDER
- ● Western Sector
- ● Middle Sector
- ● Eastern Sector

Other areas of concerns

- **Economic**: $85 billion trade deficit (in 2022-23), dependency on Chinese semiconductors, etc.
- **Security**: China-Pakistan military alliance.
- **Water power**: E.g. In 2000, a dam breach in Tibet caused floods in northeast India.
- **Strategic infrastructure near LAC**: E.g. a 400-meter bridge near Pangong Lake.
- **String of Pearls**: China's strategic presence and dual use infrastructure development in neighboring countries. E.g. Hambantota Port (Sri Lanka), Gwadar Port (Pakistan) etc.
- **Concerns for freedom of navigation and stability in IOR:** China's territorial claims in the South China Sea.

Reasons for China's assertiveness

- India's rising global influence and strategic autonomy (e.g. rejection of BRI).
- India's alignment with democratic powers (e.g. QUAD) and India as democratic power (alternative to China's debt-trap policy).
- Bhutan factor and Siliguri corridor concerns (Doklam trijunction).
- Arunachal Pradesh's strategic importance for India to launch offensive against China.
- Ideological factors including Sinocentrism.
- Use of 'Grey Zone' warfare tactics (e.g. Salami slicing strategy).

Conclusion

Relationship remains challenging due to both countries' rising parallel trajectories and geographical proximity.

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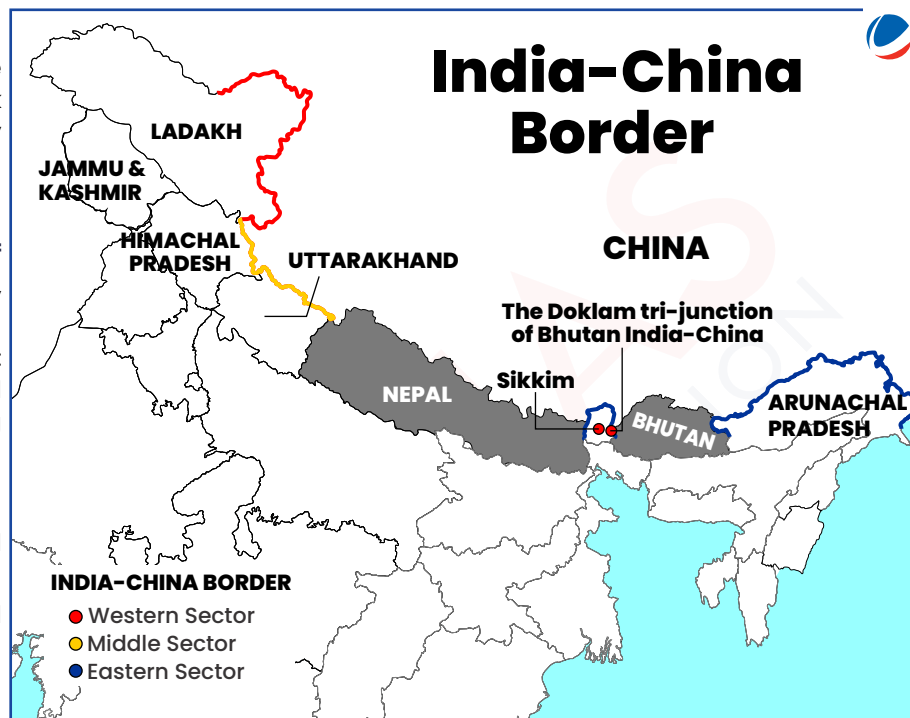
2.2. INDIA-MALDIVES RELATIONSHIP

Why in the News?

The president of Maldives made his maiden bilateral state visit to India.

Key outcomes of the visit

- Adoption of '**Comprehensive Economic and Maritime Security Partnership**' covering:
  - **Development Cooperation**: Greater Male Connectivity Project.
  - **Trade cooperation**: Discussions on Bilateral Free Trade Agreement and settlement of trade transactions in local currencies.
  - **Digital initiatives**: RuPay card launch in Maldives.
  - **Health cooperation**: Recognition of Indian pharmacopoeia and Jan Aushadhi Kendras
- **Currency Swap Agreement** under SAARC Framework 2024-27.
- Inauguration of **Hanimadhoo International Airport runway** and new **commercial port in Thilafushi.**

Significance of Maldives for India

- **Geopolitical:** E.g. India's NFP (Neighbourhood First Policy) and SAGAR.
- **Strategic:** As 'toll gate' between western (Gulf of Aden and Strait of Hormuz) and eastern (Strait of Malacca) Indian Ocean chokepoints.
- **Geo-economics:** India's 50% of external trade and 80% of energy imports passes through nearby Maldives.
- **Security:** Strong relation helps counter China's 'String of Pearls'.
- **Counter terrorism:** First line of defence against terrorism and piracy.
- **Diaspora and Tourism:** Indian workforce (in healthcare & education) and a major tourist destination.

Challenges in the bilateral relationship

- China's strategic footprints through String of Pearls (e.g. Sinamale Bridge).
- Increasing radicalization concerns (e.g. Islamic State).
- Growing anti-India sentiments (e.g. India out campaign).
- Allegation of lack of transparency in agreements with India (e.g. Uthuru Thila Falhu - Island Harbour project).

Way ahead to strengthen the bilateral relationship

- Expedite infrastructure project delivery (e.g. Great Male Connectivity Project).
- Enhance financial aid to counter Chinese influence (e.g. debt-trap diplomacy).
- Strengthen security cooperation (e.g. intelligence sharing).
- Employ soft diplomacy (e.g. diaspora, films, etc.).
- Follow Gujral doctrine principles.

2.3. INDIA-CANADA RELATIONSHIP

Why in the news?

Recently, the diplomatic tensions escalated between India and Canada.

More on news

- India expelled six Canadian diplomats and withdrew its High Commissioner from Canada.
- Earlier, Canada asked India to waive off **diplomatic immunity** of Indian officials.

Reasons for recent fallout

- **Khalistani extremist** activities supported by Canada.
- **Non-cooperation in security issues** (e.g. disregard to extradition requests).
- **Stalled economic agreements** (e.g. Comprehensive Economic Partnership Agreement (CEPA)).

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- **Vote bank politics** in Canada using Sikh community.

Significance of India-Canada relationship

- **Strategic cooperation:** Rule based order in Indo-Pacific region (China factor).
- **Economic:** Bilateral trade touching $9.36 billion (in goods) and $9.99 billion (in services) in 2023.
- **Investment opportunities**: E.g. Canadian pension funds invested over $75 billion in India
- **Large Indian diaspora** (~1.8 million).
- **Civil Nuclear cooperation agreement** (2010).
- **Defence cooperation** e.g. MoU between DRDO and Canadian Commercial Corporation for defence technology development.

Probable impact of diplomatic fallout

- **Disruption of trade and investment** (e.g. CEPA).
- **Concerns for Indian diaspora**, esp. students in Canada (estimated 230,000).
- **Visa processing complications.**

Steps needed to strengthen the relationship

- Initiate **high-level diplomatic discussions.**
- **Enhance security cooperation against terrorism** under **Framework for Cooperation on Countering Terrorism and Violent Extremism (2018).**
- **Resume trade agreement negotiations** (CEPA).
- Engage diaspora through **Track-II diplomacy.**
- **Strengthen common strategic interests** in Indo-Pacific region (**freedom of navigation**).

2.4. INDIA-AUSTRALIA RELATIONS

Why in the news?

Recently, **2nd India-Australia Annual Summit** was held on the sidelines of the G20 Summit in Rio de Janeiro.

Key Highlights of Summit

- Launch of India-Australia Renewable Energy Partnership (REP).
- Extension of Australia-India Business Exchange (AIBX) programme for four more years.
- Agreement to renew Defence and Security Cooperation in 2025.

Significance of India-Australia bilateral relations

- **Strategic Partnership:** Signed in 2020, focused on countering China's influence via Quad.
- **Economic and Trade Relations:** Trade exceeded $30 billion in 2023, with potential under ECTA.
- **Critical Minerals, Green Energy Cooperation**.
- **Defence Cooperation:** Defence exercises like AUSTRAHIND, AUSINDEX, Pitch Black.

Issues in India-Australia relations

- Prolonged Comprehensive Economic Cooperation Agreement (CECA).
- Rise of Extremism.
- Stalled Nuclear Energy Cooperation.
- Visa Issue seen increased visa fees impacting Indian students.

Way ahead

- Strengthen ECTA, finalize CECA, promote sector investments.
- Focus on cybersecurity and maritime security.
- Strengthening Cooperation in the Indo-Pacific.

2.5. INDIA – GERMANY RELATIONS

Why in the news?

Recently, German Chancellor visited India to enhance bilateral relations between India and Germany.

More on the news

- 2024 celebrates **25 years of the India-Germany strategic partnership** and **50 years of scientific cooperation.**
- The 7th IGC introduced the **'India-Germany Innovation and Technology Partnership Roadmap'.**

Significance of India-German partnership

- **Trade and Investment:** Germany is India's top European trade partner.
- **Climate and Sustainability:** €10 billion commitment under the Green and Sustainable Development Partnership.
- **Technology and Innovation:** The IGSTC supports numerous projects, including WISER.
- **Defense and Security:** Cooperation under the 2006 agreement.
- **Diversification of Trade Partners.**

Challenges in Bilateral Relations

- **Trade and Investment Barriers:** Non-tariff barriers and bureaucratic issues.
- **Strategic and Geopolitical Differences** and **Human Rights Criticism.**
- **China's Role:** Germany's economic ties with China limit support for India against China.

Way Forward:

- **Conclude India-EU FTA** to counter China's trade dominance with Germany.
- Increase Germany's **presence in Indo-Pacific region.**
- **Collaborate on electric mobility**, green hydrogen, and renewable energy.

2.6. INDIA-SINGAPORE RELATIONS

Why in the News?

The Prime Minister of India visited **Singapore** as part of a two-nation trip to **Southeast Asia**, following his visit to **Brunei Darussalam**.

Key Outcomes of the Singapore Visit

- **Comprehensive Strategic Partnership**: Elevated from the **2015 Strategic Partnership**.
- **MoUs Signed**: Four agreements in **digital technologies, semiconductors, health cooperation, and skill development**.
  - **MoU on India-Singapore Semiconductor Partnership**: Focus on **cluster development, talent cultivation, and resilient supply chains**.

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About India-Singapore Relations

🔴 **Historical Ties: Sir Stamford Raffles** established Singapore as a trading station (1819), governed from **Kolkata under British India**.

➡️ **India** was among the first to recognize **Singapore's independence** in 1965.

🔴 **Trade & Economy: Largest trade partner in ASEAN, 6th largest globally (2023-24).**

➡️ **Comprehensive Economic Cooperation Agreement (CECA)** boosted trade to **$35.6 billion**; India is a **net importer**.

➡️ **Double Taxation Avoidance Agreement (DTAA) - 2016** curbs tax evasion.

➡️ **Defence Ties:** Enhances India's maritime reach.

◇ **Bilateral Exercises: Agni Warrior (Army), SIMBEX (Navy), Joint Military Training (JMT) (Air Force).**

➡️ **Fintech Cooperation**: RuPay card & UPI-PayNow Linkage for seamless cross-border payments.

➡️ **Multilateral Engagements.**

◇ Partners in **East Asia Summit, G20, Commonwealth, IORA, and IONS**.

◇ Singapore joined **International Solar Alliance (ISA) & Global Biofuel Alliance**.

◇ Both support the **Indo-Pacific Economic Framework for Prosperity (IPEF)**.

➡️ **Indian Community in Singapore.**

◇ **Ethnic Indians make up 9.1%** of Singapore's population.

◇ **1/5th of Singapore's 1.6 million foreign workers** are Indian citizens.

» **Tamil** is one of Singapore's official languages.

Significance of Singapore to India

🔴 **Semiconductor Push**: Singapore produces **10% of the global semiconductor output**; India's land & labor advantages can attract Singaporean firms.

🔴 **Bridge to Southeast Asia**: Facilitates **India-ASEAN cooperation**, e.g., **Indo-Pacific Oceans Initiative (IPOI)**.

🔴 **Strategic Location**: Controls **Malacca & Sunda Straits**, crucial for India's **"Act East" policy**.

🔴 **Investment Flows**:

➡️ Largest **FDI source (FY 2023-24)**.

➡️ **$160 billion cumulative FDI (2000-24)**—24% of total inflows into India.

Challenges in India-Singapore Relations

🔴 **Chinese Influence**: **85% of Singapore's BRI investments** go to **China**; China is its **third-largest trade partner**.

🔴 **Tax Haven Issues: $11.7 billion FDI (FY 2023-24)**—potential **round-tripping concerns**.

🔴 **Trade Barriers**: Limited market access for **Indian services & professionals**.

🔴 **Gold Smuggling**: Indian migrant workers targeted as **'gold mules'** by smuggling networks.

🔴 **Anti-India Sentiments**: Reports of workplace & social media bullying of **Indian workers** in Singapore.

Way Forward for India-Singapore Relations

🔴 **CECA Review**: Expedite the **Third CECA Review** to adapt to evolving economic needs.

🔴 **AITIGA Reform**: Simplify & enhance the **ASEAN-India Trade Agreement (AITIGA) by 2025**.

🔴 **Urban Collaboration**: Expand **Singapore-India urban partnerships** on **smart cities & infrastructure**.

🔴 **Addressing Anti-India Sentiments**: Set up a **helpline/support system** for Indian workers in Singapore.

🔴 **Services Trade**: Push for **liberalization** to **reduce trade deficit** & maximize gains.

2.7. INDIA–ITALY RELATIONS

Why in the news?

Prime Ministers of India and Italy held a bilateral meeting on the sidelines of the G20 Summit in Rio de Janeiro, Brazil and announced a **Joint Strategic Action Plan 2025-2029**.

Key Highlights of India-Italy Joint Strategic Action Plan 2025-2029

- **Economic Cooperation and Investments.**
- **Connectivity:** Strengthen infrastructure links under IMEC.
- **Science and Technology,** Defense cooperation and Energy Transition**.**
- **Space Sector:** Enhance ASI-ISRO collaboration in various space sciences.

About India – Italy Relations

- **Historical Connect:** Ancient trade routes and Marco Polo's travels.
- **Strategic**: Strategic partnership since 2023, with cooperation in key regions.
- **Defence and Security,** Environment and Climate, People-to-people ties and cooperation in space and blue economy.

Challenges in India - Italy Relations

- **China Dependency:** Despite exiting BRI, Italy relies on China for imports.
- **Low Trade, Trust Issues** and Italy's military sales to Pakistan.

Way Forward

- Implement **Joint Strategic Action Plan 2025-2029** in defence and space.
- **Align India's Act East Policy with EU's Indo-Pacific Strategy**.
- **Finalize EU-India FTA** and address non-tariff barriers like CBAM.
- **Leverage multilateral platforms** to address shared challenges such as terrorism, climate change.
- **Enhance cultural and people-to-people connections** to build trust.

2.8. INDIA–SPAIN RELATIONS

Why in the news?

Recently, the President of Spain paid a bilateral visit to India along with a business delegation to enhance the bilateral cooperation between both the countries.

Key outcomes of the visit

- **Defense manufacturing**: Inauguration of C295 aircraft line in Vadodara.
- **Investment Facilitation:** Fast Track Mechanism for investments.
- **Consular Expansion:** New consulates in Bengaluru and Barcelona.
- **Cultural Cooperation:** Cultural exchange program and 2026 cultural year.

India–Spain Bilateral Relations

- **Diplomatic relations:** Enhanced since 1956 under APCI.
- **Multilateral Cooperation:** focus on India-Middle East-Europe Economic Corridor (IMEEC).
- **Trade and Economic Relations:** Spain ranks 6th in EU trade with India.
- **Defence and Security Cooperation:** Passage Exercises (PASSEX) with Indian Navy ships.

2.9. THE GROUP OF TWENTY (G20) SUMMIT

Why in the News?

The **18th G20 Summit** was held in **Rio de Janeiro, Brazil,** under the theme **Building a Just World and a Sustainable Planet.**

About G20

- Founded in **1999**, following the **Asian financial crisis.**
- **Annual summit: G20** Summit held **annually,** under the **leadership of a rotating Presidency**.
- **Members: G7** (France, Canada, Italy, Japan, Germany, United States of America, United Kingdom) **+** African Union, Argentina, Australia, Brazil, Russia, China, European Union, India, Indonesia, Mexico, Saudi Arabia, Turkey, South Korea, South Africa.

About G20 Rio de Janeiro

- Historic first inclusion of African Union (AU) as full member.
- **Third consecutive Global South host:** Brazil (2024), following Indonesia (2022) and India (2023).
- **Future host:** South Africa, completing a significant Global South troika, Brazil, India & South Africa represents Global South and is part of both IBSA and BRICS.

Key Takeaways from Rio Leaders' Declaration

- **Social Inclusion and Fight Against Hunger.**
  - Launched **Global Alliance against Hunger and Poverty** with 148 members.
  - **Global Coalition for Local and Regional Production for vaccines, diagnostics, and health technologies** also **First-ever G20 commitments**.
- **Sustainable Development and Climate Action:** Established Task Force on Global Mobilization against Climate Change.
- **Global Governance and Taxation:** First-time consensus on super-rich taxation.

G20 at a Crossroads: It reveals limitations as a global governance architecture

- **Representational Issues:** Controversy over "G21" naming after AU inclusion, Notable absences such as Russian President, Saudi Crown Prince, Diplomatic fragmentation affecting unity.
- **Policy Disagreements:** Argentina's opposition to sustainable development, Major economies resisting wealth tax **and** Progressive taxation proposals face resistance.
- **Structural Weaknesses:** Non-binding nature of decisions, Absence of formal charter, Growing competition from BRICS and SCO, Limited progress on climate goals despite COP29 timing.

Enhancing the Effectiveness of G20 Summits

- Permanent Secretariat and Clear **Division of Labour between G7 and G20.**
- Empowering Middle-Income Members.
- Accountability Framework and **Strategic Coordination with UN Agencies.**
- Addressing Global South Priorities: **Advocate for equitable global governance.**

2.10. BRICS

Why in the News?

- 16h BRICS Summit, and the First Summit with expanded BRICS membership was held in Kazan (Russia).

Outcomes of the Summit

- Adoption of Kazan Declaration.
- Extend support to Brazil for its BRICS Chairship in 2025.

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About BRICS

- **Genesis:** BRIC started functioning as a formal grouping in 2006. 1st BRIC Summit in Russia in 2009 (became BRICS with South Africa in 2010).
- **5 new members (BRICS+):** Egypt, Ethiopia, Iran, Saudi Arabia, and the United Arab Emirates.
- **3 Pillars of cooperation:** Political & security, Economic and financial, Cultural and people-to-people cooperation.
- **Significance:** 45% of the world's population and 37.3% of world GDP.

Key Initiatives of BRICS

- **Financial:** New Development Bank(NDB), BRICS Grain Exchange, etc.
- **Voice to Global South:** 'BRICS Plus' Dialogue, 'BRICS Partner Country' (13 new countries), etc.
- **Security:** BRICS Rapid Information Security Channel.
- **S&T:** BRICS Remote Sensing Satellite Constellation, BRICS R&D Vaccine Center, etc.

Relevance of BRICS in contemporary world

- **Energy Security:** BRICS countries produce about 44% of the world's crude oil.
- **Voice for global south:** on issues such as terrorism, climate change.
- **Safe space for dialogue:** BRICS offers neutral ground for dialogue amid tensions. (India-China Doklam standoff).
- **Boosting multilateral reform demands:** such as UNSC and WTO.

Challenges associated with BRICS

- **Economic:** Low Intra-BRICS Trade at just 2.2% (as of 2022), dominance of China, etc.
- **Lack of funds with NDB** compared to the World Bank and IMF.
- **Limited influence on Global Institutions:** E.g. BRICS+ hold only 19% of voting power in World Bank (40% by G7).
- **Geopolitical rivalries between BRICS members: E.g.** India and China.
- **Economic slowdown in BRICS members:** E.g. China and South Africa.
- Perception of being **anti-West**

Way Forward

- Clear and Shared Vision.
- Defining membership criteria.
- Consensus-Building.
- Enhanced Institutional Capacity.
- Checking Chinese influence.

2.11. QUAD

Why in News?

PM attended the Quad Leaders' Summit in Wilmington, US.

Key Highlights:

- **20th anniversary of Quad** (formed in 2004).
- **Sixth** in-person **Quad Leaders' meeting** (twice held virtually).
- **Wilmington Declaration adopted.**
- **India to host 2025 Quad Leaders' Summit.**

QUAD represents

| 24% of the world's population | 35% of the world's GDP | 18% of global trade |

Wilmington Declaration – Key Announcements

- **Health Security:** 'Quad Cancer Moonshot' to combat cervical cancer.
- **Infrastructure:** 'Quad Ports of the Future' for sustainable port development.
- **Technology:** Semiconductor Supply Chains Contingency Network to boost supply resilience.
- **Investment:** Quad Investors Network (QUIN) to mobilize funding for supply chains.
- **Climate & Energy:** Advancing energy efficiency and high-efficiency cooling systems.

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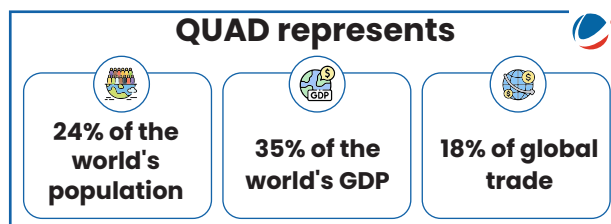
- **Space:** India's space portal for Mauritius to aid in extreme weather monitoring.
- **Maritime Security:**
  - 'MAITRI' (Maritime Initiative for Training in Indo-Pacific) to enhance **maritime domain awareness**.
  - 'Quad-at-Sea Ship Observer Mission (2025)' to boost **interoperability and safety**.

About Quadrilateral Security Dialogue (Quad)

- **Nature:** Plurilateral group of maritime democracies promoting an open and inclusive Indo-Pacific.
- **Members:** India, US, Japan, Australia (Not a military alliance).
- **Key Meetings:** Annual Leaders' Summits & Foreign Ministers' Meetings.
- **Expanded Mandate:** Six working groups on health, climate, tech, space, infra, and cyber.

Global Significance of QUAD	Significance of Quad for India
- **Strategic Balance**: Counters **China's Indo-Pacific expansion**. - **Maritime Security**: Promotes **free & open Indo-Pacific**, enforcing **UNCLOS**. - **Economic Cooperation**: Strengthens **infra, supply chains & tech standards**. - **Health & Disaster Response**: Key role in **COVID-19 vaccine distribution & aid**.	- **Strategic Balance**: Counters **China's encirclement** and enhances **security posture**. - **Maritime & Military Strength**: Boosts **naval power** via **Malabar exercises**. - **Act East Policy**: Deepens ties with **East & Southeast Asia**. - **Tech & Economic Gains**: **Reduces dependency on China** through **supply chain initiatives**. - **Atmanirbhar Bharat Boost**: Secures **semiconductor & critical tech supply chains**.

Other Major Quad Initiatives

- **Quad Fellowship**: Funds 100 STEM scholars from member nations.
- **Q-CHAMP (Quad Climate Change Adaptation and Mitigation Package):** Climate resilience & mitigation program.
- **Quad Debt Management Resource Portal**: Tackles unsustainable debt in Indo-Pacific.
- **Quad Partnership for Cable Connectivity and Resilience:** Supports secure undersea internet cables.

> ### India's Concerns
> - **No Military Alliance:** Prefers strategic autonomy over a formal military pact.
> - **China Factor:** Only Quad nation sharing a land border with China.
> - **Emerging Groups:** SQUAD (US, Japan, Australia, Philippines) could dilute Quad's focus.
> - **Balancing Diplomacy:** Engages with SCO, Russia, and Iran, despite Quad ties.

Challenges to Quad

- **Less Institutionalization:** No formal structure or secretariat.
- **Cold War Allegations**: China labels Quad as an "Asian NATO".
- **Diverging Interests:** India's regional focus vs. US global strategy.
- **Identity Issue**: Balancing role with ASEAN, IORA, Pacific Islands Forum.
- **US Distraction:** Conflicts in Europe & Middle East may shift US focus.

Way Forward

- **Institutionalizing Quad:** Establish a formal structure for consistency.
- **Regional Collaboration:** Work with ASEAN, IORA, and Pacific Islands Forum for broader reach.
- **Expanding Partnerships:** Strengthen infrastructure, tech, & climate cooperation.
- **Balanced Approach:** Avoid military escalation while securing trade & supply chains.

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Related News

Quad 'Principles for Digital Public Infrastructure (DPI)'

- **Objective**: Recognizes **digitalization's role** in achieving **UN 2030 SDGs**.
- **DPI Definition**: A **digital network** enabling **secure delivery of economic & social services**.
  - **Comparison**: **DPI = Roads**, connecting people to services.
  - **Example**: **India Stack** as India's **foundational DPI**.

Quad's Key Principles for DPI

- **Inclusivity**: Removes **barriers** and ensures **user empowerment**.
- **Collaboration**: Supports **user-centric solutions** & **innovation-friendly ecosystems**.
- **Modularity & Extensibility**: **Flexible** & **modifiable** without disruption.
- **Scalability**: Efficiently handles **rising demand**.
- **Sustainability**: Focus on **long-term financing & environmental impact**.
- **Other Principles**: **Interoperability, transparency, security, privacy, SDG alignment**.

Global DPI Adoption Initiatives

- **World Bank & Gates Foundation**: Leading **global DPI programs**.
- **One Future Alliance**: Supports **DPI adoption** in **low & middle-income countries**.
- **Global DPI Repository (GDPIR)**: India-led **centralized DPI solutions portal**.
- **Social Impact Fund (SIF)**: Accelerates **DPI implementation** in **Global South nations**.

2.12. ASEAN

Why in News?

Prime Minister of India participated in the 21st ASEAN-INDIA Summit in Vientiane, Lao PDR.

Key developments of the 21st ASEAN-India Summit

- **Reviewed**: Progress of **ASEAN-India Comprehensive Strategic Partnership.**
- **New development:** Creation of **ASEAN-India Plan of Action (2026-2030).**
- **10-Point Plan to strengthen India-ASEAN ties:** on disaster resilience, green hydrogen, etc.
- **Joint Statement on Strategic Partnership**: review of **ASEAN-India Trade in Goods Agreement** (AITIGA), launch of the **ASEAN-India Fund for Digital Future.**
- **Joint Statement on Digital Transformation**: including **Digital Public Infrastructure** (DPI), **Financial Technology**, etc.

About Association of South East Asian Nations (ASEAN)

- **Established**: in 1967 in Bangkok under ASEAN Declaration as an inter-governmental grouping.
- **Aim**: promoting political and economic cooperation among members.
- **Headquarters**: Jakarta, Indonesia.
- **Institutional mechanism:** ASEAN Summit, ASEAN Coordinating Council, ASEAN Secretariat, ASEAN Regional Forum, etc.
- **Decision Making**: Through consultation and consensus.
- **ASEAN Future Forum**: Proposed by Vietnam in 2023. India is a founding member.

Importance of ASEAN for India

- **Economic partnership**: ASEAN is India's 4th largest trading partner (bilateral trade being $ 122.67 Billion during 2023-24).
- **Indo-Pacific strategy: ASEAN Centrality** in India's 'Act East' policy and stability in India's east (e.g. Myanmar).
- **Connectivity with North East:** E.g. Kaladan Multi-Modal Transport Project.
- Counterbalance the growing **Chinese influence** in the region.
- **Secure critical maritime routes** including the **Malacca Strait.**

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- **Soft power and goodwill**: E.g. Tourism and education.

Significance of ASEAN in the Indo-pacific region

- Geopolitical and economic centrality.
- Rules-based order.
- Balancing great power rivalry (US and China).
- Connectivity (e.g. Master Plan on ASEAN Connectivity 2025).

Challenges in India-ASEAN relationship

- **Economic concerns**: E.g. India's decision to walk out of **Regional Comprehensive Economic Partnership (RCEP)**.
- **Trade deficit for India**: increased to $ 43.57 billion in 2022-23.
- **Increasing Chinese influence**: E.g. Belt and Road Initiative (BRI).
- **Limited Connectivity**: E.g. Delay in India–Myanmar– Thailand Trilateral Highway.

Way ahead to strengthen the relationship

- Implementation of 10-Point plan.
- Update and expand ASEAN-India Free Trade Agreement (FTA).
- Robust maritime cooperation.
- Initiate an 'Indo-Pacific Maritime partnership' to counterbalance China.
- Complete key connectivity projects (e.g., India-Myanmar-Thailand Trilateral Highway).

2.13. INDIA'S ROLE IN CONFLICT RESOLUTION

Why in News?

Russian President stated regular contact with **India, Brazil, and China** on Ukraine conflict resolution.

More on the News

- The remarks came after the Indian PM visited **Kyiv** for talks with Ukrainian President.
  - Earlier, he visited **Russia** for diplomatic efforts.
- Two years into the **Russia-Ukraine war** (largest in Europe since WWII) remains unresolved.
  - **Russia skipped** Swiss peace summit on Ukraine.
  - **Brazil-China peace plan** (calling for a Russia-Ukraine summit) **rejected by Ukraine**.

Conflict Resolution in International Relations

- **Diplomatic Mediation**: Neutral third parties mediate (e.g., Qatar in Israel-Hamas conflict).
- **International Organizations**: Facilitate peace deals (e.g., **Indus Waters Treaty** brokered by World Bank).
- **Economic Sanctions**: Used to influence violators (e.g., UN sanctions under **Article 41**).
- **Peacekeeping & Military Interventions**: Deployed to prevent escalation (e.g., **India's UN missions** in Lebanon, Sudan, Golan Heights, etc.).
- **Legal Mechanisms**: Resolved via courts (e.g., **ICJ ruling** on Chagos Islands).

India's Position on Ukraine

- **Cessation of Hostilities**: Calls for immediate peace.
- **Humanitarian Assistance**: Advocates for relief access.
- **Respect for International Law**: Stresses **UN Charter** principles.
- **Dialogue & Diplomacy**: Promotes peaceful negotiations.

India's Evolving Role in Conflict Resolution

- **Proactive Diplomat**: Strengthening mediation efforts (e.g., India facilitated **Saudi-Israel airspace deal**, 2018).

India's Historic Efforts in Peace Mediation

- **1955 – Austria-Soviet Mediation**: Facilitated **Soviet troop withdrawal** and Austria's **neutrality**.
- **1956 – Korean Crisis**: Engaged **US, China, USSR** for mediation.
- **1950s-60s – Vietnam War**: Served as **Co-Chairman of International Commission for Supervision and Control (ICSC)** for war supervision.
- **1979 – Support for Vietnam**: Opposed **China's aggression**, Finance Minister **canceled China visit** in protest.

- **India's 5-S Approach**: **Samman, Samvaad, Sahyog, Shanti, Samriddhi** for balanced diplomacy.
- **De-escalation Efforts**: Discouraged **nuclear escalation** in **Russia-Ukraine war** (CNN, 2022).
- **Voice of Global South**: Advocated peace under **G20 Presidency**.
- **Philosophical Stand**: Rooted in **Vasudhaiva Kutumbakam**.
- **Humanitarian First Responder**: Led crisis relief (e.g., **2014 Maldives water crisis**).
- **Conflict Resolution Experience**: Handled **regional/internal disputes** (see box).

Challenges in India's Mediation Role

- **Historical Alignments**: India's **neutrality questioned** (e.g., India's abstentions on UN votes on Russia wrt Ukraine conflict.).
- **Regional Rivalries**: **India-Pakistan tensions** limit mediation in Afghanistan.
- **Economic Interests**: Aligns diplomacy with **energy trade** (e.g., **oil imports from Iran**).
- **Limited Global Influence**: Still growing compared to **USA, UK**.
- **Domestic Challenges**: Internal issues **impact credibility** (e.g., India **rejects mediation on Kashmir**).

Way Forward

- **Proactive Mediation**: **Host peace dialogues** (e.g., **Russia-Ukraine summit**).
- **Strategic Partnerships**: Collaborate with **Global South & Western peacemakers** (e.g., South Africa, Norway).
- **Leveraging Past Success**: Use **UN mechanisms**, diplomacy, humanitarian values (e.g., **Korean crisis mediation**).
- **Capacity Building**: Create **peace teams** in MEA, research institutions (**Peace Research Institute Oslo (PRIO) of Norway.**).

2.14. SECURITY OF SUPPLIES ARRANGEMENT (SOSA)

Why in the News?

India and the US signed the **Security of Supply Arrangement (SOSA)** and a **Memorandum of Agreement (MoU) on Liaison Officers** during the Defence Minister's visit to the US.

More on the news

- **Security of Supply Arrangement (SOSA)**
  - **Purpose**: Ensures timely provision of **defence-related goods and services** during peacetime, emergencies, and conflicts.
  - **Priority Supply**: Enables both nations to **request priority delivery** of critical defence items.
  - **India's SOSA Partnership**: India becomes the **18th SOSA partner** of the US.
  - **Legally Non-Binding**: A voluntary arrangement, but negotiations for a **Reciprocal Defence Procurement (RDP) Agreement** are ongoing.
- **MoU on Liaison Officers**
  - **Information Sharing**: Enhances intelligence exchange between India and the US.
  - **Deployment**: India to **deploy its first Liaison Officer** to the **US Special Operations Command** headquarters in Florida.

India-US cooperation milestones on defence

- **The Framework for the US-India Defence Relationship (2015)**: Formalized the commitment to strengthen **defence cooperation** between the two nations.

India-US Defence Cooperation Milestones

- **Framework for the US-India Defence Relationship (2015)**: Strengthened bilateral defence commitments.
- **US Designates India as a Major Defence Partner (2016)**: Led to **Strategic Trade Authorization Tier-1** status in 2018, easing access to advanced US military tech.
- **2+2 Ministerial Dialogue (2018)**: Regular meetings of defence and foreign ministers.
- **Roadmap for Defence Industrial Cooperation (2023)**: Focused on Intelligence, Surveillance, and Reconnaissance (ISR), Undersea Awareness, and Air Combat.
- **US-India Initiative on Critical and Emerging Technology (iCET) (2023)**: Strengthened strategic tech partnerships.

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- **INDUS-X (2023)**: Created a **defence innovation bridge** between the two nations.
- **Foundational Agreements (Enabling Defence Cooperation)**
  - **General Security of Military Information Agreement (GSOMIA) - 2002**.
    - ◊ **Industrial Security Annex (ISA) - 2019** – Extends GSOMIA to enable classified defence industry collaboration.
  - **Logistics Exchange Memorandum of Agreement (LEMOA) - 2016**.
  - **Communications Compatibility and Security Agreement (COMCASA) - 2018**.
  - **Basic Exchange and Cooperation Agreement (BECA) - 2020**.

Significance of India-US Defence Cooperation

- **Diversification of Defence Suppliers**: Reduces reliance on **Russian arms** (65% of India's defence imports in the past two decades).
- **Strategic Partnership**: Strengthens military and security ties through foundational agreements.
- **Military Interoperability**: Enhances coordination via joint exercises like **Malabar 2024** (India, US, Japan, Australia).
- **Regional Security**: India's role in the **Combined Maritime Force (CMF)** strengthens Indo-Pacific stability.
- **Advanced Technology Access**: India benefits from **US defence tech** (e.g., **Sea Guardian UAS**).
- **Defence Industrial Growth**: INDUS-X fosters **startups and innovation** in defence manufacturing.

Challenges in India-US Defence Cooperation

- **Strategic Divergences**: India's ties with **Russia** and US relations with **Pakistan** create friction.
  - **CAATSA Concerns**: US sanctions risk under **Countering America's Adversaries Through Sanctions Act (CAATSA)** if India buys Russian weapons.
- **Limited Technology Transfer**: US firms prioritize **arms sales** over **joint tech development**.
- **Regulatory Barriers**: India's **slow procurement process** hinders US defence investments.
- **Regional Tensions**: **China views** Indo-US defence ties as a **strategic challenge**.
- **Intellectual Property Disputes**: US concerns over **IP protection** in India.

Way Forward for India-US Defence Cooperation

- **Enhance Interoperability**: Expand joint **exercises and training** programs.
- **Boost Intelligence Sharing**: Strengthen cooperation on **counter-terrorism and regional security**.
- **Finalize Reciprocal Defence Procurement (RDP) Agreement**: Improve **standardization** of defence equipment.
- **Speed Up Jet Engine Deal**: **Accelerate GE F-414 engine** manufacturing for India's **LCA Mk-2** fighter jets.
- **Strengthen Multilateral Coordination**: Deepen engagement in **Quad** and **I2U2** (India, Israel, US, UAE).

2.15. INDO-PACIFIC OCEANS INITIATIVE (IPOI)

Why in News?

The **Indo-Pacific Oceans Initiative (IPOI)** completes **5 years** since its launch.

About IPOI

- **Launch**: Initiated by **India in 2019** at the **East Asia Summit (EAS)** in **Bangkok**.
- **Aim**: Promotes cooperation for a **free, open Indo-Pacific** and a **rules-based regional order**.
- **Philosophy**: Builds on **SAGAR (Security and Growth for All in the Region)**, emphasizing **inclusive development, economic assistance, and maritime security**.
- **Nature**: **Non-treaty-based**, voluntary arrangement fostering **practical cooperation** with like-minded nations.

Seven Pillars of the Indo-Pacific Oceans Initiative (IPOI) and Lead Countries

- **Maritime Security** – United Kingdom (UK) and India.
- **Maritime Ecology** – Australia and Thailand.
- **Maritime Resources** – France and Indonesia.
- **Capacity Building and Resource Sharing** – Germany.

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- **Disaster Risk Reduction and Management** – India and Bangladesh.
- **Science, Technology, and Academic Cooperation** – Italy and Singapore.
- **Trade, Connectivity, and Maritime Transport** – Japan and the United States (US).

Significance of IPOI

- **Strategic Relevance**: Expands Indo-Pacific focus beyond **security** to **economic, developmental, and environmental** issues.
- **Synergy**: Aligns regional efforts, e.g., **ASEAN Outlook on the Indo-Pacific (AOIP)** complements IPOI.
- **Maritime Security**: Strengthens cooperation for **peace and stability** in Indo-Pacific waters.
- **Countering Threats**: Enhances regional **resilience** against **China's assertiveness** (e.g., **India-Vietnam cooperation in 2020**).
- **Resource Geopolitics**: Secures **critical minerals** (e.g., **cobalt, lithium**) and **rare earth elements** (e.g., **neodymium, tellurium**).
- **Flexible Framework**: Provides an **adaptive, non-institutional** platform to address emerging regional challenges.

Challenges in IPOI

- **Institutional Deficiency**: Lack of clear structure for multilateral coordination.
- **Geopolitical Tensions**: **China perceives IPOI as a containment effort**.
- **Resource Constraints**: Limited **funding** and **technological gaps**.
- **Regulatory Harmonization**: Difficulty aligning **national maritime policies**.
- **Inclusivity Issues**: **Limited participation** from **East Africa and GCC nations**.

Way Forward

- **Vision & Agenda**: Define a **collective vision** and a **5-year roadmap** for each IPOI pillar.
- **Pillar-Specific Dialogues**: Engage **regional forums** (e.g., **EAS, IORA, EAMF**) to **coordinate efforts**.
- **Inclusive Participation**: Expand engagement with **East Africa, Gulf nations, and small island states**.
- **Periodic Dissemination**: Publish **annual progress reports** to enhance common understanding.

> **What Is the Indo-Pacific?**
>
> - **Contested Interpretation**: The **Indo-Pacific** is a concept with varying interpretations.
> - **Geo-spatial & Strategic View**: Seen as an interconnected region between the **Indian Ocean** and **Pacific Ocean**, linked by the **Malacca Strait**, the main trading route.
> - **Demographics & Economy**:
> - Home to **over 50% of the world's population**.
> - Contributes **nearly two-thirds of global GDP**.
> - **Different Definitions**:
>   - ➡ **India**: Stretches from the **Eastern coast of Africa to the Americas**.
>   - ➡ **USA**: Extends up to **India's west coast**, aligning with the **US Indo-Pacific Command**.

2.16. INDIA-MIDDLE EAST-EUROPE ECONOMIC CORRIDOR

Why in the News?

The India-Middle East-Europe Economic Corridor (IMEC) has experienced both progress and challenges one year after its announcement.

About IMEC

- Established through a MoU at the **2023 G20 Summit in New Delhi.**
- Aims to develop **multi-modal connectivity infrastructure.**
- **Consists of two corridors:** Eastern (India to Gulf) and Northern (Gulf to Europe).
- Part of the **Partnership for Global Infrastructure and Investment (PGII)**, a counter to China's BRI.

Status of Implementation

- Progress in UAE-Israel railway network and **Haifa port expansion.**
- **Limited advancement** in clean energy, fiber-optic cables, and energy grid projects.
- Development of trade processes like **Virtual Trade Corridor (VTC).**
- **Open for expansion** to other regional countries.

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Global Significance

- **Provides alternative trade routes** and connectivity options.
- **Promotes economic prosperity** (combined GDP of $47 trillion).
- **Reduces reliance on maritime chokepoints, encourages peace** and **Offers alternative to China's BRI.**

Significance for India

- **Strengthens Indo-Gulf relations.**
- **Promotes economic growth** through trade and investment.
- **Reduces shipment time** to Europe by 40% and costs by 30%.
- Advances India's global power aspirations by **connecting EU and GCC.**

Challenges

- **High costs** due to multi-modal nature and underdeveloped manufacturing.
- **Limited geographical coverage** excluding key regional economies.
- **Competition** from existing established routes.
- **Regional instability** (Israel-Hamas war, Houthi rebels).
- Lack of clear **financial commitments and Arab-Israel relations** affecting development.

Other Global Trade Corridors

BRI

China-led Belt and Road Initiative initiative connecting Asia, Africa, and Europe through land and sea routes.

INSTC

International North-South Transport Corridor- initiated in 2000 by India, Russia, and Iran. 13 member countries- India, Iran, Russia, Azerbaijan, Armenia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkey, Ukraine, Belarus, Oman, and Syria

TITR

Trans-Caspian International Transport Route- Known as the 'Middle Corridor' Launched in 2017, connects China to the EU via Central Asia, Caucasus, and Eastern Europe.

Piraeus (GREECE)
Haifa (ISRAEL)
Riyadh (SAUDI ARABIA)
Jabal Ali (UAE)
Al-Haditha (SAUDI ARABIA)
Haradh (SAUDI ARABIA)
Al Ghuwaifat (UAE)
Mumbai
INDIA

- - - - - - **Sea route** ——— **Rail route**

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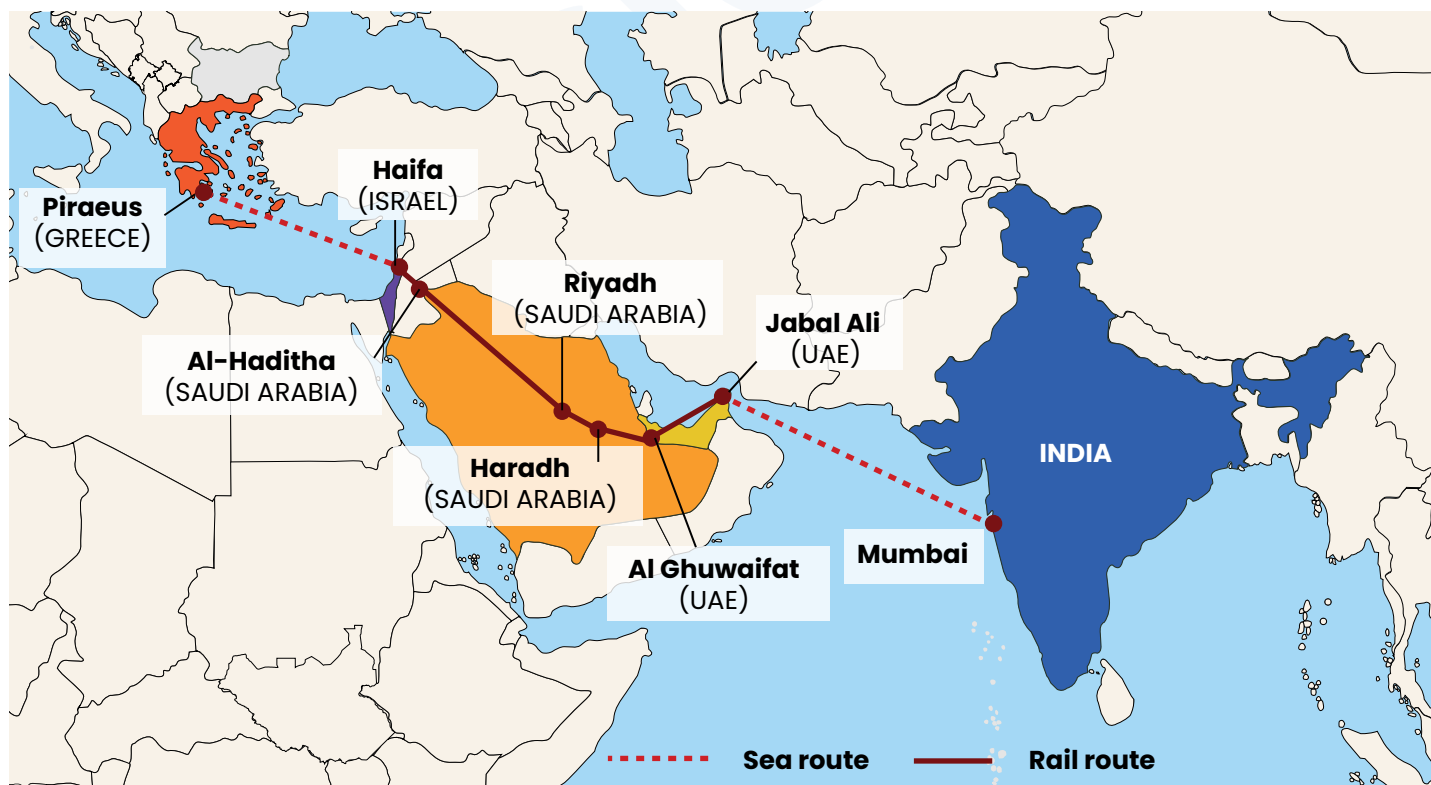
2.17. TAPI GAS PIPELINE PROJECT

Why in News?

Officials from **Afghanistan and Turkmenistan** inaugurated the **TAPI pipeline project** on Turkmenistan's side, and **Afghanistan** announced the commencement of work on its segment.

About TAPI Project

- **Emergence**: Launched in the **mid-1990s** to transport **natural gas** from **Galkynysh gas field** in **Turkmenistan**.
  - **Galkynysh Gas Field**: Discovered in **2006**, holds **4-14 trillion cubic meters** of reserves and **300 million tons of oil**.
- **Pipeline Length**: **1,800 km** spanning **Turkmenistan, Afghanistan, Pakistan, and India**.
- **Transport Capacity**: **33 billion cubic meters** of natural gas annually.
- **Financing**: Backed by the **Asian Development Bank (ADB)**.

Significance of TAPI

- **Geopolitical**: Enhances **India-Pakistan** ties, counters **China's influence** in **Central Asia**.
- **Economic**: Provides **cheaper gas**, boosts industries, and reduces trade deficit.
- **Energy Security**: Diversifies **India's energy sources**, reducing oil dependency.

Challenges in Implementation

- **Security Concerns**: Instability in **Afghanistan and Pakistan** threatens progress.
- **Geopolitical Tensions**: India-Pakistan relations complicate decision-making.
- **Financing Issues**: Political risks deter **investors**.
- **Competing Projects**: Iran-Pakistan (IP) Peace Pipeline challenges **Pakistan's commitment** to TAPI.

Conclusion

TAPI has the potential to transform **South and Central Asia's energy landscape**, but **security risks, geopolitical tensions, and financing issues** must be addressed for successful implementation.

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2.18. NEWS IN SHORTS

2.18.1. India–UAE Bilateral Investment Treaty (BIT) Came Into Effect

About India–UAE BIT

- **Genesis**: signed in February (2024), entered into force from 31st August, 2024.
- **Key Features:**
  - Investor-State Dispute Settlement through arbitration.
  - Closed asset-based definition of Investment.
  - Obligation for no denial of justice.
  - Protection to investments from Expropriation, Transparency, etc.
- **Significance**: UAE is seventh largest FDI source for India (from April 2000-June 2024).

2.18.2. India and Uzbekistan signed Bilateral Investment Treaty (BIT)

It will promote economic cooperation and create investment environment.

About BIT

- **Objective:** a reciprocal agreement for investment protection of nationals and companies of one country in another.
- India approved **Model BIT text (2015)** for (re) negotiations of BITs.
  - **Key Features of Model BIT:** National Treatment, Protection from expropriation, Settlement of Disputes, etc.

India - Uzbekistan Relations

- India is among Uzbekistan's top 10 trade partners (2023-24).
- Joint military exercises "DUSTLIK".
- Uzbekistan supplies uranium ore concentrates.
- Estimated Indian community of 14,000 in Uzbekistan.

2.18.3. India-Denmark Green Strategic Partnership

Recently, MoUs were signed under **Green Strategic Partnership** to strengthen the **India-Denmark's maritime relations.**

About Green Strategic Partnership(GSP)

- **GSP Overview**: Signed in 2020, GSP focuses on economic relations, green growth, job creation, and addressing global challenges.
- **Key Focus**: Implementation of the **Paris Agreement** and **UN Sustainable Development Goals**.
- **Joint Action Plan on Green Strategic Partnership (2021-2026)**: Laid out to further GSP with cooperation in **quality shipping**, **Port State Control**, **maritime training**, and **education**.

2.18.4. India-Brunei Darussalam Elevate Bilateral Ties to 'Enhanced Partnership'

India and Brunei elevated ties to **'Enhanced Partnership'** after the first-ever Indian PM visit. **Diplomatic ties** established in **1984**.

Key Highlights

- **Defense**: Joint exercises, training programs.
- **Policy**: Focus on **development over expansionism**, countering Chinese influence.
- **Multilateralism**: Strengthening global cooperation.
- **Satellite Cooperation**: **Telemetry, Tracking, Telecommand** for satellites.
- **Economic Collaboration**: Tech, finance, manufacturing, processing.

Significance for India:z

- **Strategic Partner** in **Act East Policy & Indo-Pacific Vision**.
- Brunei as **ASEAN Member** enhances regional ties.
- **Diaspora**: **14,000 Indians** in Brunei.

2.18.5. Pacific Islands Forum (PIF)

Why in News?

PIF endorsed the **Australia-funded Pacific Policing Initiative (PPI)** to strengthen law enforcement and counter security threats.

About PIF

- **Founded**: 1971.
- **Members**: 18 Pacific nations.
- **Mission**: Promote **peace, harmony, and prosperity**.
- **Alignment**: PPI aligns with the **2050 Strategy for the Blue Pacific Continent** for stronger **law enforcement & security**.
- **Geopolitical Dynamics**: Analysts view PPI as a strategy to counter **China's influence** over Pacific security.

Challenges in the Pacific

- **Climate Change**: **Sea-level rise, ocean warming, acidification**.
- **Geopolitical Tensions**: **US-China rivalry** for regional influence.
- **Drug Trafficking**: Used as a route for **narcotics smuggling**.

India's Engagement

- **Significance**: Key for **energy security & maritime interests**.
- **Initiatives**:
  - **Indo-Pacific Oceans Initiative (2019)**.
  - **Forum for India-Pacific Islands Cooperation (2014)**.

2.18.6. India, GCC adopt Action Plan for Joint Activities

India and **GCC** adopted a **Joint Action Plan (2024-2028)** at the **1st India-GCC Strategic Dialogue**.

Key Outcomes

- **Joint Action Plan (2024-2028)**: Cooperation in **health, trade, security, food, energy, culture, transport**.
- **3P Framework**: **People, Prosperity, Progress** to strengthen ties.
- **Gaza Crisis**: India emphasized a **humanitarian law-based response**.

India-GCC Relations

- **Political**: **First Dialogue (2003)**, strategic ties with **Saudi, UAE, Oman**.
- **Trade**: **$161.59 billion (FY 2023-24)**; UAE is **7th largest FDI source**.
- **Diaspora**: 8.9 million Indians (66% of NRIs) in GCC.

About Gulf Cooperation Council (GCC)

HQ: Riyadh (Saudi Arabia)

- **Genesis:** Riyadh in 1981.
- **Ministry:** Saudi Arabia, Kuwait, United Arab Emirates, Qatar, Bahrain, and Oman
- **Objective:** To achieve unity among its members based on their common objectives and their similar political and cultural identities.

- **Energy**: GCC supplies 35% of India's oil & 70% of gas imports (2021-22).

2.18.7. First Trilateral Power Transaction

Inauguration of **first trilateral power transaction from Nepal to Bangladesh** through the Indian Grid took place.

- It **facilitates power transaction** from Nepal to Bangladesh, through Indian grid with an export of up to 40 MW of power.

2.18.8. U.S., Japan and South Korea signed DiGi Framework

Digital Infrastructure Growth Initiative for India Framework (DiGi Framework) seeks to advance cooperation between the United States, Japan, and the Republic of Korea in partnership with **India.**

Digital Public Infrastructure (DPI) in India

- India became the first country to build all three foundational DPIs through **India Stack**: (**Aadhaar**), (**UPI**) and (**Data Empowerment and Protection Architecture**).
- **India's Efforts at Globalizing DPIs:** US-India Global Digital Development Partnership, G20 Framework for Systems of DPI, Virtual Global DPI Repository.

2.18.9. Chennai-Vladivostok Eastern Maritime Corridor Operational

Also known as the **Eastern Maritime Corridor (EMC)**, it is set to boost **maritime ties** between **India and Russia.**

About EMC

- Envisioned during the **Eastern Economic Forum (2019)** in **Vladivostok, Russia.**

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- Distance around **10, 300 km and** Passes through the **Sea of Japan, the South China Sea, Malacca Strait, etc.**

Significance of the Corridor

- **Reduced Logistics cost: distance** (by around 40%).
- Boost India's maritime sector
- Address China's Dominance.

2.18.10. 2nd India–CARICOM Summit concluded in Guyana

India proposed **seven key pillars** to strengthen ties between India and the **Caribbean Community (CARICOM)**.

- The first-ever India-CARICOM Summit was held in 2019.

About CARICOM

- A regional organization established in **1973** for **cooperation** in the **Caribbean**.
- Consists of 21 countries (fifteen Member States and six Associate Members).

Significance of CARICOM for India

- **Defence Export**: E.g. Recently, HAL delivered two Dornier 228 planes to Guyana.
- **Climate Action Collaboration**: E.g. Suriname joined **International Solar Alliance (ISA).**
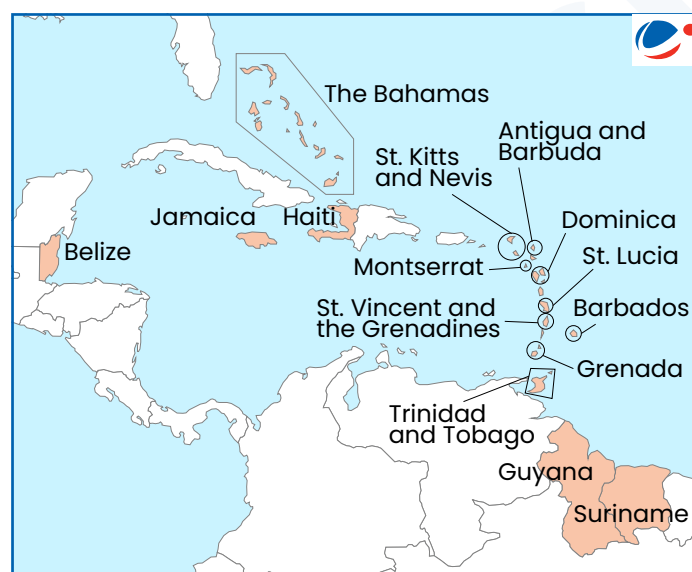
2.18.11. UK Hands Sovereignty of Chagos Islands To Mauritius

Both countries have reached a historic political agreement while US-UK joint base will remain on Diego Garcia atoll.

About Chagos Archipelago

- **Location:** 500 km south of Maldives in Indian Ocean Region
- **History:** Uninhabited until 18th century, later French colonized it, French ceded island to British in 1814.

- **British Indian Ocean Territory (BIOT):** Formed by UK in 1965 (including Chagos)

Significance of Treaty

- Ends a long-standing dispute over last British colony in Africa
- Security Importance (Diego Garcia base allows US to monitor Malacca Strait)
- Aligned with judgment of International Court of Justice & UNGA resolution

Chagos Islands

2.18.12. Anaconda Strategy

Taiwan's navy recently claimed that China's military is employing an 'anaconda strategy' to constrict the island.

About Anaconda strategy

- **Objective:** a military strategy to suffocate the opponent economically and militarily
- **China's anaconda strategy:** a mix of military maneuvers, psychological tactics, and cyber warfare.
  - **Goal**: to force Taiwan into submission without engaging in a full-scale invasion.

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2.18.13. UN adopts Pact for the Future at the UN Summit for the Future

Why in the News?

The **UN Summit for the Future** adopted the **UN Pact for the Future**, along with the **Global Digital Compact** and **Declaration on Future Generations**, to address global challenges. A **Russia-led group of seven** opposed it.

Key Deliverables

- **Sustainable Development**: More financing for **developing nations**, greater role in global finance.
- **Peace & Security**: Commitment to **nuclear disarmament**, preventing **weaponization** of emerging technologies like **lethal autonomous weapons**.
- **Science & Tech**: Ethical research, **indigenous knowledge protection, gender-inclusive innovation**.
- **Youth & Future Generations**: Policies ensuring **long-term sustainability**.
- **Global Governance**: **UNSC reforms, strengthening outer space governance, preventing an arms race** in space, addressing **Africa's under-representation**.

2.18.14. Fast Track Immigration – Trusted Travellers' Programme (FTI-TTP)

- **Registration**: Over 18,000 individuals have registered for FTI-TTP.

Annexures of Pact for the Future

- **Global Digital Compact:** A global agreement on regulating AI and digital technologies to promote sustainable development while addressing digital divides, cybersecurity, and misuse of technology.

- **Declaration on Future Generations:** Securing the well-being of future generations **by protecting the environment and promoting intergenerational equity.**

- **Inauguration**: The program was inaugurated in **June 2024** at **Indira Gandhi International Airport**, New Delhi.

About FTI-TTP

- **Objective**: To expedite immigration clearance for eligible individuals via electronic gates at major airports.
- **Phases**:
  - **Phase 1**: Covers **Indian citizens** and **OCI cardholders**.
  - **Phase 2**: Expands to include **foreign travelers**.
  - **Airports Covered**: 21 major airports in India.
  - **Nodal Ministry**: **Ministry of Home Affairs.**
  - **Nodal Agency**: **Bureau of Immigration**

2.18.15. Cairo Call to Action

World Urban Forum (WUF) concluded its twelfth edition, held in Cairo (Egypt), with the adoption of **10-point Cairo Call to Action**.

- WUF, established in 2001 by UN, is the premier **global conference on sustainable urbanization**.

Cairo Call to Action calls for

- Urgent action to **address the global housing crisis.**
- Achieving **global goals through local action, representation of local actors** at all levels.
- **Unlocking finance for cities** and communities, and ensuring **equity and justice.**
- **Leveraging local and grassroots data** for decision-making.

2.18.16. International Cooperative Alliance

International Cooperative Alliance (ICA) Global Cooperative Conference is being organised in India for the first time in the 130 year long history of ICA.

- Theme **"Cooperatives Build Prosperity for All"** .

About ICA

- **Founded**: In 1895, London.
- **Members**: **306 member organizations** across **105 countries.**
- It serves as the **apex body** for the cooperative movement.

2.18.17. Indian Chemical Council Wins OPCW-The Hague Award

The 2024 OPCW-The Hague Award was conferred upon the Indian Chemical Council (ICC).

- **The Organisation for the Prohibition of Chemical Weapons (OPCW) Hague award** acknowledges compliance with **Chemical Weapon Convention (CWC).**
- **This is the first time** that the Award recognises the efforts of a **chemical industry body.**
- **Hague Award** was established in 2014 to honor OPCW's contributions to **Chemical Weapons Conventions (CWC)** goals.

About Chemical Weapon Convention (CWC)

- **Genesis:** It came into force in **1997 and** presently has **193 States Parties.**
  - **India is an original signatory** to the Convention.
  - OPCW was awarded the **Nobel Peace Prize in 2013.**
- **Implementation in India: National Authority Chemical Weapons Convention (NACWC)**.
  - NACWC was established under the **Chemical Weapons Convention Act, 2000.**

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2.18.18. Axis of Resistance

About Axis of Resistance

- **Definition**: A network of militant Islamist groups led by **Iran**, with origins tracing back to the **Iranian Revolution of 1979**.
- **Key Members**:
  - **Hezbollah** (Lebanese Shia militant organization).
  - **Hamas** (Palestinian Sunni militant group).
  - **Palestinian Islamic Jihad.**
  - **Houthis** (Yemen militant group)
- **Hezbollah**: Founded in the early 1980s in Lebanon, it is the largest and most capable member of the Axis of Resistance, also known as the **"Party of God".**

2.18.19. Philadelphi Corridor

Israel has made control of the Philadelphi corridor a condition in ceasefire negotiations between Israel and Hamas.

Philadelphi Corridor
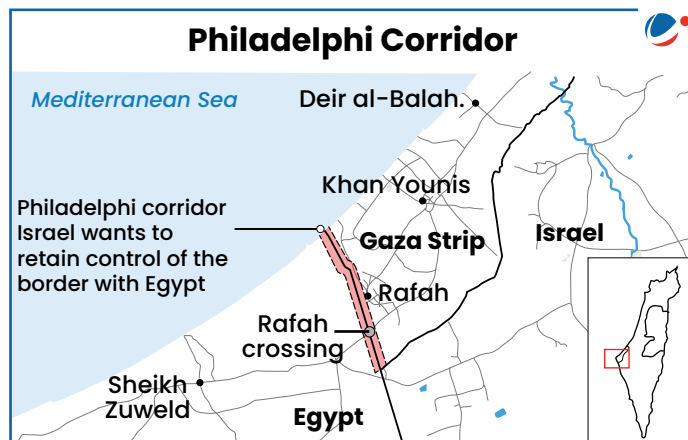
About Philadelphi corridor

- **Location:** along Gaza's border with Egypt, about 14kms in length and 100 meters wide .
- **History:** designated as a demilitarized border zone in 2005 after the withdrawal of Israel.
- **Present:** under Egypt and the Palestinian Authority

2.18.20. Triton island

Recent satellite imagery reveals a significant **military buildup by China on Triton Island**.

About Triton Island

- **Located in the Paracels (South China Sea) is also** known as **Xisha Islands in China**.
- **controlled by China** but is also **claimed by Vietnam and Taiwan.**
- China **took control of the Paracels from South Vietnam**.

2.18.21. India's Military Diplomacy

India has intensified **military diplomacy** with consecutive **exercises** involving global partners across all **three Services**.

India's Military Diplomacy

- **Definition**: Use of **defense resources** for **foreign policy goals** through **peaceful means**.
- **Key Aspects**:
  - **UN Peacekeeping**
  - **Humanitarian Assistance**
  - **Joint Military Exercises**
- **Significance**:
  - **Building Trust**: Reduces mistrust and conflict risks.
  - **Strengthening Alliances**: QUAD drills, defense agreements enhance security.
  - **Defense Modernization**: Tech transfers (e.g., **BrahMos** with **Russia**).
  - **Strategic Balancing**: Soft power via humanitarian aid in sensitive regions.

Challenges

- **Balancing US-Russia ties**, South Asia's **'Big Brother' perception**, and domestic **defense manufacturing gaps**.
- **Impact**: Strengthens **regional security** and shapes **Indo-Pacific security architecture**.

2.18.22. Operation Sadbhav

- **Objective**: Humanitarian assistance and disaster relief (HADR) to Laos, Myanmar, and Vietnam after Typhoon Yagi.
- **Significance**: Part of India's broader **Act East Policy**.

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2.18..23. Northern United-2024

Northern United-2024

- **Drills**: **China & Russia** announced joint **naval & air** exercises in the **Sea of Japan & Sea of Okhotsk**.
- **Objective**: Strengthen **strategic cooperation** and enhance **joint security response**.

About Sea of Japan

- **Location**: **Marginal sea** of the **western Pacific Ocean**.
- **Boundaries**: **East** – Japan, Sakhalin Isalnd; **West** – Russia, Korea.

About Sea of Okhotsk

- **Location**: Bounded by **Kamchatka Peninsula, Kuril Islands (E, SE), Japanese island of Hokkaido (S), Sakhalin Island (SW)**.

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2.19. TEST YOUR LEARNING

MCQ

1. **With reference to diplomatic immunity, consider the following statements:**

    1. It is derived from the Vienna Convention, 1961.
    2. It provides protection to foreign government officials from local courts' jurisdiction.
    3. It applies only to official activities of diplomatic officials.

    Select the correct answer using the code given below:

    (a) 1 and 2 only

    (b) 2 and 3 only

    (c) 1 only

    (d) 1, 2 and 3

2. **Which of the following statements about the types of diplomacy between nations is/are correct?**

    1. Track 1.5 diplomacy involves both government representatives and non-governmental experts.
    2. Track 2 diplomacy involves direct governmental participation.
    3. Both Track 1.5 and Track 2 diplomacy focus on formal diplomatic channels.

    Select the correct answer using the code given below:

    (a) 1 only

    (b) 2 and 3 only

    (c) 1 and 3 only

    (d) 1, 2 and 3

3. **Consider the following statements about the Eastern Maritime Corridor (EMC) between India and Russia:**

    1. The Eastern Maritime Corridor (EMC) was envisioned during the Eastern Economic Forum in 2019 and aims to develop a sea route between Chennai and Vladivostok.
    2. The EMC covers a distance of approximately 10,300 km and reduces transportation time by around 16 days compared to traditional routes.

    Which of the above statements is/are correct?

    (a) 1 only

    (b) 2 only

    (c) Both 1 and 2

    (d) Neither 1 nor 2

4. **The 2024 OPCW-The Hague Award was conferred upon the Indian Chemical Council (ICC) for its contributions to chemical safety and compliance with the Chemical Weapons Convention (CWC).**

    Which of the following statements is correct?

    (a) This is the first time a chemical industry body received the award.

    (b) The award was established in 2010.

    (c) The ICC was awarded for its contributions to nuclear safety.

    (d) The Hague Award is given every year to individuals only.

5. **Which of the following is NOT a member of the Gulf Cooperation Council (GCC)?**

    (a) Iran

    (b) Saudi Arabia

    (c) Oman

    (d) Kuwait

Questions

1. Discuss the significance of ASEAN for India's Act East policy. Briefly mention three initiatives taken by India to strengthen ties with ASEAN countries. (10 marks/ 150 words)

2. Discuss the major challenges in India-Australia bilateral relations and suggest measures to strengthen this strategic partnership. (250words, 15 marks)

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THE PLANET VISION

In a world facing unprecedented environmental challenges, staying informed and empowered is more crucial than ever. VisionIAS brings you **'The Planet Vision'**, a simplified, informative, and interactive magazine to delve into the complexities of the environment.

With the belief, that individual efforts and awareness are the key to a sustainable future, the magazine seeks to inspire and educate people to **develop a deeper understanding and appreciation for the environment, nature & planet.**
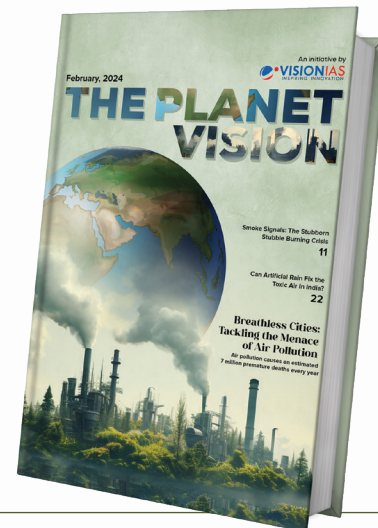
Objectives of 'The Planet Vision'

Sensitise the young generation: Highlighting pressing environmental issues and their multifaceted impacts.

Inspire Action and Promote Sustainable Lifestyle: Inspiring stories and case studies to motivate readers to make environmentally conscious choices.

Bridge Environmental Science and Public Understanding: Presenting complex scientific concepts in a simple and interactive manner.

Showcase Solutions: Spotlight innovative technologies, projects, and initiatives that offer solutions to environmental challenges.

Highlight Local Efforts: Showcase local conservation efforts, community initiatives, and grassroots projects that make a positive impact on the environment.

Who is the magazine for?

The Magazine is designed for students, eco-conscious individuals, educators, environmentalists, and anyone who cares about the health of our planet.

Key elements of the 'The Planet Vision'

Cover Stories: Thought-provoking articles about a critical ongoing environmental issue, along with the mitigation strategies adopted at the national and international levels.

Briefing and Developments: Stay informed about the latest environmental news, trends, and solutions.

Protect and Preserve: Inspirational stories of local conversation efforts.

Environment and You: Illustrating ways to make environmentally conscious choices in everyday life.

Green Tech: New and emerging technologies in the field of environment.

Interactive elements:
- **Snapshot:** Telling a story through capturing images.
- **Quizzes and crosswords:** To test your understanding and knowledge as a reader.

> "Look deep into nature, and then you will understand everything better."
> –Albert Einstein

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3.1. REGIONAL DISPARITY IN DEVELOPMENT

Why in News?

A working paper titled "Relative Economic Performance of Indian States: 1960-61 to 2023-24" by the **Economic Advisory Council to the Prime Minister (EAC-PM)** highlights **uneven growth** across Indian states.

Key Trends Highlighted in Working Paper

- **Disparity in Relative Per Capita Income: Western & Southern states** lead; **Delhi (250.8% of national average), Telangana, Karnataka, and Haryana** top the list.
- **Decline of West Bengal**: Once **27% above national average (3rd in 1960-61)**, now at **83.7%**.
- **Improvement in Odisha**: Increased from **55.8% (2000-01) to 88.5% (2023-24)**.
- **Dominance of Southern States in GDP Contribution: Karnataka, Andhra Pradesh, Telangana, Kerala, Tamil Nadu** contribute **30%+ of India's GDP (2023-24)**.
  - **West Bengal's GDP Share Drop**: **10.5% (1960-61) to 5.6% (2023-24)**.
- **Better Performance of Maritime States**: Except **West Bengal**, coastal states outperform others.
- **Diverging Paths of Punjab and Haryana**: Punjab's **PCI fell (119.6% to 106.7%)**, while Haryana's **rose (106.9% to 176.8%)**.
  - **Punjab's Dutch Disease- Agriculture dependence** slowed **industrialization**.
- **Eastern States Remain a Concern: West Bengal weakens, Bihar stabilizes but lags**.

Factors Responsible for Regional Disparity

- **Historical**: British policies favored **resource-rich areas** (Kolkata, Mumbai, Chennai), creating **persistent imbalances**.
- **Geographical**: **Difficult terrain** (Northeast) raises costs, while **adverse climates** (floods in Bihar, Assam) hinder development.
- **Economic**:
  - **Primary Sector Dependence: Manufacturing & services-driven states** (Maharashtra, Gujarat) have higher income than **agriculture-dependent** states (Bihar, UP).
  - **Infrastructure Deficit**: Poor **transport, banking, power supply**.
- **Governance**:
  - **Political Instability**: Unstable governments, law & order issues deter investment and cause **capital flight**.
  - **Failure of Planning Mechanisms**: Industries prefer states with **reliable power, water, transport, and skilled labor**.

Implications of Regional Disparity in Development

- **Security Threats: Naxalism**
- **Political Fragmentation**: Demands for **separate states** (Telangana, Vidarbha, Bodoland) arise
- **Migration for Livelihood: UP & Bihar** are major **migrant source states**, while **Maharashtra & Delhi** are top receivers (Census 2011).
- **Uneven Urban Growth**: Cities like **Chennai and Bengaluru** attract more investment, growing faster than others.
- **Environmental Impact: Industrial concentration** causes **pollution** (e.g., **Delhi's air pollution**).

Initiatives to Eliminate Regional Disparity

- **Aspirational Districts Programme (ADP): Targets 112 most underdeveloped districts** for rapid transformation.
- **Aspirational Block Programme (ABP): Focuses on governance & quality of life** in **500 blocks** across **27 states & 4 UTs**.
- **'Vocal for Local' Initiative: Encourages self-reliance & entrepreneurship** in Aspirational Blocks.
- **Human Resource Development: Higher incentives** in **low-performing states** (e.g., **Janani Suraksha Yojana** for ASHA workers).
- **Border Area Development Programme (BADP): Improves infrastructure & welfare** in **remote border areas**.

Way Ahead to Reduce Regional Disparity

- **Tailored Approaches: Programs like Hilly Area & Drought Prone Development** should focus on **region-specific needs**.
- **Performance-Based Funding: Allocate funds based on development standards**, prioritizing **industrial backwardness**.

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- **Good Governance**: **Effective administration** to **boost revenue, attract investment & enhance resource use** in backward states.
- **Balanced Infrastructure Development**: **Enhance power, transport, telecom & irrigation** in underdeveloped regions to attract investment.
- **Sectoral Investment**:
  - **Agriculture**: Strengthen **backward & forward linkages** in lagging regions.
  - **Service Sector**: **Promote banking, insurance & infrastructure** to drive growth.

3.2 RURAL NON-FARM ECONOMY (RNFE)

Why in the News?

The **"State of Rural Youth Employment 2024" report** reveals most rural youth see agriculture as unattractive and prefer non-farm jobs, including small businesses.

About Rural Non-Farm Economy (RNFE)

- RNFE include value chain activities, such as **agro-processing, transport etc.**
- Although, agriculture has traditionally dominated the rural economy, but **two-thirds of rural income now comes from non-agricultural activities i.e., RNFE.**

Significance of RNFE

- Reducing disguised unemployment, Tilting wage dynamics in favour of labour, Income security & poverty reduction, Reduces migration, rural industrialization.

Key Determinants of RNFE in India

- **Government Policies: Dr. Ashok Dalwai Committee** recommended shifting surplus farm labor to non-farm jobs**.**
- **Education and Skills and Family Size:** Larger families earn less from farm activities.
- **Impact of Climate Change** and **Public Spending and Diversification**.
- **Infrastructure Development** especially on infrastructure, promotes construction employment.

Challenges in Rural Non-Farm Economy (RNFE) in India

- **Limited Access to Credit** and **Low Worker Productivity**.
- **Informal and Volatile Employment:** RNFE jobs often provide: Low and unstable incomes.
- **Declining Income Levels of** rural non-agricultural households.

Initiatives

- **Formal Institutional Arrangements like** Khadi and Village Industries Commission (KVIC),
- **Promotion of Traditional industries through** Scheme of Fund for Regeneration of Traditional Industries (SFURTI).
- **Credit needs of small enterprises by** SHG Bank linkage programme under NABARD
- **Development of skills through** Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY), etc.
- **Infrastructure development:** Pradhan Mantri Gramin Digital Saksharta Abhiyan, etc.

Way ahead to promote sustainable RNFE

- Expand Credit Access, Diversify Employment Opportunities, Encourage Value Addition, Regulate Informal Employment, Cluster-Based Development.

3.3. FOOD CORPORATION OF INDIA (FCI)

Why in the news?

Cabinet Committee on Economic Affairs (CCEA) has approved ₹10,700 crore equity infusion for FCI's working capital for 2024-25.

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More on news

- The current equity infusion will: **Strengthens FCI's operational capacity** and **Reduces reliance on short-term borrowings**.

What is Food Corporation of India?

- **About**: FCI is **Public Sector Undertaking** under the **Ministry of Consumer Affairs, Food & Public Distribution**.
- **Genesis:** FCI is a **statutory body** established under the **Food Corporation's Act 1964.**
- **Finance:** FCI started its journey with an authorised capital of **Rs. 100 Crores and equity of Rs. 4 Crores**.
- **Key objectives of FCI:**
    - Effective price support operations for safeguarding the interests of the farmers.
    - Distribution of food grains throughout the country for public distribution system (PDS).
    - Maintaining satisfactory level of operational and buffer stocks of foodgrains to ensure National Food Security.

Working mechanism of Food Corporation of India (FCI)

- **The FCI, along with state agencies, procures food grains** to ensure Minimum Support Price.
    - **Two types of procurement mechanisms:** Direct Procurement and Decentralized Procurement (DCP).

Challenges faced by FCI

- Refusal of procurement at centres due to technical reasons (e.g., moisture content) leading to distress sales.
- Limited adoption of DCP Scheme.
- Ministries and states owe FCI more than ₹2000 crore, adding financial strain.
- Damaged Food Grains due to pest attacks, rain, etc.

Initiatives taken to improve the functioning of FCI

- **Direct Benefit Transfer (DBT) Initiative** such as 'One Nation, One MSP'.
- **Modernized Storage Solutions**: scientifically managed storage depots and silos.
- **Steel Silos:** Currently, 22.75 LMT of steel silos are operational, with an additional 41 LMT in development.
- **Digital reforms** such as **AI-Enabled Video Surveillance, ANNA DARPAN portal** etc.

3.4. DIRECT BENEFIT TRANSFER (DBT)

Why in the news?

- As per a recent report by the State Bank of India, the **Direct Benefit Transfer (DBT) amount to women through various schemes has crossed ₹ 2 trillion mark across multiple states**.

More about news

- Across eight states an estimated ₹ 2.11 lakh crore is being**.**
- Some of the schemes mentioned in the report: **'Gruha Lakshmi' of Karnataka, 'Mukhya Mantri Majhi Ladki Bahin Yojana' of Maharashtra, 'Mukhyamantri Ladli Behna Yojana' of Madhya Pradesh 'Subhadra Yojana' of Odisha**.

About Direct Benefit Transfer (DBT)

- **Launched**: 2013.
- **Objective**: To ensure **reduction in leakages, faster delivery and elimination of delays.**
- **Scope of Support: Cash Transfers** and **In-Kind Support**.
- **Mechanism** (build on **India Stack**): **Public Financial Management System (PFMS), JAM Trinity (Jan Dhan-Aadhaar-Mobile), Banking Infrastructure** Utilizes **Business Correspondents, Payment Banks** and **UPI Integration**s.

How DBT ecosystem has transformed social welfare in India?

- **Effective implementation of schemes**: Since 2016, DBT has delivered over **450 schemes**.
- **During COVID-19**: Provided ₹27,442 crore to 11.42 crore beneficiaries.
- **Financial inclusion:** To enable DBT, over **53.13 crores bank accounts** have been opened.
- **Transparency and accountability**: Aadhaar-seeding eliminated over 90 million fake beneficiaries.

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- **Socio-economic impact:** Promotes **social mobility,** Strengthened agricultural economies, **Enhanced women's economic independence.**
- **International recognition:** The **IMF praised India's DBT scheme as a "logistical marvel,".**

Concerns and Criticisms

- **Over-reliance on efficiency:** Fails to address systemic issues like **education and healthcare.**
- **Nudging the poor towards private alternatives.**
- **Limited Accessibility:** Due to geographical Barriers and lack of Financial Literacy.
- **Identification of Beneficiaries:** Inclusion and exclusion errors in Enrollment.

Way Forward

- With **DBT 2.0,** expand coverage and With **DBT 3.0,** building a **national-level social registry**
- **Targeted Outreach** and **Accessibility**
- **Single-window grievance redressal system.**

3.5. FINANCIAL INCLUSION AND 10 YEARS OF PMJDY

Why in the News?

- India recently celebrated **10 years of Pradhan Mantri Jan Dhan Yojana (PMJDY),** launched to promote **financial inclusion.**

What is Financial Inclusion?

- Ensures **access to affordable financial services** like **transactions, payments, savings, credit, and insurance** for individuals and businesses (**World Bank**).
- **Objective:** Extend financial services to the **unserved population** to unlock **economic growth potential.**

Significance of Financial Inclusion

- **Plugging the Credit Gap:** Enables **formal credit access,** boosting **MSMEs,** job creation, and **GDP growth.**
- **Encouraging Saving Habits:** Enhances **capital formation** and **economic stability.**
- **Inclusive Growth: Reduces poverty,** promotes **education and healthcare investment,** and drives **long-term development.**
- **Plugging Subsidy Leakages: Direct Benefit Transfers (DBT)** saved ₹63,000 crore (FY22-23) by reducing inefficiencies.
- **Key to SDGs:** Supports **7 out of 17 SDGs; 55.6% of PMJDY account holders are women,** empowering financial inclusion.

Challenges for Financial Inclusion

About PMJDY

- **Launched:** August 2014, **World's largest financial inclusion scheme** under the **Ministry of Finance** (Department of Financial Services).
- **Aim:** Universal access to **banking, credit, insurance, and pension** at an affordable cost.
- **Key Features:**
  - **Banking the Unbanked:** Zero-balance **BSBDA** accounts with **relaxed KYC.**
  - **Securing the Unsecured: RuPay debit card** with **₹2 lakh accidental insurance** (post-Aug 2018).
  - **Funding the Unfunded: Micro-loans, micro-pensions,** ₹10,000 **overdraft** (max age **65 years**).
  - **Scheme Eligibility:** Access to **DBT, PMJJBY, PMSBY, APY, and MUDRA.**

Key Achievements of PMJDY

- **Massive Account Growth: 53.13 crore** accounts (Aug 2024) vs **14.72 crore** (Mar 2015).
- **Digital Economy Boost: 36.14 crore RuPay cards** issued, enabling cashless transactions with insurance cover.
- **Rural Banking Access: 100% villages** mapped with banking outlets within **5 km** (Jan Dhan Darshak App).
- **Higher Deposits: 4.12x increase** in average deposits (2015-2024), with total deposits **₹2.3 lakh crore.**
- **Fewer Zero Balance Accounts:** Down to **4.26 crore** from **8.52 crore** in 2015.

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Pradhan Mantri Jan Dhan Yojana (PMJDY)

6 PILLARS OF PMJDY

- Universal access to Banking services
- Pension scheme for Unorganized Sector
- Creation of Credit guarantee Fund
- Basic saving bank Account with Overdraft facility Of Rs. 10,000 to Eligible adult
- Financial literacy Program
- Micro-insurance Financial literacy Program

- **Demand-Side Factors**: **Low income**, lack of **awareness**, and **high transaction costs** hinder financial access.
- **Supply-Side Challenges**: Banks avoid **low-value consumers** due to **uneven incomes** and **low profitability**.
- **Digital & Infrastructure Gaps**: **Weak connectivity, power failures**, and **digital divide** affect financial access.
- **Regulatory Barriers**: **Stringent KYC norms** limit access for **low-income groups**.
- **Lack of Financial Literacy**: **20% PMJDY accounts are dormant, 8.4% have zero balance** due to poor awareness.
- **Gender & Socio-Economic Barriers**: **Women & rural populations** face **cultural, literacy, and geographic** challenges.
- **Cybersecurity Risks**: **Digital finance** increases exposure to **cyberattacks** and financial fraud.

Other Initiatives for Financial Inclusion in India

- **Kisan Credit Card (KCC) Scheme (1998)**: Provides **credit access** to **small & marginal farmers**.
- **Self-Help Groups (SHG) & Joint Liability Groups (JLG)**: Enable **collateral-free financing** for communities.
- **MGNREGA Wage Payments**: **Bank & post office payments** ensure **financial inclusion** for rural workers.
- **India Post Payments Bank (IPPB)**: Delivers **microfinance services** through **post offices** in rural areas.

Way Forward for Financial Inclusion

- **Public-Private Partnerships**: Boost **mobile money** and **digital payments** through collaboration.
- **Financial Literacy**: Integrate into **school curricula** with RBI's support.
- **Fintech Innovations**: Expand **mobile banking** and **alternative credit scoring**.
- **Tailored Products**: Offer **microinsurance** and **pension schemes** (e.g., **Atal Pension Yojana**).

3.5.1. 50 years of Indian Microfinance Sector

First MFI in India (1974): **SEWA Bank** registered as a cooperative bank.

- **Global Inspiration (1976)**: **Grameen Bank** (Bangladesh) by **Muhammad Yunus** pioneered modern MFIs.
- **Regulation**: **RBI** regulates MFIs in India.
- **Malegam Committee (2010)**: Recommended a **holistic framework** for **NBFC-MFIs** regulation.

Microfinance (Microcredit)

- **Definition**: Provides **small-value loans** and other financial services to marginalized individuals lacking formal banking access.
- **Services**: Includes **savings accounts, fund transfers, microinsurance**, etc.

Significance of Microfinance

- **Financial Inclusion**: Key driver for socio-economic transformation.
- **Women Empowerment**: Through **Self Help Groups (SHGs)**.
- **Poverty Reduction**: Supports **rural development** and economic upliftment.

Challenges in the Microfinance Sector

- **High Transaction Costs**: Serving a large number of small borrowers.
- **No Collateral**: Makes loan security difficult.
- **Higher Interest Rates**: More than commercial banks.
- **High Credit Costs**: MFIs struggle with **cheap funding access**.
- **Other Issues**: **Low financial/digital literacy**, reliance on **moneylenders**.

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Government Initiatives for Microfinance

- **SHG-Bank Linkage Program**: Enhances **loan access for SHGs**, shifting lending focus to **production-based activities**.
- **Pradhan Mantri Mudra Yojana (PMMY)**: Offers **loans up to ₹10 lakh** for **non-corporate, non-farm** small enterprises via banks & NBFCs.
  - **Loan Categories: Shishu, Kishore, Tarun**.
  - **2024 Budget Update: Tarun limit raised to ₹20 lakh** for successful past borrowers.

3.6. UNIFIED PENSION SCHEME

Why in News?

Union Cabinet approved the **Unified Pension Scheme (UPS)**.

About UPS

- Based on **T. V. Somanathan Committee (2023)** recommendations amid demands for **Old Pension Scheme (OPS)**.
- **Existing & future employees** can choose between **New Pension Scheme or UPS** (one-time final choice).
- **Applies to past NPS retirees** who have already superannuated.

Comparison between Unified Pension Scheme, New Pension Scheme and Old Pension Scheme

Parameters	Unified Pension Scheme (UPS)	New Pension Scheme (NPS)	Old Pension Scheme (OPS)
Eligibility	• Effective from April 1, 2025; applies to all Central Govt. employees.	• Launched in 2004; for citizens aged 18-65.	• Introduced in 1950s; applicable only to Govt. employees.
Assured Pension	• **50% of average basic pay over** the last 12 months (min. 25 years of service). • It will be **proportionate** for a lesser service period (minimum service of **10 years**).	• **Market-linked; no fixed pension amount.**	• 50% of last drawn salary; • Fixed monthly income.
Minimum Pension	• ₹10,000/month (min. 10 years of service)	• Not Applicable	• Rs. 9000 per month
Family Pension	• On **demise**, **60%** of employee's **pension** before demise.	• Based on accumulated pension wealth **under NPS.**	
Inflation Indexation	• Dearness Relief (DR) based on AICPI-IW **All India Consumer Price Index for Industrial Workers (AICPI-IW)**	• Not available	• **Dearness relief, which adjusted pension for inflation**, and offered a family pension to dependents.
Contribution	• Employee contribution will not increase. • **Government contribution increased** from 14 to 18.5%.	• Employees are **required to contribute 10% of their salaries**, while **employers can contribute up to 14%.**	• No employee contributions required.

3.7 YEARS OF MAKE IN INDIA

Why in the News?

Make in India initiative completed 10 years since its launch on September 25, 2014.

About 'Make in India'

- **Aim:** Transform India into a global design and manufacturing hub through 'Vocal for Local' initiative.
- **Key objectives: 12-14% industrial growth rate**, **100 million** jobs by 2022, and **25% manufacturing share** in GDP by 2025.
- **Make in India 2.0 (2021**) focuses on 27 sectors.
- **Pillars of 'Make in India':** New Processes, New Infrastructure, New Sectors, New Mindset.
- **Major Initiatives**: PLI Schemes PM GatiShakti, Semicon India programme, National Logistics Policy, etc .

Major Achievements under 'Make in India'

- Became world's **2nd largest mobile manufacturer** with **99% domestic production.**
- Improved from **142nd to 63rd** in **World Bank's Doing Business Report** (2014-2020)
- FDI inflows increased **from $45Bn (2015) to $85Bn (2022).**
- Merchandise exports reached **$437Bn in 2024.**
- Significant defense exports. **E.g., Dhanush Artillery, MBT Arjun, and LCA Tejas**
- Climbed **42 spots in Global Innovation Index** since **2015**, ranking **39th.**

Concerns with 'Make in India'

- **Manufacturing sector** still at 17.7% of GDP (2023), below 25% target.
- **Manufacturing workforce** declined from 51 million (2017) to 35 million (2023).
- **Manufacturing** GVA growth slowed (2023)
- **FDI a**s percentage of GDP decreased (2015-2023)
- **Merchandise exports** fell from 10% to 8% of GDP (2013-14 to 2022-23)

Factors hindering success of Make in India

- Over- dependence on foreign capital and markets; Policy unpredictability; Sub-optimal integration in supply-chains; Dominance of unorganized sector; Ill-timed initiative.

Way Forward

- Adopt **new technologies (AI, ML)** Leverage **STEM graduates**; Enhance **academia-industry-government**; Focus on **services and manufacturing-related services**; Leverage **democratic advantage** for innovation

3.8. SCALING OF INDIA'S SMALL COMPANIES

Why in the news?

A paper highlighted the rise of **multi-plant phenomena in the Indian manufacturing sector.**

About multi-plant phenomena

- Manufacturing firms **distribute workforce across multiple factories** in the same state.
- Accounts **for 25.16% of total employment and 35.48% of employment** in large plants.
- Highlights challenges in scaling up manufacturing firms like **missing middle phenomena**, **dwarfism of firms**

How a multi-plant phenomenon is different from dwarf firm, and missing middle phenomena?

- **Multi-plant:** Large firm with multiple small plants.
- **Dwarf firm:** Small firm that doesn't scale.
- **Missing Middle:** Lower share of mid-sized firms in manufacturing.

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Key Scaling Challenges for Indian Firms

- Labour laws create size-based disincentives for growth: **E.g.,** Industrial Disputes Act (1947)
- Risk management through plant diversification.
- Lack of professional management.
- Market fragmentation.
- Land acquisition difficulties.

Implications of Indians firms and plants remaining small

- Low productivity (8% contribution by dwarf firms)
- Reduced export competitiveness
- Limited job creation (contribution of dwarf firms to employment is only 14%)
- Poor employment quality

Initiatives taken to promote large firms: PLI Schemes; National Industrial Corridor Development Programme; RAMP scheme Labour law codification

Way Forward: Implement sunset clause for size-based incentives; Develop management skills; Improve capital access; Promote industrial clusters.

3.9. PM E-DRIVE SCHEME

Why in News?

Ministry of Heavy Industries notified the **PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) Scheme**.

Key Highlights

- Builds upon **FAME-I (2015)** and **FAME-II (2019)** schemes.
- **Electric Mobility Promotion Scheme 2024 (EMPS-2024)** is subsumed under it.
  - EMPS-2024 was launched in **July 2024** to accelerate the adoption of **electric two-wheelers (e-2W) and three-wheelers (e-3W)**.

About PM E-DRIVE Scheme

- **Objective:** Accelerate **EV adoption** through **purchase incentives** and **charging infrastructure** development.
- **To reduce the transportation-related environmental impact** and improve **air quality**.
- **Fund Allocation:** ₹10,900 crore
- **Time Period:** 2024-26
- **Nodal Ministry: Ministry of Heavy Industries**
  - **Implementation: Project Implementation and Sanctioning Committee (PISC),** headed by **Secretary (Heavy Industries).**
- **Targets:**
  - Support **e-2Ws, e-3Ws, and e-buses**
  - Install **22,100** fast chargers for **e-4Ws**
  - Install **1,800** fast chargers for **e-buses**
  - Install **48,400** fast chargers for **e-2Ws/e-3Ws**

Categories of vehicles eligible for Demand Incentive

Two Wheelers (electric) (e-2W)

Three-wheeler (electric) including registered e-rickshaws & e-carts and L5 (e-3W)

e-ambulances (electric, plug in hybrid & strong hybrid)

e-trucks and other new emerging EV categories.

To qualify for the incentives, vehicles must be registered as **"Motor Vehicles"** under the **Central Motor Vehicle Rules (CMVR), 1989,** equipped with advanced battery technology and fulfil other criteria as prescribed under the scheme.

Key Benefits of PM E-DRIVE

Demand generation of EVs by way of **reducing** the **cost of acquisition**

Demand generation of EVs by way of **reducing** the **cost of acquisition**

Upgrade the **facilities** for **testing of EVs**

Setting up of **adequate public charging infrastructure** to **instil confidence amongst EV users**

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Key Features of PM E-DRIVE Scheme

- **Subsidies:** Demand incentives for **EV buyers** to reduce the upfront cost.
- **Aadhaar-authenticated e-Vouchers:** Generated via **PM E-DRIVE app/portal**, with reimbursement to **OEMs** by the government.
- **Incentives (based on battery capacity - kWh):**
  - **FY 2024-25:** ₹5,000 per kWh
  - **FY 2025-26:** ₹2,500 per kWh
  - **Capped at 15% of ex-factory price** for **e-2Ws and e-3Ws**.
- **Grants for creation of capital assets:** Includes **e-buses, Electric Vehicle Public Charging Stations (EVPCS)** & **testing agency upgrades**.
  - **Support for e-buses:** Provided through **State/City Transport Undertakings (STUs)** on **Operational Expenditure (OPEX)/Gross Cost Contract (GCC) model**.
  - **e-Bus Incentive:** Only **e-buses with ex-factory price < ₹2 crore** are eligible.
  - **EVPCS Installation:** In **9 high EV penetration cities** (Mumbai, Delhi, Bangalore, etc.) & selected **highways**.
  - **Charging Infrastructure:** As per **Ministry of Power's 2024 Guidelines ("Guidelines for Installation and Operation of Electric Vehicle Charging Infrastructure-2024")**.
- **Project Management Agency (PMA):** Handles **implementation, secretarial & managerial support**.
- **Other important Features:**
  - **Phased Manufacturing Programme (PMP):** Mandatory for **OEMs & EVPCS** to get support.
  - **Incentive Independence:** Grants are **independent of PLI-Auto & PLI-ACC incentives**.
  - **State-Level Encouragement:** States urged to provide **road tax concessions, toll exemptions & parking fee reductions**.

Related News: PM-eBus Sewa-Payment Security Mechanism (PSM) scheme

- Cabinet has approved **PM-eBus Sewa-PSM scheme**
- **Objective:** Facilitate **procurement & operation** of **e-buses** by **Public Transport Authorities (PTAs)**.
- **Key Features**
  - **Deployment Target: 38,000+ e-Buses** (2024-25 to 2028-29).
  - **Operational Support: Up to 12 years** from deployment.
  - **PPP Model: Gross Cost Contract (GCC)** model.
  - **No Upfront Cost for PTAs:**
    - ◊ **OEMs/operators** procure & operate **e-buses** for PTAs.
    - ◊ PTAs **pay monthly** instead of upfront purchase.
  - **Timely Payments:** Dedicated **fund ensures payments** to OEMs/operators.
  - **Implementing Agency: Convergence Energy Services Limited (CESL)**.

About Guidelines for Installation and Operation of Electric Vehicle Charging Infrastructure-2024

- **Objective:** Ensure **safe, reliable & accessible** charging stations to drive EV adoption.
- **Key Features**
  - **Implementation Mechanism: Bureau of Energy Efficiency (BEE)** is the **Central Nodal Authority** for monitoring.
  - **Coverage:**
    - ◊ **Public spaces:** Commercial complexes, railway stations, petrol pumps, airports, metro stations, etc.
    - ◊ **Private spaces:** Offices, educational institutions, hospitals, etc.
  - **Provision of Public Land for PCS:**
    - ◊ **Govt./Public entities** to provide **subsidized land** for **Public Charging Stations (PCS)**.
    - ◊ **Revenue-sharing model:** Land-owning agency gets **₹1 per kWh of electricity** used.
  - **PCS Location Targets:**
    - ◊ **Urban Areas: 1 charging station per 1 km × 1 km grid** by **2030**.
    - ◊ **Highways: Every 20 km** for regular EVs & **every 100 km** for long-range/heavy-duty EVs.
  - **Centralized Platform:** BEE & **State Nodal Agencies (SNAs)** will maintain a **national PCS database**.
  - **Other Provisions:**
    - ◊ **BIS Compliance:** All **EV Supply Equipment** must follow **Bureau of Indian Standards (BIS)**.
    - ◊ **Time-Based Tariffs: Lower tariffs during solar hours** to promote renewable energy.
    - ◊ **Electricity Cost Cap:** Until **March 2028**, EV charging rates **won't exceed the Average Cost of Supply**.

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3.10. MINERALS SECURITY PARTNERSHIP FINANCE NETWORK

Why in the News?

India joined the **US-led Minerals Security Partnership (MSP) Finance Network** to secure **sustainable supply chains** for **critical minerals**.

Key Points:

- Part of India's strategy to **diversify and secure critical mineral supply**.
- Reduces **dependency on China**, which dominates global supply chains.

What is MSP Finance Network?

- **Initiative**: Part of **Minerals Security Partnership (MSP)**.
- **Objective**: Strengthens **cooperation, information exchange, and co-financing** to build **diverse, secure, and sustainable** critical mineral supply chains.
- **Scope**: Funds projects in **extraction, processing, recycling, and recovery**, mobilizing **private sector capital**.
- **Members**: **14 countries + European Commission**.
- **Key Institutions**: **US International Development Finance Corporation (DFC), European Investment Bank (EIB), Japan International Cooperation Agency (JICA)**, among others.

About Mineral Security Partnership

- **Genesis:** Launched in 2022.
- **Objective:** Supports **public & private investments** in **strategic critical minerals** to build **secure, diverse, and sustainable** supply chains.
- **Members: 14 countries + EU** (over **50% of Global GDP**).
  - **India's** joined in **2023**.
- **Investment Scope:** Not limited to **MSP partner countries**.

What are Critical Minerals?

- **Definition**: Essential for **modern technologies**, vulnerable to **supply chain disruptions** due to **limited production** and **geopolitical risks**.
  - Examples: **Lithium, cobalt, nickel, copper, rare earth elements (REE), etc.**
- **India's Critical Minerals List (30)**: Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium, Cadmium.

Significance of Critical Minerals

- **Economic**: Essential for **telecommunications, electric vehicles, electronics manufacturing**.
- **Environmental**: Crucial for **renewable energy** (solar panels, wind turbines, semiconductors).
- **Security**: Vital for **defense** (precision-guided missiles, aircraft technologies).

Challenges in securing Critical Minerals for India?

- **Limited Domestic Reserves**: Heavy reliance on imports due to lack of significant deposits.
- **Low Private Investment & Tech Expertise**: Hinders domestic production.
- **Geopolitical Complexities**: Supply risks from unstable regions (e.g., **Congo - 70% cobalt**).
- **Global Competition & Supply Chain Risks**: **China controls 85% rare earth processing, 60% production**.
- **Environmental Concerns**: Mining impact leads to protests.
- **Inadequate Recycling Infrastructure**: Unorganized and inefficient **e-waste recycling**.

Initiatives to Secure Critical Minerals

- **Mines and Minerals (Development and Regulation) Amendment Act, 2023**: Allows mining concessions for **24 critical minerals**.
- **Khanij Bidesh India Ltd. (KABIL):** Identifies & acquires **overseas assets** (e.g., **lithium, cobalt**).
- **Recycling & Urban Mining**: E-Waste (Management) Rules, 2022.
- **International Partnerships**: **Quad Critical Tech Group** cooperation on minerals.
- **Technological**: **Samudrayaan** for **seabed exploration** of critical minerals.

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Way Forward

- **National Centre for Critical Minerals**: Establish **Centre of Excellence (CECM)** under **Ministry of Mines** for **research & innovation** (modeled after **Australia's CSIRO**).
- **Boost Processing Capabilities**: Develop **SEZs** for **critical mineral processing** & value addition.
- **Streamlined Approvals**: Implement **Green Channel** for **quick project clearances** with efficient impact assessments.
- **Circular Economy**: Set up **e-waste recycling hubs**, launch **"Recycle for Resources" campaign** for urban mining.
- **Public-Private Partnerships**: Form **joint ventures** with **global OEMs & mining firms** to strengthen supply chains.

3.11. NATIONAL INDUSTRIAL CORRIDOR DEVELOPMENT PROGRAMME

Why in News?

The Union Cabinet has approved **12 new industrial nodes/cities** under the **National Industrial Corridor Development Programme**.

Key Highlights

- Projects planned along **six major corridors** across **10 states**.
- Locations: **Khurpia (Uttarakhand), Rajpura-Patiala (Punjab), Dighi (Maharashtra), Palakkad (Kerala), Agra & Prayagraj (UP), Gaya (Bihar), Zaheerabad (Telangana), Orvakal & Kopparthy (AP), Jodhpur-Pali (Rajasthan)**.
- Developed as **Greenfield Smart Cities**, based on **'plug-n-play'** and **'walk-to-work'** concepts.

National Industrial Corridor Development Programme (NICDP)

- **Launched** with the **Delhi-Mumbai Industrial Corridor (DMIC) in 2007**.
- **Objective**: Develop **Smart Industrial Cities** with **next-gen technologies** for seamless infrastructure integration.
- **Focus Areas**: Boost **manufacturing growth** and promote **systematic urbanization**.
- **Connectivity & Collaboration**: Supported by **multi-modal transport** and **State Government partnerships**.
- **Current Status**: **11 industrial corridors** at various development stages, managed by **National Industrial Corridor Development Corporation (NICDC)**.
- **Key Industrial Corridors**: Delhi-Mumbai Industrial Corridor (DMIC), Amritsar-Kolkata Industrial Corridor (AKIC), Chennai-Bengaluru Industrial Corridor (CBIC), etc.

Significance of Industrial Cities

- **Investment Hub**: Attracts **domestic & foreign industries**, including MSMEs.
- **Smart Infrastructure**: Greenfield **smart cities** with **plug-n-play** and **walk-to-work** models.
- **Seamless Connectivity**: Integrated with **PM Gati Shakti** for efficient transport.
- **Global Value Chains**: Ready-to-use industrial land for investors.
- **Job Creation**: **1 million direct & 3 million indirect jobs**.
- **Sustainable Growth**: Uses **ICT & green tech** for eco-friendly development.

Challenges in Industrial Corridor Development

- **Uncoordinated Planning**: Lack of integration between **industrial & urban planning**, with **limited local government involvement** (e.g., DMIC).
- **Governance Issues**: **SPVs operate independently**, creating **jurisdictional ambiguity** (e.g., Tumakuru Industrial Township).
- **Institutional Gaps**: **Long gestation periods** & lack of **trained personnel** for urban transformation.
- **Land Acquisition Delays**: **70% of project delays** stem from **land disputes** (India Infrastructure Report 2009).
- **Agricultural Land Loss**: **Irreversible conversion** of fertile land for industrial use.
- **Environmental Risks**: Strain on **water resources**, especially in **water-scarce regions**.

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Way Forward

- **Local Involvement**: Integrate **local authorities & communities** in planning.
- **Coordinated Governance**: Align **SPVs, state & industrial stakeholders** for streamlined execution.
- **Fair Land Acquisition**: Offer **higher compensation & land parcels** to farmers.
- **Sustainable Land Use**: Develop **scattered industrial clusters** to minimize farmland loss.
- **Central-State Cooperation**: Strengthen **policy coordination** for better planning.
- **Tech-Driven Execution**: Use **advanced monitoring & project management** tools for efficiency.

Other Infrastructure Development Initiatives

- **Special Economic Zones (SEZs): Launched in 2000**, offering **duty-free enclaves, tax benefits & no import license requirements**.
- **National Investment Manufacturing Zones (NIMZs): Large industrial areas** with an **ecosystem for world-class manufacturing**.
- **Industrial Parks: Planned & zoned areas** within cities for **industrial development**.

3.12. VADHVAN PORT

Why in News?

PM **laid the foundation stone** for Vadhvan Port in **Palghar, Maharashtra**.

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Major Ports	Minor Ports

• **Administered by** the **Central Government**.
• **Governed by** the **Major Port Authorities Act, 2021**
• **Operate on a "Landlord Model"**, where port authorities oversee infrastructure while private players handle operations.
• **Private Sector Participation**
  ➡ **Allowed through concession agreements** for specific projects.
  ➡ **Assets revert to Port Authority** after the concession period expires.
	• **Administered by State Governments**.
	• **Governed under** the **Indian Ports Act, 1908**.
	• **Regulated by** State Maritime Boards or respective state departments.
	• **Developed & operated via Public-Private Partnership (PPP)** through concession agreements with private operators.

About Vadhvan Port

- **Location**: Near **Dahanu town, Palghar district, Maharashtra**.
- **Significance**: **India's largest container port** & **13th Major Port**.
- **Construction**: By **Vadhavan Port Project Ltd. (VPPL)**, a **JV between Jawaharlal Nehru Port Authority (JNPA) (74%)** & **Maharashtra Maritime Board (MMB) (26%)**.
- **Objective**: Establish a **global maritime hub**, boosting **trade & economic growth** by handling **large container & ultra-large cargo ships**.

Significance of Vadhvan Port

- **Large Capacity**: Handles **254 million tonnes** of cargo annually.
- **Accommodates Large Ships**: **20m natural draft** allows docking of **ultra-large container ships**.
- **Modern Infrastructure**: Equipped with **deep berths & advanced cargo systems**.
- **Employment & Business Growth**: Proximity to **Western Freight Corridor & Delhi-Mumbai Expressway** boosts local economy.
- **Global Trade Hub**: Strengthens **IMEEC & INSTC corridors**, enhancing **maritime connectivity**.
- **Reduces Transit Costs**: Provides **direct international shipping access**.
- **Sustainability Focus**: Adopts **eco-friendly practices** to minimize impact.

India's Port Sector

- **16th largest maritime country** globally.
- **Handles 95% of trade by volume & 70% by value.**
- **Ranks 22nd in World Bank's Logistics Performance Index** (International Shipment).
- **Better Turnaround Time (0.9 days)** than the USA, Australia, and Singapore.
- **Port Classification**:
  - ➡ **12 Major Ports** (13th **Vadhvan**, 14th **Galathea**)
  - ➡ **200+ Non-Major Ports**
- **Ministry of Ports, Shipping & Waterways** oversees **major ports**:
  - ➡ **Examples**: Chennai, Cochin, Deendayal (Kandla), JNPT, Kolkata, Mormugao, Mumbai, New Mangalore, Paradip, Visakhapatnam, VOC (Tuticorin), Kamarajar.

Persistent Issues in India's Port Sector

- **Financial Challenges**: Limited access to financing deters private sector participation.
- **Regulatory Delays**: Slow approvals for environmental and government clearances.
- **Connectivity Issues**: Poor hinterland connectivity and inadequate road networks.
- **Labor Challenges**: Overstaffing, unskilled labor, and frequent strikes.
- **Operational Inefficiencies**: Outdated port designs hinder quick turnaround and cargo handling.
- **Upgradation Costs**: High costs and resistance to modernizing older government-owned ports.
- **Dredging Issues**: Lack of standardization, outdated equipment, and shortage of trained personnel.

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Way Forward for India's Port Sector

- **Port Modernisation**: Enhance **cargo handling** with deeper drafts (via dredging) and modern techniques.
- **Improved Connectivity**: **Pre-assess environmental impact** to prevent project delays.
  - **Integrate private ports** with major and minor ports.
- **Encourage PPP Projects**: **Rationalize taxes** to attract foreign shipping companies.
  - **Finance private sector** for modernizing non-major ports.
  - **Create a maritime fund** to support inland waterways and vessel financing.
- **Regulatory Reforms**: **Set fixed timelines** for approvals via a **single-window clearance system**.
  - **Digitize documentation** through a **National Portal for Cargo Facilitation**.

Initiative taken for port sector in India

- **Sagarmala Programme (2015)**: Cuts **logistics costs**, optimizes **container movement**, boosts **exports**.
- **Maritime Amrit Kaal Vision 2047**: Develops **world-class ports**, **inland waterways**, and **coastal shipping**.
- **National Logistics Portal (Marine)**: Enhances **efficiency, transparency**, and reduces **costs & delays**.
- **Sagar Manthan**: **Real-time monitoring** of **projects, KPIs, and finances**.
- **SAGAR-SETU**: **Mobile app** for **port operations, cargo, and regulatory access**.

Related News: Galathea Port – 14th Major Port of India

- **Notification**: Central Government notified **Galathea Port** under **Section 5 of the Indian Ports Act, 1908**.
- **Development**: Being developed as an **International Container Transshipment Port (ICTP)**.
- **Function**: Acts as a **transshipment hub** where cargo is transferred between vessels for further transport.

Significance of ICTP at Galathea Bay in Andaman & Nicobar

- **Economic**
  - Facilitates EXIM trade on an international shipping route.
  - Reduces dependence on foreign ports (Colombo, Singapore, Klang) handling 75% of India's transshipped cargo.
  - Boosts forex savings, FDI, and economic activity at Indian ports.
- **Strategic**
  - Located near Malacca Strait, a key global trade chokepoint.
  - Strengthens India's role in East-West shipping routes connecting Europe, Africa, and Asia.

Strategic Location of Galathea Bay

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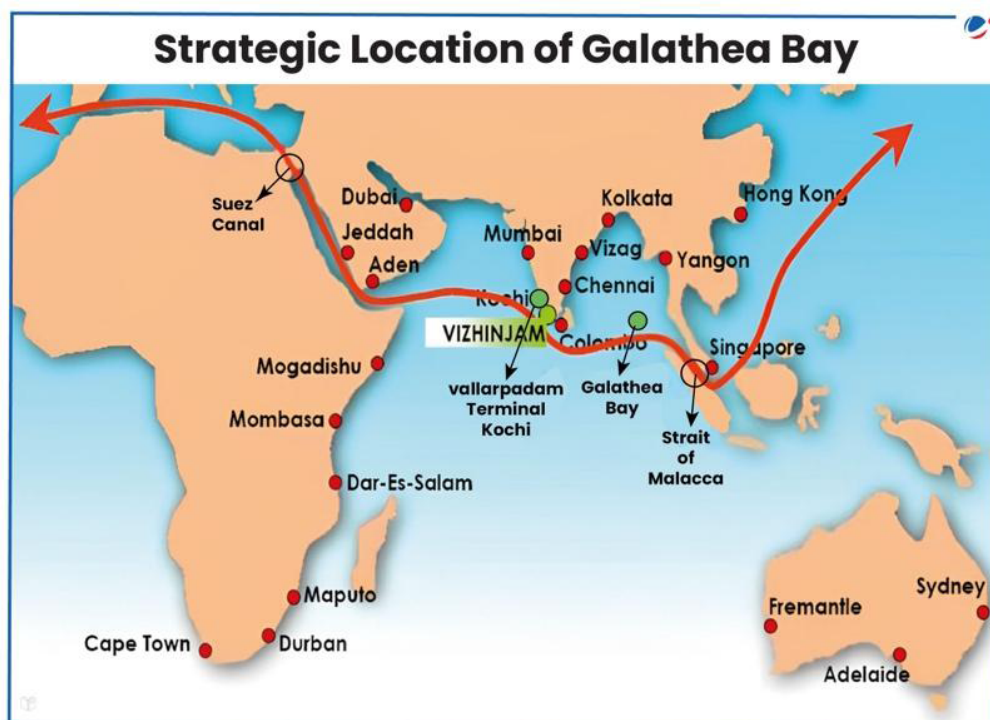
3.13. VOLUNTARY VEHICLE MODERNIZATION PROGRAM

Why in the News?

MoRTH launched the **Voluntary Vehicle Modernization Program** to phase out **unfit & polluting vehicles**.

More on the News

- **Implementation:** Through **Registered Vehicle Scrapping Facilities (RVSFs)** & **Automated Testing Stations (ATSs)**.
- **Incentives:**
  - **Commercial vehicle manufacturers**: Discounts for **two years** against a **Scrappage Certificate**.
  - **Passenger vehicle manufacturers**: Discounts for **one year**.
- **Background:**
  - **2021 Vehicle Scrapping Policy** aimed to phase out **15-20+ year-old vehicles** to **reduce pollution, enhance road safety, & boost auto sales.**

Voluntary Vehicle Modernization Program

Commercial Vehicles (CVs)

- » Registration of vehicles is linked to **validity of the fitness certificate**
- » CVs undergo fitness test **every 2 years** for first 8 years and annually thereafter

Private Vehicles (PVS)

- » First registration is valid for **15 years**
- » Valid fitness certificate is **necessary for renewal** of registration after 15 years. Renewal is valid for 5 years

Fitness would be mandated through Automated Testing Stations for vehicles

- » From 1st April 2023, fitness testing for **Heavy Commercial Vehicles** proposed to be **mandated through** Automated Testing Stations only.
- » **For all other classes of CVs as well as PVs,** fitness testing through Automated Testing Station proposed to be **mandated in phases from 1st June 2024.**

Key Highlights of the Voluntary Vehicle Modernization Program

- **Circular Economy:** Promotes **recycling** & reduces **raw material consumption** in the automotive sector.
- **Scrappage Certificate:** Owners receive a **Certificate of Deposit** after scrapping unfit vehicles, which can be used for **discounts on new vehicle purchases**.
- **Incentives for Scrapping:**
  - **Commercial Vehicles: Up to 3%** discount on **ex-showroom price**.
  - **Passenger Vehicles: Up to 1.5%** discount on **ex-showroom price**.
- **Additional Benefits:**
  - **Scrap Value** from **RVSFs**.
  - **Motor Vehicle Tax Concessions** & **Registration Fee Waivers**.

Significance of Scrapping of Old Vehicles

- **Environmental:** Reduces **CO2, NOx, PM emissions**, improves **urban air quality**, and combats **climate change**.
- **Economic:** Boosts **automobile demand**, supporting **industry growth**.
- **Circular Economy:** Recovers **steel, aluminum, copper, rubber**, minimizing **raw material dependency**.
- **Road Safety:** Eliminates **unsafe vehicles**, reducing **accidents**.
- **Regulatory Compliance:** Aligns with **BS-VI emission norms** for a **cleaner vehicle fleet**.

Challenges for Effective Vehicle Scrapping in India

- **Inadequate Infrastructure:** Lack of **authorized recycling centers**, dominance of **unorganized sector**, and **unsafe scrapping practices**.
- **Poor Integration with Circular Economy:** Weak **recycling supply chains**, inefficient **material reuse**, and **low price realization**.

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- **Awareness and Participation:** Low **public awareness**, **sentimental attachment** to old vehicles, and reluctance to scrap voluntarily.
- **Economic Constraints: Low resale value** of old vehicles and **high cost** of new vehicles without adequate financial support.
- **Weak Enforcement: Fake certification**, corruption, and **lack of strict monitoring**, allowing old vehicles to stay on roads.

Way Forward

- **Build scrapping infrastructure**: Encourage **PPP**, establish **integrated supply chain**.
- **Simplified vehicle scrapping process**: Enable **one-stop service** for **deregistration to recycling**.
- **Strengthened enforcement**: Implement **strict emission testing**, **centralized system** for tracking old vehicles.
  - **Integrate management of Electric End-of-Life Vehicles (ELVs) and batteries**.
- **Public awareness**: Engage **local communities, NGOs, vehicle associations**.

3.14. STEEL SECTOR IN INDIA

Why in the News?

Government Target: 500 million tonnes of steel production by **2034**.

About the Steel Sector in India

- **Significance**: Key driver of **industrialization**.
- **Composition**: **Alloy of iron & carbon** (<2% carbon, <1% manganese, small amounts of **Si, P, S, O**). Higher carbon content = **Cast iron**.
- **Growth Drivers**:
  - **Raw Materials: 5th-highest iron ore reserves**.
  - **Labour**: Cost-effective workforce (**e.g., Durgapur, WB**).
  - **Infrastructure**: Boost from **construction, automobiles, railways**.
- **Location Factors**:
  - **Water Access: Tata Steel (Jamshedpur, Subarnarekha River)**.
  - **Market Proximity: Bhilai (Chhattisgarh)**.
  - **Transport Connectivity: Vizag Steel (Andhra Pradesh, near Vizag Port)**.

> **🏛️ Data Bank**
> - » **140.8 MT:** India is world's second largest producer of steel after China.
> - » **97.7 kg in 2023-24:** Per capita finished steel consumption in India.
> - » **3rd largest consumer** of steel in the world after China and USA.

Challenges in the Steel Sector in India

- **Lack of Capital**: Requires **₹7,000 crore** per **1-tonne** capacity (greenfield). Cyclical demand reduces ROI.
- **High Logistics Costs: Jamshedpur to Mumbai (₹50/tonne)** vs **Rotterdam to Mumbai (₹34/tonne)**.
- **Raw Material Shortage: Negligible coking coal reserves**, high-cost **imports from Australia**.
- **Low Per Capita Consumption: India (97.7 kg)** vs **World (219.3 kg)** vs **China (628.3 kg)** (2023-24).
- **High Energy & Carbon Emissions**: Largest **carbon-emitting** manufacturing sector.
- **Export Barriers: EU Carbon Tax (19.8%-52.7%)** threatens India's **iron & steel** exports.

Significance of the Steel Sector

- **Economic Indicator**: Steel production & consumption reflect **economic progress**.
- **GDP Contribution**: Contributes **~2% to India's GDP**.
- **Infrastructure Backbone**: Essential for **roads, bridges, airports, railways, housing**.
- **Employment & Output Multiplier: Employment (6.8X), Output (1.4X)**.

Government Initiatives to Promote the Steel Sector

- **National Steel Policy, 2017**: Targets **300 MT steel capacity** and **160 kg per capita consumption** by **2030-31**.
- **Make in India & PM Gati Shakti**: Focus on boosting steel demand in **Railways, Defence, and Housing**.
- **Production-Linked Incentive (PLI) for Specialty Steel**: Encourages **domestic production** and reduces imports.
- **Mission Purvodaya**: Develops **Eastern India** as an **integrated steel hub**.
- **Revamped Steel Import Monitoring System (SIMS) 2.0**: Enhances **import tracking** to protect domestic steelmakers.

Way Ahead

- **Decarbonization**: Invest in **green hydrogen** and **electric arc furnaces**.
- **Tech Advancement**: Boost **R&D, AI, and automation** for efficiency.
- **Product Diversification**: Focus on **structural steels and specialized alloys**.

3.15. INDIA'S DAIRY COOPERATIVE SECTOR

Why in News?

- Ministry of Cooperation launched **SOP for 'White Revolution 2.0'** to boost the dairy sector.

Key Objectives of White Revolution 2.0

- **Increase Milk Procurement**: Targeting a **50% increase** to **1,000 lakh kg/day** by 2029.
- **Women Empowerment**: Enhancing rural employment and addressing malnutrition.
- **Dairy Infrastructure**: Strengthened under **National Programme for Dairy Development (NPDD) 2.0**, including milk procurement and chilling facilities.
- **Boost Dairy Exports**: Indigenous testing equipment and improved dairy infrastructure.
- **Financial Inclusion**: Expansion of **'Cooperation among Cooperatives'**, interest-free cash credit via **RuPay-KCC**, and micro-ATMs for dairy societies.

> **Data Bank**
>
> **India's status in Dairy Sector**
> - 25% to world's total milk output is from India (Ranks Ist in the production of milk globally)
> - 5% of the country's GDP comes from Dairy sector.
> - ~8 crore families are provided livelihood by dairy industry
> - More than 70% participation in the Dairying sector is by women.

White Revolution in India

- **Definition**: Aimed at making India self-sufficient in milk production through **Operation Flood (1970)**.
- **Led by**: **Dr. Verghese Kurien**, known as the **Father of India's White Revolution**.
- **Implemented by**: **National Dairy Development Board (NDDB)**, the world's largest dairy development initiative.
- **National Milk Day**: Observed on **November 26** in honor of Dr. Kurien.

Operation Flood – Phases

- **Phase I (1970-80)**: Linked **18 milksheds** to **4 metros** (Delhi, Mumbai, Kolkata, Chennai).
- **Phase II (1981-85)**: Formed **43,000 cooperatives**, increased **milk powder** production from **22,000 to 1,40,000 tons**.
- **Phase III (1985-96)**: Added **30,000 cooperatives**, focused on **R&D in animal health**.

Achievements of the White Revolution

- Made India the **largest milk producer**, ensuring **self-sufficiency**.
- Strengthened **dairy cooperatives**, boosting **farmers' income**.
- Established a **national milk grid** for efficient distribution.
- Improved **milch animal quality** through **crossbreeding**.
- Reduced **price fluctuations** by eliminating **middlemen**.
- Modernized the **dairy sector**, empowering **10 millions of farmers**.

Importance of Dairy Cooperatives

- **Economic Empowerment**: Equitable wealth distribution (e.g., Amul, Nandini).
- **Market Access**: Strengthens farmers' bargaining power.
- **Women's Role**: 35% participation, boosting independence.
- **Financial Inclusion**: Low-interest loans for farmers.
- **Risk Mitigation**: Shields against market fluctuations.

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Challenges in Dairy Cooperatives

- **Regional Disparities**: Success limited to Maharashtra, Gujarat, Kerala.
- **Financing Issues**: Dependence on member contributions, limited investment.
- **Milk Grid Hurdles**: Scattered production, high transport costs, inefficiencies.
- **Farmer Struggles**: Low prices, high feed costs, inadequate veterinary services.
- **Market Challenges**: Changing consumer preferences, competition, regulations.

Way Ahead

- **Technological Integration**: Use ICT, cyber stores, customer databases, and web-based B2B systems for efficiency.
- **Efficient Milk Processing**: Ensure quality, food safety, and strengthen cold chain infrastructure.
- **Brand Building**: Enhance online promotion, interactive marketing, and consumer engagement.
- **Boosting Exports**: Improve competitiveness, adopt a business-driven approach, and seek dairy exclusion from FTAs.

Initiatives to Strengthen Dairy Sector

- **Rashtriya Gokul Mission**: Conservation and development of indigenous breeds.
- **National Programme for Dairy Development**: Enhancing milk quality and procurement infrastructure.
- **Livestock Health & Disease Control Programme (LHDCP):** Vaccination programs for improved livestock health.
- **Animal Husbandry Infrastructure Fund**: Incentives for dairy processing investments.
- **Kisan Credit Cards**: Easy credit access for dairy farmers.

3.16. NATIONAL MISSION ON EDIBLE OILS – OILSEEDS (NMEO-OILSEEDS)

Why in News?

Union cabinet approved **NMEO-Oilseeds for 2024-25 to 2030-31.**

About NMEO-Oilseeds

- **Aim:** Achieve self-sufficiency in edible oils production
- **Key targets**: ~70 MT oilseed production; 72% self-sufficiency by 2030-31
- **Core focus**:
  - **Increasing the production of key primary oilseed crops** like Rapeseed-Mustard, Groundnut, Soybean.
  - **Enhancing extraction efficiency from secondary sources** like Cottonseed, Rice Bran, and Tree Borne Oils.

Major Features

- **SATHI Portal** for 5-year rolling seed plan with state-agency partnerships
- **Value Chain Clusters** across 347 districts (10 lakh hectares annually)
- **Advanced technologies**: Genome editing, high-yield varieties
- **Infrastructure:** 65 seed hubs, 50 storage units
- **Support for post-harvest** units and IEC campaigns

Need for Initiative

- Second-largest crop category after food grains; Rising demand due to urbanization; Currently import dependent for 57% of domestic demand for edible oils etc.

Other Steps taken

- NFSM-OS&OP, NMEO-OP, PM-AASHA, and RKVY-RAFTAAR; MSP for seven oilseeds and 20% import duty; 2024 Budget: Focus on research and market linkages; **Yellow Revolution.**

Challenges

- Lower yields vs GM varieties; 76% rainfed cultivation; Regional concentration (83.4% groundnut in 5 states); Growing demand-supply gap; Limited global market share

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Way Forward

- Develop value chain clusters; Expand to fallow regions; Invest in research, **etc.**

3.17. MIDDLE INCOME TRAP

Why in News?

The **World Bank's 'World Development Report 2024'** warns that countries, including **India, risk falling into the middle-income trap**.

About Middle Income Trap

- **Middle Income Countries (MICs)**:
  - **World Bank Classification**: Economies with **per capita GNI of US\$ 1,135 to US\$ 13,846**.
  - **Lower MICs**: **US\$ 1,136 – US\$ 4,465** (India's per capita GDP ~**\$2,500**).
  - **Upper MICs**: **US\$ 4,466 – US\$ 13,845**.
- **Definition**:
  - Coined in **2007** by the **World Bank** in its report **'An East Asian Renaissance'**.
  - **A situation where economies grow rapidly but stagnate at middle-income levels**, failing to transition to **high-income status**.
- **Trends**:
  - **Fewer MICs are transitioning to High-Income Countries**.
  - **Challenges**: **Aging population, rising debt, geopolitical tensions, trade frictions, and environmental concerns** hinder progress.

Data Bank

According to the World Development Report 2024
- » **108 countries** were classified as MICs at end of 2023.
- » **Only 34 MICs** have managed to shift to high-income status since 1990
- » **75%** of the global population is contributed by MICs
- » **40%** of global GDP is contributed by MICS.

What Makes India Vulnerable to the Middle-Income Trap?

- **Untapped Human Capital**
  - **Skill Gap**: Only **~51% of graduates** are employable (**Economic Survey 2023-24**), and just **2.3%** of the workforce has undergone **formal skill training**.
  - **Lack of Innovation**: R&D investment is **0.64% of GDP**, far behind **China (2.4%)** and **USA (3.47%)**.
- **Rising Income Inequality: Top 1% own 22.6% of income (World Inequality Lab, 2022–23).**
  - **Impacts**: Lower **tax revenue**, rising **social tensions**, and **political instability**, affecting **economic growth**.
- **Stagnated Industrialization**
  - **Weak Manufacturing Base**: India **skipped industrialization**, moving from **agriculture to services**.
  - **Manufacturing sector remains below 20%**, causing **unemployment and disguised unemployment**, especially in **agriculture**.
- **Contemporary Global Headwinds**
  - **Caught Between Technology & Competition: IMF**: MICs are "**trapped between advanced technology of rich countries and low-wage competition from poorer nations.**"
  - **Geopolitical & Economic Risks: Trade & investment restrictions, rising populism**, and **external debt (up 6.4% in March 2024 YoY)**.
  - **Climate Challenges: Balancing growth with environmental sustainability** is becoming a critical challenge.

Investment (1i) for lower-income countries	Investment + Infusion (2i) for Lower MICs	Investment + Infusion + Innovation (3i) For Upper MICs
Economic success depends on **accelerating investment** by improving the **investment climate** to boost **domestic and foreign investments**.	For sustained growth, **a strong investment climate** must be complemented by **infusion of global ideas and technologies**, ensuring their widespread adoption across the economy.	As infusion potential declines, **MICs must transition to an innovation-driven economy**, focusing on **research, development, and high-value industries** to sustain long-term growth.

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Way Ahead

The World Bank report suggests countries should follow the **3i strategy: Investment, Infusion of global technologies, and Innovation** to achieve high-income status. The transition from **1i to 3i** requires **Creative Destruction** as a crucial driver.

Other Initiatives that can be taken

- **Human Capital**
  - **Skilled Workforce**: Invest in **secondary education, vocational training**, and inclusivity for **women and marginalized groups**.
  - **Key Initiatives: Atal Innovation Mission (AIM), National IPR Policy 2016**.
    - ◊ **Brain Gain**: Leverage the **diaspora's expertise**, partner with **top universities**, and focus research funding on **STEM, health, and energy**.
- **Market Reforms**
  - **Avoid Blanket Support for Small Firms** to **enhance efficiency**.
  - **Connect with Global Markets**: Expand **FDI, PLI schemes, and Defence procurement reforms**
  - **Strengthen Competition: Robust antitrust laws** to prevent market dominance
    - ◊ **Deepen Capital**: Strengthen **equity markets**
- **Leverage Digital Technologies**: Use **Aadhaar-linked digital footprints**
- **Tackling Global Headwinds:** Low-Carbon Supply Chains: Engage in global green supply chains, contingent on reduced protectionism by advanced economies.

3.18. IMPORTANCE OF LARGE TRADE AGREEMENTS

Why in the news?

Recently, the **NITI Aayog CEO** suggested that **India** should be a part of the **large trade agreements**, the **Regional Comprehensive Economic Partnership (RCEP) and Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)**.

More on the news

- The **World Bank India Development Update** suggested reforms to reduce trade costs, lower trade barriers and re-strategizing participation in FTAs like the RCEP.
- On the contrary, the **Global Trade Research Initiative (GTRI)** negated the World Bank's suggestions for India to reconsider joining RCEP.
  - RCEP negotiations began in **2013**, it was signed in 2020.
  - **India pulled out** of negotiations in 2019.

Significance of involvement in large trade agreements

- Integration into Global Value Chain
- Benefits the MSME Sector
- Trade Competitiveness capitalizing on the 'China Plus One' strategy

ASEAN + 1 FTAS
India
Hong Kong

RCEP
China
South Korea

ASEAN
Cambodia
Indonesia Laos
Myanmar
Philippines
Thailand

Australia
Japan
New Zealand

Brunei
Malaysia
Singapore
Vietnam

CPTPP
Canada
Chile
Peru
Mexico

- Provides opportunities to **influence institutional policies of regional trade** like trade **liberalization, free movement of people, e-commerce** etc.
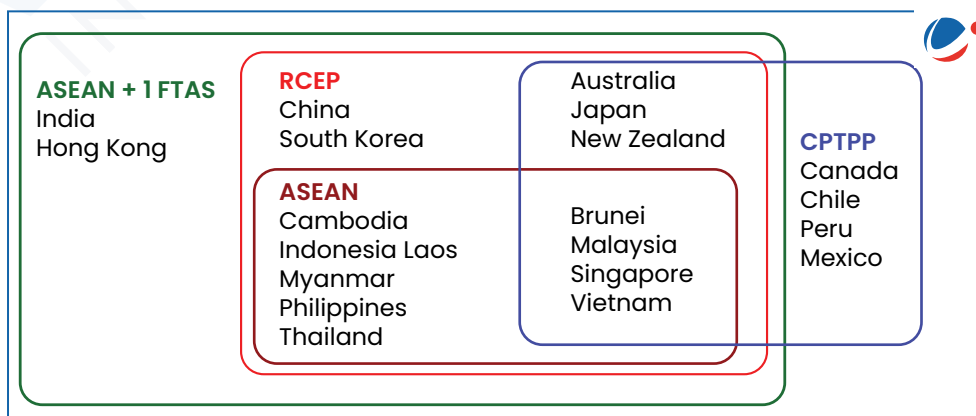
Challenges

- **Trade Imbalance:** RCEP favors China, risking India's $85 billion trade deficit with China (FY2024).
- **Marginal Benefits:** India already has FTAs with 13 of 15 RCEP members, excluding New Zealand and China.
- **Divergent Approaches:** Trade agreements conflicts with India's taxation and investor protection approaches.

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- **Stringent Competition:** Tariff reductions enable cheap imports, threatening industries like dairy.
- **Hinder Indigenous Enterprise:** Stringent provisions affect entrepreneurship, labor conditions, and environmental protection.

Way forward

- **Revisiting FTAs:** Conduct inclusive discussions on cost-benefit analysis before joining large trade agreements.
- **Enhancing Competitiveness:** Reduce non-tariff barriers and diversify trade to integrate with Global Value Chains.
- **Continued Negotiations:** Secure favorable trade terms.
- **Prioritize Goals:** Focus on Atmanirbhar Bharat, manufacturing hub aspirations, and strategic autonomy.

3.19. B READY INDEX

Why in the news?

World Bank launches **the first edition** of its **Business-Ready (B-Ready) Index.**

More on News

- **Three-year rollout phase** from 2024 to 2026
- Currently includes **50 economies (excluding India),** plans to expand to 180 by 2026.
- **Replaces** discontinued Ease of Doing Business rankings.

What is the B Ready Index?

- New World Bank data collection project to **assess global business and investment climate**.
- **Aims** to promote **private investment, create jobs, and support economic development**.

What is the Analytical Framework of the B Ready Index?

- **Structured around business lifecycle stages:** opening, operating, and closing.
- **Cross-Cutting Themes:** Digital adoption, Environmental Sustainability & Gender.
- **10 topics covered by B Ready Index:** Business entry, Business location, Utility services, Labor, Financial services, international trade, Taxation, Dispute resolution, Market competition, and Business insolvency.
- **For each of the 10 topics, B-Ready considers three pillars:** Regulatory framework (Pillar I), Public Services (Pillar II) & Operational Efficiency (Pillar III)

What is the difference between the Ease of Doing Business and the B-ready index?

- EODB focused exclusively on regulatory burden on firms in the private sector, **primarily assessing small and medium enterprises** through **10 indicators** across various categories.
- B-Ready targets broader private sector development, **examining both regulatory burden and quality of regulation** across ten topics **using more comprehensive data collection methods**.

B-Ready Index Significance for India

- Boosts business competitiveness and foreign investment attraction
- Supports $200 billion e-commerce export target by 2030
- Provides policy insights for trade and compliance reforms
- Encourages business innovation through digitalization
- Promotes inclusive growth with gender equality measures
- Enables continuous global market competitiveness monitoring

Challenges in the Implementation of Index in India

- Data collection unreliability challenges; Stakeholders may resist changes; Local government capacity and skill limitations; Complex impact evaluation of proposed reforms

Way Forward

- Enhancing governance; Involving stakeholders; Building institutional capacity; Promoting inclusive reforms.

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3.20. GLOBAL INNOVATION INDEX 2024 AND SOCIAL ENTREPRENEURSHIP

Why in the News?

Global Innovation Index (GII) 2024 was released by WIPO, Cornell University, and INSEAD Business School.

World Intellectual Property Organization (WIPO)

- **HQ:** Geneva, Switzerland.
- **Specialized agency** of United Nations, established in **1967.**
- **193 members (India is a member since 1975).**
- **Treaties:** Paris Convention for the protection of Industrial Property (1998), Patent Cooperation Treaty (1998), Treaty on intellectual property, Genetic resources and associated traditional knowledge (2024).

GII 2024: Key Findings

- **Theme:** Unlocking the Promise of Social Entrepreneurship.
- **Top Ranking**: 1st: Switzerland, 2nd: Sweden, 3rd: United States.
- **India**: Ranked **39th** among **133 nations**, improving from **40th** in 2023 with a score of **38.3**.
- **Social Entrepreneurship and Enterprises:** Combines profit-making efficiency with non-profit values to address issues like poverty and sustainability.

Key Differences between Traditional Companies (TC) and Social Enterprises (SE)

- **Mission:** TC focus on profit maximization, while SE aim to create social value by addressing societal issues.
- **Utilization of Surplus:** TC reinvest profits for stakeholder gains, whereas SE reinvest surplus to solve social issues.

Impact of Innovation on Social Entrepreneurship

- **Wider reach: E.g**. Doctors without Borders.
- **Finance:** like Social Impact Bonds etc.
- **Creative problem-solving:** E.g. Goodfellows.
- **Sustainability. E.g.,** Circular economy.

Potential/Significance of Social Entrepreneurship

- **Economic Growth**: Up to **11 million social enterprises** globally contribute around **USD 2 trillion** to GDP; India's market potential is estimated at **US$ 8 billion by 2025**.
- **Influencing Policy**.
- **Sustainable Development**.
- **Social Transformation**: Empowers vulnerable groups.
- **Challenges:** No Institutional framework and lack of Human capital; Lack of globally recognised standards and definitions and financing.

India's Initiatives to Promote Social Entrepreneurship

- **Atal Innovation Mission (AIM)**; ASPIRE; Aatmanirbhar Bharat ARISE-ANIC program.
- **Corporate Social Responsibility (CSR)**: Mandated by the Companies Act, 2013.
- **Social Stock Exchange (SSE)**.
- **Social Impact Bonds**: like Green Bonds and Skill Impact Bonds.
- **Social Innovation Programme**.

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3.21. NEWS IN SHORTS

3.21.1. Financialisation

Chief Economic Advisor raised concerns about excessive 'financialisation' in India.

- **Definition**: Growing dominance of **financial markets, institutions & elites** in economic policies.
- **Shift in Investments**: Movement from **physical assets** (real estate, gold) to **financial assets** (mutual funds, stocks).
- **Impact**: Increased influence of **financial intermediaries and technologies** in daily life.

Factors Driving Financialisation

- **Rising middle class** with higher disposable income
- **Inflation**: Households seek better returns beyond fixed deposits.
- **Government incentives** on these instruments
- Increasing **digitisation and financial inclusion**

Concerns of Excessive Financialisation

- **Rising Inequality**: Concentrates financial gains among the top 1%.
- **Economic Distortions**: Shifts focus from production and jobs to financial markets.
- **Household Debt**: Stagnant wages increase reliance on loans (as seen in U.S economy).
- **Policy Risks**: Encourages risky lending, deregulation, and weaker worker protections.

Developing nations risk crises when financial market growth outpaces economic fundamentals **(e.g., 1997-98 Asian crisis)**. **India must ensure a gradual, well-regulated financial market evolution** to prevent instability.

3.21.2. Average household spending on food falls below half since 1947: EAC-PM Paper

It was **highlighted by the Economic Advisory Council to the Prime Minister** (EAC-PM) in paper titled "**Changes in India's Food Consumption and Policy Implications**: A Comprehensive Analysis of Household Consumption Expenditure Survey 2022-23 and 2011-12".

Other Key Highlights

- **Regional Variations**: Household spending rose variably, e.g., **West Bengal (151%), Tamil Nadu (214%)** (2011-23).
- **Rural vs. Urban**: Rural spending grew **164%**, outpacing urban at **146%**.
- **Dietary Shift**: Moving from cereals to **fruits, dairy, eggs, fish & meat**.
- **Processed Foods**: Higher spending across all groups, especially among the **top 20%** and urban households.

Policy Implications due to changing consumption patterns

- **Diversified Production**: Policies should promote **fruits, vegetables, and animal-based foods**.
- **Targeted Nutrition**: Address **micronutrient deficiency** based on regional variations.
- **Beyond Cereals**: Shift focus from **cereal-centric policies** like MSP to broader agricultural support.

3.21.3. Windfall Tax

The Centre has **reduced the windfall tax** on **domestically produced crude oil**.

About Windfall Tax

- **Definition**: A tax on **extraordinary profits** of industries benefiting from **favorable economic conditions**.
- **Purpose**: **Redistributes excess profits** to fund social welfare.
- **Justification**: Profits arise from **external factors**, not just business efforts.

3.21.4. Priority Sector Lending

RBI released a study titled "Priority Sector Lending (PSL): The Indian Experience."

PSL was formalized in 1972 to improve credit flow to sectors that are creditworthy but lack formal access.

Categories under Priority Sector: Agriculture; Micro, Small and Medium Enterprises; Export Credit; Education; Housing; Social Infrastructure; Renewable Energy; Others

Key Findings

- **Improved Asset Quality**: Higher PSL growth enhances overall bank asset quality.
- **Niche Development**: Priority Sector Lending Certificates

(PSLCs) have allowed banks to specialize in specific PSL segments.

- **PSL Targets Achieved**: Lending consistently exceeds the **40% target** across banks.
- **Agricultural Lending**: PSBs frequently meet the **18% target** for agriculture.

About PSL

- **Objective**: Ensure credit access for vulnerable sections and underdeveloped areas.
- **PSL Targets**: Banks must allocate a portion of **Adjusted Net Bank Credit (ANBC) or Credit Equivalent of Off-Balance Sheet Exposure (CEOBE)** (whichever is higher) to PSL.
- **Mandated Targets**:
  - **40%**: Scheduled Commercial Banks & Foreign Banks (≥20 branches).
  - **75%**: Regional Rural Banks & Small Finance Banks.
  - **Urban Cooperative Banks: 65% (FY 2024-25) ⯈ 75% (FY 2025-26)**.

3.21.5. Unified Lending Interface (ULI)

About ULI

- **Technology platform** enabling **frictionless credit** through seamless, **consent-based digital data flow** (including land records).
- Features a **standardized API** for easy **'plug and play'** integration.

Benefits of ULI

- **Seamless credit delivery** with **quicker processing** and minimal documentation.
- **Bridges credit gaps** in **agriculture and MSME** sectors.

3.21.6. UPI 123 and UPI Lite

- Enhanced transaction limits for feature phone and low-value transactions
- **UPI123Pay limit** increased to ₹10,000
- **UPI Lite transaction** limit increased to ₹1,000

3.21.7. RBI Issues Framework for Reclassification of FPI to FDI

Under current regulations, **foreign portfolio investment (FPIs)** can hold a **maximum of 10%** of an Indian company's total **paid-up equity capital** (amount of money that a company receives from shareholders in exchange for shares).

- **Exceeding this 10% cap** (prescribed limit of FPI) had previously left FPIs with **two choices: Divesting** (selling off) the **surplus shares** or **reclassifying** them **as Foreign Direct Investment (FDI)**.

RBI'S New Operational Framework on reclassification of FPI to FDI

- The facility of reclassification **shall not be permitted in sectors prohibited for FDI. E.g., Chit funds, gambling, etc.**
- FPI investments **require government approvals.**
- FPI reclassification will be guided **by Foreign Exchange Management (Mode of Payment and Reporting of Non-Debt Instruments) Regulations, 2019.**

3.21.8. Perpetual Bonds

India's **first Additional Tier I (AT-1) perpetual bond** was issued after recent regulatory changes to enhance its appeal.

About Perpetual Bonds

- **Definition**: Bonds **without a maturity date**, offering fixed **coupon payments** indefinitely.
- **Liquidity**: Investors can **sell in the secondary market** or redeem if the issuer allows.
- **Obligation**: Issuers **only pay interest**, with **no debt repayment requirement**.

3.21.9 Responsible Capitalism

- **Need** for responsible capitalism for large economies highlighted by Union Finance Minister
- **Responsible Capitalism (RC):** An economic approach that integrates ethical values into business practices.
- **Measures to promote RC:** CSR, Plastic Waste Management Rules, Code on Wages, Occupational Safety; Health and Working Conditions Code, 2020, RBI's Priority Sector Lending norms, SEBI's Green Bond guidelines, etc.

3.21.10. PAN (Permanent Account Number) 2.0

The Cabinet Committee on Economic Affairs (CCEA) approved **PAN 2.0 Project** of the Income Tax (IT) Department.

About PAN 2.0 Project

- An **e-Governance initiative** for re-engineering the business processes of taxpayer registration services through **technology driven transformation.**
  - PAN is **a ten-digit unique alphanumeric number** issued by the IT Department
  - **Issuing Agencies:** Protean (formerly known as NSDL e-governance) and UTI Infrastructure Technology and Services Ltd (UTIITSL).

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3.21.11 Annual Survey of Industries (ASI) for FY 2022-23:

- **Key Highlights**: Manufacturing GVA grew **by 7.3% in 2022-23; 7.4% increase in manufacturing employment.**
- **GVA:** It is defined as value of output minus value of intermediate consumption GOP and is a measure of the contribution to GDP made by an individual producer, industry or sector.
- **About ASI:** Presently, ASI 2017-18 is being conducted under **Collection of Statistics (Amendment) Act, 2017** which **extends the coverage to All India.**
  - **Industries covered:** Bidi and cigar manufacturing establishments; Electricity undertakings not registered with Central Electricity Authority (CEA); Units with 100 or more employees.

3.21.12. National Bank for Financing Infrastructure and Development (NaBFID)

Central Government **notified NaBFID as Public Financial Institution (PFI)**. under **Companies Act, 2013.**

- **Eligibility for PFI status:** Must be **established under any Central/State Act** or have **51%+ govt. ownership.**

National Bank for Financing Infrastructure and Development (NaBFID)

- **Established under NaBFID Act, 2021** as an **infrastructure-focused Development Financial Institution (DFI).**
- **Objective**: Provide **long-term infrastructure financing** and develop **bonds & derivatives markets**.

3.21.13. Mormugao Port Authority

Mormugao Port Authority has been recognized globally as an **incentive Wprovider** on the **Environmental Ship Index (ESI) platform.**

- ESI is published by the **International Association of Ports and Harbors (IAPH)** since **2011.**

About Mormugao Port

- It's a **major port** of India located in **Goa** and **India's first port to introduce Green Ship Incentives (Harit Shrey scheme)** through the ESI.
  - **Harit Shrey scheme (2023)**: Incentivises ships with favourable ESI scores; and its aim towards **decarbonization and green shipping.**

3.21.14. Bihta Dry Port

Bihar's first dry port also known as **inland container depot** (ICD) inaugurated in **Bihta near Patna.**

- **Significance of Bihta Dry Port:** It boost exports, Improved Logistics, Benefits to adjoining states.
  - It is connected by rail to major gateway.

3.21.15. Uniform Protection Protocol

Central Electricity Authority approves the Uniform Protection Protocol for users of Indian Grid for implementation on Pan India basis.

About Uniform Protection Protocol

- **Aim:** To ensure Grid stability, reliability, security and support India's vision for integration of 450 GW Renewable Energy into the National Grid by 2030.
  - It addresses the **protection requirements** for thermal and hydro generating units etc.

3.21.16 National Electricity Plan (Transmission) Launched

- Developed by Central Electricity Authority under Electricity Act 2003
- **Key Highlights:**
  - **Target:** 500 GW Renewable Energy Installed Capacity by 2030.
  - **Peak demand target:** 458 GW by 2032; Inter-regional transmission capacity to increase to 168 GW.
  - **Supports Green Hydrogen and Ammonia Manufacturing hubs**.
  - **Cross-border interconnections** with Nepal, Bhutan, Myanmar, Bangladesh, Sri Lanka, etc.
- **Challenges in India's Transmission System**: Transmission losses; Renewable source integration issues; Obsolete technology; Regulatory focus imbalances; Cybersecurity concerns.
- **About CEA**: It functions under Electricity Act, 2003.

3.21.17 Government notifies Offshore Areas Operating Right Rules, 2024

- First-ever offshore mineral auction planned for 10 blocks, including sand, lime mud, and polymetallic nodules.

Key Highlights of Rules:

- Covers all minerals in offshore areas (except oils, hydrocarbons, atomic minerals)
- Allows lease surrender after 10 years of uneconomic operations
- Provides priority access to government companies in reserved zones

Offshore Mining and its Significance

- Deep Sea mining process retrieves mineral deposits below 200m; Addresses increasing metal demand; Aims to reduce dependence on mineral imports

3.21.18 All India Rural Financial Inclusion Survey (2021-22):

Survey Overview:

- National-level survey tracking rural population's livelihoods and financial inclusion
- Launched in 2016-17, second survey provides key economic insights

Key Highlights:

- Household monthly income increased **by ~58%.**
- Food consumption share reduced from **51% to 47%.**
- **Kisan Credit Card** emerged as effective financial instrument.
- Landholding size **declined to 0.74 hectares.**
- Financial literacy improved from **~40% to ~51%.**
- Institutional loan access increased from **60.5% to 75.5%.**
  - **Income Rise Drivers**: Government support through MGNREGA; Female labor force participation increased.

3.21.19. 21st Livestock Census

The Union Minister of Fisheries, Animal Husbandry and Dairying launched **21st Livestock.**

About 21st Livestock Census

- **Schedule:** To be conducted during October 2024-February, 2025.
- **Key Features**
  - **Fully digitized** (similar to **20th census**)
  - Data on **16 species of livestocks**
  - **Covers data on pastoralists** for the **first time.**
- Livestock census has been conducted **every five years since** 1919 (last being in 2019).

3.21.20. SPICED Scheme

The Union Ministry of Commerce and Industry recently approved **SPICED Scheme.**

About SPICED Scheme

About Spices Board India

Cochin Kerala

Genesis: Constituted in 1987 under the Spices Board act 1986.

Ministry: Ministry of Commerce and Industry

Role: Autonomous body responsible for export promotion of 52 scheduled spices and development of Cardamom (Small & Large).

- 'Sustainability in spice sector through progressive, innovative and collaborative interventions for export development' (SPICED) is a Spices board scheme.
- **Objective**: **Expand cardamom cultivation**, boost **productivity**, **export promotion**, **capacity building**, and **skill development**.
- **Key Components**: **Productivity improvement**, **post-harvest quality upgradation**, **market expansion**, **trade promotion**, **technology interventions**, **research**, and **skill development**.
- **Implementation**: **2023-24 to 2025-26** (Remaining term of **15th Finance Commission**).

About Cardamom

- Cardamom is commercially cultivated for its dried fruits (capsules)
- **Small Cardamom**
  - **Native**: Indigenous to the **evergreen forests of Western Ghats of South India.**
  - **Major Producers**: **Kerala, Karnataka, Tamil Nadu.**
  - **Favorable Conditions**:
  - Thrives in **thick shady areas** with **acidic loamy soil.**
  - **Elevation: 600–1500 m.**
  - Requires **adequate drainage.**
- **Large Cardamom**
  - **Distribution: Sub-Himalayan region** (North Eastern India, Nepal, Bhutan).
  - **Favorable Conditions**:
    - ◊ **Precipitation: 3000–3500 mm** over **200 days.**
    - ◊ **Temperature Range: 6–30°C.**

3.21.21 Central Silk Board

Recently, the platinum jubilee of the Central Silk Board was celebrated.

About Central Silk Board

- **Statutory body** established in 1948
- **Ministry**: Ministry of Textiles

About Silk Production in India

- India is **2nd largest silk producer with 42% of global production (2023)**
- Karnataka contributed around 32% followed by Andhra Pradesh.
- **Silk Produced**: Mulberry, Eri, Tasar and Muga.

3.21.22 Global Family Farming Forum (GFFF)

- **About Family Farming**: Family-managed agricultural production relying on family labor
- **Significance:** Critical for global food security; 550 million farms worldwide; Produces 70-80% of world's food in value terms
- **GFFF Launched at** FAO World Food Forum (WFF) &

celebrates essential role of family farmers in building sustainable agrifood systems.

- On the sideline WFF, **Food and Agriculture Organization (FAO) & Global Framework on Water Scarcity in Agriculture (WASAG),** adopted the Rome Declaration on Water Scarcity in Agriculture.

3.21.23. World Organisation for Animal Health (WOAH)

- Indian Council of Agricultural Research-National Research Centre on Equines **(ICAR-NRC Equine)** in Haryana has been granted **WOAH Reference Laboratory status**.
- This recognition is specifically for its expertise in **Equine Piroplasmosis disease.**
  - Equine Piroplasmosis is caused by **tick-borne protozoan parasites**, affects horses, donkeys, mules, and zebras.

About WOAH

- An **intergovernmental organization** founded in 1924 with 183 members including India.
- **HQ**: Paris, France.

3.21.24. BHASKAR Initiative for India's Startup Ecosystem

DPIIT will launch **Bharat Startup Knowledge Access Registry (BHASKAR)** initiative for India's startup ecosystem.

Eligibility Criteria for Startup Recognition

An entity shall be considered as a **startup up to 10 years from date of its incorporation**

Startup should be incorporated as private **limited company or registered as a partnership firm or a limited liability partnership.**

Turnover should be less than INR 100 Crores in any of previous financial years.

About BHASKAR Initiative

- Launched by the Ministry **of Commerce & Industry** under **Startup India** program.
- A **centralized platform** to enhance collaboration among startups, investors, and stakeholders.

- Aims to build the **world's largest digital registry** for the startup ecosystem.
- Part of **Startup India** to foster innovation and attract investments.

Key Features of BHASKAR

- **Networking**: Bridges startups and stakeholders for seamless collaboration.
- **Centralized Access**: Provides instant access to resources for faster scaling.
- **BHASKAR ID**: Assigns unique IDs for personalized interactions.
- **Enhanced Discoverability**: Advanced search tools for easy resource access.
- **Global Branding**: Strengthens India's position as an innovation hub.

India's Startup Ecosystem

- **Global Rank**: 3rd largest startup ecosystem.
- **Recognized Startups**: Over **1,46,000** DPIIT-recognized startups.
- **DPIIT Role**: Identifies and supports startups.

Other Initiatives for Startups

- **Atal Incubation Centers**: by NITI Aayog
- **MAARG portal (Mentorship, Advisory, Assistance, Resilience and Growth)** of Startup India by DPIIT.
- **Fund of Funds for Startups (FFS) Scheme**

3.21.25. Scheme for Medical Device Industry

Scheme for Strengthening the Medical Device Industry launched by the **Ministry of Chemicals and Fertilizers.**

- It is a comprehensive scheme which targets critical areas of the medical device industry.
- India's medical device **market is** expected to **grow to $30 billion by 2030.**
- **Components of the Scheme**
  - Common Facilities for Medical Devices Clusters,
  - Marginal Investment Scheme for Reducing Import Dependence,
  - Capacity Building and Skill Development for Medical Devices,
  - Medical Device Clinical Studies Support Scheme,
  - Medical Device Promotion Scheme.

Challenges faced by the Medical device Industry

- **Lack of infrastructures** like R&D labs, design and testing center
- **High import dependence** for high-end devices, low capital investment, inverted duty structure.

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3.21.26. Venture Capital Fund for Space Sector

- Union Cabinet recently approved **establishment of Rs.1,000 crore Venture Capital Fund** for Space Sector under aegis of Indian National Space Promotion and Authorisation Centre (IN-SPACe).
    - IN-SPACe is a **single-window, independent, nodal agency** that functions as an autonomous agency in the Department of Space (DOS).
    - It acts as an **interface between ISRO and Non-Governmental Entities (NGEs)** to facilitate private sector participation.
- **About VC Fund for Space sector:**
    - The proposed fund will **support startups across the entire space supply chain-upstream, midstream, and downstream.**
    - **Investment per startup**: Range from Rs 10-60 crore.
    - The Funds aims to **strategically position India as one of the leading space economies by Capital infusion, Accelerate private space industry's growth, Drive advancements.**
- **India's Space sector**
    - India (ranks 5th) constitutes 2-3% of the global space economy.
    - It's currently valued at $8.4 billion, with a target to reach $44 billion by 2033).

3.21.27. 'The State of Food and Agriculture 2024' report released by FAO

Report emphasizes on **value-driven transformation of agrifood systems** and builds on the estimates of the previous edition on global **hidden costs** of **agrifood systems** (journey of food from farm to table).

Key findings of the report

- **Hidden Costs:** Dominated by health hidden costs linked to non-communicable diseases.

- **Other contributing factors include:** Social costs; environmental costs.

Major Recommendations on transforming the Agrifood value chains:

- In industrial agrifood systems (Long value-chains with high urbanization)
- In traditional agrifood systems (Short value-chains with low urbanization).

3.21.28. World Intellectual Property Indicators 2024 report

World Intellectual Property Indicators 2024 report released by the **World Intellectual Property Organization (WIPO).**

- According to report, India experienced **significant growth** in intellectual property filings, with **patents filings doubling between 2018 and 2023.**

Other Key Findings related to India:

- **Patents:** India is **ranked 6th globally** with 64,500 Patent Filings.
- **Trademarks:** India's IP office hold the **second highest of active registrations globally**.
- **Industrial Design Filing:** Ranked **10th globally**.

Regulation of Patents

- **Global:** World Intellectual Property Organization (WIPO), WTO TRIPS Agreement 1994, Conventions such as Patent Cooperation Treaty 1970, Budapest Treaty 1977 etc.
- **India:** The Patents Act, 1970 and Amendment of act in 2005.

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3.22. TEST YOUR LEARNING

MCQ

1. **Which of the following is/are correct regarding the B-Ready Index of World Bank?**

   1. It focuses exclusively on regulatory burden on firms like the Ease of Doing Business rankings
   2. It combines expert insights and firm surveys for data collection, unlike EODB which relied mainly on expert consultations
   3. It examines both de jure and de facto regulations consistently

   Select the correct answer using the code given below:

   (a) 2 only

   (b) 2 and 3 only

   (c) 1 and 2 only

   (d) 1, 2 and 3

2. **Which of the following statements is/are correct about National Mission on Edible Oils - Oilseeds (NMEO-Oilseeds)?**

   1. It aims to meet 100% of India's domestic edible oil requirements by 2030-31
   2. The mission plans to expand oilseed cultivation by targeting rice and potato fallow lands
   3. It introduces SATHI portal for a 5-year rolling seed plan and advance tie-ups with seed-producing agencies

   Select the correct answer using the code given below:

   (a) 1 only

   (b) 2 and 3 only

   (c) 1 and 2 only

   (d) 1, 2 and 3

3. **The Reserve Bank of India (RBI) released its 2024 list of Domestic Systemically Important Banks (D-SIBs), in this regard,**

   1. State Bank of India, HDFC Bank, and ICICI Bank have been identified as D-SIBs in the RBI's 2024 list.
   2. D-SIBs are considered "too big to fail" due to their size and interconnectedness within the financial system.

   Which of the above statements is/are correct?

   (a) 1 only

   (b) 2 only

   (c) Both 1 and 2

   (d) Neither 1 nor 2

4. **In the World Intellectual Property Indicators 2024 report, which country ranks first in global patent filings?**

   a) India

   b) United States

   c) China

   d) Japan

5. **Which of the statements is/are correct regarding Small Finance Banks (SFBs)**

   1. SFBs are registered as public limited company under Companies Act, 2013.
   2. SFBs will lead to better financial inclusion.
   3. 10000 crore minimum paid-up voting equity capital is required for SFBs.
   4. Priority Sector Lending (PSL) norms do not apply to these.

   Which of the following statements are correct?

   a) 1 and 2

   b) 1, 2 and 3

   c) 1 only

   d) 3 and 4

Questions

1. How has DBT contributed to financial inclusion in India? What concerns have been raised regarding the effectiveness of DBT programs? (10 marks, 150 words)

2. Make in India's focus on manufacturing has not significantly improved employment outcomes. Examine the success of Make in India initiative from its intended objectives and suggest measures to enhance its effectiveness. (250 words, 15 marks)

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4.1. AI AND DEFENCE

Why in the News?

Evaluating Trustworthy Artificial Intelligence (ETAI) Framework and Guidelines for Indian Armed Forces launched by Chief of Defence Staff.

About ETAI Framework

- A risk-based assessment framework for **integrating reliable emerging technology into defence** operations, providing specific implementation criteria.
- **Five Principles**: Reliability, Safety; Security, Transparency, Fairness; Privacy.

AI in Defence Functions

- **Supporting:** Intelligence, surveillance, navigation, Command and Control.
- **Offensive:** Target selection, strikes, Drone Swarms, AI-driven hacking.
- **Cyber defense:** Studying attack patterns, forming protective strategies.

Key Applications

- Autonomous Weapons (**e.g., Israeli Harpy drones).**
- Enhanced Target Recognition (**e.g., Iranian Shahed-136 drones).**
- Real-Time Data Analysis (**e.g., Project Maven).**
- Combat Training (**e.g., Sukhoi 30 MKI modules).**
- Crime Prediction (**e.g., Adversary Network Analysis Tool by BEL).**
- Protect Cyber-attacks: E.g. Project Seeker by Indian Army.

Major Issues

- Non-State Actor threats: **E.g; Islamic State issued a guide on how to use generative AI tools.**
- Social Engineering risks: **Eg; neo-Nazi AI content on social media sites.**
- AI-generated malware: **e.g., BlackMamba to evade detection.**
- No specific international law.
- Privacy violations: **E.g. China's facial recognition surveillance system to track Uyghur Muslims.**

Key Ethical Challenges

- Automation Bias: Difficulty distinguishing between: Lawful targets & Civilian targets, etc.
- Principle of Proportionality: Requires qualitative analysis the Proportionality of military action.
- System Predictability: Operators may not fully understand AI decision-making.
- Objectification of Human Targets.

Indian Initiatives

- Defence AI Council (DAIC) and Defence AI Project Agency (DAIPA) set up based on **Strategic Implementation of AI for National Security and Defense Task force.**
- 75 AI technologies launched in 2024.

International Regulations

- UN Convention on Certain Conventional Weapons.
- First Committee UN Resolution on Lethal Autonomous Weapons (2023).
- UNIDIR Guidelines (2024).
- International Committee of the Red Cross (ICRC) on advocacy for binding norms.

Way Forward

- Strengthen private sector collaboration.
- Develop cyber-warfare capabilities.
- Establish international laws.
- Create arms control regime for AI.
- Define responsible military AI principles.

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4.2. DRONES AND INTERNAL SECURITY

Why in News?

➤ Assam Rifles & CRPF deployed **anti-drone systems** in **Manipur** to counter rogue drones.

More on the News

➤ **Militants' Tactics**: Using drones with **impact explosives** for aerial bomb attacks.

➤ **Countermeasures**: Anti-drone systems deployed for **real-time detection, tracking, and neutralization** (Soft/Hard Kill).

➤ **Investigation**: Manipur DGP formed a **five-member committee** to study militant drone use and recommend countermeasures.

Role of Drones in Security

➤ **Border Security**: Enhances **surveillance, reconnaissance, and military logistics** in difficult terrains.

➤ **Real-time Intelligence**: Advanced sensors provide **live battlefield awareness**.

➤ **Psychological Warfare**: UAV presence creates **fear & deterrence** among adversaries.

➤ **Replacing Manned Aircraft**: Reduces **pilot risk** in operations.

➤ **Law & Order**: Supports **crowd monitoring, surveillance, and rescue missions**.

➤ **Precision Targeting**: Laser-guided UAVs enable **surgical strikes** with minimal collateral damage.

➤ **Cost Efficiency**: Low-cost, **scalable** surveillance with minimal resource needs.

Security Threats Posed by Drone Technology

➤ **Weaponization**: Modified drones can carry **explosives/weapons** for targeted attacks.

➤ **Cross-Border Smuggling**: Used for **drug, arms, and explosives** trafficking.

➤ **Disrupting Critical Infrastructure**: Can conduct **cyber-attacks, jamming, or physical sabotage**.

➤ **Privacy Concerns**: High-definition **camera-equipped drones** threaten citizens' privacy.

➤ **Drone Swarms**: Large autonomous **coordinated drone attacks** can overwhelm defenses.

India's Initiatives to Tackle Drone Threats

➤ **Counter Drone System (D4)**: **DRDO-BEL** system for **real-time detection, tracking, and neutralization** of rogue drones.

➤ **Anti-Rogue Drone Technology Committee (ARDTC)**: **MHA initiative** to assess and certify counter-drone technologies.

➤ **Public Sensitization**: Border residents **educated on drone threats** and encouraged to report incidents.

➤ **Anti-Drone Deployment**: Systems placed in **Punjab border areas**, with **SOPs for rogue drone handling**.

➤ **Vulnerability Mapping**: **Surveillance upgrades** along **Indo-Pak border** using **cameras, sensors, and infrared alarms**.

Way Forward to Prevent Drone Misuse

➤ **Comprehensive National Action Plan**: Strengthen UAV regulations, including **anti-terrorism measures**. (2019 National Counter Rogue Drone Guidelines in place).

➤ **Supply Chain Security**: Ensure **UAV tracking, compliance, and due diligence** in drone transfers.

➤ **Awareness & Public Preparedness**: Educate on **safe drone usage** and potential threats.

➤ **Private Sector Collaboration**: Partner with **industry & academia** for **early threat detection**.

➤ **Vulnerability Assessments**: Regular **security audits** of **critical infrastructure** & public spaces.

➤ **Cybersecurity Measures**: Use **honey drones (HDs)** to mislead cyber attackers and protect UAV missions.

➤ **Strengthening the Framework**:
  ➡ **Licensing & Registration**: Mandate **drone registration** for easier tracking.
  ➡ **Flying Permits**: Introduce **drone permits** like driving licenses.
  ➡ **Multi-Factor Authentication**: Strengthen **access controls**.
  ➡ **Restricted Zones**: Use **map-based apps** to mark **no-fly zones**.

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4.3. FATF MUTUAL EVALUATION REPORT 2024

Why in the News?

FATF's **Mutual Evaluation Report** praised India's **'Anti-Money laundering and Counter Terrorist Financing (AML/CTF) Measures'** in tackling **money laundering and terror financing**.

About Financial Action Task Force (FATF)

- **Established**: 1989
- **Objective**: Safeguard **financial systems** from **money laundering, terrorism financing, and proliferation**.
- **Secretariat: Paris, France**
- **Members: 40** (38 jurisdictions + **2 regional organisations** (**Gulf Cooperation Council** & **European Commission**)). **India joined in 2010.**
- Functions
  - **Methods and Trends:** Studies **money laundering & terror financing trends**.
  - **Setting the Standards:** Issues **FATF Recommendations** for **financial security**.
  - **Assessing implementation:** Ensures **countries implement FATF Standards** effectively.
- **FATF's Risk Classification**
  - **Black List: High-risk nations** with severe AML/CFT deficiencies. (Democratic People's Republic of Korea, Iran, Myanmar)
  - **Grey List:** Nations under **increased monitoring**, working to fix AML/CFT gaps.

Key Highlights

- **High Technical Compliance**: India meets **FATF's recommendations** effectively.
- **"Regular Follow-Up" Category**: Highest rating; **UK, France, and Italy** are the only other **G20** nations in this category.
- **Financial Inclusion**: Bank account access has **more than doubled**, boosting **digital payments**.
- **International Cooperation**: Success in **asset recovery** and **targeted financial sanctions** for proliferation financing.

What is Money Laundering and Terrorist Financing (ML/TF)?

Money Laundering (ML)

- **Definition**: Concealing the **illegal origin** of criminal proceeds to use them **without detection**.
- **Stages**:
  - **1. Placement:** Moving illicit funds away from crime sources.
  - **2. Layering**: Concealing the transaction trail.
  - **3. Integration**: Reintroducing money into the economy as **legitimate assets**.

Terrorist Financing (TF)

- **Definition**: Funding terrorist activities that threaten **national & global security**.
- **Sources**:
  - **Legitimate**: Business profits, charities.
  - **Illicit**: Drug trade, arms smuggling, ransom.

Concerns Highlighted in FATF Report on ML/TF in India

- **Main Sources of ML**: Cyber fraud, corruption, drug trafficking.
- **Security Threats**: Presence of Islamic State in Iraq and the Levant **(ISIL)**, Al-Qaeda-linked groups in **J&K**, insurgencies in **Northeast & Left-Wing Extremism**.
- **Legal & Operational Challenges**:
  - **Low conviction rate**: Only **28 ML convictions** in 5 years.

Stages of Terrorist Financing

RAISING FUNDS
- » Donations
- » Self funding
- » Criminal activity

TRANSFERING FUNDS
- » To a terrorist network
- » To a terrorist organization
  To a terrorist cell

USING FUNDS
- » Purchase weapons or bomb-making equipment
- » Payments for recruitment & training
- » Finance living expenses of terrorists

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- **Court backlog**: Many cases pending trial.
- **Lack of Supervision**:
  - **DNFBPs sector** (Designated Non-Financial Businesses & Professions) underdeveloped.
  - **DPMS sector** (Dealers in Precious Metals and Stones) lacks oversight.
- **Politically Exposed Persons (PEPs)**:
  - **No specific provisions** under **PMLA, RBI, SEBI, IRDAI, PFRDA** for domestic PEPs.
  - **PEPs vulnerable** to money laundering & corruption.

Legal Framework & Government Agencies for AML/CFT in India

- **Prevention of Money Laundering Act (PMLA), 2002**: Prevents **money laundering** and enables **confiscation** of proceeds from illegal activities.
- **Unlawful Activities (Prevention) Act (UAPA), 1967**: Targets **unlawful & terrorist activities**, including **terror financing**.
- **Financial Intelligence Unit-India (FIU-IND), 2004**:
  - Central agency for **monitoring, analyzing & reporting** suspicious financial transactions.
- **Directorate of Enforcement (ED)**:
  - Investigates & prosecutes **money laundering cases** under **PMLA**.
  - Confiscates proceeds of **crime** across **India**.

Policies implemented on identified risks in India

Risks identified	Measures taken
Risks from Cash-Based Economy	➤ **Financial Inclusion Programs**: Aadhaar-linked banking, **Jan Dhan Yojana** for zero-balance accounts.
Non-Visibility of Business Supply Chains	➤ **GST (2017)**: E-invoicing, e-billing, and centralized data collection for transparency.
Risks from Bank Fraud	➤ **Central Fraud Registry (CFR, 2016)**: Web-based fraud tracking database.
Corruption Risks	➤ **Prevention of Corruption Act (Amended 2018)**: Increased penalties, senior management accountability.
Risks from Undisclosed Foreign Assets	➤ **Mutual Legal Assistance Treaty (MLAT) Portal (2022)**: Digital case management for international cooperation.
Risks from Undisclosed Foreign Assets	➤ **Task Force on Shell Companies (2017)**: Identified & tracked shell companies and shared directorships.
Risks from Emerging Technologies	➤ **RBI FinTech Department (2022)**: Oversight on digital finance, including **Central Bank Digital Currency**.
Enhancing ML/TF Agencies' Capacity	➤ **FIU-IND FINNET System (2022)**: AI-driven risk analysis for financial intelligence.

Way Forward (Key Recommendations of report)

- **Risk Analysis**: Strengthen financial network analysis on ML techniques in human trafficking and migrant smuggling.
- **Legal Reforms**: Expedite ML trials by expanding court and ED capacity.
- **PEPs Monitoring**: Improve identification and risk-based scrutiny of domestic PEPs.
- **Supervision**: Enhance DNFBPs' ability to detect suspicious transactions.
- **Legal Entities**: Strengthen MCA registry for accurate Beneficial Ownership (BO) data.
- **Terror Financing**: Ensure swift freezing of terrorist-linked funds under TFS.

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4.4. INDIAN COAST GUARD

Why in the News?

Parliamentary standing committee reviewed ICG's role in coastal security.

About the Indian Coast Guard

- **Established: August 1978** under **Coast Guard Act 1978.**
- **Role: National Coordinating Agency** for Maritime Law Enforcement, Search & Rescue, and Marine Pollution Response.
- Under **Ministry of Defence.**
- It is part of a **multi-tiered system for maritime security:**
  - **High Seas/EEZ Surveillance**: Indian Navy and Coast Guard.
  - **Territorial Waters Surveillance**: Indian Coast Guard.
  - **Coastal Patrolling (Shallow Waters)**: State Marine Police, within 12 nautical miles.

Key Functions:

- Maritime law enforcement.
- Protection of offshore terminals and artificial islands.
- Safety of life and property at sea.
- Inter-agency coordination for anti-smuggling.
- Marine environment protection.

Initiatives taken to strengthen Indian Coast Guard

- ICG participates and conducts exercises like **SAREX-2024, Sagar Kavach.**
- Designated as coastal security authority in territorial waters (2009).
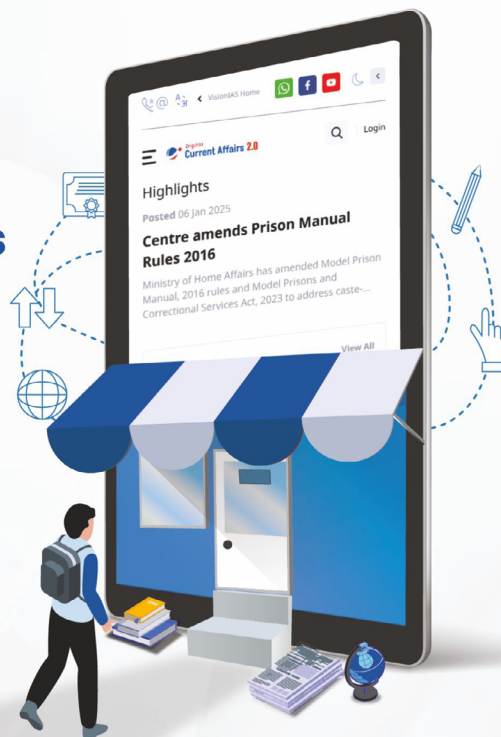- Director General of ICG serves as Commander Coastal Command for Central-State coordination.

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4.5.1. AFSPA

Recently MHA **reimposed Armed Forces (Special Powers) Act (AFSPA) 1958** in "disturbed areas" of **Manipur** including Jiribam.

Key highlight of AFSPA

- **Disturbed Areas**: Declared by the Governor, Administrator, or Centre for restoring order.
- **Special Powers**: Armed forces can fire, arrest, and search without warrants.
- **Immunity**: Legal action against armed forces requires Central Government sanction.
- **Arrested Persons**: Must be handed over to police promptly.
- **Applicability**: Parts of Assam, Manipur, Nagaland, Arunachal Pradesh,
  - J&K has **separate AFSPA 1990.**
- **Concern**: Abuse of powers and human rights violations.

Key Supreme Court Judgements

- **Naga People's Movement (1997)**: Death power under AFSPA must be specific.
- **Extra Judicial Execution (2016)**: Armed forces not immune from investigation for excesses.

Committee Recommendations

- **Jeevan Reddy (2004):** Scrap AFSPA.
- **Santosh Hegde (2013):** Six-monthly review.
- **Justice Verma (2013):** Regular law for sexual violence cases.

4.5.2. Blueprint for Action on Responsible AI in Military

The **REAIM** (Responsible AI in the Military Domain) **Summit 2024**, held in **Seoul, South Korea**, introduced a legally non-binding **"Blueprint for Action"** to govern responsible AI use in the military.

Key highlights of the 'Blueprint for Action'

- **AI & Global Security**: AI in military must uphold **international peace, security, and stability** while addressing risks like arms races, miscalculations, and conflict escalation.
  - **Human Control**: Ensures human involvement in **critical decisions**, particularly regarding nuclear weapons, without hindering disarmament goals.
- **Responsible AI Implementation**: AI must be **ethical, human-centric**, and comply with international laws, supported by rigorous testing and evaluation.

- **Future Governance**: Calls for **inclusive discussions**, international cooperation, and capacity-building to bridge knowledge gaps on responsible AI deployment.

4.5.3. Non-Kinetic WarfarE

Parliamentary Standing Committee on Defense to study India's preparedness for Non-Kinetic Warfare.

About Non-Kinetic/Hybrid Warfare

- Goes beyond traditional military tactics.
- **Components:** Electronic warfare, cyber, information, psychological and economic operations.
- Can include non-military stakeholders.
- Often more lethal than traditional warfare.
- Can achieve victory before conventional combat begins.
- **Examples: Cyber-attacks** on critical infrastructure, using laser/electromagnetic waves **instead of physical weapons.**

Recent Examples

- Pager blasts in Lebanon.
- Also witnessed during Russia-Ukraine, Israel-Palestine Conflicts.

India's Strategic Challenges

- **Hostile Neighbours:** Pakistan (Western front); China (Northern/North-Eastern fronts).
- **Non-state actors** (Hezobollah).
- Internal stability (Naxal insurgency).
- Emerging technologies (AI).

Initiatives taken by India

- **Developing advanced weapons: DURGA-II Project** (by DRDO).
- **Structural Reforms**: Chief of Defense Staff (CDS), Defence AI Project Agency (DAIPA) etc.
- **International Partnerships:** E.g. General Security of Military Information Agreement (GSOMIA) with USA.
- **Other:** Defence indigenisation, etc.

4.5.4. DefConnect 4.0

Organized by: Innovations for Defence Excellence Defence Innovation Organisation (iDEX-DIO), Ministry of Defence.

Key Initiatives Launched

- **ADITI 2.0 (Acing Development of Innovative Technologies with iDEX).**

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- 19 challenges from Armed Forces and allied agencies.
  - **Domains:** AI, Quantum Technology, anti-drone systems.
  - **Grant:** Up to ₹25 crore for winners.
  - **Focus:** 30 Critical and Strategic defence technologies.
- **DISC 12 (Defence India Start-up Challenges)**
  - 41 challenges in UAVs, AI, Networking and Communication.
  - **Grant:** Up to ₹1.5 crore for selected innovations.
  - **Partnership:** Atal Innovation Mission.
  - **Purpose:** Support start-ups, MSMEs, and innovators
- **MIRA (Medical Innovations and Research Advancement).**
  - **Focus:** Medical technologies for Armed Forces.

Other Initiatives for Defence Technology Absorption

- Amendment to Defence Acquisition Procedure 2020.
- Signals Technology Evaluation and Adaptation Group (STEAG).
- Indian Naval Indigenisation Plan (2015-2030).

About iDEX Scheme

- **Launched:** 2021 by **Ministry of Defence.**
- **Implementation:** DIO (not-for-profit company).
- **Funding:**
  - **Regular:** Up to ₹1.50 Cr.
  - **iDEX Prime:** Up to ₹10 Cr.
- **Achievements:** 26 products developed with procurement orders exceeding ₹1,000 crore.

4.5.5. 'Adaptive Defense' Strategy

Recently Raksha Mantri emphasized need due to emerging technologies reshaping warfare

Adaptive Defence

- **Definition:** A strategy where military systems evolve to counter emerging threats.
- **Principle:** Anticipate, adapt, and innovate in unpredictable situations.
- **Capabilities:** Situational awareness, flexibility, resilience, agility, and tech integration.
- **Significance:** Addresses both traditional and non-traditional security challenges.

Future Warfare Technologies

- **Information warfare (IW):** Network-based operations for information advantage. **E.g.,** Cyberwarfare.
- **Lethal Autonomous weapon systems (LAWS):** Autonomous weapon systems.
- **Space weapons:** Lasers and electromagnetic railguns.
- **Synthetic biology:** Gene-editing, bio-malware threats.

4.5.6. THAAD Missile Defense System

- **Developer:** Lockheed Martin Corporation.
- **Capabilities:**
  - Counters short, medium, and intermediate-range missiles.
  - Only US system for both exo and endo-atmospheric interception.
  - Uses "hit-to-kill" technology.
- **Components of THAAD Battery:** 95 soldiers, truck-mounted launchers, interceptors, radar systems.
- **Note:** India uses Russian S-400 Triumf system.

4.5.7. Hellfire Missile

- **Status:** India acquiring 170 AGM-114R units from US.
- **Type:** Air to Ground Missile (AGM).
- **Features:**
  - Range: Short Range (7-11 km).
  - Semi-Active Laser guided.
  - Multi-purpose warhead.
  - Multiple launch platforms (aircraft, UAV etc.).
- **Purpose:** Neutralize various targets (air defence, boats, armor).

4.5.8. Second Arihant-Class submarine 'INS Arighaat' commissioned into Indian Navy

With this Addition, Indian navy now have **two SSBN (Ship, Submersible, Ballistic, Nuclear)** submarines (**INS Arihant and INS Arighat**).

India's Nuclear-Powered Submarines

- **Arihant-class submarines** are **indigenously developed** under the **Advanced Technology Vessel (ATV) Project**.
  - **INS Arihant** India's **first indigenous nuclear submarine** (commissioned in 2016) successfully launched an **SLBM in 2022**.
  - **Armament:** Can carry **4 K-4 SLBMs (3,500+ km range) or 12 K-15 SLBMs (750 km range)**.
- **India-Russia Deal (2019):** **$3 billion** contract to lease an **Akula-class nuclear attack submarine** for 10 years.

Issues with India's Submarine Capabilities

- **China Challenge:** China currently operates **six Jin-class SSBNs,** each equipped with **JL-2 ballistic missiles** with a range of 7,200 kilometers, vastly **outstripping range of India's K-15 missiles.**
- **Other issues:** Lack of sustained investment, continuous technological advancement etc.

Significance

- **Nuclear Deterrence:** Strengthens India's **nuclear triad** (land-based ICBMs, SLBMs, and strategic bombers).

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➡ **Credible Second-Strike Capability**: Aligns with India's **No First Use (NFU) policy**.

➤ **Strategic Stability**: Enhances security against **nuclear-armed neighbors** (China & Pakistan).

➤ **Naval Prowess**: Advances India's **blue-water navy** ambitions.

➤ **Self-Reliance**: Boosts **Atmanirbhar Bharat** by developing **critical defense capabilities**.

4.5.9. Long Range Land Attack Cruise Missile (LRLACM)

Recently LRLACM Flight-Test by DRDO

➤ **Successor**: Nirbhay cruise missile.

➤ **Range**: 1,000 km.

➤ **Launch Platforms**: Mobile ground launchers and ships.

➤ **Capabilities**: Long-range strikes, manoeuvres at multiple altitudes and speeds.

4.5.10. India's First Long Range Hypersonic Missile

DRDO successfully tested its **first long-range hypersonic missile** (1500+ km range) off Odisha coast, **joining US, Russia & China in this capability**.

Key Technologies

➤ **Scramjet propulsion**: Air-breathing engine for hypersonic speeds.

➤ Advanced aerodynamics for maneuverability.

➤ Thermo-structural protection for extreme temperatures.

➤ Separation mechanism at hypersonic speeds.

Hypersonic Missiles

➤ Speed: Exceeds **Mach 5 (5x speed of sound).**
  - ➡ **Speed Categories:**
    - ◊ Mach 1 = Speed of sound.
    - ◊ Mach 1-5 = Supersonic speeds.

➤ **Above Mach 5 = Hypersonic speeds.**

➤ Mid-flight maneuverability.

➤ Difficult detection and interception

India's Missile Arsenal

➤ **Inducted: AKASH** (SAM), **BRAHMOS** (Cruise)

➤ **Near Induction: NAG** (Anti-Tank), **ASTRA** (Air-to-Air), **Agni** (Ballistic).

4.5.11. Vertical Launch Short Range Surface-to-Air Missile (VL-SRSAM)

Recent Test: Successfully flight-tested by **DRDO & Indian Navy** from **ITR, Chandipur, Odisha**.

About: VL-SRSAM

➤ **Function**: **Vertically launched surface-to-air missile**, **Ship-borne** air defense system to **neutralize aerial threats**, including **sea-skimming targets**.

➤ **Features**: **All-weather capability**, **Indigenous RF seeker**, **Vertical launch** for rapid response.

➤ **Developed by**: DRDO for **Indian Navy**.

4.5.12. Very Short Range Air Defence System

➤ **Developer**: DRDO (Research Centre Imarat).

➤ **Type:** Man-portable air defence system (MANPAD).

➤ **Features:**
  - ➡ 4th Generation technology.
  - ➡ Indigenously developed.
  - ➡ Dual thrust solid motor.
  - ➡ Uncooled imaging infrared seeker.

➤ **Purpose:** Neutralize low-altitude aerial threats.

➤ **Status:** Successfully flight-tested at Pokhran.

4.5.13. Dragon Drone used in Russia-Ukraine War

➤ **Key Feature:** unmanned aerial vehicle that releases **thermite (aluminum and iron oxide mixture).**

➤ **Effects:**
  - ➡ Self-sustaining reaction.
  - ➡ Nearly impossible to extinguish.
  - ➡ Causes severe burns and bone damage.

➤ **Legal Status:** Thermite not banned, but usage in civilian areas prohibited by UN's Convention on Certain Conventional Weapons.

4.5.14. ABHED (Advanced Ballistics for High Energy Defeat)

➤ **Developer: DRDO with IIT Delhi.**

➤ **Type:** Lightweight Bulletproof Jackets.

➤ **Materials:** Polymers and indigenous boron carbide ceramic.

➤ **Design:** Based on high strain rate material characterization.

4.5.15. indigenous Akashteer Systems

➤ **Status:** Indian Army acquired 100 units.

➤ **Type:** Air Defence Control and Reporting Systems (ADCRS).

➤ **Developer**: Bharat Electronics Limited (BEL).

➤ **Purpose:** Monitors low-level airspace, real-time threat response.

4.5.16. 31 MQ-9B drones from US and Nuclear Attack Submarines Deal Cleared

MQ-9B Drones

- **Type:** High Altitude Long Endurance Unmanned Aerial Vehicles.
- **Capabilities:**
  - 40-hour satellite-guided flight.
  - Multi-domain targeting (land, sea, air).
  - Surveillance and precision strikes.
- **Two variants:**
  - 16 SkyGuardian.
  - 15 SeaGuardian (for Army and Air Force).
- **Strategic Significance:**
  - Enhanced surveillance (especially along LAC).
  - Strengthens military modernization.
  - Improves Indo-US defense partnership.

Nuclear Attack Submarines (SSNs)

- **Purpose:** Anti-submarine warfare, surface operations, intelligence gathering.
- **Key Features:**
  - Armed with torpedoes/cruise missiles.
  - Superior speed and stealth.
  - Extended underwater endurance.
  - No ballistic missiles.
- **Benefits:**
  - Strengthens naval deterrence.
  - Enhances underwater combat capability.
  - Promotes indigenous manufacturing (Make in India).

4.5.17. India's fourth Nuclear Submarine

Recently India launched its **fourth nuclear-powered ballistic missile submarine, S4*.**

Current Fleet Status

- **Operational: INS Arihant, INS Arighaat (S3).**
- **In sea trials: Aridhman (S4).**
- **Just launched: S4*.**

Key Features of S4*

- 75% indigenous content.
- Equipped with **K-4 ballistic missiles (3,500 km range).**
- Part of **nuclear deterrence strategy.**
- **Global Context:** Only six nations operate SSBNs: US, Russia, China, UK, France, and India.

4.5.18. Digital Arrest

Recently CERT-In issued advisory on preventing digital arrest scams.

What is Digital Arrest?

- **Concept:** An online scam where fraudsters impersonate law enforcement to falsely accuse victims and extort money.
- **Loss:** Rs 120.30 crore (Jan-April 2024).
- **Fraud Sources:** Myanmar, Laos, Cambodia.
- **Reasons for Rise:** Increased digital transactions, lack of security awareness, and advanced techniques like AI voices and simulated video calls.

Government Initiatives to Tackle Digital Arrest

- **Indian Cyber Crime Coordination Centre:** set up by the **Ministry of Home Affairs.**
- **Cyber Fraud Mitigation Centre:** Collaboration with banks, telecom providers, and payment aggregators to combat cybercrime.
- **Spoofed Call Blocking System:** Mechanism to block fake calls showing Indian numbers.
- **Samanvaya Platform:** Analyzes interstate linkages of cybercrimes.
- **National Cyber Crime Reporting Portal:** Allows the public to report cybercrime incidents.
- **CERT-In Best Practices:** Recommendations like verifying caller identity and avoiding suspicious links or apps.

4.5.19. Asset Recovery Interagency Network-Asia Pacific (ARIN-AP)

Recently India (Directorate of Enforcement) included in ARIN-AP Steering Committee.

Key Updates

- India to help in decision-making and administration
- Will assume presidency and host **Annual General Meeting in 2026.**

About ARIN-AP

- Multi-agency network for tackling crime proceeds in Asia-Pacific.
- **Part of Global CARIN Network** (informal law enforcement network).
- **Membership: 28 jurisdictions (including India) + 9 observers.**
- **Focus:** Asset tracing, freezing, seizure, and confiscation.

4.5.20. GlobE Network

India elected to the steering committee of **GlobE (Global Operational Network of Anti-Corruption Law Enforcement Authorities) network.**

Key Points

- **Established:** 2021 at **UN General Assembly Special Session against Corruption (UNGASS).**
- **Framework:** Launched under G20, following **2020's Riyadh Initiative.**

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- **Objective:** Enables anti-corruption law enforcement authorities to collaborate on transnational corruption cases.
- **Administration:**
  - Governed by members.
  - **Secretariat**: **United Nations Office on Drugs and Crime (UNODC).**
  - **Current strength:** 121 member countries and 219 law enforcement authorities.
- **India's Representation:**
  - **Central Authority**: Ministry of Home Affairs.
  - **Member Authorities**: CBI and ED (Enforcement Directorate).

4.5.21. Operation Chakra III

The **CBI**, in coordination with the **FBI (US)**, dismantled a **virtual asset and bullion-supported cybercrime network** under **Operation Chakra III (Phase 3)**.

About Operation Chakra

- **Launched in 2022** by CBI as an **INTERPOL-assisted** global operation to combat **cyber-enabled financial crimes**.
- **Phase 1 (2022)** and **Phase 2 (2023)** targeted organized cybercrime networks before the latest crackdown in **Phase 3 (2024)**.

4.5.22. Pantsir Air Defense system (PADS)

Bharat Dynamics Limited signed MoU with **Russia's Rosoboronexport for Pantsir variants.**

About PADS

- **Type:** Mobile, **short-range air defense.**
- **Dual armament:** Missiles and guns.
- **Protection**: Military, industrial, and administrative facilities.
- **Targets:** Aircraft, helicopters, cruise missiles, precision weapons.

4.5.23. Exercise Antariksha Abhyas 2024

India's 1st Space Defense Exercise Antariksha Abhyas 2024 held in **Delhi.**

Key Aspects

- **Conducted by: Defense Space Agency (DSA).**
- **Purpose:** Integrate space capabilities with military operations and secure space assets.

Space Defense Framework

- **Threat Categories:**
  - **Military:** Cyber-attacks, ASAT weapons, proximity operations.
  - **Non-Military:** Space debris, radiation affecting satellites.
- **Protection Areas:**
  - **Asset Security:** Counter kinetic, energy, jamming, cyber threats.
  - **Surveillance:** High-resolution imaging, radar systems.
  - Border Security & Weapons Systems.
- **Challenges:**
  - Limited private sector investment.
  - Absence of national defense space strategy.
  - Poor stakeholder collaboration.
  - Lengthy procurement processes.

Recommendations

- Passing draft **new Remote Sensing Policy** and the **new Satcom Policy.**
- Streamline defense procurement.
- Enhance DSA-DSRO-ISRO collaboration.
- Integrate satellite communications with military planning.

Steps taken by India for Space defense

- **Creation of Integrated Space Cell**: within headquarters of Integrated Defence Staff in 2010.
- **Defence Space Agency (DSA)** created in 2018.
- **Defence Space Research Organisation (DSRO)** in 2019.
- Test of an Anti-satellite (ASAT) missile-**Mission Shakti in 2019.**

4.5.24. Operation Sagar Manthan

Seizure: NCB seized 700 kg of **Methamphetamine** as part of **Operation Sagar-Manthan.**

Operation Sagar-Manthan

- **Launched by:** Narcotics Control Bureau (NCB), in coordination with the Indian Navy and Indian Coast Guard.
- **Objective:**
  - Target drug trafficking through maritime routes
  - Counter threats to national security.
  - Contribute to the vision of a **Nasha Mukt Bharat** by 2047.

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4.5.25. Exercises in News

Exercise	Details
MAHASAGAR	➤ Third **Edition of** MAHASAGAR (**Maritime Heads for Active Security And Growth for All in Region**) by the Indian Navy. ➤ **Participants**: Bangladesh, Comoros, Kenya, Madagascar, Maldives, Mauritius, Mozambique, Seychelles, Sri Lanka, Tanzania.
Garud Shakti	➤ **India-Indonesia Joint Exercise**
VINBAX 2024	➤ **Vietnam-India Bilateral Exercise**
SIMBEX- 2024	➤ **Singapore India Maritime Bilateral Exercise (SIMBEX).**
SAREX-24	➤ **11th Edition of National Maritime Search and Rescue Exercises & Workshop (SAREX-24)** ➤ **Organizer:** Indian Coast Guard under the NMSAR Board.
Poorvi Prahar	➤ **Tri-services domestic exercise.**
AUSTRAHIND	➤ India and Australia
Sanyukt Vimochan 2024	➤ **Location:** Gujarat, India ➤ **Type:** Multilateral Annual Joint **Humanitarian Assistance and Disaster Relief (HADR) Exercise** ➤ **Participants:** Indian Army and nine friendly foreign countries from the Gulf Cooperation Council, Indian Ocean Region, and Southeast Asia
SEA VIGIL 24	➤ 4th edition ➤ **Pan-India coastal defense exercise** ➤ Conducted by **Indian Navy.**
KAZIND-2024	➤ **Type**: India-Kazakhstan Annual Joint Military Exercise ➤ **Location:** Auli, Uttarakhand ➤ **Edition**: 8th
Exercise Malabar 2024	➤ **Type:** Annual maritime exercise ➤ **Participants:** Australia, Japan, USA, India ➤ **Format:** Harbor and sea-based
Naseem-Al-Bahr	➤ **Participants:** Indian Navy and Royal Navy of Oman ➤ **Location:** Goa
Indra	➤ **India-Russia** bilateral exercise.
Malabar	➤ Naval exercise involving **India, Australia, Japan,** and **US.**
Exercise Varuna	➤ Indian Navy's P8I in the India-France naval drill in the Mediterranean.
Tarang Shakti	➤ Multilateral air exercise with **Australia, Greece, and Sri Lanka.**
Yudh Abhyas	➤ **India-US** Army exercise.
Exercise AL NAJAH V	➤ **India-Oman** Army exercise at **Rabkoot,** Oman.
Exercise Eastern Bridge VII	➤ **India-Oman** Air Force exercise at **Masirah,** Oman.

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4.6. TEST YOUR LEARNING

MCQ

1. **The GlobE Network, recently in news, is primarily concerned with:**

(a) Global climate change mitigation

(b) Anti-corruption law enforcement

(c) International cybersecurity

(d) Counter-terrorism operations

2. **Dragon Drone, recently seen in Russia-Ukraine war, is characterized by its use of:**

(a) Nuclear payload delivery

(b) Thermite mixture

(c) Electromagnetic pulse

(d) Biological agents

3. **What is "Terminal High Altitude Area Defense (THAAD)", sometimes seen in the news?**

(a) An Insraeli radar system

(b) India's indigenous anti-missile programme

(c) An American anti-missile system

(d) A defence collaboration between Japan and South Korea

4. **What does "Digital Arrest" refer to in the context of cybercrimes in India?**

(a) A formal procedure for prosecuting cybercriminals

(b) A scam where criminals pose as law enforcement officers to extort money from victims

(c) A government program aimed at reducing cyber fraud

(d) A digital platform used to track and prevent cybercrime incidents

5. **What is the primary objective of Operation Sagar Manthan?**

(a) To target drug trafficking through maritime routes

(b) To conduct joint military exercises

(c) To enhance international maritime cooperation

(d) To develop coastal infrastructure

Questions

1. Analyze the emerging threats posed by Non-Kinetic Warfare for India. What measures can be taken to enhance India's preparedness against such threats? (10 marks/ 150 words)

2. Discuss the role of Artificial Intelligence (AI) in modern defence systems, highlighting its applications in offensive and supporting functions. What are the ethical and legal challenges associated with the use of AI in defence? (250 words/ 15 marks)

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5.1. UNFCCC COP29

Why in the News?

COP29 in Baku, Azerbaijan, ended with **the Baku Climate Unity Pact** and various agreements.

About Conference of the Parties (COP)

COP is the **UNFCCC's highest decision-making body**, where **UNFCCC members** annually **review climate progress and negotiate commitments**. COP30 will occur **in Belém, Brazil, in November 2025.**

Key outcomes of COP29

Theme	Details
Baku Finance Goal or New Collective Quantified Goal on Climate Finance (NCQG)	Triple climate finance to USD 300 billion annually by 2035; mobilize $1.3 trillion per year.
Carbon Markets	Article 6 provides mechanisms for trading in carbon markets.
Transparency	Launched Biennial Transparency Reports (BTRs), Baku Declaration, and Global Transparency Platform.
Adaptation	Introduced Baku Adaptation Road Map and support for National Adaptation Plans (NAPs) for LDCs.
Indigenous Peoples and Communities	Adopted Baku Workplan for knowledge exchange, capacity building, and traditional knowledge use.
Gender and Climate Change	Extended the Lima Work Programme on Gender for an additional 10 years.

Issues persisting in climate negotiations

- **Inadequate climate finance:** NCQG falls short projected investment of **$2.3–2.5 trillion in emerging markets and developing countries** (EMDCs) other than China.
- **Deadlock on Mitigation Work Programme (MWP):** Divisions persist over fossil fuels' role, with the Global Stocktake assessment becoming a point of controversy in measuring climate progress.
- **Limited progress on climate targets:** Countries show stagnating ambition and action since initial NDCs, remaining off-track from meeting climate goals.
- **Other Issues:**
  - **Slow pace of operationalizing** the **Loss and Damage Fund (LDF)** .
  - Next round of NDCs has been **postponed** ahead of COP30.

Way Forward

- **Enhance Climate Diplomacy**.
- **CBDR-RC:** Decisions should take into consideration of **Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC)**.
- **Prompt and effective operationalization of LDF.**

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5.1.1. Key Initiatives/Declarations Launched at COP29

Initiative	Launched by	Aim and Other Details
Reducing Methane from Organic Waste Declaration	UNEP-convened Climate and Clean Air Coalition (CCAC)	Set sectoral targets to reduce methane emissions from organic waste. Signed by 35 countries (excluding India).
Global Energy Storage and Grids Pledge	COP29 Presidency	Targets for 2030: Deploying 1,500 GW of energy storage and refurbishing 25 million km of grid globally.
Green Energy Pledge	COP29 Presidency with UNIDO, UNECE, and UNESCAP	Promoting green energy zones for tackling climate change.
Hydrogen Declaration	COP29 Presidency	Accelerate hydrogen production; non-legally binding initiative.
Baku Harmoniya Climate Initiative for Farmers	COP29 Presidency with FAO	Acknowledges farmers' role in climate action; hosted by FAO under Agriculture for Sustainable Transformation Partnership (FAST). Supports agri-food systems.
Climate Finance Action Fund (CFAF)	Azerbaijan	Supports climate projects in developing countries to meet NDCs and address natural disaster consequences.
Baku Initiative for Climate Finance, Investment, and Trade (BICFIT)	COP29 Presidency, co-facilitated by UNCTAD and UNDP	Accelerates decarbonization through investment and trade while utilizing $1 billion fundraising pool.
Global Matchmaking Platform (GMP)	UNIDO and the Climate Club	Connects industries in developed and developing countries for innovative climate finance solutions.
Green Digital Action Declaration	COP29 Presidency with Climate Technology Centre & Network (CTCN)	Harnesses digital technologies for climate action, sustainable development, and bridging the digital divide
Continuity Coalition for Climate and Health	Launched by COP29 Presidency with UAE, UK, Brazil, and WHO;	Focuses on integrating health into climate action.
Baku Dialogue on Water for Climate Action	Hosted by COP29 Presidency with UNEP, UNECE, and WMO;	Aims to address water-climate change interplays.

Other Initiatives

Initiative	Details
COP29 Declaration on Climate in Tourism	➤ Mobilizes the tourism sector to reduce its carbon footprint.
Global Energy Efficiency Alliance	➤ Launched by UAE to double global energy efficiency rates, significantly reducing emissions.
Hydro4NetZero-LAC Initiative	➤ Develops sustainable hydropower infrastructure for energy system flexibility and resilience.
Global Alliance for Pumped Storage (GAPS)	➤ Supported by over 30 governments and agencies to enhance energy storage and resilience.

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Reports released around COP29

Reports	Published by	Key Findings
Special report on climate change and health	World Health Organization (WHO)	• Climate change causes 85% of NCD deaths. • People faced 50 more days of extreme heat in 2023. • Impacted maternal and reproductive health, internally displaced 20.3M in 2023.
Global Landscape of Climate Finance 2024	Climate Policy Initiative (CPI)	• Climate finance over USD 1.5tn in 2023, growth in renewables. • Fossil fuel investments and subsidies rising since 2020.
Global Nitrous Oxide (N2O) Assessment report	Climate and Clean Air Coalition (CCAC) and FAO	• N2O increase threatens 1.5°C goal. • 40% rise in anthropogenic N2O emissions since 1980, mainly from agriculture.
'Raising Ambition and Accelerating Delivery of Climate Finance' Report	Independent High-Level Expert Group on Climate Finance	• Climate action requires investment of $6.3–6.7 trillion/year by 2030.

5.1.2. India at COP29

Why in the News?

India clarified its climate negotiation stance at UNFCCC-COP29.

India's stance on various aspects

- **New Collective Quantified Goal (NCQG): Proposed a goal of $1.3 trillion annually**, with $600 billion coming from grants or equivalent resources.
- **Mitigation: Opposed changes** to the scope of the **Mitigation Work Programme (MWP)** and attempts **to alter temperature goals** in the Paris Agreement.
- **Just Transition:** India asserted that **developed countries should provide financial and technological support** to developing countries for just transition.
- **Global Stocktake (GST):** Opposed follow-up mechanisms for GST outcomes, Criticized the UAE dialogue text for its lack of connection to finance, imbalance, and mitigation-centric language.
- **Adaptation:** India called **for clear indicators to measure progress** on adaptation, **Opposed the use of third-party databases**, **Supported the establishment of the Baku Road Map**

India at COP29 Side-events:

- **Disaster Resilient Infrastructure**: With CDRI, focused on climate-resilient infrastructure; $8M for 12 **Small Island Developing States** (SIDS) projects announced.
- **LeadIT Meet**: Co-hosted with Sweden, aimed at accelerating low-carbon industry transitions.
- **Energy Transitions with the Global south**: With ISA, spotlighted solar energy's role in developing nations' energy shift.
- **Others**: Included India-Sweden Industry Transition Partnership and similar events.

5.2. COP-16 TO THE UNCBD

Why in the News?

The 16th Conference of Parties (CoP-16) to the UN Convention on Biological Diversity (UNCBD) recently **concluded in Cali, Colombia.**

More on the News

- **Theme: 'Peace with Nature'.**
- **First CoP since the adoption of the Kunming-Montreal Global Biodiversity Framework (KMGBF)**, aimed at reviewing progress and tackling challenges related to the framework.
  - ➡ **KMGBF is a non-binding agreement** from CoP-15 in Montreal, 2022, replacing the 'Strategic Plan for Biodiversity 2011-2020' and Aichi Targets.

Goals for 2050
» Protect and Restore Ecosystems
» Promote Sustainable Use
» Ensure Equitable Benefit-Sharing
» Increase Investment and Collaboration

KMGBF

Targets for 2030
» 30-by-30 Target
» Reduce Invasive Species
» Establish Benefit-Sharing Mechanisms

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Major Outcomes of CoP-16

- **Financial Mechanism for Digital Sequence Information (DSI)**: Cali Fund for equitable sharing of DSI benefits from profit-making companies.
- **Indigenous Rights**: Permanent body under Article 8(j) and allocation from Cali Fund for indigenous communities.
- **Finance Mobilization**: Kunming Biodiversity Fund launched under GEF to support KMGBF.
- **EBSAs**: Mechanisms to identify Ecologically or Biologically Significant Marine Areas (EBSAs).
- **Thematic Action Plan**: Capacity-building and technology transfer in synthetic biology.
- **Invasive Species**: Guidelines for managing invasive alien species.
- **Biodiversity and Health**: Approved Global Action Plan under a 'One Health' approach.
- **Other Highlights**: 'Plant4Mother' Campaign, International Big Cat Alliance, and increase in Ramsar sites.

India's commitment at CoP-16

- **Updated National Biodiversity Strategy and Action Plan (NBSAP)**: Comprising of **23 targets**, it adopts a **'Whole of Government' and 'Whole of Society' approach** aligning itself with KMGBF.
- **Budgetary Allocation**: Around **₹81,664 crore on biodiversity** and conservation efforts for the **period 2025-30**.
- **Call for resource mobilization**: Stressed the **need for cooperation in mobilizing international financial** resources, as laid down **under KMGBF's Target 19** for implementation of NBSAP.

Shortcomings of CoP-16

- Developed countries have **not met the commitment to provide $20 billion annually** for biodiversity by 2025.
- The decision to **update the Monitoring Framework for KMGBF** implementation remains **unresolved**.
- **Mechanisms for Planning, Monitoring, Reporting, and Review (PMRR)** of KMGBF progress are **delayed**.
- **Only 44 out of 196 countries have submitted updated NBSAPs** aligned with KMGBF, with 119 reporting National Targets.
- **The Cali Fund for DSI is operational but lacks agreement** on contributions and resource allocation.
- **There are ongoing disagreements** regarding **biodiversity credits and offsets** as 'innovative schemes' for funding.

Digital Sequence Information	
Aspect	**Details**
Overview	● Digital Sequence Information (DSI) includes genomic and digital data like DNA, RNA, and proteins used in agriculture, pharmaceuticals, and biodiversity.
Significance	● Enhances genetic research (e.g., COVID-19 diagnostics), develops climate-resilient crops, and preserves traditional knowledge.
Benefits from CoP-16 to CBD	● The Cali Fund ensures fair and equitable sharing of DSI benefits, aligning with the third objective of the CBD.
Challenges	● Issues include equitable benefit sharing, intellectual property rights, privacy, data security, accountability, and technological limitations.
Key Initiatives	● **KMGBF:** Focuses on Goal C and Target 13 for DSI benefit sharing. **'One Day One Genome'** (India): Releases annotated microbial genomes daily to enhance research and innovation.

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5.2.1. National Biodiversity Strategy and Action Plan (NBSAP)

Why in the News?

India launched its updated **National Biodiversity Strategy and Action Plan (NBSAP) for 2024-30** at CoP-16 to the **UN Convention on Biological Diversity (UNCBD),** strengthening its commitment to biodiversity conservation.
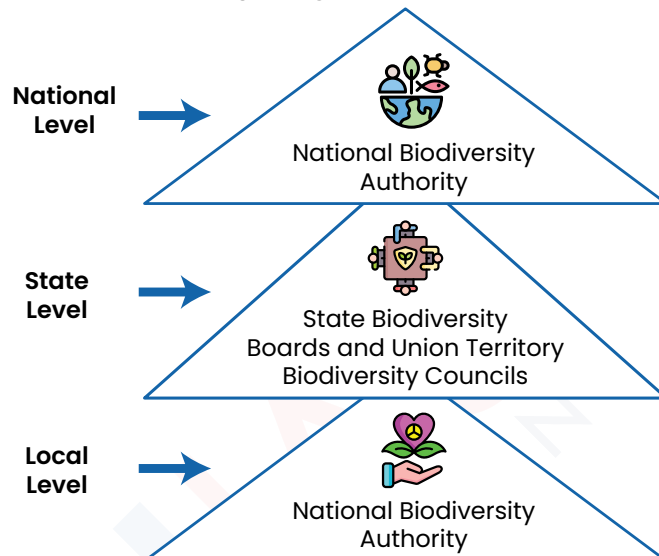
About NBSAP

- **Mandate:** Required by Article 6 of the UNCBD for all signatories to develop NBSAPs.
- **Purpose**: Acts as the main instrument for integrating biodiversity into national policy, focusing on conservation, sustainable use, and equitable benefit-sharing.

Key Highlights of the Updated NBSAP 2024-30

- **Approach:** Employs a 'Whole of Government' and 'Whole of Society' method.
- **National Biodiversity Targets (NBTs):** Includes 23 targets centered around three themes:
  - Reducing threats to biodiversity.
  - Ensuring sustainable resource use.
  - Enhancing implementation tools.
- **Acknowledge Environmental Challenges:** Strategies include ecosystem restoration, species recovery, and community-led conservation.
- **Implementation framework**: Ministry of Environment, Forest and Climate Change (**MoEFCC**) serves as the central agency **advocating a collaborative governance model, promoting a bottom-up**

Architecture for the implementation of NBSAP

National Level → National Biodiversity Authority

State Level → State Biodiversity Boards and Union Territory Biodiversity Councils

Local Level → National Biodiversity Authority

NOTE: Ministry of Environment, Forest and Climate Change (MOEFCC) serves as the central agency responsible for coordinating biodiversity conservation efforts across India

approach engaging local communities and various sectors.

- **Resource Mobilization:** India is a leader in the **Biodiversity Finance Initiative (BIOFIN):** a UNDP and European Commission-backed effort for better financial management of biodiversity.
- **Other features**: Emphasized upon adoption of **transformative approach focusing on ecosystem-management based bottoms-up approach.**

Biological Diversity Act, 2002 (last amended in 2023)	
Aspect	**Details**
Aim	- Implement UNCBD provisions
Goals	- Protect biodiversity; sustainable use of resources; equitable benefit sharing.
Key Provisions	- Approval from NBA for foreign access to biological resources. - Approval for knowledge transfer abroad by Indian individuals/nationals. - prior approval from NBA before applying any kind of IPR.
2023 Amendments	- Exempts AYUSH practitioners and Traditional Knowledge holders from Access and Benefit sharing. - Removes criminal penalties; introduces fines.

Biological Diversity Rules, 2024	
Aspect	**Details**
Purpose	- Replace 2004 rules; implement 2023 amendment.
Key Highlights	- Defines NBA's functions including fund management, approvals, and database. - IPR approval required before grant.
National Biodiversity Authority (NBA)	- Chairperson appointed by Central Government for 3-year term, re-appointment possible.IPR approval required before grant. - Functions include managing NBF, granting approvals, providing technical support.
Penalties for Contraventions	- Penalties from ₹1 lakh to ₹50 lakh; fines for repeat violations; collected penalties go to NBF or state funds.

5.2.2. World Coalition for Peace with Nature

Why in the News?

At the UN COP16 biodiversity conference, the **"World Coalition for Peace with Nature: A call for Life"** was launched.

More about the Coalition

- **Members:** Includes countries from four continents such as Mexico, Sweden, Uganda, and Chile, but none from the Asia-Pacific region.
- **Nature:** Voluntary.
- **Whole of government approach** combines the expertise and resources of government institutions.

- **Whole of society approach** involves civil society as well as public and private sectors.

Objectives

- To **alter the relationship between humans and nature** to tackle environmental challenges holistically.
- To support and reaffirm the **rights-based approach** of the Kunming-Montreal Global Biodiversity Framework.
- To **direct funds towards conservation and sustainable development** for nature preservation.
- To engage entire governments and societies in **collective action, empowering local initiatives** to achieve peace with nature.

5.3. CLIMATE FINANCE

Why in the News?

Developing countries are disappointed with the enhanced **New Collective Quantified Goal (NCQG)** on climate finance.

About NCQG

- Proposed at COP21 for setting a new climate finance goal post-2025, following the unmet $100 billion annual target set in 2009.
- Article 9 of the Paris Agreement mandates developed countries to provide financial support to developing nations.

Issues Associated with Current Climate Financing

- **Distributional imbalance**: Advanced economies accounted for 45% of climate finance, and least developed countries (LDCs) for only 3%. (GLCF 2024).
- **Adaptation Funding Gap**: Developing countries require US$215-387 billion annually.
- **Mitigation and Adaptation imbalance**: 90% of climate finance goes to mitigation actions (UNDP).
- **Debt Burden**: Climate finance often **comes in the form of loans, increasing the debt** burden of developing countries and potentially hindering their ability to invest in sustainable development.
- **Inadequate finance:** Fivefold increase needed to reach required USD 7.4tn each year.
- **Other issues:**
  - Lack of Transparency and Accountability.
  - Many developing nations struggle to access climate funds.
  - Inadequate Private Sector Involvement.

Climate finance in India

- **India needs around USD 10 trillion to achieve net-zero by 2070.**
  - **Steps Taken:**
    - ◊ **National Adaptation Fund for Climate Change (NAFCC)**, 2015.
    - ◊ **Priority Sector lending to renewable energy projects**.

Global Financial mechanisms under UNFCCC	
Financial Mechanism	**Details**
Loss and Damage Fund (LDF)	Established at COP27 (Egypt), operationalized at COP28 (Dubai); supports countries vulnerable to climate impacts.
Green Climate Fund (GCF)	Established at COP16 (2010); developed countries pledged $100 billion annually by 2020.
Adaptation Fund	Established in 2001 for adaptation projects under the Kyoto Protocol; funded through a 5% share of proceeds from market-based mechanisms.
Special Climate Change Fund (SCCF)	Established at COP7 (2001); finances adaptation, technology transfer, capacity building, and energy/transport projects; administered by GEF.
Least Developed Countries Fund (LDCF)	Established at COP7 (2001); supports Least Developed Countries with climate work programs; administered by GEF.

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◊ India's first green bond was **issued by Yes Bank in 2015**.
◊ **Sustainable Finance Group (SFG) was set up under RBI**.
◊ **RBI joined the Network for Greening of Financial System (NGFS)**.
◊ **Union Budget 2022-23** announced **sovereign green bonds for green infrastructural investments**.

Way Forward

- **Address the Mitigation and Adaptation** imbalance.
- **Explore innovative financing mechanisms** like green bonds.
- **Adopt an Integrated approach like Public Funding** and private investment.
- **Provide technical assistance to developing** countries to enhance their capacity.
- **Multilateral Development Banks** should work to triple lending capacity by 2030 as part of NCQG.

5.4. CARBON TRADING AND MARKET

Why in the News?

After a decade of negotiations, the rules for carbon trading under Article 6 of the Paris Agreement have been finalized.

About Article 6 of the Paris Agreement

- Provides mechanisms for countries to cooperate in achieving their Nationally Determined Contributions (NDCs) through carbon markets, **consisting of two market-based and one non-market-based approach.**

Mechanisms under Article 6		
Market based approaches		**Non-Market based approach**
Article 6.2	**Article 6.4**	**Article 6.4**
• **Decentralized approach** for **bilateral cooperation** • Trading of **International Transferred Mitigation outcomes (ITMOs)** (emissions reductions that result from mitigation actions) • **Corresponding adjustment in NDCs** are made on trade of ITMOs.	• **Centralized approach** termed as **Paris Agreement Crediting Mechanism (PACM)**. • **Establishes a global carbon market.** • Uses **Baseline-and-crediting** mechanism	• Introduces **non-market approaches to promote mitigation and adaptation** • **No trading of emission reductions** is involved. • Involves **more than one participating Party.**

Difference between Carbon trading of Kyoto Protocol and Paris Agreement		
Aspect	**Kyoto Protocol**	**Paris Agreement (Article 6)**
Scope of Participation	• **Limited to developed countries (Annex I)** with project hosting by developing countries.	• **Inclusive of all countries.**
Adaptation Funding	• **Share of proceeds from CDM projects** directed to the Adaptation Fund.	• **5% of proceeds from Article 6.4 transactions** allocated to the Global Adaptation Fund.
Market Scope	• Focused **on project-based mechanisms like Clean Development Mechanism (CDM) and Joint Implementation (JI).**	• **Combines market-based and non-market-based approaches**.
Legacy Credits	• **Allowed use of older credits** from inactive projects, causing oversupply concerns.	• Restricts legacy credit use; **only post-2013** credits.

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About Carbon Market:

- A trading system where entities purchase carbon credits to offset emissions, with one credit typically equating to one metric tonne of CO_2 equivalent reduced or sequestered.

Significance of Carbon Trading:

- **Economic Efficiency:** Could reduce NDC implementation costs by over 50%, saving up to $250 billion annually by 2030.
- **Support for Developing Countries:** Helps mobilize funds for climate efforts.
- **Broader Impact:** Non-market approaches promote sustainable development.
- **Revenue Generation:** Carbon pricing generated $104 billion in 2023.

Carbon Market and Trading Mechanisms

Carbon Credits Trading Scheme (CCTS)
- » Compliance Mechanism
- » Offset Mechanism

Green Credit Program
- » Tree Planting Sustainable
- » Agriculture

Other Instruments
- » Perform, Achieve and Trade (PAT) Scheme
- » Renewable Energy Certificates (REC) Scheme

Issues Related to Carbon Markets

- **Double Counting:** Inconsistencies in emission reduction calculations.
- **Limited Scope**: Only 24% of global emissions are currently covered by carbon pricing mechanisms.
- **Quantification Standards:** Lack of monitoring for carbon sequestration reversals.
- **Operational Delays:** Article 6.4 expected to be operational by 2025-2026.
- **Carbon Colonialism:** Potential exploitation of indigenous and local communities.
- **National Interests**: Conflicting views on transparency, access, and rule flexibility.

Way Forward

- Implement uniform and binding guidelines
- Independent third-party verification to ensure credits are genuine.
- Establish safeguards to protect the interests of indigenous and local communities.
- Implement measures to prevent market oversaturation

5.5. FOREST ECOSYSTEM RESTORATION

Why in the News?

The **Secretariat of the Convention on Biological Diversity (CBD)** celebrated the 10th anniversary of the **Forest Ecosystem Restoration Initiative (FERI) in 2024.**

About Forest Ecosystem Restoration Initiative (FERI)

- **Origins:** Launched in 2014 by The Korea Forest Service in collaboration with the CBD's Executive Secretary.
- **Mandate:** Aims to support developing countries in implementing the Kunming-Montreal Global Biodiversity Framework (KMGBF), which includes 23 targets for halting and reversing biodiversity loss by 2030.
- **Restoration Interventions**: rehabilitation, reconstruction, reclamation, replacement.

FERI's Initiatives

- **Short-Term Action Plan on Ecosystem Restoration (STAPER).**
- **WePlan – Forests:** A decision support platform for optimizing tropical forest ecosystem restoration.

Major Global Initiatives

- **IUCN's Forest Conservation Programme:** Focuses on sustainable forest management.
- **WWF's Forests For Life Programme:** Dedicated to conserving biological diversity.
- **REDD+ Framework by UN:** Aimed at sustainable forest management, conservation, and enhancement of forest carbon stocks.
- **The Forest and Landscape Restoration Mechanism (FLRM) by FAO**: Promotes forest and landscape restoration.

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5.6. JAL HI AMRIT

Why in the News?

'Jal hi Amrit' launched **under AMRUT 2.0** (Atal Mission for Rejuvenation and Urban Transformation 2.0).

About Jal hi Amrit (JHA)

- Aims to create **"Water-Secure Cities"**
  - **Incentivizes States/UTs** for management of **Sewage Treatment Plants.**
  - To produce **continuous supply of high-quality treated water.**
  - **Promotes circular economy of water.**
- **Strategy: Uses rating-based incentives** through **Clean Water Credits.**
- **Rationale:** Recycling and reusing treated used water.
  - Reducing the **stress on freshwater resources.**

About AMRUT		
	AMRUT 1.0	**AMRUT 2.0**
Launch Year	2015	2021
Duration	2015	2021-2026 (5 years)
Coverage	500 cities and towns	All statutory towns
Focus Areas	Water supply, sewerage and septage management, non-motorized urban transport, etc.	Universal coverage of water supply through functional taps to all households.

About Water Recycling & Reuse

- **Definition**: Water from a variety of sources then treats and reuses it for beneficial purposes.
- **Sources of water for potential reuse**: Municipal wastewater, industry process etc.
- **Water Reuse Technology:** Membrane Bioreactor (MBR); Ultrafiltration (UF); Reverse Osmosis (RO); Disinfection Technologies (uv/ozone/ Advanced Oxidation); Electrodialysis Reversal (EDR) ; Thermal Evaporation/ Crystallization

Benefits of Water Recycling & Reuse

- **Environmental benefits:**
  - Decreases freshwater diversion
  - **Saves energy: E.g.,** Reusing treated wastewater in irrigation reduces GHG emissions.
  - **Recharges groundwater: E.g.**, Treated water in **Bengaluru** is used to recharge **shallow aquifers**.
  - Enhances wetlands and Riparian (Stream) habitats.
- **Socio-economic benefits:**
  - Increases water availability for **arid areas**.
  - Provides water source for industry and agriculture. E.**g., Haryana's Kurukshetra** repurposes treated water for agriculture use.
  - Improves agriculture through nutrient-rich (carbon, phosphorus and nitrogen) water.

Challenges

- **Treating water to a precise specification:** to remove oils, salts etc. before reuse.
- **High treatment costs.**
- **Water recycling is energy intensive.**
- **Membrane fouling and maintenance challenges.**
- **Absence of proper guidelines.**
- **Social stigma** wrt acceptance of **'toilet-to-tap'.**

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India and Water Recycling & Reuse Current situation

- 31% households lack piped water.
- 67% not connected to sewage system.
- **Irrigation:** Largest user 78% of total reserve.
- India has 18% of world's population but 4% of water resources.
- Average per capita water availability for **2031: 1367 cubic meters.**
- Potential to treat 80% of wastewater.

Key Measures

- **National Framework on Safe Reuse of Treated Water (2022).**
- **Power Tariff Policy 2016.**
- **National Water Policy-2012.**
- **Zero Liquid Discharge Guidelines.**
- **Schemes: SBM-U 2.0, Arth Ganga initiatives.**

Way Forward

- Set water reuse benchmarks.
- **Incentivize R&D** in water treatment technologies.
  - **Subsidize dual plumbing systems and offer property tax rebates.**
  - **Implement tiered volumetric pricing structure.**
- Facilitate PPPs to develop and maintain wastewater treatment infrastructure.
- Implement **tradable water-use credits.**

5.7. JAL SANCHAY JAN BHAGIDARI

Why in the News?

Recently, **Jal Sanchay Jan Bhagidari** initiative was launched from Surat, Gujarat.

About Jal Sanchay Jan Bhagidari initiative

- **An initiative for water conservation** through community partnership.
- **Aim:** Construct 24,800 rainwater harvesting structures through community participation.
- Based on Gujarat Government's successful **Jal Sanchay initiative.**
- **Ministry: Ministry of Jal Shakti**
- **Distinctive Features:** Emphasizes on India's traditional consciousness, adopts whole of society and whole of government approach, treats water conservation as a social commitment, aligns with Jal Shakti Abhiyaan: **Catch the Rain.**

Significance of Community Participation in Water Conservation

- **Foster Behavioural response:** Ex. **Jal Sahelis** in the Pani-Panchayats of Bundelkhand.
- **Utilization of Local Knowledge and Insights:** Ex. **Bari Farming** System (Assam).
- **Instilling a sense of ownership:** Ex. **Pani Panchayat, Odisha.**
- **Promotes Inclusivity and Equity:** Addressing concerns of vulnerable communities.
- **Bringing innovative experiences:** Based on the life experiences.

> ### Some Examples of Community Participation in Water Conservation
> - Local Jal Samitis under Jal-Jeevan Mission, Neeru-Chettu (Andhra Pradesh), **Jal Jeevan Hariyali** , **Jal Hi Jeevan Hai** (Haryana), **Mission Kakatiya** (Telangana).
>
> ### Traditional water storage systems in India
> - **Jal Mandir** (Gujarat); **Khatri, Kuhl** (Himachal Pradesh); **Zabo** (Nagaland); **Eri, Ooranis** (Tamil Nadu); **Dongs** (Assam); **Katas, Bandhas** (Odisha and Madhya Pradesh); **Paar, Johad** (Rajasthan); **Pat** (Madhya Pradesh).

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Challenges with the community participation in Water Conservation

- Limited Information and Capacity.
- Policy processes perpetuate Inequality.
- Mere Ceremonial Involvement.
- Limited association with Outsiders.

> ### Other Government Initiatives fostering Community Participation in Water Conservation
>
> - **Jal Jeevan Mission (JJM)**: Decentralized, demand-driven, community-managed programme to maintain village water infrastructure.
> - **Various Components of Prime Minister Krishi Sinchayee Yojana:**
>   - **Har Khet ko Pani** (New water sources through micro-irrigation).
>   - **Watershed Development** (water harvesting structures like dams, ponds, etc.).
>   - **Per Drop More Crop** (precision water application devices like drips, sprinklers for better agriculture efficiency)
> - **Atal Bhujal Yojana:** Sustainable management of Ground water through community participation.

5.8. MISSION MAUSAM

Why in the News?

Recently, Union Cabinet approved Mission Mausam with a budget outlay of 2,000 crores.

About Mission Mausam

- **Nature:** A multi-faceted initiative to boost India's weather and climate-related science and services.
- **Features**: Establishing networks of radars, satellites, and AI/ML models for weather prediction.
- **Ministry**: Implemented **by Ministry of Earth Sciences through Indian .**
  - **Meterological Department (IMD).**
  - **National Centre for Medium-Range Weather Forecasting (NCMRWF).**
  - **Indian Institute of Tropical Meteorology (IITM).**
- **Phases of Mission Mausam:** Expanding the observation network till March 2026(first phase), focus on adding satellites and aircraft (second phase).

Significance of Mission Mausam

- Makes India **weather-ready and climate-smart** through improved forecasting.
- Provides timely **updates on weather parameters.**
- Benefits sectors like **agriculture, disaster management, and urban planning.**
- Enables hyper-local forecasts up to **Panchayat level** with 10-15 days lead time.
- Improve last **mile prediction.**

Challenges with Weather Forecasting in India

- **Complexity of Atmospheric Processes** makes forecast trickier.
- Low Local **Forecast Capability.**
- Inadequate Forecasting Equipment. **E.g., no wind profiler.**
- **Poor Interpretation of satellite images,** radar, etc.
- **Role of Climate Change** makes the weather patterns erratic and difficult to forecast.

Other Initiatives for Enhancing Weather Forecasts in India

Operationalized Systems
» Pratyush
» Mihir

Monsoon Mission

Earth Observation Satellites
» INSAT-3D
» INSAT-3DR
» INSAT-3DS

PRITHVI Scheme
» ACROSS
» O-SMART
» PACER
» SAGE
» REACHOUT

SSE MOES Initiatives

IMD Initiatives
» Current Weather
» Nowcast
» City Forecast

Mobile Applications
» MAUSAM
» Meghdoot
» Damini

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5.9. HYPERLOCAL WEATHER FORECASTING

Why in the News?

CoS-it-FloWS (Community-Sourced Impact-based Flood Forecast and Early Warning System) launched in Kerala's Periyar and Chalakudi river basins.

About CoS-it-FloWS

- Project run by **Equinoct (Kochi based modelling solutions provider).**
- **Community-sourced flood** forecast system.
- Recognized by **UNICEF's Climate Tech Cohort,** it uses 100 rain gauges installed across Ernakulam, Idukki, and Thrissur.
- Data collected by students, women, youth.
- **Aims to plug government** data gaps.

About Hyperlocal Weather Forecasting

- **Concept:** Pinpoints weather conditions in **localized areas.**
  - IMD currently forecasts at district level.
- Needed **due to high weather variability** in tropical regions.

Significance of Hyperlocalised Weather Forecasting

- **Disaster preparedness.**
- Safeguard **agricultural livelihoods.**
- India's IMD serves as **UN Early Warning for All advisor to five countries.**
- **Better Traffic Management** in Urban areas.

Key Challenges

- Outdated prediction models like Global Forecasting System and **Weather Research and Forecasting (**WRF).
- **Limited ground stations:** IMD has 800 automatic weather stations, 1,500 automatic rain gauges, 37 doppler weather radars (DWRs).
  - Requires 3,00,000 ground stations, 70 DWRs.
- 20,000 ground stations with **inaccessible data.**
- **Difficult to predict small-scale events** like cloudbursts.

Key Initiatives

- Gram **Panchayat-Level Weather Forecasting.**
- **Mission Mausam** to enhance India's Weather and Climate Forecasting by 2026.
- Weather Information Network and Data System (WINDS).
- IFLOWS-Mumbai **by Ministry of Earth Sciences.**
- **Mumbai Flood App** by IIT Bombay.

Conclusion

Need comprehensive approach to **upgrade models, expand monitoring, foster data-sharing, develop real-time systems** to improve forecast accuracy and prepare for extreme weather.

5.10. GLACIAL LAKE OUTBURST FLOODS (GLOFS)

Why in the News?

A recent report by the **Central Water Commission (CWC)** highlights the expansion of Himalayan glacial lakes and water bodies.

Key Findings of the Report

- **Increase in area of glacial lakes in India:** A 33.7% increase from 2011 to 2024.
- **Transboundary risks**: A 10.81% increase in the area of glacial lakes and other water bodies in the Himalayan region, impacting Bhutan, Nepal, and China, due to climate change.
- **Lakes in High-risk category for GLOFs:** 67 lakes in India have seen over a 40% increase in surface area, particularly in regions like Ladakh, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh.

About Glacial Lake and Glacial Lake Outburst Flood (GLOFs)

- **Glacial Lakes**: Formed by melting glacial ice in depressions carved by glacier movement, categorized into four types: Moraine-dammed, Ice-dammed, Erosion, and others.
- **GLOFs**: Sudden releases of meltwater due to the failure of moraine or ice dams, characterized by Sudden and sometimes cyclic water releases.

Major Causes of GLOFs

- **Glacial Surging**: Rapid glacier movement, e.g., Gilkey Glacier, Alaska.
- **Moraine Dam Instability**: Collapse of inherently unstable moraines, e.g., South Lhonak, Sikkim.
- **Ice Dam Failure:** Due to thermal stress, water pressure, and internal melting.
- **Seismic Activity:** Tectonic movements causing structural changes.
- **Human Activity**: Unregulated urbanization, mining, deforestation, hydropower projects, and GHG emissions affecting drainage and slope stability.

Initiatives taken in India for GLOFs management

- **National Disaster Management Authority Guidelines** for Management of Glacial Lake Outburst Floods (GLOFs).
- **Review of the design flood of all the existing and under construction dams** vulnerable to GLOFs by CWC.
- **GLOF risk mitigation project** approved by **High-Level Committee**.
- **National Mission on Himalayan Studies (NMHS).**

Global initiatives for GLOFs management

- **HKH cryosphere initiative** by **International Centre for Integrated Mountain Development (ICIMOD)**.
- **Global Climate Observing System.**
- **UNESCO Climate Change and Mountain Ecosystem Programme.**
- **Sendai Framework for Disaster risk reduction.**

Way Forward: NDMA guidelines

- **Comprehensive understanding of GLOF dynamics**: Delve into the causes, triggers, and processes of GLOFs, with a focus on the latest scientific research.
- **Enhance Technical Expertise and Build Capacity**: Develop greater understanding to enhance technical expertise at the National and State level.

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5.11. HUMAN–ANIMAL CONFLICT

Why in the News?

Recently, Wolf attacks were reported from few villages in Uttar Pradesh bringing the issue of Human-Wildlife Conflict (HWC) to light.
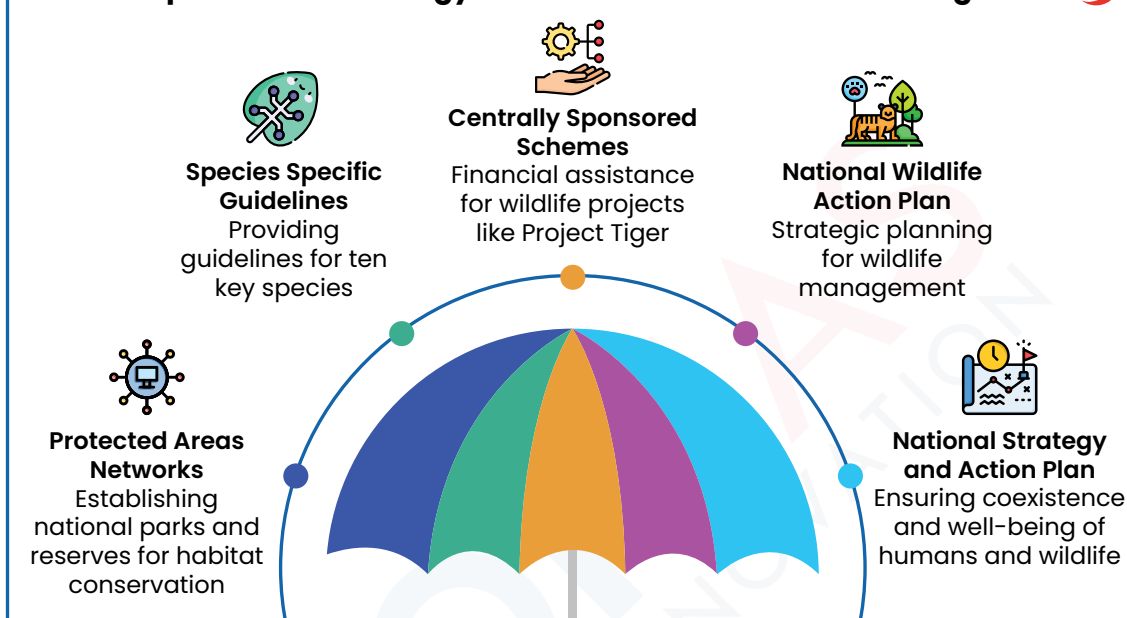
About Human-Wildlife Conflict (HWC)

➤ **Definition**: Refers to struggles when wildlife poses threats to human interests in areas **where wildlife and human populations overlap.**

➤ **Management responsibility**: **State/UT Government. E.g.,** Kerala declared HWC as **state-specific disaster.**

➤ **Key Drivers of Human Wildlife Conflict:** Ecological (seasonal changes), anthropological (land use change), wildlife (Invasive species).

Comprehensive Strategy for Human-Wildlife Conflict Mitigation

Species Specific Guidelines
Providing guidelines for ten key species

Centrally Sponsored Schemes
Financial assistance for wildlife projects like Project Tiger

National Wildlife Action Plan
Strategic planning for wildlife management

Protected Areas Networks
Establishing national parks and reserves for habitat conservation

National Strategy and Action Plan
Ensuring coexistence and well-being of humans and wildlife

Impact of the Human Wildlife Conflict

➤ **Impact on Wildlife**: Threatens species survival through retaliation killings

➤ **Impact on Ecosystems:** Damages crops and disturbs predator-prey balance

➤ **Impact on Social Dynamics:** Creates discord between stakeholders

➤ **Impact on Local Communities:** Affects vulnerable populations through loss of lives and property

➤ **Impact on Commodity Production:** Decreases agricultural productivity

➤ **Other Impacts**: Includes livelihood and food insecurity.

About Wolf (Canis lupus): Fast Runners, Natural Predators, Extremely Social, Monogamous, Male dominance hierarchy.
There are two species of Wolf found in India: Gray Wolf and Himalayan Wolf.

Gray or Indian Wolf (Canis lupus pallipes)	Himalayan or Tibetan wolf (Canis lupus chanco)
➤ **Habitat:** Thorn forests, scrub-lands, arid and semi-arid grassland habitats. 　➡ Majority of them survives **outside of protected areas** ➤ **Conservation Status** 　➡ **Wildlife Protection Act, 1972:** Schedule I 　➡ **IUCN:** Least Concern	➤ **Habitat: Wastelands** of the upper-trans Himalayan range including Himachal Pradesh, Jammu, Kashmir, Uttarakhand, and Sikkim. ➤ **Conservation Status** 　➡ **Wildlife Protection Act, 1972:** Schedule I ➤ **IUCN:** Vulnerable

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5.12.1. PM-Surya Ghar: Muft Bijli Yojana

Centre notifies guidelines for 'Innovative Projects' in solar technology under **PM-Surya Ghar: Muft Bijli Yojana.**

- **Ministry of New and Renewable Energy** has notified operational guidelines to promotes rooftop solar advancements.

About Innovative Projects Component

- **Objective:** Support startups, institutions in piloting new solar concepts.
- **Key focus on emerging solutions** like blockchain-based peer-to-peer solar trading**.**
- **Eligibility:** Any entity, individual, international collaboration.
- **Tenure:** Maximum 18 months
- **Funds:** ₹500 crore, up to 60% project cost or ₹30 crore
- **Implementation:** National Institute of Solar Energy (NISE)

About PM Surya Ghar: Muft Bijli Yojana (2024)

- **Nodal Ministry:** Union Ministry of New and Renewable Energy.
- **Duration:** Till financial year 2026-27.
- **Objective:** To install rooftop solar (RTS) and provide free electricity for up to 300 monthly units for 1 crore households.
- **Subsidy Benefits:** Provides 60% of the solar unit cost for systems up to 2 KW capacity and 40% of additional system cost for systems between 2 to 3 kW capacity.

5.12.2. Environmental Compensation Guidelines for Battery Waste Management

Guidelines are **issued by the Central Pollution Control Board** (CPCB) under the **Battery Waste Management Rules 2022**, to **promote proper battery waste management practices.**

What is Environmental Compensation (EC)?

- **Environmental Compensation (EC)** is imposed **by CPCB** under the **2022 Rules**.
- It applies to **producers, refurbishers**, and **recyclers** of waste batteries.
- Levied for **non-compliance, unregistered operations, or false information.**
- Also imposed for failure to meet **Extended Producer Responsibility (EPR) targets.**
- Payment of EC **does not absolve EPR obligations.**

Key Highlights of the Guidelines issued

- **EC to be levied is divided into two regimes**:
  - **Regime 1:** EC for non-fulfilment of metal-wise EPR Targets (Lead Acid and Lithium-ion Batteries).
  - **Regime 2:** EC for non-compliances based on application fees.

5.12.3. Scheme for Hydro Electric Projects (HEP)

Union Cabinet modified the scheme for faster **development of HEP and improvement of infrastructure in remote, hilly areas.**

- **Launched by**: Ministry of Power in **2019.**
- **Objective:** Provided support for constructing roads and bridges to connect major dam, power house, and other project infrastructure to the nearest highway.

Modified Scheme

- **Funding:** Total outlay of Rs.12,461 crore for 31,350 MW capacity.
- **Implementation Period**: FY 2024-25 to FY 2031-32.
- **Expansion:** Now covers costs for transmission lines, ropeways, railway sidings, and communication infrastructure, plus roads and bridges.
- **Eligibility:** HEPs over 25 MW, including private projects and all PSPs.
- **Challenges with HEP development:** Financial constraints, Geological concerns, Power Evacuation issues, Social Issues.

Other Measures for Development of HEP

- Declaring **Large Hydro Power projects** (> 25 MW projects) as **Renewable Energy sources.**
- **Hydro Power Purchase Obligations (HPOs)**.
- **Tariff rationalization** measures.
- **Budgetary support** for flood moderation / Storage HEPs.

5.12.4. Air Quality Management Exchange Platform (AQMx)

Climate and Clean Air Coalition (CCAC) Launched AQMX on International Day of Clean Air for Blue Skies led by UNEP with theme **'Invest in Clean Air Now'.**

About Air Quality Management Exchange Platform (AQMx)

- **One-stop-shop** providing latest air quality **management guidance.**
- Component of **CCAC Clean Air Flagship** contributing to **UNEA-6 Resolution.**

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WHO Air Quality Guidelines (AQG)

➤ **Evidence-based recommendations** setting limit values for air pollutants

➤ **Cover pollutants** like PM, O3, NO2, SO2, and CO.

Need of AQMx

➤ Air pollution causes over **8 million premature deaths** annually.

➤ Addresses air **quality management** capacity gaps.

➤ Enables **regional knowledge** sharing about **best practices.**

About CCAC

➤ Founded in **2012** within **UNEP** as **voluntary partnership** of **160+ members**.

➤ Works to reduce **short-lived climate pollutants**: **methane, black carbon, hydrofluorocarbons (HFCs), and tropospheric ozone**.

➤ **India** joined in **2019.**

5.12.5. CO2 to Methanol Plant

World's First CO2 to Methanol Plant launched by NTPC at Vindhyachal

➤ NTPC has successfully converted **CO2 from flue gas** into methanol using hydrogen from a Proton **Exchange Membrane (PEM) electrolyzer**, marking a significant advancement in carbon management and sustainable fuel production.

About Methanol (CH3OH):

➤ Methanol, also called **methyl or wood alcohol**, is the simplest alcohol, fully miscible with water.

➤ It appears as **a clear, colorless, flammable liquid** with an odor akin to ethanol.

5.12.6. EV-as-a-Service Programme

➤ The Union Minister of Power, Housing & Urban Affairs has launched the **'EV as a Service' Programme by Convergence Energy Services Limited (CESL)**, following the PM E-DRIVE Scheme to accelerate India's electric mobility transition.

➤ **EV-as-a-Service:** This model provides subscription-based access **to electric vehicles, reducing the need for high initial purchase costs.**

Program Goals:

➤ Aims to deploy 5,000 electric cars in government departments over the next two years.

➤ Supports India's target of reaching net zero emissions by 2070.

5.12.7. Depresión Aislada en Niveles Altos (DANA) caused floods in Spain

About DANA:

➤ DANA involves a **mass of cold polar air detaching from the polar jet stream**, circulating at high altitudes (5-9 km).

➤ It's distinct as it forms **independently of jet streams**, leading **to intense storms** when it meets **warmer, humid Mediterranean air**, primarily late summer to early autumn.

➤ Unlike typical storms that move eastward, **a DANA can stay in one place or move westward.**

5.12.8. Teal Carbon

India's **first 'teal carbon'** study undertaken at **Keoladeo National Park (KNP)**.

➤ Shows potential for climate change mitigation.

➤ Suggests biochar can reduce methane emissions.

Types of Carbon

Purple	Carbon captured through the air or industrial emissions
Blue	Carbon stored in ocean plants and sediments.
Teal	Carbon stored in freshwater and wetland environments
Green	Carbon stored in terrestrial Plants
Black	Carbon released through the burring of fossil fuels
Grey	Carbon released through industrial emissions
Brown	Carbon released by incomplete combustion of organic matter
Red	Carbon released through biological particles on snow and ice that reduce albedo

About Teal Carbon

➤ Carbon stored in **non-tidal freshwater wetlands.**

➤ Includes carbon based on **function** and **location**, is a **color-based terminology** (refer image below).

➤ **Differs** from **black and brown carbon** which contribute to warming.

➤ **Significance:** It contributes to an increase in the ground water level, flood mitigation and heat island reduction.

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About Keoladeo National Park (Bharatpur, Rajasthan)

- **Keoladeo National Park** was declared a national park in **1982** and **UNESCO World Heritage Site** in **1985.**
- Houses over 370 species of birds and animals, it was placed on the **Montreux Record** in **1990** due to **water shortage** and **grazing issues.**

5.12.9. 'Tsunami Ready' Villages

Villages in Odisha Recognized by Intergovernmental Oceanographic Commission of UNESCO (UNESCO-IOC) as **'Tsunami Ready'.**

UNESCO-IOC as 'Tsunami Ready'

- **Recognition:** 24 coastal villages in Odisha were acknowledged as **'Tsunami Ready'** at the 2nd Global Tsunami Symposium in Indonesia, verified by the National Tsunami Ready Recognition Board (NTRB), which includes members **from INCOIS and NDMA.**

UNESCO-IOC Tsunami Ready Recognition Programme (TRRP)

- **Overview:** A voluntary, global, community-based initiative for enhancing tsunami risk prevention and mitigation.
- **Goals:** Aims to increase resilience via awareness and preparedness.
- **Methodology:** Uses 12 indicators for assessment, with recognition renewable every four years.

Steps taken by India

- **Indian Tsunami Early Warning Centre (ITEWC).**
- **NDMA Guidelines.**
- **Modeling and Mapping of Tsunami**

5.12.10. Guru Ghasidas-Tamor Pingla Notified as 56th Tiger Reserve

- **Notification:** TR is notified by State Governments under the Wildlife (Protection) Act, 1972 on advice of NTCA.
- **Other Chhattisgarh's Tiger Reserves:** Indravati, Udanti-Sitanadi, Achanakmar.
- **Size & Ranking:** It is **the third largest tiger reserve in India**, after **Nagarjunasagar-Srisailam (Andhra Pradesh) and Manas (Assam).**

Structure of a TR:

- **Core/Critical Area:** Maintained as inviolate while respecting the rights of Scheduled Tribes and forest dwellers under the Forest Rights Act, 2006.
- **Buffer/Peripheral Area:** Encourages human-wildlife coexistence with less stringent protection, acknowledging local rights through Gram Sabha.

Geography & Ecology:

- Located in **the Chota Nagpur and Baghelkhand plateaus.**

- Home to leopards, hyenas, jackals, wolves, sloth bears, among other fauna.
- Significant rivers include **Hasdeo Gopad and Baranga.**
- **Conservation Strategy:** Follows a landscape approach for conservation, connecting with Sanjay Dubri TR (Madhya Pradesh), Bandhavgarh TR (Madhya Pradesh), and Palamau TR (Jharkhand).

5.12.11. 7th EnviStats India 2024: environment Accounts

- **Released By:** Union Ministry of Statistics and Programme Implementation (MoSPI)
- **Framework:** System of Environmental-Economic Accounting (SEEA)
- **Four Focus areas:** Energy Accounts, Ocean Accounts, Soil Nutrient Index and Biodiversity.

Key Highlights: EnviStats India 2024

- **India** emerged as **world leader in energy transition.**
- **Protected Areas (2000–2023):**
  - 72% increase in number.
  - 16% increase in area.
- **Mangrove Coverage**: 8% increase (2013-2021)

Significance

- Sustainable resource management
- Balancing economic growth with environmental sustainability
- Alternative prosperity measurement
- Data-driven policymaking

System of Environmental-Economic Accounting (SEEA)

- International framework for environment-economic accounts
- Describes economy-environment interactions
- Two sides of SEEA:
  - **SEEA-Central Framework (SEEA-CF):** Measures environmental assets. E.g. Timber, Water, Fish etc
  - **SEEA-Ecosystem Accounting (SEEA-EA):** Measures ecosystem services. E.g. Forests, Rivers, Coral reef etc.

Environment Accounting in India

- **Implementing Agency**: National Statistical Office under MoSPI
- **Initiatives**:
  - Strategy for Environmental Economic Accounts (2022-26)
  - Participated in NCAVES (Natural Capital Accounting)
- India also participated in 'Natural Capital Accounting and Valuation of Ecosystem services (**NCAVES**)'.
  - NCAVES: launched by United Nations Statistics Division **(UNSD), UNEP and Secretariat of CBD in 2017.**

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- **First EnviStats** Release: 2018 (Partha Dasgupta Committee recommendations)

5.12.12. Global Framework on Chemicals (GFC) Fund

First project call launched for **safe and sustainable chemicals and waste management.**

About GFC Fund

- **Established** at **fifth International Conference on Chemicals Management (ICCM5)** in Bonn, Germany, 2023
- **Executive Board** includes **UN regional representatives** and **donors**
- **Complements** existing environmental financial mechanisms like **Global Environment Facility etc.**
- **Objectives**
  - **Support:** low and middle-income countries in chemicals and waste management
  - **Target medium-scale projects:** strengthening national chemical management capabilities
  - **Financial Support:**
    ◊ 300,000 to 800,000 USD per project
    ◊ Funding through voluntary contributions
    ◊ Duration up to three years

GFC (Bonn Declaration)

- Multi-sectoral agreement with 28 targets
- **Aims to:**
  - Prevent illegal trade
  - Eliminate hazardous pesticides in agriculture by 2035
- Focus on protecting environment and human health

Other Global Initiatives

- **Strategic Approach to International Chemicals Management (SAICM)**
- **Basel Convention:** To regulate transboundary movement and disposal of hazardous wastes.
- **Stockholm Convention:** To protect human health and environment from effects of persistent organic pollutants.

5.12.13. Adaptation Gap Report 2024

The **United Nations Environment Programme (UNEP)** released the Adaptation Gap Report 2024, which assesses the progress in **adaptation planning, implementation, and finance.**

Key Findings of Report:

- **Adaptation Gap:** The gap between implemented adaptation and societal goals is estimated at US$187-359 billion per year.
- **Adaptation Progress:** In 2022, international public adaptation finance flows to developing countries

increased to US$27.5 billion, showing progress towards the Glasgow Climate Pact's goal of doubling adaptation finance from US$19 billion (2019 levels) by 2025.

- **Significance of Adaptation:** Ambitious adaptation measures could halve global climate risk.

Key initiatives for adaptation:

- **Global:** Paris agreement, UAE framework for Global climate Resilience, adaptation fund
- **India:** NAPCC, NAFCC

5.12.14. Global Carbon Budget Report

The **Global Carbon Budget report, published by the Global Carbon Project** during the UNFCCC's COP29 summit, provides critical insights into global CO_2 emissions and their impacts:

- **Emissions Outlook**: A 50% chance of exceeding 1.5°C warming in six years, possibly this year.
- **Fossil Emissions:** CO_2 emissions Set to hit 37.4 billion tonnes, with China (31%), USA (13%), India (8%), and EU (7%) contributing 59% of global emissions
- **Land-Use:** Deforestation emissions down 20% in 10 years; reforestation offsets half of these emissions.
- **CO_2 Absorption**: Land and ocean sinks absorb about half of global CO_2 emissions.

About Global Carbon Project:

- **Established in 2001,** it is a global research project of future earth. Aim is to track the trends of Global emissions and sinks.
- Publications include global budgets for CO_2, methane and nitrous oxide.

5.12.15. Protected Planet Report 2024

UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) and **IUCN** released **Protected Planet Report 2024.**

About Protected Planet Report 2024:

This report is the first to evaluate the global status of Protected and Conserved Areas (PCAs) in relation to Target 3 of the Kunming-Montreal Global Biodiversity Framework (GBF).

- **Target 3:** Aims to expand the global network of PCAs to cover 30% of the planet by 2030, ensuring it is equitable and respects the rights of Indigenous Peoples and Local Communities (IPLC).

Key Findings:

- **Coverage:** PCAs currently cover 17.6% of terrestrial and inland waters and 8.4% of marine and coastal areas globally.
- **Biodiversity Areas:** More than two-thirds of Key Biodiversity Areas are covered by PCAs, yet 32% remain unprotected.

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- **Connectivity:** Only 8.5% of land is both protected and connected.
- **Management Effectiveness:** Data on how well these areas are managed is limited, with only 4% of protected areas governed by Indigenous Peoples and Local Communities.

Initiatives promoting protected and conserved areas

- Five types of protected areas under WPA, 1972
- Biodiversity Beyond National Jurisdiction Agreement
- Climate Adaptation and Protected Areas initiative

5.12.16. World Energy Employment Report, 2024 by IEA

Report highlights:

- Global energy sector employment in **2023 surpassed general labor market trends.**
- Clean energy sectors are the main drivers of job growth within the energy industry.

India-Specific Findings:

- In 2023, India's energy sector employment **represents 1.5% of the country's total workforce.**
- The sector heavily depends on **informal labor.**
- With supportive government policies, **India's clean energy workforce is expected to expand further.**

5.12.17. Biennal Living Planet Report Released By World Wildlife Fund (WWF)

Key Findings

- Wildlife population dropped 73% (1970-2020)
- Heaviest declines in freshwater populations
- **Causes:** Habitat loss, climate change, invasive species

India-Specific Insights

- Global adoption of India's consumption patterns would require less than one Earth by 2050
- Praised for:
  - **Andhra Pradesh Community-Managed Natural Farming**
  - **Millet mission**

5.12.18. '2024 Forest Declaration Assessment: Forests under fire' Report Released

Key Facts

- **Report focuses** on tracking the overarching forest goals.
- **By International Commitments:**
  - New York Declaration on Forests (2014)
  - Glasgow Leaders' Declaration (2021)

- Kunming-Montreal Global Biodiversity Framework (2022)

Global Forest Goals and Progress

- **Eliminate deforestation by 2030:**
  - Deforested 6.37 million hectares (Target: 4.38 million)
  - 3.8 billion metric tons CO2 equivalent
    - ◊ Making deforestation **fourth-highest emitter** after **China, US and India.**
- **Eliminate tree cover loss in forested Key Biodiversity Areas (KBAs):** 1.4 million hectares forest loss in Key Biodiversity Areas.
- **Controlling Forest Fire:** One-third of fire area since 2001 burned in 2019-23.
- **Restore 30% of degraded and deforested landscapes by 2030:** Only 18% of Bonn Challenge's 2020 restoration target of 150 million hectares met.

Deforestation Drivers

- **Commodity Production**: 57% of global deforestation
- **Shifting Agriculture**: 15.9 million hectares of primary forest loss from 2015-23.
- **Mining**: Tropical forest ecosystem mining doubled (2000-19)

Recommendations

- **Forest Protection Hierarchy:** Preserve primary and intact ecosystems as highest conservation priority.
- **Ecosystem Restoration:** Large scale efforts to restore 30% of degraded ecosystems.
- **Fire Management:** Acknowledge human-induced fire pattern changes; Implement proactive mitigation techniques etc.
- **High-Value Conservation Areas:** Focus on Key Biodiversity Areas (KBAs); Integrate conservation efforts at global and national levels etc.

5.12.19. International Rhino Foundation (IRF) released State of the Rhino 2024 Report

IRF, is dedicated to **survival of world's rhino species.**

Key findings of report

- **Total rhinos worldwide**: Under 28,000
- **Five rhino species**: 2 African (White Rhino, Black Rhino) and 3 Asian (Indian rhino, Sumatran Rhino, and Javan Rhino).
- **Rhino poaching in Africa**: 4% increase (2022-2023)
- **White rhino populations**: Increasing in South Africa
- **Greater one-horned rhino**: Population remained stable
- **Rhino conservation initiatives:** National Rhino Conservation Strategy 2019 to conserve Indian rhino; New Delhi Declaration on Asian Rhinos 2019; Indian Rhino Vision 2020 etc.

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Difference between African Rhino and Asian Rhino

RHINO SPECIES COMPARISON

AFRICAN RHINOS

SOUTHERN WHITE RHINO
Second-largest land mammal
Less armored, more aggressive 2 horns, poor swimmers.
Conservation Status: Near Threatened

BLACK RHINO
Feeds on shrubs and branches
2 horns, more solitary
Conservation Status: Critically Endangered

Habitat Grasslands, savannas, shrublands, deserts

ASIAN RHINOS

INDIAN RHINO
Largest of all Asian rhino species
Armored look, 1 horn
Good swimmers, less aggressive
Conservation Status: Vulnerable

SUMATRAN RHINO
Smallest and hairiest rhino species
2 horns, good swimmers
Fights with bottom teeth
Conservation Status. Critically Endangered

JAVAN RHINO
Most endangered of all rhino species
1 horn, good swimmers
Armored look, feeds on diverse plants
Conservation Status Critically Endangered

Habitat: Tropical grasslands, savannahs, moist forest

5.12.20. World Energy Outlook 2024 by international Energy Agency

Key Observations

- **Geopolitical tensions** pose major risks to energy security
  - **Strait of Hormuz critical**: 20% of global oil and LNG supplies pass through
- **Clean energy surging:** 560 gigawatts of new renewable capacity in 2023
- **Low-emission sources** to generate over half global electricity before 2030

5.12.21. IUCN Report on Agriculture and Conservation

Impact of Agriculture on Biodiversity

- **Negative Impacts:**
  - 34% of species on IUCN Red List directly threatened
  - Direct threats include habitat conversion, land use changes
  - Indirect impacts via invasive species, agrochemicals, soil erosion
- **Positive Impact:**
  - 17% of Red List species have documented agriculture-related habitats

Impact of Biodiversity on Agriculture

- **Positive Impact:** Ecosystem Support Services via
  - **Provisioning services**: Biomass and genetic material production
  - **Regulating services:** Climate regulation, Nutrient cycling etc.
- **Negative Impact:** Ecosystem disservices such as crop predation, pests and pathogens.

Recommendations for Aligning Agriculture with Conservation

- **Agriculture Sustainability:** Protect critical species and habitats; Preserve ecosystem's natural balance, etc.
- **Ecosystem Services Preservation:** Support agricultural productivity through ecological integrity.
- **Policy Alignment:** Integrate conservation into agricultural and economic policies.
- **Food System Transformation:** Reduce food wastage, Promote reduced meat consumption etc.

5.12.22. Air Quality and Climate Bulletin

World Meteorological Organization's (WMO) Air Quality Bulletin is an annual UN report that assesses air quality conditions.

Key findings

- **PM2.5 concentrations** decreasing in Europe and China, increasing in North America and India
- **Global PM hotspots**: Central Africa, Pakistan, India, China and South-East Asia
- PM reduces crop yields by **15% by blocking sunlight.**
- New technologies like **Aerobiology enable real-time bioaerosol monitoring.**

About Aerobiology

- Studies **movement** and **impact** of **airborne biological** particles on health.
- **Bioaerosols** include bacteria, fungal spores, pollen, viruses.
- Reflects **changes** in biodiversity and plant patterns.
- Uses new techniques like **holography, fluorescence spectrometry, and DNA sequencing.**

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Components of the new bio aerosol observation paradigm

Bioaerosols	Cutting-edge technologies	ICT infrastructure	End-user information
Spores Pollen Bacteria	Automatic in situ monitors	Machine learning	Real-time data and forecasts
	EDNA	3rd Generation sequencing	End users
	Lidars	Big Data	
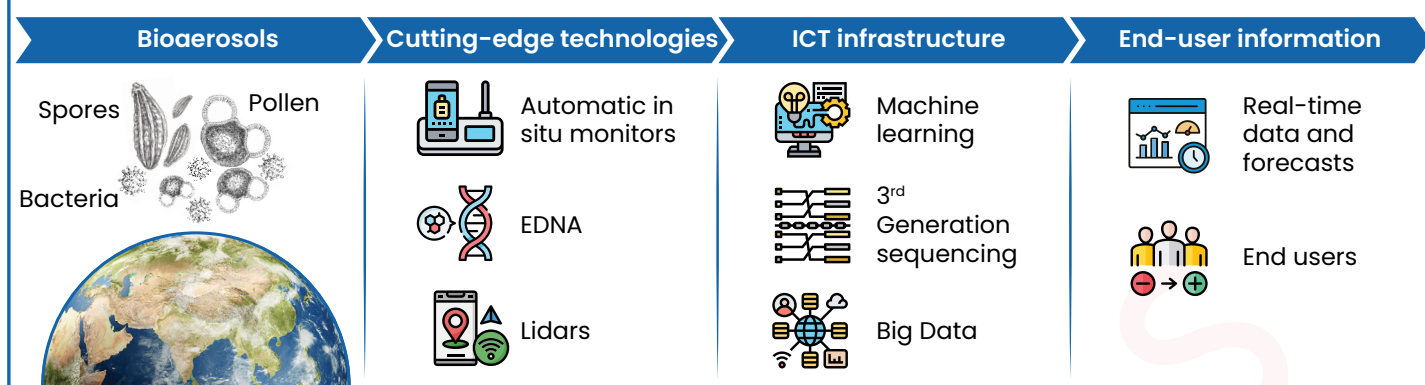
5.12.23. UN Environment Programme Releases Emissions Gap Report 2024

The report provides insights into global emission trends, future projections, and the necessary actions for the next **Nationally Determined Contributions (NDCs)** to meet the Paris Agreement's long-term temperature goals.

Key Observations:

- **Emission Levels:** Global greenhouse gas (GHG) emissions reached a new peak of 57 gigatons (Gt) of CO_2 equivalent in 2023, marking a 1.3% increase from 2022.
- **Top Emitters:** India is the third-largest emitter, behind China and the U.S
  - The six largest emitters account for 63% of global emissions, while least developed countries contribute only 3%.
- **Historical Emissions:** India's historical CO_2 emissions from 1850 to 2022 are significantly lower than those of China and the U.S.
- **NDC Shortfalls:** There's a need for more stringent policies to meet 2030 NDC targets across nations.

Recommendations for Limiting Global Warming to 1.5°C

- **Emission Reductions:** Nations must commit to reducing GHG emissions by 42% by 2030 and 57% by 2035 through updated NDCs.
- **Comprehensive NDCs:** New NDCs should cover all gases listed in the Kyoto Protocol, all sectors, and include specific, measurable targets.
- **Renewable Energy:** A significant increase in solar photovoltaic and wind energy could contribute 38% of the potential for emission reductions by 2035.

5.12.24. Integrated Development of Wildlife Habitats

Recently, Union Cabinet approved continuation of **Centrally Sponsored Scheme** of **Integrated Development of Wildlife Habitats** (IDWH).

About IDWH

- • **Nature**: **Centrally sponsored scheme** for wildlife habitat development by the **Ministry of Environment.**
- • **Components of IDWH:**
  - Support to protected areas.
  - Protection of wildlife outside protected areas.
  - Recovery programs for 22 critically endangered species.
- • **Sub-schemes Under IDWH**:
  - **Project Tiger (1973):** 55 Tiger Reserves in 18 states; supports **Project Cheetah.**
  - **Development of Wildlife Habitats**: Includes Project Dolphin and Project Lion.
  - **Project Elephant (1992):** Protects elephants and mitigates human-elephant conflict in 22 states/UTs.

Note: Project Tiger and Project Elephant schemes have been merged w.e.f. **FY 2023-24** and now known as **Project Tiger & Elephant**.

5.12.25. Tardigrades

A study of the first **tardigrade** fossil has led to retrace their evolutionary history.

About Tardigrades (Water Bears or Moss Piglets)

- Tiny **eight-legged aquatic animals** found in various habitats.
- **Comprise two main classes**: Heterotardigrada and Eutardigrada.
- Can survive **extreme conditions** including **heat, cold, radiation,** and **space** due to **cryptobiosis,** where they nearly stop their metabolism, reviving when conditions improve.

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5.12.26. Phrynarachne Decipiens

Phrynarachne decipiens has been **recorded for the first time in the country** from Assam.

About Phrynarachne decipiens

- Also called, **Bird dropping crab spiders** from the genus **Phrynarachne** mimic **bird droppings** in **appearance** and **odor** to **attract prey** and **avoid predators.**
- Commonly found in **Malaysia, Java, and Sumatra.**

5.12.27. Water Spinach

Indian Institute of Vegetable Research (IIVR) has developed the technology related to **water spinach.**

About Water spinach

- Native to **tropics** and **subtropics**, this **Semi-aquatic perennial plant,** was first domesticated in Southeast Asia.
- **Benefits**
  - Rich in **folic acid (vitamin B9)**; Contains **beta carotene, calcium, vitamin E and C.**
  - Helps prevent **neural tube defects in unborn children.**
  - Beneficial for people with **anemia**
  - Great **potential as a purifier of aquatic habitats.**

5.12.28. Exercise AIKYA

National Disaster Management Authority and Southern Command of the **Indian Army** are set to host the Exercise AIKYA in Chennai (Tamil Nadu).

- **Primary objective** is to **improve disaster preparedness and foster strong collaboration** among key stakeholders.
- It will incorporate **simulations, technology discussions, and expert insights** into various disaster management roles.
- Since 1900, India has suffered an economic loss of **$150 billion** with largest loss from floods and storms **(SBI Ecowrap 2023).**

5.12.29. Atacama Salt Flat

A study by Researchers at the University of Chile found that **Chile's Atacama salt flat** is sinking due to **lithium brine extraction.**

About Atacama Salt Flat

- **Largest** salt deposit **in Chile.**
- **Located** in **Chile's Atacama Desert (world's driest place).**
- **Rough white surface** with **large Salt Lake** underneath with **lithium reserves.**
- **Northern basin** includes **San Pedro River delta.**

5.12.30. State of Global Water Resources Report by WMO

Key Findings

- **Hottest Year:** 2023
- **Soil Moisture:** Predominantly below normal globally
- **Rivers:** Driest year in 33 years in 2023
- **Specific Impacts:**
  - **Lake Coari (Amazon):** Extremely low water levels
  - **Glaciers:** Largest mass loss in five decades

5.12.31 Volcanic Eruption & Ionospheric Disturbances

Indian Institute of Geomagnetism reveals **volcanic impacts on space weather.**

Key Scientific Findings

- **Ionospheric Disturbance:** Volcanic eruptions generate **atmospheric gravity waves**
  - Trigger **Equatorial Plasma Bubbles (EPBs)** which are **depletions in ionospheric plasma density.**
- **Potentially disrupt satellite communication systems**

Volcanism Overview

- **Definition:** Opening in Earth's crust releasing lava, ash, gases
- **Recent Eruptions:**
  - Mount Ruang (Indonesia, 2024)
  - Whakaari/White Island (New Zealand, 2024)
- **Positive Impacts:**
  - Temporary atmospheric cooling
  - Geothermal energy generation
  - Soil fertility improvement
  - Mining opportunities
  - Tourism potential
- **Negative Impacts:**
  - Climate system disruption
  - Potential tsunami generation **(E.g. Tonga eruptions (2022))**
  - Damage to lives, property, landscapes

5.12.32. 5th National Water Awards (NWA) presented by President

Key Facts

- **Nodal Ministry:** Ministry of Jal Shakti.
- **Aim:** Water awareness and best practice motivation
- **Categories:** 9
- **2024 Winners:**
  - **Best State:** Odisha
  - **Best Urban Local Body:** Surat, Gujarat

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5.12.33. CCPA Notifies Guidelines For Preventing Greenwashing

They are furtherance to the **Guidelines for Prevention of Misleading Advertisement, 2022.**

Key Provisions of Prevention and Regulation of Greenwashing and Misleading Environmental Claims,2024

- **Defines greenwashing:** Deceptive or Misleading environmental claims involving:
  - Concealing relevant information
  - Exaggerating environmental impacts
  - Making unsubstantiated claims
- **Applicability:** All environmental claims, a manufacturer, service provider, product seller, advertiser etc.
- **Substantiation of Environmental claim:**
  - Use consumer friendly language
    - ◊ Explain meaning of technical terms like Environmental Impact Assessment (EIA).
  - Provide verifiable evidence
  - Independent studies and third-party certification.
- **Adequate Disclosures:**
  - For easy accessibility.
  - Avoid selectively presenting data.
- **Aspirational Claims:**
  - Permitted only with clear, actionable plans

5.12.34. European Union Deforestation Regulation (EUDR)

European Commission has proposed to **extend the implementation of the EUDR, by one year.**

About EUDR

- **Aim:** Ensure key **goods placed on the** EU market will **no longer contribute to the deforestation** in the EU and elsewhere in the world.
- **Covered Products: Palm oil, soy, beef, cocoa, and timber.**
- **Compliance Requirements:**
  - Verify product origin
  - Ensure sustainable production
  - Barrier for non-compliant exporters

5.12.35. Ecomark Rules, 2024

Recently, Union Ministry of Environment, Forest and Climate Change notified **Ecomark Rules, 2024**.

Key Features

- **Promotes eco-friendly product categories**: food, cosmetics, soaps, electronics etc.
- Aligns with **LIFE (Lifestyle for Environment) principle**
- Focuses on sustainability and resource efficiency

Rules notifies

- **Granting Criteria:** Must meet **Bureau of Indian Standards Act and/or Quality Control Orders.**
  - Evaluated for environmental impact and resource consumption
- **Application Process:** Through **Central Pollution Control Board**
- **Validity:** Three years
- **Oversight:** Steering Committee led by Environment Secretary

Significance

- Enables **informed consumer choices**
- Encourages manufacturers to **develop eco-friendly products**
- Promotes **circular economy**
- Prevents **misleading environmental** claims
- Supports **lower energy consumption** and resource conservation

Other Environmental Certification

- Indian Forest & Wood Certification Scheme
  - **Voluntary third-party certification** for sustainable forest management
  - Includes **forest management** and chain of custody certifications
  - **Provides market incentives** for responsible practices

5.12.36. Biodiversity Credits

- **Definition**: Economic instrument that **allows private companies to finance** activities for environmental conservation.
- **Purpose:** Net-positive impact on nature and biodiversity
- **Operational Mechanism**
  - **Credit Generation:**
    - ◊ Stakeholders conserve/restore land
    - ◊ Create "certificates"
  - **Credit Utilization:**
    - ◊ Private companies purchase credits
    - ◊ Meet biodiversity commitments

5.12.37. Coordination Committee for Air Quality Management in IGP region

Union Government establishes panel for air quality management in Indo-Gangetic Plain.

- **Ten-member panel:** covering Bihar, Chandigarh, Delhi, Haryana, Jharkhand, Punjab, Uttar Pradesh, West Bengal
- **Addresses:** high baseline air pollution through regional airshed management
- **Develops and monitors:** IGP Regional Airshed

Management Plan

5.12.38. India joins International Energy Efficiency Hub (IEEH)

Bureau of Energy Efficiency (BEE) designated as implementing agency

About IEEH

- **Established in 2020** as successor to **International Partnership for Energy Efficiency (IPEEC) (India was a member)**
- **Global platform** fostering international collaboration on energy efficiency

5.12.39. Kaimur Wildlife Sanctuary (KWS)

National Tiger Conservation Authority's (NTCA) approved KWS as **Bihar's second tiger reserve** after **Valmiki Tiger Reserve**.

- **NTCA:** statutory body under **Wildlife (Protection) Act of 1972.**

About KWS

- **Location:** Kaimur Hills plateau between the **Son** River (south) and Karmanasa River (west).
  - Spread over Central highlands (include Satpura-Maikal hills and Vindhya-Bagelkhand hills)
  - Linked to: **Bandhavgarh-Sanjay-Guru Ghasidas-Palamau tiger landscape.**
- **Fauna:** Leopards, wild boars, sloth bears
- **Forest Type:** Northern Tropical Mixed Dry Deciduous

5.12.40. Indian Wild Ass

10th Wild Ass Population Survey conducted by Gujarat Forest Department reveals significant growth.

Indian Wild Ass (Equus hemionus khur)

- **Population Increase:** 26.14% (6,082 to 7,672 in 2024)
- **About:** One of the **five subspecies** of the **Asiatic wild ass**, referred to as 'Ghudkhur'.
- **Habitat:** presently only restricted to **Little Rann of Kutch, Gujarat**
- **Characteristics:** Solitary, Shy; Horns found only in adult males.
- **Conservation Status:**
  - Near Threatened (IUCN)
  - Schedule I (Wildlife Protection Act)
  - Appendix I (CITES)

5.12.41. Greening of Antarctica

Plant cover across Antarctic Peninsula increasing due to climate crisis.

- **About Greening of Antarctica:**
  - **Vegetation growth of moss:** on ice-dominant continent during extreme heat waves
  - **Warming:** significantly faster than global average, accelerating 2016-2021
  - **Vegetation:** expanded tenfold between 1986 and 2021
- **Impact**
  - **Invasive species:** Potential introduction threatening local wildlife.
  - **Climate effect:** Reduced sunlight reflection (albedo), intensifying climate change.

5.12.42. Coral Triangle

Report **'Coral Triangle at Risk: Fossil Fuel Threats and Impact'** Released at COP16 to CBD.

About the Report:

- Released by **Earth Insight and SkyTruth**, it addresses fossil fuel threats to the Coral Triangle, spanning **seven Southeast Asian and Melanesian countries**, known for its exceptional marine biodiversity.

Significance of Coral Triangle:

- Home to **76% of the world's coral species, over 2,000 fish species, and six of seven marine turtle species**, supporting 120 million people, hence dubbed **"the Amazon of the seas."**
- **Threats: Oil and Gas Exploration and noise pollution**.

Coral Triangle

5.12.43. Lake Kariba

A **severe drought has reduced Lake Kariba** to near-record low levels, leading to power shortages in the region.

About Lake Kariba:

- **Largest artificial lake** and reservoir by volume globally.
- Situated in **Central Africa within the Zambezi** River basin, between Zambia and Zimbabwe.
- Construction began in the **1950s under British rule in Northern and Southern Rhodesia.**
- The Kariba Dam supplies **electricity to Zambia and Zimbabwe** and boosts a significant commercial fishing industry in Africa.

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5.12.44. Lipulekh Pass

First batch of pilgrims viewed **Mount Kailash** (abode of Lord Shiva) from **Old Lipulekh pass.**

- Previously, pilgrims had to travel to Tibet Autonomous Region (TAR).

About Lipulekh Pass

- **Location:** Above Kalapani valley, Tri-junction of India, Nepal, and TAR (China).
  - Situated in **Vyas valley, Pithoragarh district, Uttarakhand**
  - Inhabited by: **Bhutiya people**
- **Significance:** Ancient trade and pilgrimage route.
  - **Closure:** Sealed in 1962 due to Chinese incursion concerns
  - **Reopened:** 2020
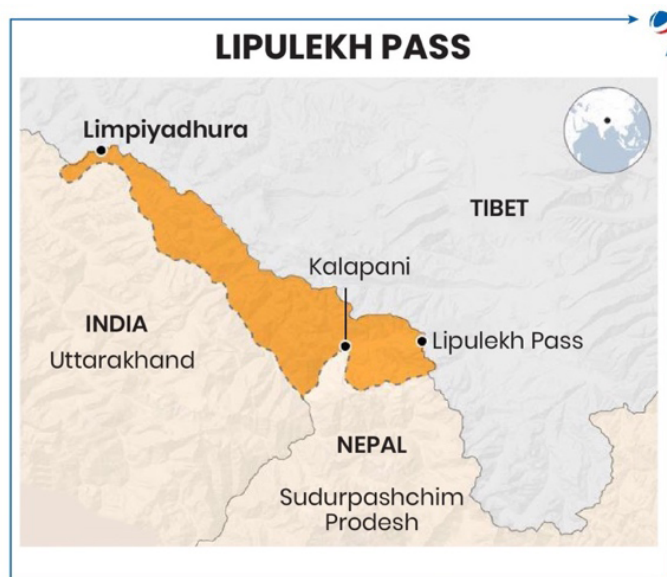
LIPULEKH PASS

5.13. TEST YOUR LEARNING

MCQ

1. **What does the term greenwashing refer to as per the 2024 guidelines issued by the CCPA?**

(a) Any initiative to promote green and eco-friendly practices

(b) Any misleading practice involving false or exaggerated environmental claims

(c) The process of recycling industrial waste to reduce pollution

(d) The use of green technology to enhance product efficiency

2. **Which of the following statements about biodiversity credits is/are correct?**

   1. Biodiversity credits are used solely to compensate for the negative impacts of companies on biodiversity.

   2. They aim to achieve a net-positive impact on biodiversity.

   3. Companies purchase biodiversity credits to fulfill biodiversity-related or nature-based commitments.

Which one of the following is correct in respect of the above statements?

(a) 1 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2, and 3

3. **Consider the following statements regarding COP 29**

   1. India is party to the Reducing Methane from Organic waste Declaration launched at the COP29 Platform.

   2. It was launched by Climate and Clean Air coalition.

   3. It sets sectoral Targets to reduce methane emissions from organic waste.

Which of the given statements are correct?

(a) Only one

(b) Only two

(c) Only three

(d) None

4. **Consider the following statements regarding Forest Ecosystem Restoration Initiative (FERI)**

   1. It was Launched in 2014 by The Korea Forest Service in collaboration with the CBD's Executive Secretary.

   2. it Aims to support developing countries in implementing the Kunming-Montreal Global Biodiversity Framework (KMGBF), which includes 23 targets for halting and reversing biodiversity loss by 2030.

Which of the above statements is/are correct?

(a) Only A

(b) Only B

(c) Both

(d) None

Initiative	Objective
1. Basel Convention	A. Protect human health and environment from persistent organic pollutants.
2. Stockholm Convention	B. Regulate transboundary movement and disposal of hazardous wastes.
3. Strategic Approach to International Chemicals Management (SAICM)	C. Promote chemical safety through a multi-stakeholder approach.

5. **Match the following global initiatives with their objectives:**

Which one of the following is correct in respect of the above statements?

(a) 1-B, 2-A, 3-C

(b) 1-C, 2-B, 3-A

(c) 1-A, 2-B, 3-C

(d) 1-B, 2-C, 3-A

Questions

1. The 'Greening of Antarctica' is an unintended consequence of climate change. Critically evaluate the challenges it poses to the fragile Antarctic ecosystem and global climate systems. (10 marks/ 150 words)

2. The outcomes of COP29 demonstrate the persistent gap between climate ambition and implementation, particularly in climate finance and carbon markets." Critically analyze this statement while suggesting ways to bridge these gaps. (250words, 15 marks)

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News Today is **Daily Current Affairs bulletin** that simplifies newspaper reading and keeps you updated with daily events. It helps aspirants in:

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Developing an eye for identifying the kind of news that should be read in the newspapers.

Understanding the different technical terms, complex phenomenon appearing in news.

Key Features of News Today Document

- **Sources:** It covers multiple sources like the Hindu, Indian Express, PIB, News on Air, Economic Times, Hindustan Times, the Mint etc.

- **Segments:** It covers primary News of the day, Also in News and special focus on Personalities and Places in News in 4 pages.

- **Primary News of the Day:** It covers main news of the day in less than 180 words. The main focus of this news is to cover the recent development in detail.

- **Also in News and Places in News/Personality in News:** It covers in 80 words sections like important terms appearing in the news, Protected areas & Species in News etc.

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6.1. WOMEN-LED SELF-HELP GROUPS (SHGS): LAKHPATI DIDI

Why in the News?

PM felicitated **11 lakhs** new **'Lakhpati Didis'** in Maharashtra and released funds for SHGs.

More on the news

- Released ₹2,500 crore **Revolving Fund** for **48 lakh SHG members.**
- **Revolving Fund** helps **internal lending** and **builds institutional capacity**. It is a **Permanent fund** of SHG.
- Disbursed **₹5,000 crore** in bank loans benefiting **25.8 lakh SHG members.**

About Lakhpati Didi Initiative

- Part of **Deendayal Antyodaya Yojana – National Rural Livelihoods Mission DAY-NRLM** scheme to bring rural women into SHGs.
- Defines Lakhpati Didi as SHG member earning ₹1 lakh or more annually.
- Launched in 2023 targeting 3 crore Lakhpati Didis.
- Focuses on diverse livelihoods, district planning, and capacity building.

Steps taken to enable SHG members to become Lakhapti Didis

- Creating a **pool of master trainers** and **community resource persons**.
- Identification of **potential Lakhpati didis**.
- Livelihood planning of Didis.
- **Handholding** and **implementation.**
- **Monitoring Ajeevika** register and celebrating success.

Financial Support Available to Self Help Groups

Capitalization Support
- **Revolving Fund:** Rs. 20,000-30,000 per eligible SHG for internal lending
- **Community Investment Fund (CIF):** Up to Rs. 2.50 lakh per SHG

Bank Loan
- **Collateral-free loans**: Up to Rs. 20 lakhs for SHGs
- **Interest Subvention:** Covers difference between bank rate and 7% up to Rs. 3,00,000 per SHG
- **Overdraft Facility:** Limit of Rs. 5,000 for women members

Aajeevika Grameen Express Yojana (AGEY)
Subsidized loans for rural transport services:
- Rs. 6.5 lakhs for individuals
- Rs. 8.5 lakhs for groups

Vulnerability Reduction Fund (VRF)
Rs. 1,50,000 given to **Village Organizations** to address food insecurity, health risks,

Women Enterprise Acceleration Fund
For individuals:
- Credit guarantee up to Rs. 5 lakh (5 years)
- 2% interest subvention on loans up to Rs. 1.5 lakh (3 years)

For enterprise collectives/FPOS: Collateral support up to 50% of credit or Rs. 2 crores, whichever is less

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Criteria for identifying potential Lakhpati Didis

- A SHG member who has completed a minimum of two **years** and has **availed of the Community Investment Fund (CIF).**
- A beneficiary of livelihood intervention through the mission and **practising at least two livelihood activities**.

Other Key interventions under DAY-NRLM

- Institutions strengthening (FPO), capitalizations and bank linkage, farm livestock, non-farm livelihood like start up village entrepreneurship programme.

Significance of Women-led SHGs: Lakhpati Didi

- **Focus shifting** from financial inclusion to entrepreneurship and higher income.
- **Increased bargaining power of women** through financial decision-making and asset ownership.
- **Economic growth** through micro-enterprises and job creation, with NPAs at 1.6%.

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- **SHGs delivering government scheme** benefits and improving public service access.
- **Poverty alleviation as 65% of rural SHG members** showed upward income mobility (FY19-FY24).
- **Enhanced political participation** addressing social issues like dowry and healthcare.

Challenges faced by Women-led SHGs:

- **Socio-cultural barriers** including patriarchy and literacy limitations.
- **Digital divide** with limited technology access and skills.
- **Inadequate training** affecting product quality and marketing.
- **Geographic concentration** with 68.56% SHGs in south India.
- **Limited awareness** and elite capture issues.

6.2. SEXUAL HARASSMENT OF WOMEN AT WORKPLACE

Why in the News?

Justice Hema Committee report revealed exploitation and harassment in **Malayalam film industry.**

Sexual Harassment at Workplace

- **Definition**: Unwelcome sexual advances or conduct at workplace (**419 cases** reported in **2022, NCRB**).
- **Types:** Quid Pro Quo (sexual favors for benefits) and Hostile Work Environment (pervasive unwanted sexual behavior).
- **Reason for sexual harassment at workplace:** Power imbalance, Gender Inequality, Perceived Impunity, Lack of Accountability, lack of awareness.
- **Reason for** persistence **of sexual harassment at workplaces:** underreporting, non-formation of internal complaints committee, limited resources for women in informal sector, lack of awareness.

Impact of Sexual Harassment at Workplace

- **On Individuals:** Career disruption, health impact, violation of fundamental rights of women.
- **On Workplace:** Declined productivity, toxic work culture.
- **On Society:** Perpetuation of gender inequality, lower women participation at workplaces.

Initiatives Undertaken

- **Vishaka Guidelines (1997):** Established by the Supreme Court of India in the **Vishaka vs. State of Rajasthan** case.
- **Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (POSH Act):** Legislation to prevent workplace sexual harassment of women and establish **redressal mechanisms** through **Internal Complaints Committee (ICC)** and **Local Complaints Committees**.
- **Sexual Harassment electronic -Box (She-Box):** Online platform launched in **2017** by **Ministry of Women & Child Development** for registering **workplace sexual harassment complaints.**
- **Convention on the Elimination of All Forms of Discrimination against Women:** International treaty recognizing protection against **sexual harassment** as a human right, **ratified by India in 1993.**

Way forward

- **Strengthening POSH Act Implementation** – Conduct random audits, enforce stricter penalties, and improve access to Local Complaints Committees for informal sector women.
- **Gender Equality in Workplace** – Increase gender diversity in senior roles to challenge patriarchal structures and reduce harassment.
- **Collaboration with Civil Society** – Support and educate women, especially in informal sectors like agriculture and domestic work.

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Hema Committee Recommendations:

WOMEN'S EMPOWERMENT & GENDER REPRESENTATION INITIATIVES

CHARACTERISATION OF WOMEN IN CINEMA	GENDER AWARENESS TRAINING PROGRAM	REDEFINING MASCULINITY AND FEMININITY	CREATION OF A WELFARE FUND
Depicting women as holders of powerful positions like Civil Servants, Ambassadors, leaders, and decision-makers in society.	Challenging the monopoly of power enjoyed by men; projecting women equal to men in all spheres of life.	Masculinity to be equated to justice, equality, and compassion instead of violence and aggression; Femininity to be divorced from passiveness and silent suffering.	For the support of women in job break due to childbearing, health or other family responsibilities.

6.3. CHILD MARRIAGE IN INDIA

Why in the News?

The Supreme Court, in response to a petition by the Society for Enlightenment and Voluntary Action, issued comprehensive guidelines to prohibit child marriage.

Status of Child Marriage in India (NFHS-5)

- **23.3%** of women (20–24 years) and **17.7%** of men (25–29 years) married before legal ages.
- Prevalence reduced from **47% (2006)** to **23.3% (2019-21)** but remains high in states like Bihar, Rajasthan, and West Bengal.
- NCRB reported an increase in cases under the Prohibition of Child Marriage Act, 2006 from **395 (2017)** to **1050 (2021)**.

Reasons for Prevalence of Child Marriages in India

- **Poverty and Resource Scarcity:** Early marriages reduce financial burdens, including dowries.
- **Cultural Beliefs:** Marriages preserve family honor and prevent premarital relationships.
- **Gender Inequality:** Girls are viewed as economic burdens; early marriage shifts responsibility.
- **Educational Neglect:** Lack of investment in girls' education limits aspirations and resistance.
- **Legal Gaps:** Weak enforcement and poor awareness contribute to ongoing cases.

Measures Taken by the Government

- **Prohibition of Child Marriage Act (PCMA), 2006:** Sets legal marriage ages and appoints Child Marriage Prohibition Officers (CMPOs).
- **Juvenile Justice Act, 2015:** Protects children at risk of early marriage.
- **Beti Bachao Beti Padhao Scheme:** Focuses on gender equality preventing child marriage.
- **National Action Plan to Prevent Child Marriage:** Strengthens data collection, awareness, and inter-governmental coordination.
- **CHILDLINE (1098):** A 24/7 service to report and address child marriage cases.

Way Forward

- **SC Guidelines**
  - Legal Enforcement at district level.
  - Empowering Magistrates to take Suo Moto Action.
  - Adoption of the Child Marriage Free Village Initiative.
  - Comprehensive Sexuality and Rights Education.

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6.4. CHILD SEXUAL EXPLOITATIVE AND ABUSE MATERIAL

Why in the News?

Supreme Court penalized possession of **Child Sexual Exploitation and Abuse Material (CSEAM)** under **POCSO Act, 2012.**

Judgement of Supreme Court

- **Overturned High Court Ruling:** Supreme Court reversed Madras HC's stance that mere possession of child pornographic material was not illegal.
- **Criminalized CSEAM Possession:** Physical and "constructive possession" now fall under **Section 15 of POCSO Act.**
- **Common Malevolent Intent:** Viewing CSEAM and child abuse share same exploitative intent.
- **Violation of Fundamental Rights:** CSEAM violates children's right to dignity.
- **Change in Terminology:** Courts must use "CSEAM" instead of "child pornography"; Parliament urged to amend POCSO Act accordingly.

Impact of CSEAM: Psychological Trauma, Victimization Cycle, Dehumanization, **Social Impact** including intense social stigmatization and isolation, **Economic Impact** such as academic underachievement.

Suggestions of the Supreme Court: Sex education, Constitution Of committee, support and rehabilitation, Early Identification of At-Risk Youth, Obligation of Government to take necessary measures, Compassionate Society.

Related News: Fast Track Special Courts (FTSCs)

According to a report by India Child Protection, **FTSCs are much more efficient than other courts in handling rape cases and those related to POCSO Act.**

FTSC scheme (2019)

- Created for expeditious handling of rape and POCSO cases
- Centrally Sponsored Scheme under Ministry of Law and Justice
- Each court has 1 Judicial Officer and 7 Staff Members

Key highlights

- FTSCs achieved 83% disposal rate in 2022 and 94% in 2023, compared to 10% across all courts
- 755 FTSCs (including 410 POCSO courts) operational out of 1023 earmarked
- Need 1,000 more FTSCs to clear pending cases
- 24% of Nirbhaya Fund remains unused, could fund FTSCs for 2 years

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CHILD PROTECTION LAWS IN INDIA

🖐 POCSO ACT 2012

Objective:
Comprehensive legislation protecting children's rights against sexual abuse, with child-friendly judicial procedures.

Offences:
Three main categories: Sexual Assault, Sexual Harassment, and child pornography, applying to anyone under 18 (child).

2019 Amendment:
Introduced death penalty for sexual crimes against children.

Special Court:
Can provide interim compensation for child rehabilitation.

👮 OTHER MEASURES TO PROTECT CHILDREN

IT Act:
2008 amendments address child-related offenses; 2021 Guidelines mandate social media platforms to block CSEAM

Juvenile Justice Act 2015:
Defines and protects children from sexual exploitation.

Bharatiya Nyaya Sanhita:
Chapter V covers offences against women and children.

National Action Plan for Children 2016:
Focuses on preventing crimes against children.

🌐 UN Convention on Rights of Child, 1990:
India's accession strengthens protection against online/offline offences.

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6.5. DHARTI AABA JANJATIYA GRAM UTKARSH ABHIYAN

Why in the News?

The Prime Minister launched the Dharti Aaba Janjatiya Gram Utkarsh Abhiyan, also known as **Pradhan Mantri Janjatiya Unnat Gram Abhiyan (PM-JUGA)**, for improving socio-economic conditions of tribal communities.

Socio-Economic Conditions of Tribals in India	
Demographic Profile	**Human Capital Profile**
Population: 10.45 crore **(8.6%)** as of **2011 census** including **75 Particularly Vulnerable Tribal Groups (PVTGs).** **Socio-Economic Status:** Over **2/3rd work** in **primary sector**, over **40.6% ST** below poverty line. **Access to amenities: 90% live in rural**, hilly, and forested areas, **44% of rural households** lack tap water connection. **Demographic Indicators:** **Total Fertility Rate: 2.5** (near replacement level **of 2.1**). **Sex Ratio: 990** per **1000** males. Better than **all India average of 933.** **Child Sex Ratio:** Declined from **972** (2001) to **957** (2011).	**Education:** **Literacy rate**: 72.1%. **Primary education**: 35%. **Higher education**: Less than 2%. **Gross Enrolment Ratio (GER):** Upper Primary: **91.3** (2013-14) to **98 (**2021-22). **Higher education: 13.7** (2014-15) to **18.9** (2020-21). **Health:** **Life Expectancy: 63.9 years** (vs. 67 years for general population) **Underweight children**: 54.5% (2005-06) to 45.3% (2015-16) **Institutional Delivery:** 17.7% to 82.3% **Infant Mortality Rate**: 62.1 to 41.6 **Disease Burden:** **Triple health challenges**: Malnutrition, communicable/non-communicable diseases, mental illnesses **Malnutrition reduction**: Stunting (43.8% to 40.9%), Wasting (27.4% to 23.2%) **TB prevalence**: 703 cases per 100,000 (vs. 256 in non-tribal population) **Genetic Disorders**: Sickle Cell Disease (1 in 86 births) **Infrastructure:** **Healthcare shortfall:** 6,796 Sub Centres, 1,267 Primary Health Centres, 309 Community Health Centres.

Key Features of the Scheme

- **Objective:** It aims to **bridge critical gaps** in social infrastructure, ensuring **holistic** and **sustainable tribal development,** based on the lessons from **PMJANMAN (**Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan).
- **Funding and Coverage:** Total outlay: **Rs. 79,156 crore**, **Central Share:** Rs. 56,333 crore, **State Share:** Rs. 22,823 crores
  - **Covers 63,000 villages**, Benefits **over 5 crore tribal people**, Spans **549 districts** and **2,740 blocks across 30 States/ UTs.**
- **Mission Components: 25 interventions** by **17-line ministries**, Funds allocated under **Development Action Plan for Scheduled Tribes**, Encompasses **200+ schemes** in literacy, health, skill development, education, livelihood, agriculture.
- **Monitoring:** Tribal villages mapped and monitored on **PM Gati Shakti Portal**.
- **Goals under the Mission:**
  - **Goal-1: Developing Enabling Infrastructure –** Improved housing, entitlements, and village infrastructure.
  - **Goal-2: Economic Empowerment –** Skill development, entrepreneurship, livelihood support, training, marketing, and FRA Patta-based agriculture, animal husbandry, and fisheries.
  - **Goal-3: Universal Education Access –** Increase GER, ensure affordable and quality education.
  - **Goal-4: Health and Dignified Ageing –** Better healthcare, improved IMR/MMR, immunization coverage via Mobile Medical Units.

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Other Initiatives for Socio-Economic Development of Tribals

Socio-Economic Development of Tribals

Forest Rights
Recognition and protection of forest rights for tribal and traditional communities.

Education
Provision of quality education through specialized residential schools.

Economic Empowerment
Initiatives to ensure fair pricing and financial support for tribal economies.

Infrastructure
Development of basic amenities and infrastructure in tribal areas.

Health
Comprehensive health care programs aimed at improving tribal health outcomes.

Innovative Schemes under PM-JUGA

- **Tribal Home Stay:** To tap the tourist potential of tribal areas.
- **Sustainable Livelihood Forest Right Holders (FRA):** To expedite the process of recognizing and securing forest rights.
- **Improving infrastructure** of Government residential Schools and Hostels.
- **Advance facilities for diagnosis of Sickle Cell Disease (SCD):** Centre of Competence (CoC) would be set up in AIIMS.
- **Tribal Multipurpose Marketing Centre (TMMC):** 100 TMMCs will be set up.

6.6. PERSONS WITH DISABILITY

Why in the News?

In **Rajive Raturi vs Union of India &Ors**, the Supreme Court directed the Centre to frame mandatory rules to ensure accessibility in public places and services.

Key highlights of the Judgment

- **Background**: Based on a report from NALSAR's Centre for Disability Studies, supporting the social model of disability for inclusion.
- **Legislative Gap**: Rule 15(1) was ruled ultra vires; a single enforceable accessibility framework is required.
- **Mandatory Accessibility Standards**: Section 40 mandates framing these standards within three months.
- **Principles of accessibility**: Includes universal design, comprehensive inclusion, assistive tech integration, and stakeholder consultation.
- **Two-pronged approach**: Accessibility in existing and future infrastructure.

> **Status:** As per Census 2011, 2.21% of India's population is disabled: 56% male, 44% female, 69% rural, and 21% elderly (60+ years)

Challenges faced by Persons with Disability

- **Attitudinal barriers**: Stereotyping, stigma, prejudice, discrimination.
- **Social barriers**: Reduced employment, education, and income levels.
- **Transportation barriers**: Inaccessible built environments and transport systems.
- **Physical barriers**: Structural obstacles in facilities.
- **Communication barriers**: For those with hearing, speaking, reading, writing disabilities.
- **Policy and programmatic barriers**: Inconvenient scheduling, lack of accessible equipment.

Initiatives taken for welfare of Persons with Disability

- **RPwD Act, 2016**: Implements UNCRPD, defines disability, prohibits discrimination.
  - Recognizes 21 disability categories, sets 'benchmark disability' at 40%.
- **Statutory Bodies:**
  - **Rehabilitation Council of India (RCI):** Regulates professional training.
  - **National Trust**: Promotes dignity, rights, and opportunities for specific disabilities.

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- **Central Public Sector Enterprises**:
  - **National Divyangjan Finance and Development Corporation**: Supports economic empowerment.
  - **ALIMCO**: Manufactures aids and appliances.
- **Accessible India Campaign**: Aims for a barrier-free environment in various sectors.
- **National Policy for Persons with Disabilities, 2006**: Measures for rights protection and inclusion.

Steps to be taken

- **Enable Access**: Ensure equal participation in mainstream policies and services.
- **Invest in Programs**: More support for rehabilitation, training.
- **Participatory Approach**: Involve PwDs in policy-making ('Nothing about us, without us').
- **Improve Human Resource Capacity**: Incorporate disability and rights in training.
- **Funding and Affordability**: Adequate funding for public services.
- **Awareness**: Confront negative perceptions, promote inclusivity in education.
- **Data Collection**: Better data for understanding barriers.

6.7. DIGITAL HEALTH

Why in the News?

Ayushman Bharat Digital Mission (ABDM) completes three years of enabling Digital Health.

About Ayushman Bharat Digital Mission (ABDM)

- Aims to connect digital health solutions across hospitals.
- Provides digital consultation and patient consent.
- Key principles include inclusivity, voluntary participation, and privacy.

Components of ABDM Architecture

- ABHA ID: Unique 14-digit health record number.
- Healthcare Professionals and Facility Registries.
- Health Information Exchange and Consent Manager.
- Unified Health Interface and National Health Claims Exchange.

About Digital Health

- WHO defines as technology-driven health improvement.
- Includes electronic health records, telemedicine, AI, and digital health technologies.

Significance of Digital Health

- Enables seamless medical record sharing.
- Helps manage chronic diseases.
- Creates comprehensive medical history repositories.
- Facilitates treatment for critically ill patients.

Concerns

- Privacy and security risks.
- Algorithmic bias.
- Unequal access to digital technologies.
- Lack of standardization in digital health systems.

Way Forward

- Ensure the Intelligent Health Solution is evaluated across a diverse user base.
- Improve digital skills among medical teachers and students.
- Code of ethics to be framed.

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6.8. MENTAL HEALTH AMONG ADOLESCENTS

Why in the News?

WHO and UNICEF released the 'Mental Health of Children and Young People - Service Guidance' report on World Mental Health Day (10th October).

Key Findings

- One-third of mental health conditions emerge before 14, and half before 18.
- Around 15% of adolescents aged 10-19 experience mental health conditions.
- Suicide is the fourth leading cause of death for 15–19-year-olds.

Determinants of Mental Health Conditions among Adolescents

- **Immediate Triggers:** Financial loss, grief, academic failure, or public humiliation, e.g., suicides in IITs and Kota coaching classes.
- **Social Media Influence:** Linked to poor sleep, depression
- **Social Isolation:** Dysfunctional family dynamics, hormonal changes
- **Biological Factors:** Genetic predispositions, gender differences (girls with less social support face higher risks)

Indian Initiatives for Adolescent Mental Health

- **Mental Health Care Act 2017:** Ensures rights and access to mental health care.
- **Tele-MANAS:** Offers 24/7 tele-counseling and mental health services.
- **MANODARPAN:** Provides psychosocial support to students and families.
- **SAATHI Program:** CBSE initiative for mental health awareness.

Global Initiatives for Adolescent Mental Health

- **Helping Adolescents Thrive (HAT) Initiative:** Joint WHO-UNICEF program to strengthen adolescent mental health program.
- **Mental Health Gap Action Program (mhGAP):** WHO's program to address mental disorders globally since 2008.
- **Global Coalition for Youth Mental Health:** UNICEF initiative to improve public investment in youth mental health (currently only 2.1% of health budgets globally).

Way Forward

- Integrating mental health into primary health care
- Designing Community Based Mental Health Services
- Digital interventions like WHO's Chatbot

6.9. WORK FROM HOME

CII and FMS, University of Delhi study titled **"Work-from-Home: Benefits and Costs; An Exploratory Study in the Indian Context" released.**

Key Findings:

- **Current Work Status:** 68% organizations continue WFH/remote working post-pandemic
  - About half adopted hybrid model with limited office attendance
  - Many companies now requiring partial office presence
- **Benefits and Challenges**
  - **Short-term Benefits:** Clear advantages for both employers and employees
  - **Long-term Concerns:** Issues with social connections, human capital, and team dynamics
  - **Collaboration Impact:** Less effective for teamwork and communication compared to office work

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Evolving nature of Work: Advent of WFH

- **Work Culture Evolution:** COVID-19 triggered widespread WFH adoption.
  - Technological advancement enabled remote work possibilities.
  - Rise of "work from anywhere" and digital nomad culture.
  - Growing infrastructure supporting remote work.
- **Global Corporate Trends:** Major companies like Starbucks, Google, and Amazon reversing WFH policies.
  - Implementation of return-to-office schedules.
  - Shift towards balanced hybrid approaches.

Solutions & Way Forward

- Modernize management practices and systems.
- Implement balanced hybrid work models.
- Develop clear organizational policies.
- Strengthen digital infrastructure **(Smart Villages, Bharatnet).**
- Focus on employee well-being and support systems.

Benefits connected to WFH

For Employees	For Employers
• Cost savings on commuting and housing near workplace • Enhanced productivity through flexible scheduling • Better work-life balance management	• Reduced operational costs (office rent, compensation) • Global talent access without geographic limits • Higher employee retention (33% fewer resignations in hybrid model)
Environmental & Social Impact	**Family Benefits**
• Lower carbon footprint through reduced commuting • Support for ESG goals • Promotes decentralized development • Helps mitigate urban migration issues	• Better work-life integration • More family time helps manage work stress • Promotes gender equality in household responsibility • Particularly beneficial for parents of young children

Women's Empowerment

- Easier management of dual responsibilities
- Increased labor force participation
- Potential to reduce motherhood pay gap
- Better career opportunities and job retention

Challenges arising from WFH

Employee Challenges	Employer Challenges
• Work-life boundary blur causing stress and reduced productivity • 33% reduction in daily physical activity noted • Workspace limitations at home • Always-on culture leading to burnout • Limited physical activity and leisure time	• Reduced team bonding and collaborative problem-solving • Difficulties in training and mentoring • Traditional supervision methods becoming ineffective • Data security and privacy concerns • Equity issues between remote and on-site workers
Family Impact	**Women-Specific Issues**
• Increased familial stress during extended indoor periods • Rise in domestic violence cases during pandemic • Challenges managing childcare/elderly care with work • Mental health impacts affecting family relationships	• Lower earnings and reduced company visibility • Double burden of work and domestic responsibilities • Gender-based stigma for choosing flexible work • Reinforcement of traditional gender roles

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6.10. ONE NATION ONE SUBSCRIPTION SCHEME

Why in the News?

Union Cabinet approved the **'One Nation, One Subscription' (ONOS) scheme**

About One Nation One Subscription Scheme

- **Objective**: National licenses for e-journals across STEM and social sciences.
- **Key Features**
  - **Digital Access**: Managed by INFLIBNET (UGC center)
  - **Monitored by:** Anusandhan National Research Foundation (ANRF)
  - **International Journals**: Access to 13,000 journals from 30 top publishers (e.g., Oxford, Elsevier).
  - **Budget:** ₹6,000 crore (2025-2027)
  - **Implementation Strategy**: Department of Higher Education (DHE) will launch a unified portal and IEC campaigns for ONOS awareness.

Need for ONOS:

- **Profits from Public Funds**: Academic publishing earns billions, yet is controlled by a few private entities.
- **Counter Predatory Publishing**: Addresses low-quality journals exploiting researchers.
- **Removing Access Barriers**: High subscription costs limit collaboration.
- **Favorable Agreements**: Indian institutions often face restrictive publishing terms.
- **Financial Burden**: ₹380 crore spent on Article Processing Charges (APCs) in 2021.

Significance of ONOS:

- **National Alignment**: Supports Viksitbharat@2047, NEP 2020, and ANRF.
- **Interdisciplinary Research**: Encourages core and interdisciplinary studies, benefiting all regions.
- **Collective Bargaining and Cost Efficiency**: Leverages 6,300+ institutions for better resource access.
- **Research Productivity**: Boosts India's scientific output, narrowing the gap with global leaders.

Issues with ONOS

- **Open Access Shift**: Over 50% of research is freely available, raising doubts about ONOS's relevance.
- **Subscription Limitations**: Focus on popular journals may neglect niche fields.
- **Commercial Publisher Dominance**: Risks supporting high-profit Western publishers.
- **Copyright Issues**: Authors lose control, as seen with Microsoft using journals for AI.
- **Digital Preservation Risks**: Relying on publishers is risky (e.g., Heterocycles journal discontinuation).
- **Other Issues**: Lack of support for Indian journals, transparency concerns, and internet issues in smaller cities.

Way Ahead

- **Negotiate Licenses**: Aim for significant cost reduction and APC waivers.
- **Agreement Clauses**: Develop fair license agreements protecting IP and pricing.
- **Innovative Services**: Build infrastructure for usage, access, and sustainability.
- **Promote Open Access (OA)**: Encourage OA, support OA journals, and fund APCs for young researchers.

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6.11. GLOBAL HUNGER INDEX

Why in the news?

Released by Concern Worldwide and Welt Hunger Hilfe.

Key findings of the GHI

Global Findings:

- Hunger affects 42 countries at alarming levels, making Zero Hunger by 2030 unattainable.
- World's GHI score is 18.3 (moderate severity).
- Strong link between gender inequality, climate change, and hunger.

India Related findings:

- Ranks 105th out of 127 countries, in "serious" category.
- GHI score: 27.3
- Persistent issues with child wasting and stunting.

GHI scores are based on following indicators-

- Undernourishment.
- Child stunting (low height relative to age).
- Child wasting (low weight for height).
- Child mortality before 5 years of age.

Key issues with GHI

- Methodological concerns: Three of four indicators focus on child health.
- Outdated data sets and small sample sizes.

Factors Behind Hunger Crisis

- Conflict: 70% of 309 million people facing acute hunger in unstable regions.
- Climate crisis destroying crops and livelihoods.
- Poor economic conditions limiting social protection.
- Displacement creating food insecurity. Eg Darfur Area in Sudan.

Factors behind Malnutrition in India

- Increased sale of ultra-processed food has increased due to urbanization.
- High prevalence of Anemia among girls and mothers.
- Low education levels among mothers.

Initiatives taken for Tackling Hunger in India

- PMGKAY: Free food grains for 80 crore poor.
- POSHAN Abhiyan: Improving nutrition for children and women.
- National Food Security Act.
- Eat right movement.
- Integrated Child Development Scheme.

Initiatives taken for Tackling Global Hunger

- UN SDG 2 (Zero Hunger).
- World Food Programme.
- Zero Hunger Challenge.
- International declarations and organizational efforts.

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6.12. NEWS IN SHORTS

6.12.1. UN Women released 'World Survey on the Role of Women in Development' Report

Theme: Harnessing social protection for gender equality, resilience and transformation

Need for Gender Responsive Social Protection (GRSP)

- Addresses gender-specific risks and vulnerabilities
- Focuses on women's limited access to resources and decision-making

Key Findings

- Two billion women and girls lack social protection
- Over 63% of women give birth without maternity benefits
- Gender risks worsened by conflict, climate change, and economic shocks

Key Recommendations

- Address gender gaps in existing social protection systems
- Improve coordination with employment policies
- Adapt policies for women during crises
- Implement rights-based social protection delivery

Initiatives taken by India:

- MGNREGA
- PM Matru Vandana Yojana
- PM Ujjwala Yojana

6.12.2. Protection of Children from Sexual Offences (POCSO) Act, 2012

SC Ruling on POCSO Cases and Compromise

Background:

- **Case: Ramji Lal Bairwa & Anr vs State of Rajasthan & Ors**
- **Context:** Review of Rajasthan HC's decision to quash sexual assault case
- **Legal Mechanism:** Special Leave Petition (**Article 136**)

Key Observations:

- **No Compromise Allowed Because:**
  - POCSO offenses are **not private matters**
  - Sexual assault has serious societal implications
  - **Cannot be settled** through party **compromise**

Legal Precedents Cited:

- **State of M.P. v. Laxmi Narayan (2019):** Offense against society can't be compromised
- **Sunil Raikwar v. State (Delhi HC):** POCSO offense not settleable

About The Protection of Children from Sexual Offences (POCSO) Act 2012

- **Core Features:**
  - Gender-neutral law protecting **children under 18**
  - **Focus:** Child safety and abuse prevention
  - **Year:** Enacted 2012, Amended 2019
- **Punishable Offenses:**
  - Sexual assault
  - Sexual harassment
  - Child pornography
- **2019 Amendment:**
  - Introduced death penalty
  - Enhanced punishment severity for sexual crimes against children

6.12.3. PM YASASVI

Ministry of Social Justice and Empowerment highlighted PM-YASASVI's impact.

About PM-YASASVI

- Umbrella scheme for educational support
- Targets Other Backward Classes, Economically Backward Classes, and Denotified Tribes
- Subsumed earlier Dr. Ambedkar Post-Matric Scholarship Scheme

Key Objective

- Provide quality education to socially and economically disadvantaged students

6.12.4. Union Cabinet Approved PM-Vidyalaxmi scheme

Key Features:

- **Type: Central Sector scheme**
- **Purpose:** Financial support for higher education
- **Alignment:** National Education Policy 2020
- **Loan Details:** Collateral-free, guarantor-free loans
  - 75% credit guarantee by Government for loans up to ₹7.5 lakhs
  - 3% interest subvention on loans up to ₹10 lakhs during moratorium

Coverage:

- 860 Quality Higher Education Institutions (QHEIs)
- Based on NIRF ranking

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- Benefits over 22 lakh students

Implementation:

- Unified digital portal "PM-Vidyalaxmi"
- Interest subvention through:
    - E-vouchers
    - CBDC wallets
- Supplements PM-USP Scheme that provides financial aid for meritorious students from poor families.
    - Based on Class 12th Board results

6.12.5. UNESCO released 'Global Education Monitoring Report 2024'

Global Education Status Report 2024: Key Insights

Meeting Context

- Released at **UNESCO's Global Education Meeting**
- Hosted by **Brazil (G20 President) in Fortaleza**

Critical Findings

- **Leadership & Governance**
    - Education leaders must drive social influence for collective goals
    - Need to balance learning outcomes with equity and inclusion
    - Principals require more autonomy in school management
- **Financial Challenges**
    - 40% of countries invest less than 4% GDP in education
    - Significant funding gaps persist
- **Access Issues**
    - **Global out-of-school children**: 251 million
    - **Minimal improvement:** only 1% reduction since 2015
    - **Major concerns in South Asia:**
- Afghanistan, Bangladesh, India, Pakistan have highest out-of-school populations
- Despite region's overall progress in education access

Key Recommendations

- **Leadership Development**
    - Enhance school principals' autonomy
    - Strengthen education officials as system leaders
- **Curriculum Enhancement**
    - Integrate climate change education earlier
    - Expand beyond science subjects

India's Initiatives to develop School Leadership

- **National Education Policy 2020:** School principals to engage students in workshops.
- **National Initiative for School Heads' and Teachers' Holistic Advancement (NISHTHA)**

6.12.6. 10 Years of Polio Eradication in India

India's Polio-Free Journey

Key Achievement:

- WHO declared India polio-free in **2014**
- **Criteria:** No wild poliovirus for 3 years
- **Partners:** Global Polio Eradication Initiative

Universal Immunization Programme: Started: 1985 (renamed from Expanded Programme)

- **Coverage:** 12 vaccine-preventable diseases
- **Scope:** Free vaccines nationwide

India's Polio Prevention Strategy

- **Annual Polio Campaigns:** National Immunization Days (NID)
    - Sub-National Immunization Days (SNID)
    - Goal: Maximum coverage, no missed children
- **Border Protection:** International border vaccination
    - Prevents re-importation from endemic regions
- **Vaccination Approach:** Inactivated Polio Vaccine (IPV) since 2015
    - Specifically targets type 2 poliovirus
- **Mission Indradhanush (2014):** Target: 90% immunization coverage
    - Focus: Hard-to-reach areas
    - Priority: Low immunization regions

About Poliomyelitis (Polio) Overview

- **Disease Profile:**
    - Type: Highly infectious viral disease
    - Target: Children under 5 years
    - Transmission: Fecal-oral route, contaminated food/water
    - Impact: Can cause nervous system paralysis
- **Wild Poliovirus Status:**
    - Type 1: Endemic in Pakistan and Afghanistan (2022)
    - Type 2: Eradicated in 1999
    - Type 3: Eradicated in 2020
- **Vaccine-derived Polio:**
    - Cause: Mutation of weakened vaccine strain
    - Risk: Affects under-vaccinated populations
    - Result: Can cause paralysis

6.12.7. Children Lacking Minimum Dietary Diversity

A study revealed that 77% children in India aged 6-23 months lacking minimum dietary diversity.

- **Minimum dietary diversity (MDD)** requires consuming 5+ of 8 food groups: breast milk, grains, legumes, dairy, flesh foods, eggs, fruits & vegetables
- Food intake from less than 5 food groups is considered **minimum dietary diversity failure (MDDF).**

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Major Findings (For Year 2019-21)

- **Regional Crisis**
  - Central India worst affected (>80% deficiency)
  - **Key states:** UP, Rajasthan, Gujarat, Maharashtra, MP
- **High-Risk Groups**
  - Age 6-11 months (87% deficiency)
  - OBC children (79%) followed by SCs (77%) and STs (76%).
  - Children of illiterate mothers (81%)
  - Rural areas with limited media exposure
- **Core Issues**
  - Limited consumption of fruits, vegetables & animal products
  - Education gap: illiterate mothers (81%) vs educated mothers (75%)
  - Rural-urban divide in food access

Recommended Actions

- Target pregnant women, especially high-risk cases
- Engage local governance in nutrition activities
- Focus on Central region
- Prioritize education and awareness programs

Initiatives taken:

- **POSHAN Abhiyan**: Promotes nutrition awareness through Jan Andolans.
- **Rashtriya Poshan Mah**: Highlights collaboration among ministries to engage communities.
- **Integrated child development services (ICDS) Scheme**- Benefits children aged 0-6 years, pregnant women, and lactating mothers.

6.12.8. e-Migrate Portal

Ministry of External Affairs and Labor & Employment launched e-Migrate portal and mobile app.

About e-Migrate Portal

- Online platform for managing Indian workers' overseas employment migration
- Provides comprehensive services to migrant workers
- Offers 24/7 multilingual helpline and Digilocker integration
- Connects foreign employers, recruitment agents, and insurance companies
- Promotes safe and legal migration

Key Features

- Secure document storage
- Paperless immigration clearance
- Unified platform for migration stakeholders

6.12.9. Government Extends Supply of Fortified Rice Across Welfare Schemes Until 2028

Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) to supply free fortified rice

About Fortified Rice

- Adding micronutrients like Iron, Folic Acid, Vitamin B12 to rice
- Cost-effective method to combat malnutrition
- Ideal for 65% of India's population

Schemes Covered

- Targeted Public Distribution System
- Integrated Child Development Services
- PM POSHAN
- Other welfare programs nationwide

Key Details

- Launched in 2022
- Completed three-phase rollout by March 2024
- 100% centrally funded
- Covers 81.35 crore National Food Security Act beneficiaries

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MCQ

1. **With reference to the Lakhpati Didi initiative under the Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM), consider the following statements:**

    1. It aims to enable SHG women members to earn at least ₹1 lakh annually.
    2. Only women who are part of SHGs for at least five years are eligible.
    3. The initiative promotes multiple livelihood activities and capacity building.

    Which of the above statements are correct?

    (a) 1 Only
    (b) 1 and 2 Only
    (c) 1 and 3 only
    (d) 1, 2 and 3

2. **With reference to the PM-Vidyalaxmi Scheme, consider the following statements:**

    1. The scheme offers a 75% government-backed credit guarantee for education loans up to ₹7.5 lakhs.
    2. It is applicable only to students enrolled in government-funded higher education institutions.

    Which of the statements given above is/are correct?

    (a) 1 only
    (b) 2 only
    (c) Both 1 and 2
    (d) Neither 1 nor 2

3. **With reference to the PM-Vidyalaxmi Scheme, consider the following statements:**

    1. The scheme provides a 3% interest subvention on education loans up to ₹10 lakhs during the moratorium period.
    2. It supplements the Pradhan Mantri Uchchatar Shiksha Protsahan (PM-USP) Scheme, which provides financial aid for meritorious students from poor families.

    Which of the statements given above is/are correct?

    (a) 1 only
    (b) 2 only
    (c) Both 1 and 2
    (d) Neither 1 nor 2

4. **With reference to the One Nation, One Subscription (ONOS) Scheme, consider the following statements:**

    1. The scheme aims to provide national-level access to international e-journals and is implemented by INFLIBNET under UGC.
    2. It is monitored by the Anusandhan National Research Foundation (ANRF) and supports the objectives of the National Education Policy 2020.

    Which of the statements given above is/are correct?

    (a) 1 only
    (b) 2 only
    (c) Both 1 and 2
    (d) Neither 1 nor 2

5. **With reference to sexual harassment of women at the workplace in India, consider the following statements:**

    1. The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 mandates the formation of Internal Complaints Committees (ICCs) only in government establishments.
    2. The She-Box platform, launched by the Ministry of Women & Child Development, allows women to file complaints of workplace sexual harassment online.

    Which of the statements given above is/are correct?

    (a) 1 only
    (b) 2 only
    (c) Both 1 and 2
    (d) Neither 1 nor 2

Questions

1. Despite legislative measures, child marriage remains a persistent issue in India. Discuss the underlying socio-economic and cultural factors contributing to its prevalence. Evaluate recent judicial and governmental initiatives aimed at eradicating child marriage. (150 words, 10 marks).

2. Examine the implications of social media addiction in children, discussing the measures taken globally and in India to protect children online. Should there be a ban on social media for children under 16? Justify your answer with arguments for and against the ban. (250 words, 15 Marks)z

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7.1. NOBEL PRIZE IN CHEMISTRY 2024

Why in the News?

Nobel Prize 2024 awarded to **David Baker** for Computational Protein Design (CPD), **Demis Hassabis** and **John Jumper** for **protein structure prediction.**

David Baker's Computational Protein Design (CPD)

- **CPD** aims to create new proteins (synthetic proteins) with novel functions or properties not found in nature.
- **Potential Applications:** Creating more effective Vaccines and eco-friendly nono materials, **Developing bio- sensors, Waste Management (**Enzymatic degradation of plastic), etc.

Demis Hassabis and John Jumper Protein Structure Prediction

- Both used AI to solve predicting of **proteins' complex structures**, which determine their functions.
  - ➡ Better structure prediction aids in areas like **drug design**, understanding **antibiotic resistance**, etc.

About Proteins

- One of the **four major types of biomolecules** (the other three being carbohydrates, lipids and nucleic acids).
- Composed of 20 naturally occurring **amino acids**.
- Collagen and **Ribulose bisphosphate Carboxylase-Oxygenase (RuBisCO)** are the most abundant proteins in animal world and the whole of the biosphere, respectively.
- **Key Functions**:
  - ➡ Provide **structure** and **support** for cells. E.g., Actin.
  - ➡ Proteins act as **enzymes** to **catalyse** biochemical **reactions. E.g., amylase.**
  - ➡ Some proteins function as **hormones**. E.g., Insulin.
  - ➡ Bind and **carry atoms** and **small molecules** within cells and throughout the body. E.g., Ferritin.

7.2. NOBEL PRIZE IN MEDICINE 2024

Why in the News?

Nobel Prize 2024 Awarded to **Victor Ambros and Gary Ruvkun** for the discovery of **microRNA and its role in post-transcriptional Gene Regulation.**
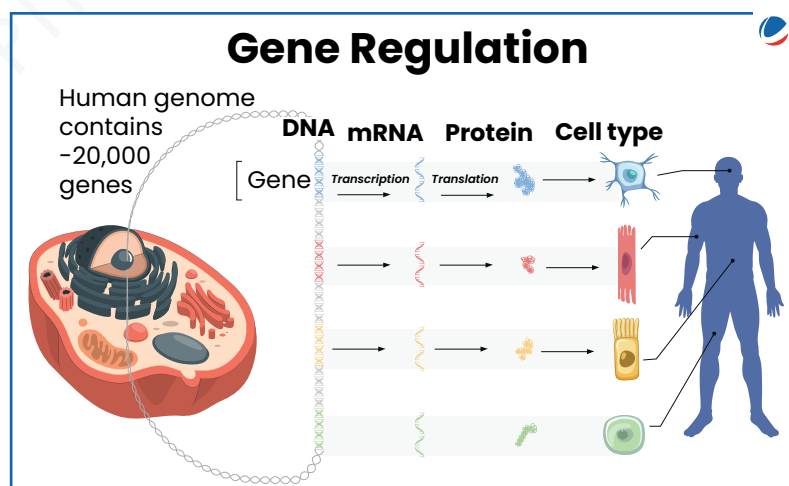
About MicroRNA (miRNA)

- A small **non-coding RNA** that helps cells in regulating **gene expression**.
- Controls gene expression by **binding with messenger RNA (mRNA)** and preventing them from **being translated into proteins** or by **degrading/destroying mRNA** altogether.
- Regulation by microRNA is universal among multicellular organisms.

Gene Regulation

Human genome contains ~20,000 genes

DNA   mRNA   Protein   Cell type

Gene   Transcription   Translation

About Gene Regulation

- A process used to control the **timing**, **location** and **amount in which genes** are expressed to respond to environmental changes.

Significance/Application of the Discovery

- **Understanding Cellular Development:** E.g. Self-renewal and differentiation of stem cells.
- **Immune Response:** Regulate innate and adaptive immune responses.
- **Oncogenesis:** To avoid healthy cells conversion to cancer cells.
- **Disease diagnostics:** E.g. Cancer.

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About Ribonucleic Acid (RNA)

- A nucleic acid that is present in the majority of living organisms and viruses.
- Made up of **nucleotides** and phosphate groups.
    - Nitrogenous bases include **adenine**, **guanine**, **uracil**, and **cytosine**.
- RNA mostly exists in the single-stranded form.

7.3. NOBEL PRIZE IN PHYSICS 2024

Why in the News?

Nobel Prize 2024 awarded to **John J. Hopfield and Geoffrey Hinton** for discoveries that enables **Machine Learning (ML) with Artificial Neural Networks (ANNs)**.

Discoveries

- **J.J.Hopfield** invented **Hopfield network**, a type of **recurrent neural network** that can store and reconstruct information.
- **Geoffrey Hinton** invented **Boltzmann machine** that can independently **discover properties** in data and create new patterns or examples based on what it has learned.

About Artificial Neural Networks (ANNs)

- A ML program or model that makes decisions in a manner **similar to the human brain.**
- **Made of artificial neurons** or **nodes** that work together to solve a problem.
- **ANN structure** contains Input layer for processing of information, Hidden layer for analysis and Output layer for result.

Major types of ANN:

- **Deep Neural Networks**: Neural networks with many layers.
- **Convolutional Neural Networks (CNNs)**: Used primarily in computer vision and image classification applications.
- **Recurrent Neural Networks (RNNs):** Used in natural language and speech recognition applications.
- **Generative Adversarial Networks (GANs):** Used to create new data resembling the original training data.

Machine Learning

- A component of **AI** that focuses on using data and algorithms to **enable AI to imitate the way that humans learn**, gradually improving its accuracy.
    - **Neural Networks or ANNs** are commonly used, specific class of ML algorithms.
- **Applications of ML:**
    - **Research & Scientific Advancement:** E.g. Discovery of Higgs particle
    - **Natural Language Processing (NLP):** Automatic Speech Recognition or speech-to-text or Generative AI.
    - **Computer Vision:** Deriving meaningful information from digital visual inputs like images, videos.

# 7.4. SATYENDRA NATH BOSE (S. N. BOSE)

Why in the News?

The **Centenary celebrations** of iconic **'Bose-Einstein' (B-E) Statistics** were recently inaugurated **by Ministry of Science and Technology.**

Scientific Contributions of S. N. Bose

- **Bose-Einstein Statistics:** A **framework for particle distribution at** different energy levels, particularly at low temperatures.
    - Einstein extended this to gas molecules and Particles which obey **B-E statistics** principle referred as **"Bosons".**
        - ◊ Bosons are **fundamental particles** that have integer values of spin (0, 1, 2, etc.). E.g. Photon, Gluon, etc.

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- **Bose-Einstein Condensates (BEC):** At extremely low temperatures, a large fraction of bosons can occupy the same lowest-energy quantum state, forming a unique 5th state of matter (e.g., superfluid helium).
  - All the atoms become a single entity at this point wherein each particle together functions as a wave of matter.
  - **Properties of BEC: Super fluidity** (Zero viscosity without resistance), **Super conductivity, Coherence; Super solid**, etc.
- **Organic chemistry: X-ray diffraction methods, differential thermal analysis** to understand common clay minerals atomic structure.
- **Thermoluminescence:** Designed a **rapid scanning spectrophotometer of comparatively high sensitivity**.
- **Discovery of Higgs Boson** (**GOD Particle):** Discovered using scientific principles rooted in (**B-E) Statistics** and BEC.
  - He is referred as "**Father of the God Particle**" along with Peter Higgs.
  - The fundamental particle '**Bosons**' were named after him.

Atoms actings as Single Unit at 0 K

GAS OF LOW DENSITY   BEC AT 0 K
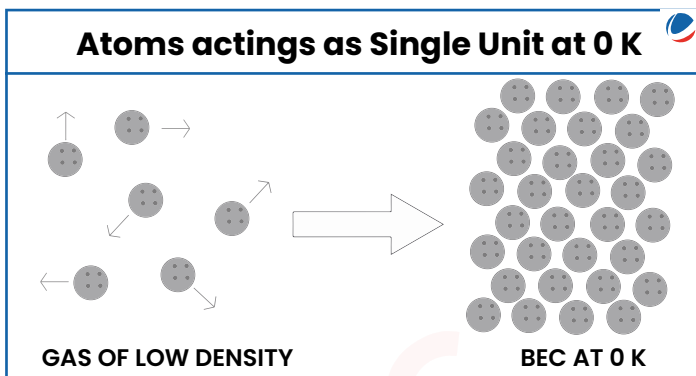
7.5. INDIA'S R&D ECOSYSTEM

Why in the news?

Union Cabinet approved unified '**Vigyan Dhara**' scheme to enhance India's R&D ecosystem.

About Vigyan Dhara Scheme

- **Nodal Ministry:** Science and Technology.
- **Objective**: Strengthen Science, Technology and Innovation ecosystem.
- **Tenure:** 2021-22 to 2025-26
- **Benefits:** Build research human resource, enhance women's participation.

3 Primary components of Vigyan Dhara Scheme

- Science and technology **institutional** and **human capacity building.**
- **Research** and **development.**
- **Innovation, technology development** and **deployment.**

Steps Taken for Promoting Research and Development ecosystem in India
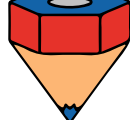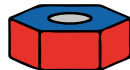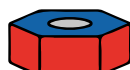

Anusandhan National Research Foundation
A key institution for coordinating research efforts

Dedicated Technological Missions
Missions focused on directing R&D in emerging fields

Women in Science Initiatives
Efforts to promote and develop women in scientific fields

National Science Technology and Innovation Policy, 2013
A policy framework guiding science and technology

Youth Scholarships
Programs to attract youth to research through financial support

Potential benefits: Building critical human resource pool, expand the R&D base of the country, focused intervention for women participation.

Significance of Strong R&D Ecosystem: economic growth, knowledge-based economy, addressing developmental challenges, national security.

About India's R&D ecosystem

- **Ranks 3rd** in number of scientific publications.
- **6th** in **patent filings.**
- 39th in Global Innovation Index (2024).

Challenges of India's R&D Ecosystem:

- **Low Budget:** R&D spending is 0.6%-0.7% of GDP, far below the US (2.8%), China (2.1%), Israel (4.3%), and Korea (4.2%).
- **Brain Drain:** Skilled researchers migrate abroad, resulting in only 260 researchers per million inhabitants (vs. 1,602 in China).
- **Lack of Inclusivity:** Socio-cultural barriers limit participation of women and other groups, shrinking the talent pool.
- **Weak Research Translation:** Skewed focus on basic research, weak industry-academia collaboration, and poor commercialization of technologies.
- **Educational System Issues:**
  - **Low enrollment** in advanced programs (2.12 lakh Ph.D. enrollments in 2021-22).
  - **Few colleges offer research programs** (2.7% run Ph.D., 35.04% run PG programs).
  - **Inadequate monitoring** and evaluation of R&D projects.

Way-forward

- **Finance**
  - **Increase R&D** funding to **at least 2%** of GDP by **2030.**
  - **Boost private sector investments** through PPPs, tax incentives, and patent benefits.
  - **Develop advanced labs** and research centers.
- **Innovation:**
  - **Strengthen IPR protection** and promote industry-academia-government collaboration.
  - **Enhance R&D culture** in universities with financial autonomy and R&D cells.
- **Collaboration:**
  - **Foster partnerships** to translate research into technologies and create innovation clusters.
- **Education:**
  - **Reallocate funds** for basic and applied research in premier institutions.
  - **Implement NEP 2020** to build a research-friendly ecosystem.

7.6. BHARATGEN PROGRAMME

Why in the News?

BharatGen Progarmme Launched by **Ministry of Science and Technology.**

About BharatGen Programme

- A **Multimodal Large Language Model (LLM)** project focused on creating **Generative AI** systems that can generate high-quality text and multimodal content (audio and imagery) in **various Indian languages**.
  - It will be an **open source platform.**
- **Aim and Purpose:** Revolutionize **public service delivery through AI, etc.**
- **Implementing Agency**: TIH Foundation for IOT and IOE under the **National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)**.
- **Timeline**: Expected to be completed in two years (July 2026).
- **Bharat Data Sagar**: Aims at establishing a vast repository of India-centric data.
- **Significance :**
  - First government-funded LLM project focused on Indian languages.
  - Promotes **AI as public good** and **Inclusive AI** with the vision of **Atmanirbhar Bharat**.

About Generative AI and Large Language Models (LLMs)

- **Generative AI:** Creates original content—such as text, images, video, audio or software codein response to a user's prompt or request.
  - Generative AI tools are built on underlying AI models, such as a **LLM**.
  - Relies on **deep learning models**
- **LLMs:** A category of foundation models (large AI models) **capable of understanding and generating natural language**.

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7.7. ONE DAY ONE GENOME

Why in the news?

The **Department of Biotechnology (DBT)** and **Biotechnology Research and Innovation Council (BRIC)** launched the **'One Day One Genome'** initiative.

About One Day One Genome

- **Aim**: An **annotated microbial genome to be released every day** for researchers to study species and critical roles in the environment, agriculture, and human health.
- **Significance of the initiative:** Help in implementing India's **Biotechnology for Economy, Environment, and Employment (BioE3) policy**; spur innovation in **microbial genomics** etc.
  - **Microbial genomics** is the scientific field that studies the complete genetic material of microorganisms to understand their structure, function, evolution, and interactions with other organisms.

Significance of studying Microbes

- **Advancing biotech applications**: E.g. biofuel production, bio-manufacturing, bio-pharmaceuticals etc.
- **Understanding** microbial diversity.
- **For Environmental sustainability**: E.g. **Bioremediation.**
- **Human health** and **disease management**:
  - **Manipulate gut microbiota** to treat **chronic gastrointestinal diseases.**
  - Detect **drug-resistant strains** of Mycobacterium tuberculosis.
- **Agriculture**: Nutrient cycling, maintaining soil fertility, etc. **E.g., Rhizobium bacteria** fixing nitrogen.

7.7.1. Heritable Human Genome Editing (HHGE)

Why in the news?

South Africa becomes first country to allow Heritable Human Genome Editing (HHGE).

More on the news

- **Explicitly permit use of genome editing** to create genetically modified children.

About HHGE:

- HHGE introduces **changes in germline cells (sperm, eggs, or embryos),** with changes inherited by offsprings **unlike somatic cell editing.**

- **Tools used:** Zinc-finger nucleases (ZFNs), CRISPR/Cas9 and Meganucleases.
- **Potential Applications:** Disease Prevention (E.g. sickle cell anemia), Advancement of Genetic Research, Assisted reproductive technology (improving technologies, such as in vitro fertilization (IVF) etc.).
- **Concerns:**
  - **Unforeseen consequences:** Heritable with multigenerational effects;
  - **Ethical issues**: Dignity of humans, religious and moral beliefs;
  - **Societal Impact**: Creation of "designer babies" affects social inequality.

7.8. UNIFIED GENOMIC CHIP

Why in the News?

Prime Minister launched **Unified Genomic Chip** and **indigenous sex-sorted semen technology.**

About Unified Genomic Chip

- A **Single Nucleotide Polymorphism (SNP)** chip.
  - **SNP** refers to a variation in a DNA sequence where a single nucleotide is different from the reference sequence.
- Designed for **genomic profiling** and **evaluation** of **Indian cattle breeds.**
  - **Variants of the chip**: **Gau** chip for cattle and **Mahish** chip for buffaloes.
- **Developed by**: Consortium led by the Department of Animal Husbandry and Dairying (DAHD), Ministry of Animal Husbandry, Dairying and Fisheries.

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About Sex-sorted Semen Technology

- Sex Sorted Semen is the 'gender selected' semen used in **Artificial Insemination (AI)**.
- 90% accuracy for female calves.
- Manufactured by **National Dairy Development Board (NDDB)** under Make in India and Atmanirbhar Bharat.

About Genetic/Breed Improvement

- Involves selecting/promoting animals with **superior traits.**
- Involves different techniques such as **Artificial Insemination**, **In-Vitro Fertilization (IVF)**, **Embryo transfer technology (ETT)**, etc.
- **Need:**
  - Building a **disease free** closed herd.
  - Developing **climate-tolerant** and disease-resistant breeds, etc.
- **Key Challenges**: Five to six generations needed to up-grade the level of improved breed, Lack of semen production centers and research institutes, etc.
- **Key Initiative Taken**:
  - **Rashtriya Gokul Mission** (2014).
  - **IndiGau** (India's first Cattle Genomic Chip).
  - Breed improvement under **National Livestock Mission (NLM), 2014,** etc.
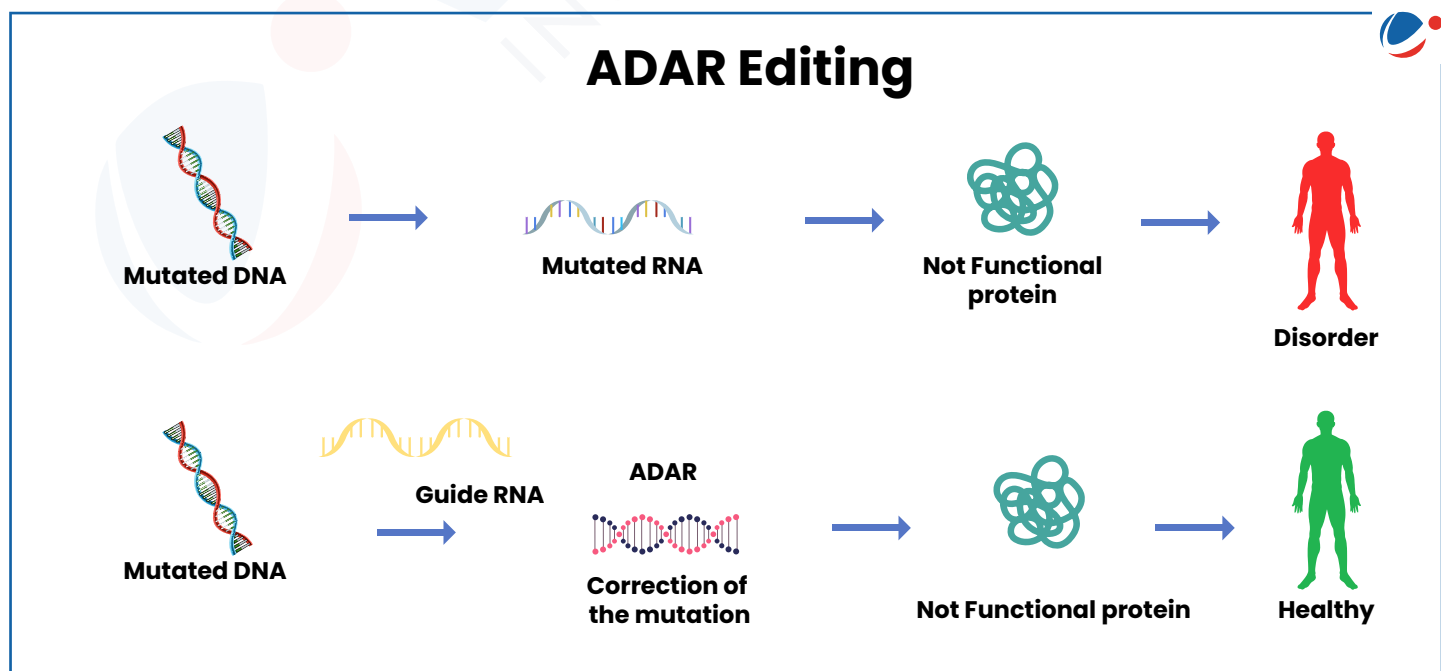
7.9. RNA EDITING

Why in the news?

The first successful clinical demonstration of RNA editing in humans was conducted.

More on the news

- **RNA editing** was used to treat alpha-1 **antitrypsin deficiency** (AATD, an inherited disorder) which **affect liver and lungs**.

About RNA (Ribonucleic acid) Editing

- **Modifies genetic information on RNA sequences** through insertion, deletion or substitution.
- Scientists used technique called '**Adenosine Deaminase Acting on RNA (ADAR)'** with guide RNA (gRNA).
  - **gRNA** are **small RNA molecules** that **direct editing machinery by base-pairing with mRNA** in specific regions for modification.

ADAR Editing

Mutated DNA → Mutated RNA → Not Functional protein → Disorder

Mutated DNA → Guide RNA → ADAR / Correction of the mutation → Not Functional protein → Healthy

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Comparison between RNA and DNA editing

- **Form of change: DNA editing** makes **permanent changes** while **RNA editing** makes **temporary changes** which may **fade over time.**
- **Allergic and immune reactions: DNA editing** has **higher risk** of **undesirable reactions** compared to RNA editing.
- DNA editing tools use **proteins** from **certain bacteria** to perform **cutting functions** while RNA editing relies on **ADAR enzymes**, already occurring in **human body.**

7.10. BHARATIYA ANTARIKSH STATION (BAS)

Why in the News?

Union cabinet has approved the **building of first unit of the Bharatiya Antariksh Station**.

More on the News:

- **Revised Gaganyaan Programme include:**
  - **First BAS module** and **four validation missions** by 2028.
  - **Four Gaganyaan missions** by 2026.
  - **Budget increased** from ₹12000 Crore to over ₹20000 Crore.

About Bharatiya Antariksh Station

- **Planned space station** for research at **400-450km** above the Earth's surface.
- **First module launches** in **2028, full operationalization** by **2035.**
- Will have **five modules** built in phases.
- Currently in **conceptualization phase.**

Significance of BAS

- **Testing ground** for long-duration spaceflight.
- **Enhanced Earth observation** capabilities.
- **Microgravity research** opportunities.
- **Support innovation** and employment in space sector.
- **India aims** to increase its share in **global space economy** from **2% to 10%.**
- **Space innovations benefit** environment, aerospace, automotive, and construction industries.
- **International prestige** and collaboration potential.

Challenges regarding Indian space station:

- **Low R&D budget** (0.7% of GDP).
- Need for **new technological capabilities.**
- **Geopolitical management.**
- **Astronaut health hazards.**
- **Space debris risks.**

Way Ahead:

- Secure **adequate funding** through collaborations.
- Upgrade **technological infrastructure.**
- Ensure **long-term sustainability**.
- Balance **national interests** with **international obligations.**
- Foster **international cooperation.**

About Gaganyaan Mission

Mission Approval

India's first human space flight mission approved in 2018

Astronaut Launch Preparation

Preparing astronauts for a 400 km journey above Earth

Life Support System Development

Developing systems to support life in space

Crew Espace System Development

Establishing emergency protocols for crew safety

Crew Management Training

Evolving training programs for crew management

Other Space stations:

- **Inoperative**
  - **Salyut 1: world's first space station** by the **Soviet Union in April 1971.**
  - **Skylab: USA's first space station**, launched by NASA in 1973.
- **Operative**
  - **ISS: Operating since 2000, maintained by NASA, Roscosmos, ESA, JAXA, and CSA.**
  - **China's Tiangong space station operational since 2022.**
- **Upcoming:**
  - **Gateway Space Station:** NASA's lunar space station for Artemis campaign.
  - **Axiom Station**: World's first commercial space station in low-Earth orbit.

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7.11. SPACE DOCKING EXPERIMENT (SPADEX)

Why in the News?

A private firm handed over two 400 kg class satellites to ISRO to take part in **Space Docking Experiment (SPADEX)** planned at the **end of 2024.**

About Space Docking

- Space docking involves **precise connection** of **two spacecraft** to operate as a single unit.
- **Objective:** Facilitate tasks such as refuelling, repair, and crew exchange.

About SPADEX

- **A Technology demonstration experiment** aimed at mastering **autonomous docking.**
- Two satellites named **'Chaser' and 'Target'** will be launched.
- **Satellites will perform complex maneuvers**: **Autonomous Rendezvous and Docking, Formation Flying, and Remote Operations.**
- **Challenges**: Complex Docking Mechanism, Sensor Reliability (harsh environment will affect), Space debris threat, microgravity effects, data transfer and communication stability, etc.

Significance for India:

- Essential for Chandrayaan-4, Bharatiya Antariksha Station etc.
- **Private Sector Participation** (First instance of complete satellite integration by a private company)
- **Other**: International collaboration opportunities, Longevity of Geostationary Satellites, future interplanetary missions, etc.

7.12. SPACE-BASED SURVEILLANCE

Why in the News?

Cabinet Committee on Security (CCS) approved the third phase of the **Space-based Surveillance (SBS-3) project.**

About SBS-3 Project

- **Includes 52 satellites in Low Earth Orbit (LEO)** and **Geostationary Orbit (GEO).**
- Satellites will be at different orbits, based on AI, and will be able to "interact with each other in space to gather geo-intelligence.
- **Successor of SBS-1 (2001) and SBS-2 (2013).**

About Space-based Surveillance (SBS)

- Involves the **use of satellites and other space assets to monitor and collect data on objects and activities in space and on Earth.**
- **Components: Electro-Optical Satellites; Ground Control Stations; Space Surveillance Networks; and Tracking and Telemetry Systems.**

Significance of Space-based Surveillance (SBS)

- **National Security and Defence: E.g.,** India's EMISAT satellite.
- **Space traffic management and collision avoidance:** ISRO'S **NETRA.**
- **Protection of Space assets:** Mission Shakti ASAT test (2019).
- **Environmental monitoring and disaster response:** E.g. CARTOSAT satellites used by India.
- **Scientific research and data collection:** data on cosmic phenomena and Earth observations.

Key Concerns

- **Dual Use Technology (SBS can be used for both peaceful and military purposes).**
- **Potential for Militarization and arms race in Space.**

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- **Legal and Regulatory Gaps:** Outer space treaty 1967 does not address Space based surveillance.
- **Other: Space Debris** and **Collisions,** Violations of privacy etc.
- **Key Global measures to regulate SBS**: Outer space treaty (1967), Registration Convention (1976), UN Space Debris Mitigation Guidelines (2007), Artemis Accords (2020) etc.

7.13. VISHVASYA: NATIONAL BLOCKCHAIN TECHNOLOGY STACK

Why in the News?

Union Ministry of Electronics and Information Technology (MeitY) launched **'Vishvasya: National Blockchain Technology Stack' with related initiatives.**

More on the News

Additionally, **MeitY** has also launched:

- **NBFLite:** Blockchain sandbox platform for startups/academia, Enables rapid application prototyping and research.
- **Praamaanik:** Blockchain solution for verifying mobile app origins, Powered by National Blockchain Framework.
- **National Blockchain Portal:** Content Management System-based platform, Manages National Blockchain Framework initiative contents.

About Vishvasya: National Blockchain Technology Stack

- **Offers Blockchain-as-a-Service (BaaS):** Third party based distributed infrastructure.
- Part of **National Blockchain Framework** for utilizing technology across domains.
- **Features:** rapid end to end permission blockchain, ready to use security, blockchain specific security, geographically distributed infrastructure, framework augmented with documentation.
- **Significance of BaaS:** Facilitates in **enabling trust**, Addresses the **challenges of Blockchain adoption**, **Provides security** assurance.
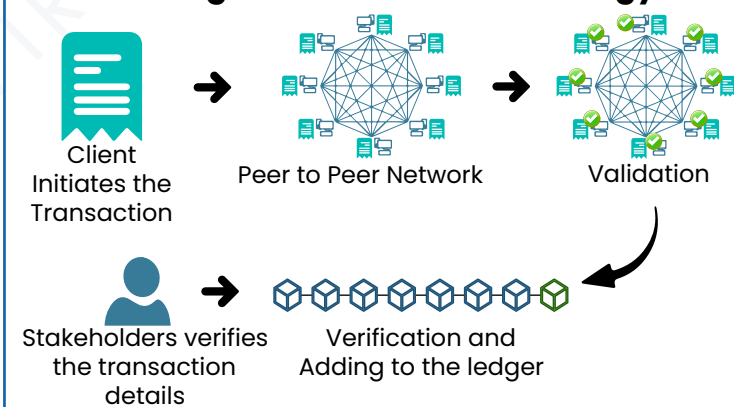
What is Blockchain technology?

- Innovative **distributed ledger technology.**
- Combines **distributed systems** and **cryptography.**

Working Mechanism

- Data stored in **decentralized ledger** over **peer-to-peer network.**
- Transactions validated through **consensus protocols** across **network nodes.**
- **Properties of Block Chain**: Smart Contracts, Distributed, Immutable, Time-stamped, Consensus, Trusted Data, Secured
- **Types of Blockchain:** Public Blockchain (Bitcoin), Consortium Blockchain, Private Blockchain

Working of Blockchain Technology

Client Initiates the Transaction → Peer to Peer Network → Validation

Stakeholders verifies the transaction details → Verification and Adding to the ledger

Potential Applications of Blockchain Technology:

- **Cryptocurrencies:** Enables secure, transparent transactions (e.g., Bitcoin, Ethereum).
- **Supply Chain Management:** Enhances communication and collaboration among suppliers, manufacturers, and customers.
- **Voting Systems:** Supports voter identification, eligibility checks, and ballot tracking for secure elections.
- **Intellectual Property Protection:** Protects trademarks and patents from unauthorized use.
- **Records Management:** Improves data accuracy and integrity, e.g., in healthcare record management.
- **Others:** Law enforcement, banking, IoT, crowdfunding, etc.

Challenges in Blockchain Implementation:

- **Performance:** Data replication across nodes slows performance compared to centralized systems.
- **Scalability**: Limited by complex architecture, processing power, and network bandwidth.
- **Storage:** Heavy storage demands due to perpetual data replication.
- **Energy Consumption:** High computational power leads to significant energy use.
- **Interoperability:** Difficulty in integrating multiple blockchain platforms.
- **Legal:** Privacy safeguards under IT Act, 2000 are inadequate; localization requirements conflict with data redundancy across nodes.

Other Initiatives taken to promote Blockchain Technology

- **India:** National Strategy on Blockchain by MeitY,Centre of Excellence in Blockchain Technology, Future Skills PRIME.
- **Global:** World Economic Forum's Presidio Principles, IBM's Blockchain World Wire, Global Blockchain Business Council (GBBC).

7.14. BRAIN COMPUTER INTERFACES (BCIS)
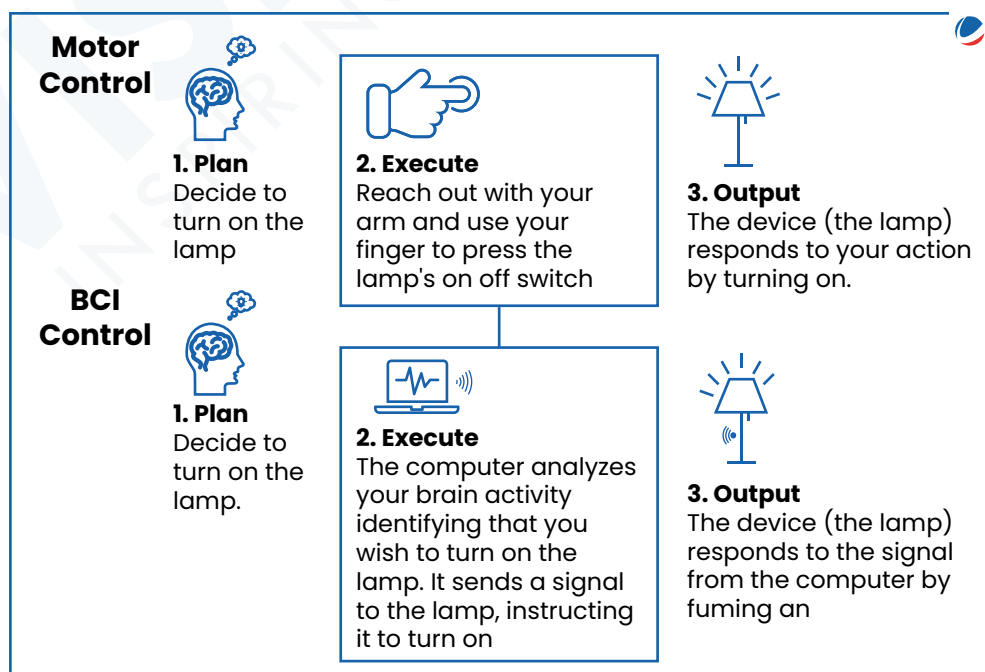
Why in the news?

Recently **Neuralink's** 'Blindsight'**, a Brain-Computer Interface (BCI)** implant, **received "breakthrough device" status.**

More on the News:

- **Blindsight Chip:** Aimed at helping blind patients (who have lost both eyes and optic nerves) or those blind from birth with **intact visual cortex.**
- **FDA's Breakthrough Device Designation (BDD)**: This program accelerates the development, review, and assessment of medical devices for diagnosing or treating life-threatening or debilitating diseases.

## About Brain-Computer Interface (BCI) implant

- **BCI Overview:** A BCI is a system that captures brain signals, processes them, and converts them into commands executed by an output device.
- **Three Main Parts of a BCI:**
  - **Device to measure brain activity**: Typically, a headset with specialized sensors.
  - **Computer to process** and analyze brain activity.
  - **Application/device** to carry out commands based on the computer's interpretation.
- **Brain-Computer Interface (BCI) Overview:**
  - **Feedback in BCI** – Helps users adapt and improve interaction with the system.
  - **User-BCI Collaboration** – Users generate brain signals, and BCI decodes them into commands.

Motor Control

1. Plan Decide to turn on the lamp

2. Execute Reach out with your arm and use your finger to press the lamp's on off switch

3. Output The device (the lamp) responds to your action by turning on.

BCI Control

1. Plan Decide to turn on the lamp.

2. Execute The computer analyzes your brain activity identifying that you wish to turn on the lamp. It sends a signal to the lamp, instructing it to turn on

3. Output The device (the lamp) responds to the signal from the computer by fuming an

- **Non-Muscular Communication** – BCIs bypass peripheral nerves and muscles, relying on CNS signals.
- **Ethical Use** – BCIs do not extract unwilling user data but enable action via brain signals.
- **Key application areas of BCI**: medical, mental wellness, cognitive enhancement, gaming and entertainment.

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Challenges in Brain Computer Interfaces:

- **Technical Challenges:** Difficulty interpreting complex neural patterns, weak signals.
- **Brain Tapping:** Privacy risks from intercepting brain signals.
- **Misleading Stimuli Attacks:** Risk of manipulating brain signals or feedback, leading to behavior control.
- **Legal Barriers:** Lack of comprehensive legal frameworks for BCI usage regarding safety, efficacy, and data protection.
- **Ethical Concerns:** Issues with informed consent, potential discrimination, research ethics, and autonomy.

Comparison between No-Invasive and Invasive BCIs

Non invasive
- EEG
- MEG

Invasive
- ECOG
- SEEG

Intracortical implant
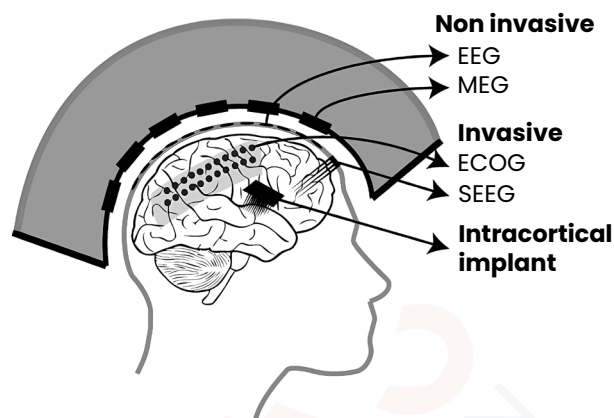
Key Concepts

- **Neuron, Control and co-ordination:**
  - The brain consists of **neurons** forming networks that coordinate bodily processes like hearing, taste, and heart rate, and control movements.
  - Neurons communicate **via electrochemical signals**, rapidly transmitting information across the brain.
- **Brain Activity and Its Measurement:**
  - Brain activity involves **electrical signals** and **chemical processes** for cognitive functions, emotions, sensations, and behaviors.
  - While one neuron's activity is **minimal, collective neuron activity can be detected** with sensors.
- **Electroencephalography (EEG) based BCI:**
  - EEG became feasible after **Hans Berger's 1924 discovery** that brain signals could be measured from the scalp.
  - This technique of using external electrodes to measure brain activity is known as **Electroencephalography** (EEG).

Structure of a neuron

- Dendrites
- Nissl's granules
- Cell body
- Nucleus
- Schwan cell
- Axon
- Myelin sheath
- Node of Ranvier
- Axon terminal
- Synaptic knob

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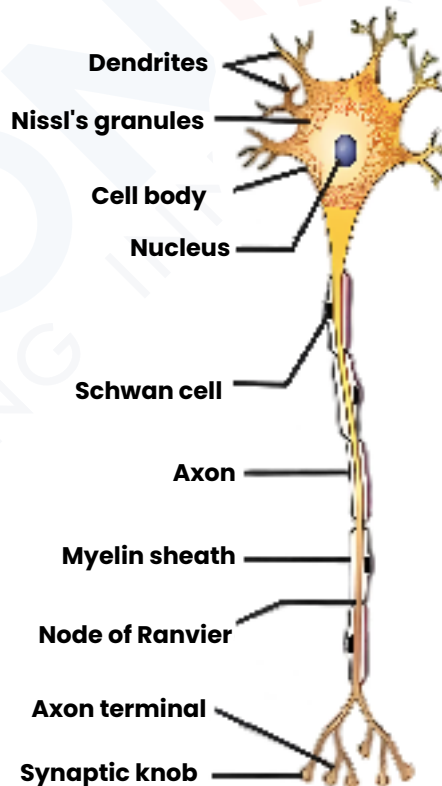
7.15. ORGAN-ON-CHIP (OOC) TECHNOLOGY

Why in the news?

Organ-on-chip (OoC) technology, potentially **worth $1.4 billion by 2032**, supports the **BioE3** (Biotechnology for Economy, Environment, and Employment) goal for personalized medicine.

Organc-on-Chip (OoC) Technology

- **OoC** is a **3D culture model** used for regenerative medicine, drug discovery, also known as "**New Approach Methods".**
- It **mimics human body environments** using **microfluidics, cells, and mechanical** conditions for **disease modeling** and **drug testing.**
- First reported useful in **2010,** OoC consists of microfluidics, living cell tissues, stimulation/drug delivery, and sensing components.

Other New Approach methods

- **Organoids:** Grown from tissue, embryonic, or induced pluripotent stem cells in a controlled environment.
- **Spheroids:** Better mimic tumor behavior compared to 2D cell cultures.
- **Bio printing:** Utilizes 3D printing to fabricate living tissues and organs.

Organ-on-a-Chip Technology
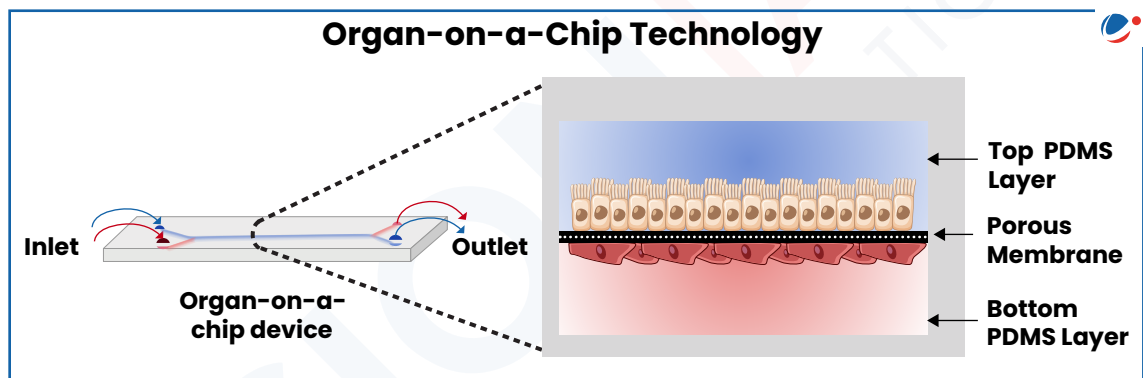
Organ-on-a-Chip device has four key components:

- **Microfluidics**: Utilizes **tiny channels** for precise **cell placement** and **fluid management**, known for being compact, integrated, and automated.
- **Living Cell Tissues**: Involves **positioning specific cell types** to **replicate tissue functions**.
- **Stimulation or Drug Delivery**: Provides necessary stimuli like **electrical or chemical signals** for realistic tissue **growth, useful for drug testing.**
- **Sensing:** Employs sensors or visual systems to monitor and evaluate the organ-on-chip's performance.

How does organ-on-a-chip technology work?

- Cells grow **into 3D structures on chips**, with the help of **polymer**, simulating organs with **tiny fluid channels** for blood flow, oxygen, and nutrient transport.

Advantages of OoC Technology:

- **Precision Therapeutics**: Simulates patient-specific tissue to test drug effects, enabling tailored treatments.
  - Precision Medicine considers individual genetic, environmental, and lifestyle factors, evolving from Personalized Medicine.
- **Drug Efficacy Testing:** More accurate than animal testing or 2D cultures (e.g., Liver-on-Chip for Hepatitis).
- **Human Physiology Simulation**: Better replicates organ structure/function than 2D cultures.
- **Ethical Alternative**: Reduces animal testing by using human cells/tissues.
- **Organ Interactions**: Links multiple organ models to study inter-organ dynamics.
- **Disease Research**: Mimics organ functions and disease models for insights into progression and therapies (e.g., Lung-on-Chip for COVID-19).

Challenges with Organ on Chip Technology

- Technical Complexity and Standardization, Integration of Multi-Organ Systems, Ethical and Legal Issues

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Steps taken for development of Precision Medicine and Organ on chip technology:

> **At Indian Level:** BioE3 policy focuses on precision therapeutics, New Drugs and Clinical Trials Rules amendment for OoC use, Genome India Project for personalized medicine, Phenome India Project for a phenome database, Indian Cancer Genome Atlas for personalized cancer treatment.

> **At Global Level: FDA Modernization Act 2.0,** Bayer is collaborating with Tissue.

7.16. DRUG QUALITY IN INDIA

Why in the News?

Central Drugs Standard Control Organisation (CDSCO) directed manufacturers of 49 medicines to recall their products.

Regulation of Drugs in India

> **Drugs and Cosmetics Act (DCA), 1940** and **Drugs and Cosmetics Rules, 1945.**

> DCA 1940 provides for establishment of Drugs Technical Advisory Board (DTAB), Drugs Consultative Committee (DCC), etc.

> **CDSCO** is the Central Drug Authority.

> State Drug Regulatory Authorities (SDRAs).

Issues with Drug Quality

> **Weak Enforcement**: Absence of any Single Regulatory Agency.

> **Challenges to State-Level Authorities (SLAs):** E.g. ill equipped testing labs.

> **Non Compliance with Standards:** Not adhering to WHO- Good Manufacturing Practices (GMP) standards.

> **Financial Disbursement**: Complicated system of funding.

> **Information Asymmetry**: No timeframe, absence of national database, absence of records etc.

> **Other**: Limited reach of **Pharmacovigilance,** etc.

Way Forward: Uniform drug regulatory standards, Need to prioritize and invest in regulatory resources, Leveraging **digital technologies** for **monitoring** and **pharmacovigilance** etc.

7.17. ORAL REHYDRATION THERAPY (ORT)

Why in the News?

Richard Cash, physician and global health scholar, died who was **instrumental** in the development of **Oral Rehydration Therapy (ORT)**.

About ORT

> **ORT** is the **administration of appropriate solutions** (glucose, sodium chloride, sodium bicarbonate, and potassium chloride or citrate) by mouth to prevent or correct **dehydration**.

> **ORT consists of**:
>   - **Rehydration**—water and electrolytes are administered to replace losses.
>   - **Maintenance fluid therapy** to take care of ongoing losses once rehydration is achieved (along with appropriate nutrition).

> **Potent** in treatment of **Diarrhea and Cholera.**

> **Working:** The cells that make up the lining of the gut have **special receptors** on their surfaces that allow them to actively **absorb sugar molecules** which increase absorption of water and chloride ions.

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7.18. GRAPHENE

Why in the News?

Union Ministry of Electronics and Information Technology (MeitY) **launched India Graphene Engineering and Innovation Centre (IGEIC) under Viksit Bharat@2047 vision.**

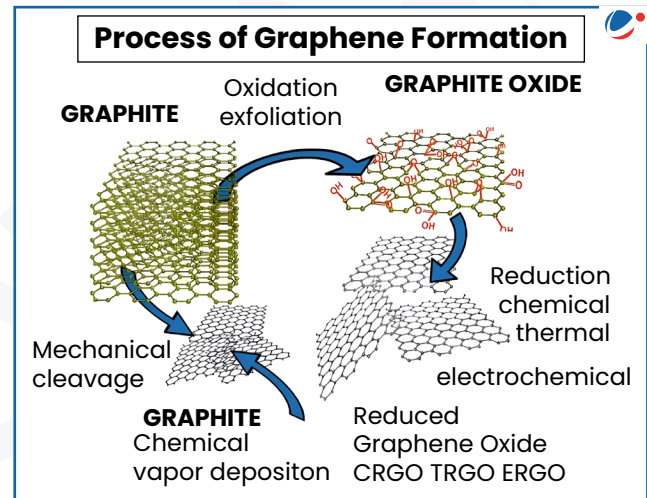## About India Graphene Engineering and Innovation Centre (IGEIC)

- **About:** Not-for-profit company **under Section 8 of Companies Act, 2013.**
- **Purpose:** Create hub of excellence in **Graphene technology commercialization.**
- **Focus:** Applications in electronics, energy storage, healthcare, material coating, **conveyance systems, sustainable material development.**
- **Locations:** R&D setup in Trivandrum, **Kerala, Corporate & Business Development hub** in Bangalore, Karnataka.

What is Graphene?

- **Discovery:** Discovered in 2004 by **Andre Geim and Konstantin Novoselov.**
- **Nobel Prize in Physics in 2010**: Structure: Single layer (2D) of carbon atoms, Hexagonal honeycomb lattice, Allotrope of Carbon, building-block of Graphite.
- **Synthesis Methods**: Chemical vapour deposition, Cleavage of natural graphite, Mechanical exfoliation, Hydrogen arc discharge.
- **Significance**: Wonder material with extraordinary electrical and electronic properties.
- **Properties of Graphene:** Mechanical Strength, Optical Transparency, High Thermal Conductivity, Impermeability, Quantum Properties.
- **Potential Applications of Graphene:** Electronics, Energy storage, water filtration, biomedical, defense and security.
- **Challenges in Graphene:** Health risks, high production costs, limited production.

Process of Graphene Formation

GRAPHITE — Oxidation exfoliation → GRAPHITE OXIDE

Mechanical cleavage

Reduction chemical thermal electrochemical

GRAPHITE Chemical vapor depositon

Reduced Graphene Oxide CRGO TRGO ERGO

India's Initiatives to promote Graphene

- **Graphene-Aurora program:** To fill the gap between R&D and commercialization.
- **India Innovation Centre for Graphene (IICG) at Kerala.**
- **Research Institution at** IIT Roorkee.

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7.19. NEWS IN SHORTS

7.19.1. Quantum Natural Language Processing (QNLP)

QNLP has emerged as a field of research with **potentially profound implications** for large language modeling (**LLM**).

About QNLP:

QNLP applies **quantum computing to natural language processing**, enabling computers to interpret and understand human language.

Need for QNLP:

- While traditional **LLMs are strong with semantics (meaning),** they have **difficulties with syntax (structural word arrangement).**
- QNLP uniquely processes both **syntax** and **semantics** simultaneously.

Advantages:

The **technology offers reduced energy** consumption and requires fewer parameters compared to conventional LLMs.

7.19.2. Silicon Carbide

India's 1st **silicon Carbide manufacturing facility** to be set up in Odisha

- **Silicon Carbide (SiC):** A **synthetic crystalline compound** of silicon and carbon known as **carborundum**, characterized by **its extreme hardness.**
- **Properties: High thermal conductivity** combined with **superior mechanical properties** and **resistance** to **wear** and **oxidation.**
- **Applications:** Used in **semiconductor devices,** mechanical seals, ceramics, heat exchangers, optical mirrors, and ballistic armor.

7.19.3. Polaris Dawn Mission Successfully Completes World's First Private Spacewalk

Polaris Dawn Mission is a private SpaceX mission planned by Jared Isaacman, which traveled through Earth's high radiation regions (South Atlantic Anomaly and Van Allen Radiation Belt) to **study radiation's effects on human health.**

Van Allen Radiation Belt

- Earth's magnetosphere **traps high-energy radiation particles,** forming two protective belts around Earth.
- The inner belt forms from **cosmic ray interactions with Earth's atmosphere**, while the outer belt **contains high-energy particles from the Sun.**
- Spacecraft and astronauts must pass quickly **through these belts to minimize radiation exposure**.
- **NASA's Artemis missions** plan to send astronauts beyond these belts to reach **the Moon's South Pole and eventually Mars.**
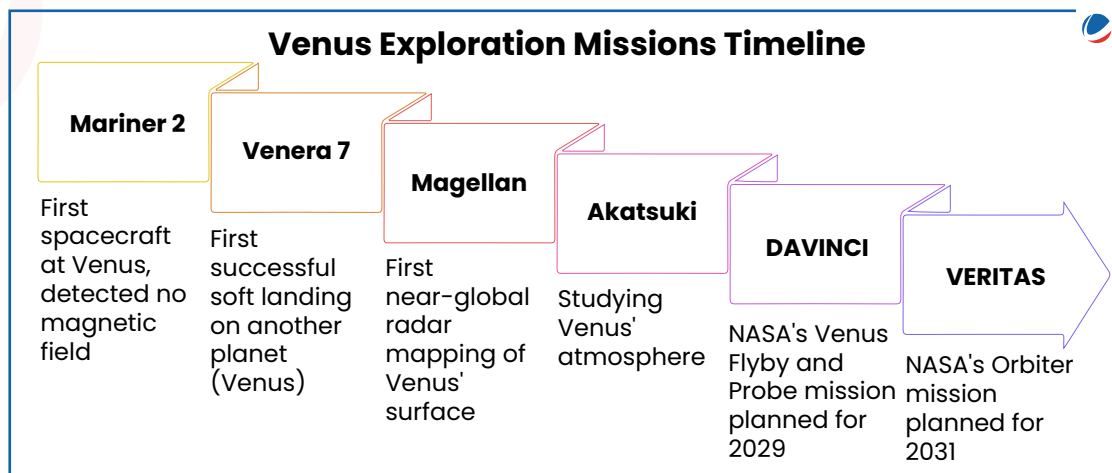
South Atlantic Anomaly

- A region over the **South Atlantic Ocean** where the **inner Van Allen radiation belt** comes unusually **close to Earth,** causing increased ionizing radiation that affects spacecraft, astronauts, and **electronic components in Low Earth Orbits.**

7.19.4. Venus Orbiter Mission (VOM)

Union Cabinet has approved the development of **Venus Orbiter Mission (VOM).**

- **The Department of Space** will develop a scientific spacecraft to **orbit Venus**, with ISRO managing the spacecraft **development** and **launch** in March **2028.**
- The project has a budget of Rs. 1,236 Crore, with Rs 824 Crore allocated for the spacecraft

Venus Exploration Missions Timeline

Mariner 2
First spacecraft at Venus, detected no magnetic field

Venera 7
First successful soft landing on another planet (Venus)

Magellan
First near-global radar mapping of Venus' surface

Akatsuki
Studying Venus' atmosphere

DAVINCI
NASA's Venus Flyby and Probe mission planned for 2029

VERITAS
NASA's Orbiter mission planned for 2031

Significance:

- The mission will enhance understanding of **Venus's surface, atmosphere, and solar interactions, while comparing Earth and Venus's evolution.**
- It will also advance India's planetary mission **capabilities and generate employment** and technological benefits.

About Venus

- Earth's nearest planetary neighbor shares **similar size and shape, with a radius of 6,052** km and **orbiting 108.2 million km** from the Sun.
- It features a **runaway greenhouse effect** making it **the hottest planet**, with **thick sulfuric acid clouds** containing **phosphine.**
- Venus along with **Uranus** rotates **east to west, unlike most planets**.

7.19.5. Chandrayaan-4

Union Cabinet gave approval for Chandrayaan-4 Mission, a **successor to Chandrayaan-3.**

About Chandrayaan 4

- The mission aims to demonstrate technologies for lunar landing, sample collection, and Earth return, supporting India's goal of a **moon landing by 2040.**
- ISRO will lead the project, with a timeline **of 36 months and a budget of ₹2104.06 crore.**

7.19.6. Square Kilometer Array

Square Kilometer Array (SKA), **world's largest radio telescope in making,** has carried out its **first observations.**

About SKA

- The project involves **two large telescopes in South Africa and Australia**, aiming to study the universe's birth, gravitational waves, galaxy evolution, dark matter, and cosmic magnetism.
- **India** joined as **an Associate Member** in **2012** and participates in the **pre-construction phase.**

7.19.7. Saturn's Rings

Saturn's rings will temporarily **'disappear' in 2025 due to the planet's tilt** and an **optical illusion**

About Saturn's rings

- These **30-foot-thick rings consist** mainly of **water ice particles ranging** from sand-grain to mountain size.
- They're labeled alphabetically by discovery order, **with A, B, and C being the main rings.**
- Jupiter and Uranus also have **ring systems.**

7.19.8. NITI Aayog releases Expert Group Report on Future Pandemic Preparedness

Report on COVID-19 Challenges and Future Pandemic Preparedness: The report emphasizes a **"One Health" approach for zoonotic diseases** and outlines **pandemic preparedness strategies.**

Issues Faced During COVID-19:

- **Weak legislative framework** (NDMA, EDA), **poor data integration**, and **lack of collaboration** between research bodies and industries for diagnostics and vaccines.

Key Recommendations:

- **Governance:** Introduce PHEMA, establish an Empowered Group of Secretaries for PPER, and create a PPER fund.
- **Data Management and Surveillance**: Build an integrated surveillance network and predictive modeling capabilities.
- **Research and Innovation**: Set up an Innovation Institute for vaccine development and Centers of Excellence for HR development.

Existing Framework for Epidemic management

- **Public health** and sanitation (state list).
- **Entry 29 of concurrent list** for prevention of infectious diseases.
- **International health regulation.**
- **Epidemic Diseases Act (EDA)** 1897.
- **Integrated Disease Surveillance Programme.**

7.19.9. Vishanu Yuddh Abhyas

Vishanu Yuddh Abhyas is a **pandemic preparedness mock drill** under **National One Health Mission**, focusing on integrated disease control.

Vishanu Yuddh Abhyas (Virus War Exercise)

- **Tests National Joint Outbreak Response Team's** readiness through a simulated zoonotic disease outbreak, involving multiple agencies including ICMR and AIIMS Jodhpur BSL-3 Lab as well as state administration.

7.19.10. New Treatment Regimen for Multi-Drug Resistant-Tuberculosis (MDR-TB)

Health Ministry approved BPaLM regimen (Bedaquiline, Pretomanid, Linezolid, Moxifloxacin), as a safe option than the previous treatments.

- Earlier **Pretomanid has been approved & licensed for use in India.**
- The new treatment brings down treatment time **to 6 months from 20 months.**

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- Implemented under National TB Elimination Programme to **help end TB in India by 2025.**

About Tuberculosis

- A lung-affecting infectious disease caused **by Mycobacterium tuberculosis, preventable by BCG vaccine.**
- India reported 25.52 lakh **TB patients in 2023.**

Types of Drug Resistant TB

- **Multidrug resistance TB**: resistant to at least isoniazid and rifampicin.
- **Extensively drug resistant TB**: resistant to isoniazid and rifampicin plus any fluroquinolone, and at least one of the three injectionable second line drugs.
- **Totally drug resistant TB:** resistant to all first and secod line of TB drugs.

Challenges in Tuberculosis Eradication

- Social Stigma leads to delayed diagnosis; High Treatment Costs, Comorbidities with HIV, diabetes; Lack of diagnostics facility in rural areas etc.

Other Intiatives

- PM TB mukt Bharat abhiyaan.
- Ni-Kshay mitra.
- Nikshay poshan yojana.

7.19.11. Sonoluminescence

Pistol shrimp (family Alpheidae**)** exhibit Sonoluminescence by rapidly **snapping their claws.**

About Sonoluminescence:

- Phenomenon of producing light through the irradiation of liquids with ultrasonic waves.
- Formed when **Bubbles** from **cavitation interact** with **sound waves.**
- **Sound wave pressure** variations **make bubbles expand and contract.**
- Causes temperature rise, gas ionization, and light emission.

7.19.12. Circumnutation

New study highlights the role **circumnutations** could play in plant growth patterns.

About Circumnutation:

- Refers to **small, continuous movements** by plants to explore **environments**, Movements like spirals or zigzags.

Significance

- Inherent behavior **aiding adaptation** and **growth.**
- **Example:** Sunflowers' zigzag pattern avoids shade, maximizes light.
- **Circumnutation appears random**, with unpredictable plant movements.

7.19.13. Wood Wide Web

Just like we use the internet to communicate with each other and order supplies, **trees and other plants have their own network: fungi.**

- Scientists call this "**the Wood Wide Web."**
- Mycelium, underground fungal threads, link plant roots, enabling nutrient sharing and chemical communication.

7.19.14. AVGC-XR Sector

Union Cabinet approved the establishment of **National Centre of Excellence (NCoE)** for Animation, Visual Effects, Gaming, Comics, and Extended Reality (AVGC-XR).

- NCoE in Mumbai will be a Section 8 Company under companies act, focusing on training, R&D, and incubation.

About AVGC-XR sector

- **Employs 2.6 lakh**, projected to create **23 lakh jobs by 2032.**
- Revenue growth from **$3 billion to $26 billion** by 2030.
- Faces challenges like **lack of standardization and training centres.**

7.19.15 Atoms4Food

Bhabha Atomic Research Centre (BARC) Participated in International Atomic Energy Agency (IAEA) Scientific Forum 'Atoms4Food'.

About Atoms4Food

- **Genesis:** Jointly launched by **IAEA and FAO.**
- **Purpose:**
  - ➡ **Harness** the **advantages of nuclear techniques** and **other advanced technologies** to enhance agricultural and livestock productivity, etc.
  - ➡ **Boost food security** and **to tackle growing hunger.**
    - ◊ **Nearly 600 million** people are projected to be **chronically undernourished by 2030 (FAO).**
    - ◊ **By 2050 the world's population** will have **increased by one-third,** mostly in developing countries (UN).

> **Steps taken by India to leverage Nuclear Technologies**
> - Provisions for **food irradiation units** under the **Pradhan Mantri Kisan SAMPADA Yojana (PMKSY).**
> - BARC has pioneered the **development of high-yielding seed varieties through Gamma irradiation** and established **irradiation facilities** in Maharashtra.

Nuclear Technologies for agriculture

- **Irradiation technique:** Extends shelf life of foods.
- **Fallout radionuclide (FRN) technique**: Measure erosion patterns.

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- **Cosmic-ray neutron sensor (CRNS) technology:** Measures soil moisture.
- **Radioimmunoassay (RIA) technology:** Enables **precise timing for artificial insemination.**
- **Sterile insect technique (SIT):** Controls pests.
- **Other technologies:** Nitrogen-15 to measure nitrogen fixation in roots; etc.

7.19.16. Major Atmospheric Cherenkov Experiment (MACE) Observatory

Department of Atomic Energy (DAE) inaugurated the **MACE Observatory at Hanle, Ladakh.**

About MACE Observatory

- Largest imaging **Cherenkov telescope in Asia** and **2nd largest in the world.**
- Located at an altitude of ~4,300 m, the highest of its kind in the world.
- **Objective:** Observe **high-energy gamma rays** to understand the most energetic phenomena in the universe (such as supernovae, black holes, and gamma-ray bursts).
- Built by **BARC** with the support from other partners.

What are Gamma Rays?

- Gamma rays have the **smallest wavelengths** and the most energy of any wave in the electromagnetic spectrum.
- **Sources:**
  - **In the universe,** such as neutron stars and pulsars, supernova explosions, and regions around black holes.
  - **On Earth,** generated by nuclear explosions, lightning, and the activity of radioactive decay.

Why Hanle in Ladakh is chosen for observatory?

- **Hanle Valley** of Changthang (4250m above msl), the site is a dry, cold desert with sparse human population.
  - It has **Cloudless skies** and **low atmospheric water vapour**.
- In 2022, the Hanle Dark Sky Reserve (HDSR) was notified for astro-tourism.

7.19.17. Neutrino Fog

LUX-ZEPLIN (LZ) (USA) **dark-matter detector** failed to identify any definite particle behind the dark matter due to presence of 'Neutrino Fog'.

- **Dark matter** is the invisible stuff making up most of the mass in the universe.

About Neutrino fog

- Refers to the **background noise** (interference) created by the vast number of neutrinos produced in the universe, particularly from cosmic sources like the Sun, supernovae, etc.

- These neutrinos **interact very weakly with matter**, making them difficult to detect, but they are everywhere, permeating the universe.

7.19.18. Charon

Carbon dioxide and hydrogen peroxide detected on **Charon (Pluto's moon) using NASA's James Webb Telescope.**

About Charon

- **Largest among five moons of Plato.**
  - Pluto is a **dwarf planet.**
- Pluto and Charon orbit each other like a double planet due to big size of latter.

7.19.19. European Sky Shield Initiative

Switzerland joins **European Sky Shield Initiative (ESSI).**

About ESSI

- A German led **European Iron Dome-style defence system.**
- **Aim:** Bolstering Europe's defence against air strikes.
- **Members:** 21 member states.
- Initiative centers around the **Arrow 3**, an **Israeli-American missile** defense system.

7.19.20. Global Strategic Preparedness, Readiness and Response Plan (SPRP)

WHO launched **SPRP.**

About SPRP

- **Aim:** To tackle **dengue and other Aedes-borne arboviruses** (Zika and chikungunya) by fostering a **global coordinated response.**
- Aligned with the **Global Vector Control Response 2017–2030 and Global Arbovirus Initiative.**

7.19.21. Revamped Pharmaceutical Technology Upgradation Assistance Scheme (RPTUAS)

Department of Pharmaceuticals (DoP) has modified RPTUAS.

- It has increased incentive for **pharmaceutical companies to Rs 2 crore** (from Rs 1 crore).

About RPTUAS

- **Objective:** Support the pharmaceutical industry's **upgradation to Revised Schedule-M & WHO's** good manufacturing practices standards.
- **Introduced more flexible financing options,** emphasizing subsidies on a reimbursement basis.

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7.19.22. International Medical Device Regulators Forum

CDSCO under Union Ministry of Health & Family Welfare has become an **affiliate member of the International Medical Device Regulators Forum (IMDRF).**

About IMDRF (2011)

- Group of **global medical device regulators** to accelerate the **harmonization and convergence of international medical device regulations.**
- **Members** include national regulatory authorities from different countries and the **WHO.**

7.19.23. Anusandhan National Research Foundation (ANRF) Launches PMECRG and MAHA-EV Initiative

Prime Minister Early Career Research Grant (PMECRG)

- Aims to position **India as a leader in science and technology** by providing a flexible budget.
- **Significance**: Foster high quality innovative research; expand knowledge boundaries, etc.

Mission for Advancement in High-Impact Areas -Electric Vehicle (MAHA-EV)

- **Development of key EV technologies to reduce dependency on imports** and promote domestic innovation.
- Emphasis will be on three critical technology verticals i.e. Tropical EV Batteries and Battery Cells, Power Electronics, Machines, and Drives and EV Charging Infrastructure.

> **About ANRF**
> - Established under **ANRF Act 2023** and **operates** under **Department of Science & Technology.**
>   - ➡ Science and Engineering Research Board is subsumed into ANRF.
> - **Act as an apex body to seed, grow and promote R&D** and foster culture of research and innovation.

7.19.24. National Centre of Excellence (NCoE) for AVGC-XR

Union Cabinet Approves NCoE for **Animation, Visual Effects, Gaming, Comics, and Extended Reality (AVGC-XR).**

- NCoE will boost the **creative economy in India.**

Features of NCoE

- **Section 8 Company under the Companies Act, 2013.**
- Provisionally named as the **Indian Institute for Immersive Creators (IIIC).**

Benefits

- **Exponential growth potential** (has an estimated value of ₹46 billion (2023).
- **Playground of various immersive technologies** (e.g. Virtual Reality (VR)).
- **Creation of indigenous intellectual property (IP).**
- **Employment Opportunities** (expected to generate 5,00,000 jobs).
- **Enhance India's soft power and FDI.**

7.19.25. Space Missions/ Programme in News

Mission/ Programme	Key Details
Europa Clipper (NASA)	- Aims to determine whether **Europa** (Jupiter's Moon) has conditions that could support life. - **Largest spacecraft** that has been ever developed by NASA for a planetary mission.
Lunar Polar Exploration Mission (LUPEX)	- Aims to investigate the quantity and quality of water on the Moon and is envisaged to explore the dark side of the moon. - Agencies involved JAXA, NASA, and ESA.
RISE (Remove Debris In-Orbit Servicing) Mission	- First in-orbit servicing mission of **European Space Agency (ESA)** for creating a circular economy in space. ➡ **Circular economy** aims to minimize waste and maximize resource efficiency.
Moonlight Programme	- First in-orbit servicing mission of **European Space Agency (ESA)** for creating a circular economy in space. - **Circular economy** aims to minimize waste and maximize resource efficiency.

7.19.26. Analog Space Mission

ISRO has launched **India's first analog space mission** in Leh (Ladakh) **to plan lunar mission experiments**.

- Developed by **Joint collaboration** of ISRO's Human Spaceflight Center, AAKA space studio, university of Ladakh and IIT Bombay.

About Analog Space Mission:

- Analog space missions are **field tests** done in extreme space environments.
- **Include testing of new technologies, robotic equipment, vehicles, and study of behavioral effects (isolation and confinement).**

- Ladakh chosen for Dry and cold climate, barren land, high-altitude terrain and extreme isolation.
- **Other analog missions**: NEEMO (NASA), SIRIUS Program (UAE).

7.19.27. GSAT-N2

Recently **SpaceX's Falcon-9** deployed **India's GSAT-N2 satellite** into orbit.

About GSAT-N2 (Geostationary Satellite-20)

- Communication satellite of NewSpace India Limited (NSIL), commercial arm of the **Indian Space Research Organisation (ISRO).**
- **Features**: **Geosynchronous transfer orbit**; **Life span –** 14 years; **Mass around** 4,700 kg.
- **Significance:** Promotes broadband services and in-flight connectivity across the Indian region offering pan-India coverage.

7.19.28 LignoSat

The world's **first wooden satellite**, developed by Japan, has been launched.

About LignoSat

- A small, palm-sized satellite made from **honoki wood,** a type of magnolia tree native to Japan.
- **Significance: Renewable materials** for space structures, **better withstand space conditions,** Burn up **without releasing harmful pollutants after decommissioning,** etc.

7.19.29. Operation Dronagiri

Ministry of Science and Technology launched **Operation Dronagiri and Integrated Geospatial Data Sharing Interface (GDI).**

About Operation Dronagiri

A pilot project under **National Geospatial Policy 2022.**

- **Purpose:** Demonstrate the **applications of geospatial technologies** and innovations.
- **First Phase Implementation**: In the states of UP, Haryana, Assam, Andhra Pradesh & Maharashtra, in 3 sectors, namely, **Agriculture, Livelihoods, Logistics** and **Transport.**

About Integrated Geospatial Data Sharing Interface (GDI)

- Interface is being built for **making spatial data accessible** with **advanced data exchange protocols and privacy-preserving features.**
- **Significance:** Enabling seamless data sharing, enabling data-driven decisions for public good, fostering responsible use of geospatial data.

7.19.30. Direct-to-Device (D2D) Satellite connectivity

BSNL launched India's first **Direct-to-Device(D2D) Satellite connectivity.**

- Global initiatives such as **Constellation Global, SpaceX- Starlink etc** uses D2D technology.

Working of Direct-to-Device Satellite Technology

- **Principle**: Satellites act as cell towers in space, transmit signals directly to devices on the ground.
- **Non-Terrestrial Network (NTN) technology**: Allows for seamless two-way communication between devices and satellites.
  - BSNL uses **Viasat's Geostationary L-band satellites** positioned at 36,000 kms.
- **Significance**
  - **Reliable connectivity**
  - **High-speed internet** and **wider coverage** even in the **remotest areas**
  - **Support UPI payments, Emergency calls** and **SOS messaging,** etc.
- **Challenges:** Latency, **Regulatory Challenges** (may cross geographical borders), **Spectrum allocation** (Obtaining sufficient bandwidth), **Device compatibility,** and **Propagation challenges** (Overcoming signal loss and interference).

7.19.31. Gravity Energy Storage (GES)

GES is emerging as an alternative to battery energy storage for solar and wind power.

About GES:

- Mechanical energy storage system that **uses gravitational potential energy to store and generate electricity**.
  - Involves **lifting different heavy masses during excess energy** generation and **releasing it to produce electricity** when demand rises or solar energy is unavailable.
  - **Advantages**: High efficiency, large storage capacity, low environmental impact, longevity etc.
  - **Limitations**: High initial cost and space requirement, complexity etc.
  - **Applications**: Renewable energy integration, grid stabilization etc.

7.19.32. BRIC-National Agri-Food Bio-Manufacturing Institute (BRIC-NABI)

Recently, a new complex of India's first Biomanufacturing Institute, named **BRIC-NABI,** was inaugurated at Mohali (Punjab).

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About BRIC-NABI

- Formed through the strategic merger of National Agri-Food Biotechnology Institute (**NABI**) and the **Centre of Innovative and Applied Bioprocessing (CIAB)**.
- **Funded by:** Department of Biotechnology

7.19.33 First Indigenous Antibiotic

Recently, Union Minister of Science and Technology launched the first indigenous antibiotic **"Nafithromycin"** for resistant infections.

About Antibiotics

- **Chemical substances** (produced artificially and naturally) used as **drugs** to kill or stop the growth of **disease-causing microorganisms, in humans and animals**.
- Work against **bacterial and not viral infections** (like common cold, flue).
  - Viruses **lack cell wall** that is attacked by antibiotics.
- **Common Examples:** Streptomycin, tetracycline and erythromycin.

7.19.34. Adoption of Jeddah Commitments

Jeddah Commitments adopted at Fourth **Global High-Level Ministerial Conference on Antimicrobial Resistance (AMR).**

- It is a **comprehensive framework** for global action **to combat AMR** through a **One Health approach.**
  - **AMR** occurs when germs like bacteria, viruses, etc. **develop the ability to defeat the drugs designed to kill them**.
  - **One Health Approach** is an integrated, unified approach aimed to sustainably balance and optimize health of people, animals and ecosystems.

Key highlights of Jeddah commitments (Non-legally binding instrument)

- **One Health AMR learning hub:** Focused on sharing best practices and building capabilities for implementing multi sectoral National Action Plans(NAPs) on AMR.
- **National AMR coordinating mechanism:** To implement and ensure sustainable financing and monitoring of NAPs.
- **Other:**
  - **Promotes global data sharing.**
  - Adherence to **Codex Alimentarius Commission guidelines.**
  - Supports **Quadripartite organizations (FAO, WHO, WOAH, UNEP).**

7.19.35. Pandemic Fund Project Launched

Fund focuses on "Animal Health Security Strengthening in India for Pandemic Preparedness and Response".

About Pandemic Fund Project

- A **$25 Million initiative funded** by the **G20 Pandemic Fund**.
- **Aim:** Enhance **low- and middle-income country's financing** capacity to respond to animal health threats and pandemic.
- **Implementing Entities:** Asian Development Bank (ADB), World Bank, Food and Agriculture Organization (FAO).
- **Need to focus on animal disease outbreaks**: Prevent Zoonotic Diseases, **Minimize socio-economic impacts** (E.g. SARS economic loss of $50 B), etc.
- **Major Interventions under the Project includes**
  - **Upgradation and expansion of animal health laboratories** and **vaccine manufacturing facilities.**
  - **Enhancing early warning** and **surveillance mechanisms.**
  - **Upgrading Data Management** and **Analytical systems**.
  - Disaster management framework for the livestock sector.

India's Key Initiatives for the Animal Health

- National Animal Disease Control Program (NADCP).
- Rashtriya Gokul Mission.

7.19.36. Global Health Emergency Corps (GHEC)

WHO and its partners **activated the GHEC for the first time** in response to a recent Mpox outbreak.

About GHEC

- **Genesis:** WHO founded the GHEC in **2023** after the response to **COVID-19 pandemic**
- **Objective:** Strengthening the **response to health emergencies**, and a **collaboration platform** for countries and health emergency networks.
- **Role:** It supports countries on their health emergency workforce, the surge deployment of experts and the networking of technical leaders.

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7.20. TEST YOUR LEARNING

MCQ

1. BharatGen Programme was recently launched. It is associated with

(a) Chandrayaan-4

(b) Artificial Intelligence

(c) Bio-fuels

(d) Nanotechnology

2. Nuclear Technologies can be used for which of the following?

1. Artificial insemination
2. Measure soil moisture
3. Controlling pests
4. Measure nitrogen fixation

Choose the correct answer from the given codes

(a) 1 and 2 only

(b) 3 only

(c) 2, 3, and 4 only

(d) 1, 2, 3 and 4

3. Consider the following statements with reference to Neutrinos:

1. They are produced in the universe from cosmic sources like the Sun, supernovae, etc.
2. Neutrinos interact very weakly with matter because of which it is difficult to detect them.

Which of the statements given above is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

4. Consider the following statements regarding Heritable Human Genome Editing (HHGE)?

1. It introduces changes in germline cells.
2. In it, CRISPR/Cas9 and Meganucleases are used as tools.
3. It helps in disease prevention.
4. It can used for creation of designer babies.

Which of the given statement(s) is/are correct?

(a) All four

(b) Only One

(c) Only two

(d) None

5. Non-Terrestrial Network (NTN) technology has been in the news recently, it is associated with

(a) Direct-to-Device(D2D) Satellite connectivity

(b) Artificial Intelligence

(c) Blockchain Technology

(d) 3D Printing

Questions

1. What do you understand by Antimicrobial Resistance (AMR)? Discuss factors which are contributing to it. How it can be tackled? (150 words, 10 Marks)

2. Nobel Prize in Chemistry 2024 has been awarded for the discovery of microRNA and its role in Gene Regulation. Discuss the role of MicroRNA in Gene regulation. And, potential applications of discovery. (250 words, 15 Marks)

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8.1. 100 YEARS OF DISCOVERY OF HARAPPAN CIVILISATION

Why in the News?

A century has passed since **John Marshall** revealed the **Harappan civilization** to the **world in 1924.**

About Harappa Civilization

- **Background**: Harappa civilization (Indus Valley Civilization) was discovered at **Harappa, Pakistan in 1921 by Daya Ram Sahni.** It's identified as a **Bronze-age civilization** due to copper-based alloy artifacts.
- **Location**: Found in northwestern Indian subcontinent across 2,000 sites in **India, Pakistan, and Afghanistan,** primarily between **Indus and Saraswati River basins.**
- **Extent of Civilization:** Spans from **Daimabad (South), Alamgirpur (East), Sutgakendor (West), to Manda (North).**
- **Time-Period**: Flourished from 6000 BCE to 1300 BCE, developing gradually:
  - **Early Harappan (6000 BCE-2600 BCE)**
  - **Mature Harappan (2600 BCE-1900 BCE)**
  - **Late Harappan (1900 BCE-1300 BCE)**

Significance of Discovery of Harappa Civilization

- The earliest evidence of settled life in **South Asia comes from the Harappan Civilization.**
- Its advanced urban planning impacted later **urban development, and it shows the earliest evidence** of extensive trade networks and **cultural exchanges in the ancient** world.
- The civilization's decline, potentially due **to environmental changes, offers insights into** climate change impacts.

Challenges Regarding Harappa Civilization

- **Undeciphered writing system** limits cultural understanding
- **No clear evidence of centralized authority** or social hierarchy
- **Women's status** remains unclear
- **Multiple theories for civilization's decline** (soil fertility, climate change, invasion) but exact cause unknown
- **Challenges About Excavation**
  - Limited Excavation
  - Issues in Recovering and Classifying Artifacts
  - Destruction of sites

Major Cities/Sites & Findings

Site/city	Location	Discovered/Excavated by	Major Findings
Harappa	Pakistan	Daya Ram Sahni in 1921	Red sandstone Male torso, Stone symbols of Lingam, Granaries, Mother Goddess etc.
Mohenjo-Daro	Pakistan	Daya Ram Sahni in 1921	Town Planning, Citadels, Drainage system, Great Bath
Ganweriwala	Cholistan area of Pakistan	Rafique Mughal in 1973	Terracotta unicorn figurines, Twisted clay tablet with Indus script etc.
Rakhigarhi	Haryana in India	First discovered in the 1960s by Archeological Survey of India.	Granary, cemetery, drains, terracotta bricks.
Dholavira	Rann of Kachchh (Gujarat)	Jagat Pati Joshi in 1968	Unique water harnessing system and its storm water drainage system, only site divided in 3 parts, Megalithic stone circle.
Lothal	Gujrat	S Rao in 1955	Dockyard, fire altars

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KEY FEATURES OF HARAPPA CIVILIZATION

TOWN PLANNING & ARCHITECTURE
- Cities followed rectangular grid pattern with right-angled roads
- Used burnt mud bricks with gypsum mortar Underground drainage system
- Featured citadels, granaries, Great Bath at Mosenjo-daro
- Multi-story buildings

CRAFT
- Skilled in spinning, boat-making, seal making, and terracotta manufacturing
- Made beads from diverse materials (carnelian, jasper, copper, bronze)
- Stealite seals served commercial and educational purposes

TRADE & COMMERCE
- Used standardized weights for trade
- Foreign trade with Mesopotamia (which called Indus as Meluha), Afghanistan, and tran via Dilmun and Makan stations
- Exported grain, jewelry, pottery
- Imported copper and precious stones

AGRICULTURE
- Used wooden ploughshare for farming
- Main crops included wheat, rice, millets, barley
- First cotton producers
- Domesticated oxen, buffaloes, goals
- Familiar with elephants and rhinoceros

ARTS
- "Lost wax' technique used for bronze casting (eg, Dancing Girl in tribhanga pose)
- Notable stone works include bearded priest statue from Mohenjo-daro and red sandstone male torso from Harappa
- Terracotta figures include Mother Goddess

RELIGION & CULTURE
- Worshiped Pasupati (proto-Siva), Mother Goddess
- Practiced phallus worship
- No temples found
- Trees (pipal) and animals were worshipped

• WRITING SYSTEM
- Pictographic script: Written in boustrophedon style ie, writing in right to left
- Not deciphered yet

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8.2. BIRSA MUNDA

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Why in News?

Janjatiya Gaurav Divas (15th November) was celebrated pan-India, marking the **150th birth anniversary of Bhagwan Birsa Munda**.

More on the News

- Diwas marks the birth anniversary of **Bhagwan Birsa Munda** and **honors the contributions of tribal communities, especially in India's freedom struggle.**

About Birsa Munda (Birth name Daud Munda)

- **Early life**
  - Belonged to the **Munda tribe** of the **Chhotanagpur plateau area** in Jharkhand.
  - He spent some time in the company of a **prominent Vaishnav preacher Anand Panre**.
- **Key Contributions:**
  - **Founded a new sect** known as the **Birsait,** believed in one God and aimed for social reforms.
  - **Launched campaign** against alcoholism, witchcraft etc. and spread awareness about cleanliness, land rights, **awared the tribal's** about British atrocities.
  - **Provided leadership to** the **Munda rebellion** (Ulgulan (Great Tumult) movement)

Bhagwan Birsa Munda

About Munda Rebellion

- Mobilized tribes belonging to **Chhotanagpur, Bengal and Odisha** revolted against the **Dikus** (outsiders) and **Europeans** (referred to as **Ravanas**).
- **Major Reasons for the revolt:**
  - **Introduction of Zamindari system:** Traditional systems like **Mundari Khuntkatti (community land ownership)** were replaced; reducing **tribals from landowners to landless labourers:**
    - ◊ Change led to **Veth begari (forced labour) and Bandhua Majdoori (bonded labour)** conditions for tribals.
  - **Exploitation by the Dikus:** E.g. excise controls, and other levies
  - **Missionaries** criticising their traditional culture.
- **Methodology:** Guerrilla warfare technique, etc.
- **Outcomes of the Movement**
  - **1908 Chhotanagpur Tenancy Act**: Prohibited tribal land transfer to non-tribals.
  - Forced labor called the **"Veth Bigari"** system abolished.

Other Key Tribal Movements in India

- **Santhal Hul, 1855-57:** Led by Sidhu and Kanhu Murmu
- **Tana Bhagat Movement, 1920-1921:** led by Jatra Bhagat
- **Koya Revolt, 1862 and 1922-1924**: Key leader- Thamman-Dora and Alluri Seetharama Raju

Role of Tribal communities in Indian National Movement

| Safeguarding ancestral lands, traditions, cultural identities | Mobilizing people and contributing to anti-colonial struggle | Exposing exploitative British Policies | Development works like construction of roads, building bridges etc. | Leading Social campaigns against superstitions and drinking. |

8.3. CLASSICAL LANGUAGE

Why in the News?

The Union Cabinet recently granted Classical Language status to Marathi, Pali and Prakrit, Assamese, and Bengali.

About Classical Language

- **Creation**: Introduced in 2004, with the Linguistic Experts Committee (LEC) by Ministry of Culture under Sahitya Akademi examining proposals.
- **Recognized Languages**: Tamil (2004), Sanskrit (2005), Telugu and Kannada (2008), Malayalam (2013), and Odia (2014).

Criteria for Declaring Classical Language

- **High Antiquity**: History of 1500–2000 years.
- **Heritage Literature**: Texts valued by generations of speakers.
- **Knowledge Texts**: Includes prose, poetry, epigraphical, and inscriptional evidence.
- **Distinctiveness**: Classical forms may differ from or be discontinuous with their modern versions.
- **2024 Update**: The 'original literary tradition' norm was dropped from the revised 2005 criteria.

About New Classical Languages

- **Prakrit**: Ancient Indo-Aryan languages used by the masses;
  - Significant in inscriptions (Ashokan), Buddhist, and Jain literature.
  - Pali is one of the prakrit.
  - Other Important Prakrit Language: Ardhamāgadhī, Saurasena and Maharastri (official language of the Satvahanas).
- **Pali**: Linked to Magadhi Prakrit; language of the Theravada Buddhist canon and Tipitaka (Vinaya, Sutta, Abhidhamma) texts.
- **Marathi**: Derives from Maharashtri Prakrit; modern forms date back to 739 CE copper inscriptions.
- **Bengali & Assamese**: Trace origins to Magadhi Prakrit, the language of Magadha's courts.

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Benefits of Conferring Classical Language Status

➤ **Financial Assistance**: Boosts research, preservation, and academic exploration.

➤ **Documentation & Conservation**: Supports digitization and accessibility of ancient texts.

➤ **Cultural Identity**: Strengthens linguistic pride and awareness.

➤ **Employment generation**.

➤ **Establishment of study center**s.

Steps Taken to Promote Classical Languages

➤ **Dedicated Institutions for Sanskrit, Telugu and Kannada.**

➤ **National Education Policy, 2020**

➤ **UGC Support for creation of professional chairs in Central Universities.**

➤ **National Mission for Manuscripts**

8.4. NEW FLAG, INSIGNIA AND LADY JUSTICE AT SUPREME COURT

Why in the News?

Recently new flag, insignia of supreme court and a statue of lady justice was unveiled.

Insignia of Supreme Court

Flag of Supreme Court

About Lady Justice

➤ Originated from Greek-Roman mythology as goddess Justitia

➤ Traditionally depicted with scales, sword, and blindfold (added in 14th century)

Significance of New Lady Justice Statue

➤ Represents decolonization

➤ Open eyes symbolize that **law is not blind and it 'sees' everyone equally**.

➤ Constitution replaces sword, emphasizing supremacy of constitutional values.

➤ Retained scales to show impartial judgment.

Lady Justice

About Flag and Insignia of Supreme Court

➤ Designed by NIFT Delhi

➤ Features: Ashok Chakra, Supreme Court building, Constitution

➤ **Insignia has** Navy blue color with Sanskrit motto "Yato Dharmastato Jayah"

8.5. KARTARPUR SAHIB CORRIDOR

Why in the News?

India and Pakistan have agreed to extend the validity of the Agreement on Sri Kartarpur Sahib Corridor for another five years.

About Dera Baba Nanak - Sri Kartarpur Sahib Pilgrimage

➤ **Location**:
  ➡ Gurdwara Sri Kartarpur Sahib is in Narowal district, Pakistan, 4.5 km from the border near Dera Baba Nanak, Punjab.
  ➡ Village Kartarpur lies on the west bank of River Ravi; Dera Baba Nanak is on the east bank.

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About Agreement on Sri Kartarpur Sahib Corridor

- Signed in 2019 for 5years.
- Allows visa-free travel for Indian pilgrims and OCI cardholders
- Requires same-day return
- Pakistan charges USD 20 per visit

Important Sikh Pilgrimage Places

- Gurdwara Janam Asthan (Nankana Sahib, Pakistan)
- Gurudwara Ber Sahib (Sultanpur Lodhi, Punjab)
- Akal Takht & Golden Temple (Amritsar)
- Takhts: Sri Keshgarh Sahib (Anandpur), Sri Damdama Sahib (Talwandi Sabo), Sri Patna Sahib (Bihar), Sri Hazur Sahib (Nanded, Maharashtra).

Significance of Kartarpur Sahib Corridor

- **Cultural**: Final resting place of Guru Nanak
- **Religious**: Site where three pillars (Kirat Karo, Vand Chhako and Naam Japo) of Sikhism were practiced.
- Promotes **heritage tourism**
- **Symbol of unity** between India and Pakistan

Dera Baba Nanak – Sri Kartarpur Sahib Pilgrimage
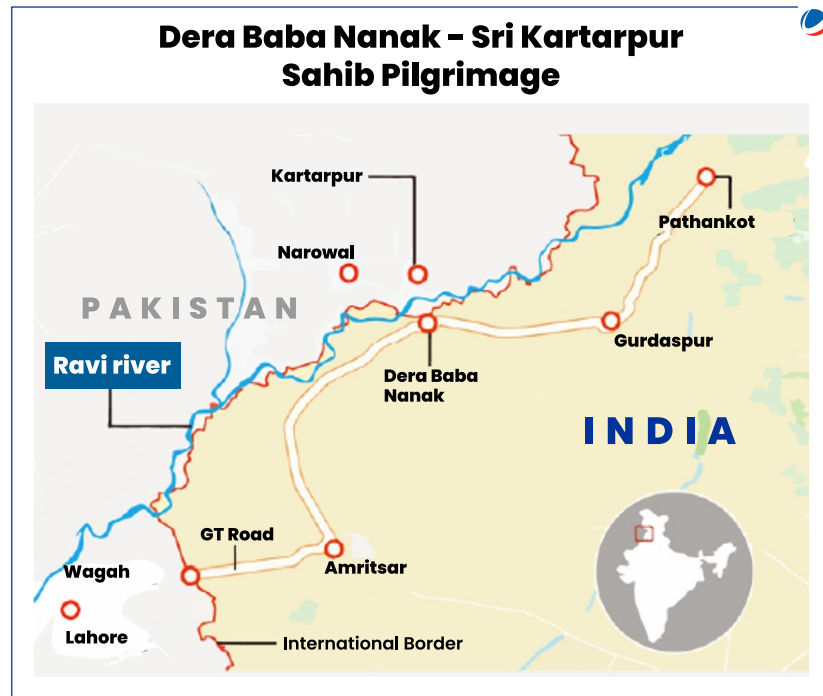
8.6. PORT BLAIR RENAMED AS SRI VIJAYA PURAM

Why in the news?

Port Blair, Andaman and Nicobar Islands' capital, has been **renamed Sri Vijaya Puram by Ministry of Home Affairs**.

More on the news

- **MHA has issued guidelines for renaming villages,** towns/cities, railway stations etc. of states.

Purpose of renaming:

- The decision aims to remove **colonial imprints.**
- **'Port Blair' has a colonial legacy, while 'Sri Vijaya Puram'** symbolizes victory in India's freedom struggle and the significant role of the A&N Islands.

Sri Vijay Puram and its cultural importance

- **Srivijaya was an ancient empire based in Sumatra** that influenced Southeast Asia and spread of Buddhism.
- It is supposed to have declined after **Chola naval raids in 11th** century AD.
- **Chola invasion of Srivijaya was a unique event** in the history of India.

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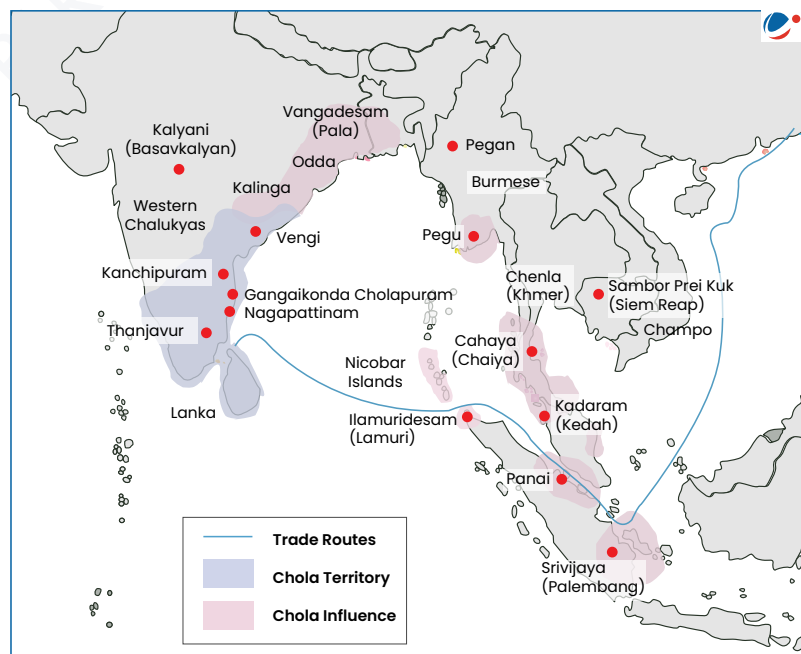
Colonial legacy of Port Blair

- Named **after Archibald Blair,** a naval surveyor and Bombay Marine lieutenant, Port Blair serves as A&N Islands' entry point.

Colonization of Port Blair

- **Archibald Blair,** commissioned by the East India Company, surveyed the Andaman Sea in the late 18th Century.
- He discovered a natural harbor which he named **Port Cornwallis after Lord Cornwallis.**
- The initial colonization **attempt established a colony on Chatham Island,** which was later relocated to **Port Cornwallis** in **North Andaman** to serve as a naval base.
- This settlement was abandoned in **1796** due to **disease and high mortality rates.**
- Following the **Indian Revolt of 1857,** the British reestablished **a penal colony**, starting with a **jail on Viper Island** before **constructing the Cellular Jail (Kala Paani) in 1906 at Port Blair.**

Nationalist Movement at cellular jail in Port Blair

- At present, the cellular jail has been transformed into a **national memorial and museum.**
- Freedom Fighters including **Batukeshwar Dutt, Barindra Kumar Ghosh, Sachindra Nath Sanyal, and Vinayak Damodar Savarkar**, were imprisoned in cellular jail.
  - **Vinayak Damodar Savarkar** wrote '**The Indian War of Independence, 1857'** in cellular jail.
  - **Mahavir Singh, Mohan Kishore Namadas and Mohit Moitra,** led a hunger strike within the prison in 1933.
  - **Sher Ali** assassinated Viceroy Lord Mayo in 1872.
- Japanese occupation of Port Blair took place during **the Second World War (1942 to 1945)**, they gave it to Provisional Indian Government under Subhas Chandra Bose.

Andaman and Nicobar Islands

- Home to Particularly Vulnerable Tribal Group (PVTG) including Great Andamanese and Sentinelese.
- **Evolution of its Name:** Handuman by Malays< Ma-Nakkavaram by Chola dynasty< Necuverann (Marco polo)< A&N Islands (by British)< Renaming of Ross, Neil and Havelock Islands (2018).

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8.7. NEWS IN SHORTS

8.7.1. Mankidia Tribes

The habitat rights are provided to Mankidia tribes of Odisha under the Scheduled Tribes and Other **Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.**

About Mankidia Tribes

- They are one of seventy-five Particularly Vulnerable Tribes, a semi-nomadic section of the Birhor tribe, known for **catching monkeys and trapping small birds and animals.**
- Live in dome-shaped leaf huts **called Kumbha.**
- Speak a language from the **Munda branch of the Austro-Asiatic language group.**

8.7.2. Odisha Famine of 1866

This famine Killed Around one-third of Odisha's total population.

- Also known as **'Na-Anka Famine'** because it occurred during **Gajapati Divyasinghadeva's** ninth regnal year.
- **Causes:** Carelessness of British administrators, natural and economic disasters.
- Occurred during **Thomas Edward Ravenshaw's** tenure as Odisha's Commissioner.
- **Aftermath**
  - Puri Canal was built connecting Hooghly River to River Matai.
  - Ravenshaw established vernacular schools and converted Cuttack Zilla School into Ravenshaw College.

8.7.3. Anubhav Awards

7th Anubhav Awards Ceremony is to be held in Vigyan Bhawan, New Delhi.

About Anubhav Awards

- **Given by**: Department of Pension & Pensioners' Welfare
- **Based on:** Anubhav Write ups, experiences shared by retiring central government employees/pensioners on the Anubhav Portal.
- **Aim:** To promote good governance and administrative reforms based on retiring employees' experiences.

8.7.4. FIDE Chess Olympiad

Indian contingent won Gold in both open and women's category at the 45th International Chess Federation (FIDE) Olympiad.

About 45th FIDE Chess Olympiad

- **Organised in**: Budapest, Hungary.
  - **44th Chess Olympiad**: Took place in Chennai, India.
- **Trophy for open section:** Hamilton-Russell Cup.
- **Trophy for women's section**: Vera Menchik Cup.

About FIDE

- Governing body for chess, regulates all international chess competitions.
- Non-governmental institution, recognized by the International Olympic Committee in 1999 as a **Global Sporting Organization.**

8.7.5. Retired Sportsperson Empowerment Training (RESET) Programme

The Ministry of Youth Affairs & Sports has launched **RESET Programme**

About RESET Programme

- **Aims:** To empower retired sports persons with career development skills and enhance employability.
- **Target Audience:** Retired athletes aged 20-50 who have competed or won medals in national or international events.

Key Features:

- **Two levels**: Class 12th and above, Class 11th and below.
- **Hybrid mode** with self-paced learning, on-ground training, and internships.
- Offers **placement assistance** and entrepreneurial guidance.

8.7.6. Sohrai painting

Prime Minister gifted Sohrai Painting to Russia's President Vladimir Putin during BRICS summit in Kazan, Russia.

About Sohrai painting

- Practiced as a mural art form in **Hazaribagh district, Jharkhand**.
- Made by tribal women on the **walls of their mud houses** during the Sohrai festival
- **Features:** Use of natural pigments and simple tools, brushes made from twigs, rice straw, or even fingers, and depiction of animals, birds, and nature
- Sohrai-Khovar Paintings have also been awarded **GI tag**.

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8.7.7. Nobel Prize in Literature

South Korean author **Han Kang** won the Nobel Prize in Literature for her poetic prose

About Nobel Prize

- Established by Alfred Nobel in 1895, first awarded in 1901, and given annually.
- **6 Categories**: Peace, Physics, Chemistry, Medicine, Literature, and Economic Science.
  - The Economic Sciences award was added in 1968 by Sweden's central bank.
- Since 1974, the Nobel Prize cannot be awarded posthumously unless the recipient dies after the announcement.

8.7.8. Nobel Peace Prize

The 2024 Nobel Peace Prize has been awarded to the Japanese organization Nihon Hidankyo for its work toward a world free of nuclear weapons.

About Nobel Peace Prize

- Awarded to those promoting "fraternity between nations," reducing standing armies.
- In 2017, the prize was given to the International Campaign to Abolish Nuclear Weapons (ICAN) for its efforts in denuclearization.

8.7.9. Cabinet Approves Development of NMHC At Lothal, Gujarat

The National Maritime Heritage Complex (NMHC), under the Sagarmala Programme, is being developed at Lothal to create the world's largest maritime heritage complex, featuring a 2400 BC dry dock, a Lighthouse Museum, and a maritime eco-resort.

About Lothal:

- **Location**: Between Bhogavo and Sabarmati rivers near Gulf of Khambat.
- **Oldest man-made dry-dock (2400 BC ago)**

India's Maritime Heritage

- **IVC (3000-2000 BC):** Trade with Mesopotamia
- **Vedic Age**: First maritime references in Rig Veda
- **Nandas/Mauryas**: World's first recorded navy
- **Satavahanas**: First ship-inscribed coins
- **Guptas**: Expanded European-African trade
- **Marathas**: Strong navy under Shivaji
- **Southern Dynasties**: Notable maritime presence.

8.7.10. Geographical Indications tag to 8 Assam Products

The Geographical Indications (GI) Registry in Chennai has granted the GI tag to eight products from Assam:

- Traditionally fermented rice-based alcoholic beverage (3):
  - **Bodo Jou Gwran**
  - **Bodo Jou Gishi**
  - **Maibra Jou Bidwi**

Traditional Dishes (5):

- **Bodo Napham**: Fermented fish dish.
- **Bodo Ondla**: Rice powder curry.
- **Bodo Gwkha**: Dish for Bwisagu festival, also known as 'Gwka Gwkhi'.
- **Bodo Narzi**: Semi-fermented food with jute leaves.
- **Bodo Aronai**: Traditional shawl or scarf.

8.7.11. Commonwealth Games (CWG) 2026

The 2026 Commonwealth Games (CWG), set to be held in Glasgow, will feature only 10 sports.

About CWG 2026

- Six of the 12 disciplines have been dropped for the 2026 edition, including badminton, cricket, hockey, squash, table tennis, and wrestling.

About CWG

- The first CWG was held in 1930 in **Hamilton, Canada**.
- The Games are **held every four years. India hosted the Games in 2010 in Delhi**.

8.7.12. Paryatan Mitra And Paryatan Didi Initiative

The Ministry of Tourism launched **Paryatan Mitra** and **Paryatan Didi** as part of a national responsible tourism initiative.

About Initiative

- Aims to enhance the tourist experience by connecting them with 'tourist-friendly' locals who act as ambassadors.
- It provides tourism-related training and awareness to individuals.
- Special focus is given to training women and youth to develop new tourism experiences.

8.7.13. Poumai Naga tribe

The Poumai Naga tribe of Purul village, Senapati District, Manipur, has prohibited hunting, trapping, and killing wild animals and birds within their territory.

About the Poumai Naga Tribe

- Among the oldest and largest Naga tribes in Manipur.
- Reside in both Manipur and Nagaland.
- Renowned for Pouli (pottery) and Poutai (salt) production.
- Language: Poula.

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8.8. TEST YOUR LEARNING

MCQ

1. **Consider the following statements about Classical Language status in India:**
   1. It leads to increased financial assistance for research and preservation
   2. The status helps in documentation and digitization of manuscripts
   3. It generates employment in archiving and translation sectors
   4. National Education Policy 2020 focuses exclusively on Sanskrit promotion.

   Which of the above statements is/are correct?

   (a) Only one
   (b) Only two
   (c) Only three
   (d) All four

2. **Consider the following statements regarding Pali language and Buddhist literature:**
   1. Pali was traditionally identified with Magadhi Prakrit and was used for Buddhist philosophical works like Dhammapada.
   2. The Pali Canon consists of only two pitakas - Vinaya Pitaka and Sutta Pitaka.
   3. Vinaya Pitaka deals exclusively with rules and discipline of Buddhist sangha monastic order.

   Which of the above statements is/are correct?

   (a) Only one
   (b) Only two
   (c) All three
   (d) None

3. **Alluri Seetharama Raju was associated with which one of the following movements?**

   (a) Munda Rebellion
   (b) Santhal Hul
   (c) Tana Bhagat Movement
   (d) Koya Revolt

4. **With reference to the Harappan Civilization, consider the following statements:**
   1. The Harappan Civilization was first discovered at Mohenjodaro by John Marshall in 1924.
   2. It is classified as a Bronze Age civilization due to the presence of copper-based alloy artifacts.

   Which of the statements given above is/are correct?

   (a) 1 only
   (b) 2 only
   (c) Both 1 and 2
   (d) Neither 1 nor 2

5. **Consider the following statements regarding the historical background of Port Blair:**
   1. Port Blair was named after a British naval officer, Archibald Blair, who surveyed the Andaman Sea in the 18th century.
   2. Japanese occupation of Port Blair took place during the Second World War (1942 to 1945),

   Which of the statements given above is/are correct?

   (a) 1 only
   (b) 2 only
   (c) Both 1 and 2
   (d) Neither 1 nor 2

Questions

1. Discuss the reasons behind the Munda Rebellion and the role played by Birsa Munda. Also, mention its key outcome (150 words, 10 marks)

2. Classical languages help strengthen India's literary tradition. Elaborate. (250 words, 15 Marks)

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ETHICS

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9.1. CORRUPTION

Introduction

The Central Vigilance Commission's 60th report and the Karnataka **Lokayukta's MUDA scam investigation** both exposed the pervasive problem of **corruption in India.**

Inquiry Wing of Lokpal

- The Inquiry Wing of Lokpal conducts preliminary inquiries into offenses alleged against public servants under the **Prevention of Corruption Act, 1988.**
- It submits a report within **60 days to the Lokpal.** The wing is led by the Director of Inquiry, supported **by three SPs specializing in general, economic/banking, and cyber matters, each with their own inquiry officers and staff.**
- It holds powers equivalent to a civil court under the **Code of Civil Procedure, 1908.**

Corruption

- Defined as **abuse of public office** for personal gain, including abuse of power and influence in political, corporate, or social positions. Gains can be financial (bribery) or non-financial (patronage, nepotism).
- **Stakeholders:** Public officials, citizens, Civil society, judiciary, Media

Ethical Implications of Corruption

- Creates inequality, breaches public trust, presents conflicts of interest, harms social justice, undermines integrity and rule of law, and leads to moral decay through relativism

Second Administrative Reforms Commission on Combating Corruption

- Recommends double punishment for collusive bribery, removal of prosecution sanctions for red-handed cases, liability for damages, speedy trials, whistleblower protection, and amendments to legislative immunity.

Measures for Combating Corruption suggested by Kautilya's Arthashastra

- Suggests information organization, regular transfers, supervision, public disclosure of corrupt acts, and strict punishment for both corrupt officials and their supporters.

Check your Ethical Aptitude

You are the District Magistrate of a region where a major infrastructure project has been delayed for several years. The project is critical for the development of the area and has the potential to significantly improve the lives of local citizens by improving public transportation. However, you discover that the delays are due to widespread corruption involving both public officials and private contractors. These stakeholders have been engaging in collusive bribery, inflating project costs, and embezzling funds meant for the project.

As DM, you are confronted with following challenges:

- Some senior officials in your department are involved in the corruption, and you fear backlash if you take action.
- Citizens are growing increasingly frustrated with the delays, and you are under pressure to take immediate steps to complete the project.
- Whistleblowers have come forward with evidence of the corruption, but they are facing harassment and threats to their safety.

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

- What are the ethical dilemmas you face in this situation?
- Suggest measures that can be implemented to prevent such instances of corruption in the future and promote accountability in public projects.

Ethical Systems and Corruption

Ethical System	Key Principle	View on Corruption
Deontology	An act is moral if there is a universal sense of duty.	Corruption is immoral as it violates the duty-based moral principles.
Utilitarianism	Actions are right if they maximize overall happiness.	Corruption is wrong because it causes widespread harm and reduces societal well-being.
Contractarianism	Actions are good if they respect others' rights and uphold the social contract.	Corruption undermines social cohesion and the agreements that form the basis of society

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9.2. MAHATMA GANDHI AND COMPASSION

Recently, former United Nations Secretary-General, Ban-Ki-Moon, highlighted the significance of **Mahatma Gandhi's compassion.**

What is Compassion?

A feeling arising from others' suffering, coupled with a desire to alleviate that suffering. Different from sympathy and empathy by including an active desire to help.

- **Sympathy:** pity or sorrow for someone else's suffering
- **Empathy:** feel what another person is feeling
- **Compassion:** desire to alleviate suffering.

Key Components of Compassion

- **Cognitive/Empathic:** Being aware of other's suffering
- **Affective:** Sympathetic concern.
  - Emotionally moved by the suffering.
- **Intention:** Wish to see relief in the suffering.
- **Motivational:** Readiness to help relieve the suffering.

Key values of Mahatma Gandhi that foster Compassion?

Core Principles

- **Satyagraha:** Securing rights without inflicting injury (**E.g.- Indigo Revolt 1917**)
- **Equality:** Fighting discrimination against untouchables and empowering women
- **Respect for Humanity:** Compassion even towards oppressors
- **Kindness:** He was a **committed vegetarian** and discouraged the slaughter of animals on moral grounds.
- **Sarvodaya (Welfare for all)**
- **Non-Violence:** A tool to attain truth
- **Concern for Nature:** "The Earth has enough resources for our needs but not for our greed."
- **Altruism or Self-Sacrifice: Gandhi's Talisman**
- **Sarvodaya:** Welfare for all
- **Concept of trusteeship**

Seven Deadly Social Sins

- Wealth Without Work
- Pleasure Without Conscience
- Knowledge Without Character
- Commerce Without Morality
- Science Without Humanity
- Religion Without Sacrifice
- Politics Without Principle

Contemporary Relevance

- **Addressing climate crisis:** Living in harmony with nature
- **Resolving conflicts:** approach of "hate the sin, not the sinner"
- **Dealing with economic challenges:** idea of trusteeship
- **Promoting social change:** like the Swachch Bharat Mission
- **Bridging societal fragmentation:** vision of inclusive spirituality

Way Forward on Imbibing Compassion

- Fostering compassion from childhood
- Developing social responsibility
- Practicing self-compassion
- Accepting mistakes and showing forgiveness

9.3. PERSONALITY IN FOCUS: RATAN NAVAL TATA (1937–2024)

Recently, former chairman of Tata Group, Ratan Naval Tata passed away marking the end of an era.

Early Life

- **Born**: December 28, 1937, Mumbai
- **Education**: Architecture and engineering from Cornell University, Advanced Management from Harvard
- **Career**: Joined Tata Industries in 1962

Key values

- **Profound Simplicity**: Low-profile, focused on work
- **Resilience and Perseverance:** Despite hurdles, launched the **Tata Nano project in 2008**
- **Visionary:** Expanded Tata Group from $4 billion to $100 billion
- **Humility**: Worked on shop floor to understand grassroots operations.
- **Empathy:** Tata Trust expanded its philanthropic work.
- **Spirit of service: Restoration of Taj Hotel and provided personal support** to affected employees.

Key lessons from the life of Ratan Tata

- **Compassionate Capitalism:** 60-65% of Tata Sons's dividends directed to charitable causes.
- **Corporate Social Responsibility**
- **Contribution to Social Well-Being: India's first cancer hospital.**
- **Business Ethics:** Strong ethical principles **over short-term profits.**
- **Promoting Entrepreneurship:** Invested in **startups,** such as Cashkaro, Snapdeal etc
- **Promoted Sustainability: PETA India** awarded Tata Motors **the Cow-Friendly Future award.**
- **Global Footprint: E**.g. Acquisitions like Jaguar Land rover and Corus.

Awards

- Padma Vibhushan (2008)
- Padma Bhushan (2000)

Conclusion

Ratan Tata embodied ethical leadership, demonstrating compassion, resilience, and commitment to societal well-being beyond business success.

9.4. INSTANT JUSTICE

SC Guidelines on Property Demolition: Key Points

- **Fundamental Principle:** No demolition without following due process and natural justice
  - Court condemns "might is right" approach in demolitions
- **Mandatory Requirements:** Prior show cause notice to property owner
  - Personal hearing opportunity with designated authority
  - Video recording of entire demolition process
- **Enforcement Mechanism:** Violations will attract contempt proceedings
- **Exceptions:** Guidelines don't apply to unauthorized constructions
  - Court-ordered demolitions are exempt

Fundamental Constitutional and Legal principles impacted by demolition

- **Separation of Power**: Executive takes up Judicial role
- **Erodes Public Trust:** Executive acts as trustee of the Citizens

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- **Collective Punishment:** Punishing entire family with one accused
- **Infringes Right to Shelter:** Under Article 21
- **Violates Principle of Criminal Law:** Accused is innocent unless proven guilty

Stakeholders and their Interest in Instant justice	
Stakeholders	**Interest**
Victims and Their Families	Access to Justice, Right to Fair Trial, Human Right Protection, Dignity, To make amends for their crime
Law Enforcement and Judiciary	Rule of law, Criminal Justice System, Proportionality in crime and Punishment, Delivering fair and impartial punishment
Society at Large	Speedy justice, Faith in Judicial System, Law and Order, Public Safety
Perpetrators (Alleged or Convicted)	Quick Justice Delivery, Protecting the vulnerable, Popular Public narrative on crime
Government	Fair Criminal Justice System, Balancing individual rights with collective security, Public sentiments and outcry

Understanding Theories of Justice

- **Core Concept:** Justice means fair and equal treatment under law
  - Dynamic concept that evolves with society
- **Bentham's Utilitarian Theory:** Focuses on maximum satisfaction for maximum people
  - Justice measured by collective societal benefit
- **Rawls's Two Principles: Equal Basic Liberties:** Guarantees fundamental rights for all
  - **Difference Principle:** Accepts inequalities only if they help society's poorest
- **Amartya Sen's Theory of Justice (Capability Approach):** Justice through freedom to develop capabilities
  - Emphasizes access to opportunities (health, education)
  - Focuses on actual ability to achieve well-being
- **Comparative Analysis**
  - **Utilitarianism:** Collective good
  - **Rawls:** Fairness and equality with protected rights
  - **Sen:** Development of human potential

Reasons behind growing cases of instant justice:

- **Delayed Justice:** Erodes public trust in the system - **Law Commission** (239th report)
- **Legal Ignorance:** Lack of awareness about due processes.
- **Emotional Outbursts:** Revenge-driven reactions in sensitive cases.
- **Misinformation:** Viral content mobilizes uninformed crowds.
- **Media Sensationalism:** Fuels mob mentality.
- **Public Support:** Police encounters often seen as justice.

Ethical Issues in Instant Justice

- **Rule of Law vs. Arbitrary Actions:** Undermines equality before the law, replacing it with biased judgment.
- **Due Process vs. Swift Punishment:** Denies fair trial rights (Article 21), ignoring "innocent until proven guilty."
- **Retributive vs. Reformative Justice:** Promotes vengeance over proportional or justified punishment.
- **Natural vs. Arbitrary Justice:** Violates principles like audi alteram partem (right to be heard).
- **Means vs. Ends:** Pursuit of deterrence at the cost of legal and ethical principles disrupts societal order.

Way Forward

- **Balance Retributive and Restorative Justice:** Focus on repairing harm while ensuring visible and impartial justice.
- **Public Sensitization:** Conduct awareness campaigns on legal rights and the consequences of vigilante actions.
- **Judicial Reforms:** Enhance transparency, efficiency, and accountability to restore public trust; implement Supreme Court guidelines (**e.g.,** D.K. Basu vs. State of West Bengal**).**
- **Institutional Accountability:** Ensure police uphold the accused's right to a fair trial as mandated by the Constitution.
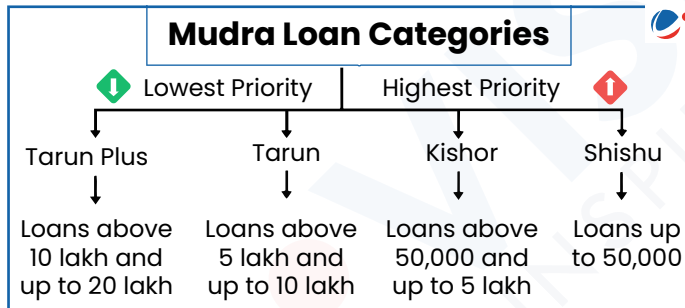
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10. SCHEMES IN NEWS

10.1. Pradhan Mantri Mudra Yojana (PMMY)

The limit of **Mudra loans** under the **PMMY** has been enhanced from **Rs. 10 lakhs to 20 lakhs**.

About PMMY

- **Ministry: Ministry of finance**
- **Launch year:** 2015
- **Purpose:** MUDRA **loans to the non-corporate, non-farming small & micro enterprises.**
- **MUDRA**: Micro Units Development and Refinance Agency Ltd (MUDRA) is a refinance agency. It provides **refinance support to its intermediaries viz.** Banks, Micro Finance Institutions (MFIs) and NBFCs.
- **Key Features**:
  - **Means for availing Mudra loans: Bank, NBFC, MFIs, etc., or through the Udyamimitra portal**
  - **No Need for Collaterals: Credit Guarantee Fund for Micro Units (CGFMU)** provides guarantee.
  - **Interest rate is deregulated:** Interest Subvention of 2% on prompt repayment of Shishu loans and 25bps reduction for MFIs/NBFCs lending to women entrepreneurs.

Mudra Loan Categories

Lowest Priority		Highest Priority	
Tarun Plus	Tarun	Kishor	Shishu
Loans above 10 lakh and up to 20 lakh	Loans above 5 lakh and up to 10 lakh	Loans above 50,000 and up to 5 lakh	Loans up to 50,000

10.2. Atal Innovation Mission 2.0

Union Cabinet has approved the continuation of its **flagship initiative, the Atal Innovation Mission (AIM 2.0).**

About AIM 2.0

- **Objective**: To **create and promote a culture of innovation** and entrepreneurship
- **Implementing agency:** NITI Aayog
- **Implementation period:** Till March 31, 2028.
- **Key Features:** AIM 2.0 involves piloting new initiatives **designed to fill gaps in the ecosystem and scaling successes** through central and state governments, industry, academia and community.
- **Mechanism to improve the entrepreneurship ecosystem under the scheme**

- **Increasing input** (i.e., ushering more innovators and entrepreneurs) through
  ◊ **The Language Inclusive Program of Innovation (LIPI)**
  ◊ **The Frontier Program** (support for innovations in Jammu and Kashmir (J&K), Ladakh, the Northeastern states (NE), Aspirational Districts and Blocks)
  ◊ **Improving the success rate or 'throughput'** (i.e., helping more startups succeed) through Human Capital Development Program, State Innovation Mission (SIM), **International Innovation Collaborations program,** etc.
- **Improving the quality of 'output'** (i.e., producing better jobs, products, and services) through the **Industrial Accelerator program**, **Atal Sectoral Innovation Launch Pads (ASIL) program**, etc.

10.3. Pradhan Mantri Vanbandhu Kalyan Yojana

The **Pradhan Mantri Vanbandhu Kalyan Yojana (PMVKY)** completed **10 years.**

About PMVKY

- **Ministry**: Ministry of Tribal Affairs
- **Launched: in 2014, Till 2025-26**
- **Objective:** Improving the quality of life in tribal areas
- **Key Features**:
  - It covers **all tribal people and all areas** with tribal populations across the country.
  - PMVKY is **an umbrella scheme,** that has several components:
  - **Pradhan Mantri Adi Adarsh Gram Yojana.**
  - Development of Particularly Vulnerable Tribes (PVTGs) Support to Tribal Research Institute (TRI),
  - **Pre-Matric Scholarships, Post-Matric Scholarship, etc.**

10.4 PM Rashtriya Krishi Vikas Yojana (PM-RKVY)

- **Purpose:** Promote **sustainable agriculture.**
- **Type:** Centrally sponsored scheme.
- **Ministry:** Ministry of Agriculture & Farmers Welfare.
- **Objectives:** To incentivize state level public investment in agriculture.
  - Strengthen farmers through infrastructure development for eg. Value chain addition.
  - Empower youth through agri-entrepreneurship.

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- **Funding Model:** 90:10 per cent for Northeastern and hilly states; 60:40 per cent for other states; 100 per cent for UTs
- **Key Focus Areas:** Small and marginal farmers, Scheduled Castes/Tribes, women and other weaker segments of society.

10.4.1 Krishonnati Yojana (KY)

- **Purpose:** to address **food security & agricultural self-sufficiency**.
- **Type:** Centrally sponsored scheme.
- **Ministry:** Ministry of Agriculture & Farmers Welfare.
- **Objectives:** Holistic and scientific development of agriculture and allied sectors to increase farmer income.
- **Key Focus Areas:** Integrated Development of horticulture, Technological Intervention and Comprehensive agriculture Transformation.

10.5. Pradhan Mantri Annadata Aay SanraksHan Abhiyan (PM-AASHA)

- **Purpose:** To provide fair and stable commodity prices to farmers.
- **Ministry:** Ministry of Agriculture & Farmers Welfare.
- **Type:** Central Sector Schemes (launched in 2018)

- **Fund allocated:** Rs. 35,000 crores during 15th Finance Commission
- **Central Nodal Agencies (CNA):**
  - Government Guarantee to **lender banks**
  - Includes **National Agricultural Co-operative Marketing Federation of India Limited (NAFED), National Co-operative Consumer's Federation of India Limited (NCCF)** for procurement operations
- **Key components of the scheme**
  - **Price Support scheme (PSS):** procured at MSP
  - **Price Stabilization Fund (PSF):** Working capital for commodities is provided
  - **Price Deficit Payment Scheme (PDPS):** Direct price difference between MSP and selling price is provided
  - **Market Intervention Scheme (MIS):** to avoid distress sales
  - **e-Samridhi Portal:** Important since 2017 for oilseeds, pulses MSP procurement, enhancing efficiency.

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ANSWER KEY

Polity

1	2	3	4	5
Answer: D	Answer: C	Answer: C	Answer: A	Answer: B

International Relations

1	2	3	4	5
Answer: A	Answer: A	Answer: C	Answer: A	Answer: A

Economy

1	2	3	4	5
Answer: B	Answer: B	Answer: C	Answer: C	Answer: A

Security

1	2	3	4	5
Answer: B	Answer: B	Answer: C	Answer: B	Answer: A

Environment

1	2	3	4	5
Answer: B	Answer: B	Answer: B	Answer: C	Answer: A

Social Issue

1	2	3	4	5
Answer: C	Answer: A	Answer: C	Answer: C	Answer: B

Science and Technology

1	2	3	4	5
Answer: B	Answer: D	Answer: C	Answer: A	Answer: A

Culture

1	2	3	4	5
Answer: C	Answer: B	Answer: D	Answer: B	Answer: C

Heartiest *Congratulations* to all Successful Candidates

79 in **TOP 100** Selections in **CSE 2023**
from various programs of **Vision IAS**

1 AIR
Aditya Srivastava

2 AIR — Animesh Pradhan

5 AIR — Ruhani

6 AIR — Srishti Dabas

7 AIR — Anmol Rathore

9 AIR — Nausheen

10 AIR — Aishwaryam Prajapati

39 Selections in **TOP 50** in **CSE 2022**

1 AIR — Ishita Kishore

2 AIR — Garima Lohia

3 AIR — Uma Harathi N

1 AIR — **SHUBHAM KUMAR**
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