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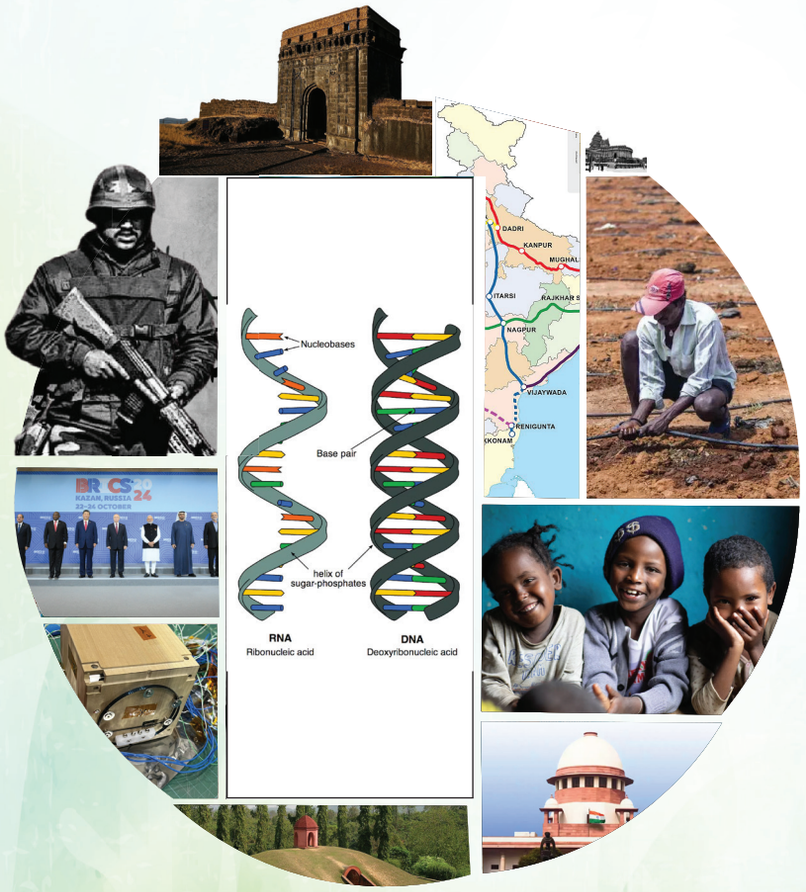

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POLITY & GOVERNANCE

TOPICS FOR MAINS

Private Property and the Common Good

Syllabus Mapping: GS-Paper 2, Rights Issue, DPSP

Context

Recently the Supreme Court restricted the powers of the state to acquire private property in the **Property Owners Association v State of Maharashtra Case 2024.** It reflects a shift from **socialist principles towards a more market-oriented approach.**

Background

- The issue started with challenges to Chapter VIIIA of the **Maharashtra Housing and Area Development Act, 1976**, which was amended in 1986.
- This provision allowed the **Mumbai Building Repair and Reconstruction Board** to acquire cessed properties if 70% of residents consented.
- The acquired properties were intended to be restored and **redistributed to "needy persons" and "occupiers."**
- The Property Owners' Association, representing over 20,000 landowners, contended that the state cannot take over private properties under the pretence of constitutional provisions like **Article 39(b) and 31C.**

ARTICLE

The common good

- **Article 39(b):** It mandates that the State should work toward distributing material resources to benefit the common good.
- **Article 31C:** Any law enacted to implement Articles 39(b) and 39(c) is protected from being challenged on the grounds of violating the right to equality (Article 14) or the rights under Article 19, such as freedom of speech and peaceful assembly.

Property Owners Association v State of Maharashtra Case, 2024 verdict

- The majority **overturned the Sanjeev Coke ruling (1982), rejecting the argument from the Ranganath Reddy Case, 1977** that all private property could be deemed "material resources of the community" for redistribution.
- All privately owned property could be classified as a "material resource" for the common good, viewing it as a rigid economic ideology favouring **extensive governmental control over private resources.**
- The court clarified that for a resource to be considered a "**material resource of the community**," it must be **both material and of the community**.
- Key factors to determine this include:
  - The inherent characteristics of the resource.
  - Its impact on community well-being.
  - Its scarcity.
  - The consequences of its concentration in private hands.
- Certain resources, such as forests, ponds, and minerals, may qualify under Article 39(b) even if privately owned, but not all private resources automatically qualify based solely on meeting material needs.
- The term **"distribute" in Article 39(b)** is interpreted broadly, allowing for both government acquisition and redistribution to private entities as long as it serves the common good.
- All private resources, except personal effects like clothing and jewellery, could potentially be transformed into "material resources of the community" through means like nationalisation or acquisition.

Impacts of the Ruling

- **Stricter Limits on Eminent Domain:** The ruling establishes that the state's power to acquire private property under eminent domain **must be exercised within clearly defined parameters, with fair compensation provided.**
- **Strengthening of Property Rights**:The judgment **strengthens the right to private property** by affirming that the state cannot label private property as "material resources of the community" without evaluating its communal value and impact.

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- **Balanced Approach to Directive Principles and Rights:** The decision balances the Directive Principles of State Policy with the constitutional right to property under Article 300A.
  - Ensured that **policies respect individual property rights even while advancing public interest.**
- **Influence on Economic Policy and Private Enterprise:** The ruling upholds private enterprise by setting boundaries on the state's intervention in property matters. This promotes a more business-friendly environment, encouraging investment and entrepreneurship.

Case Laws on Property Rights

Shankari Prasad Case (1951)	Upheld the 1st Amendment, ruling that Parliament has the exclusive power to amend the Constitution under Article 368, even for changes affecting fundamental rights. Article 13(2) (which allows judicial review to invalidate conflicting laws) does not apply to constitutional amendments.
Bella Banerjee Case (1954)	The government must provide fair compensation when acquiring private property compulsorily.
Kesavananda Bharati Case (1973)	The Supreme Court upheld the validity of Article 31C but clarified that such laws are still subject to judicial review.
Minerva Mills Case (1980)	The Court struck down the expansion of Article 31C that included all Directive Principles, ruling that this change overstepped constitutional limits.
Waman Rao Case (1981)	Laws and amendments in the Ninth Schedule before the Kesavananda Bharati decision are protected from judicial review, while those added afterward are subject to review based on the basic structure doctrine
Vidya Devi Case (2020)	Forcibly taking a person's private property without legal process violates both human rights and the right to property under Article 300A.

Does data justify subdivision of quotas?

Syllabus Mapping: GS-Paper 2, Minorities, Rights Issues

Context

The Supreme Court highlighted that India's reservation system is plagued by uneven outcomes. The **State of Punjab Vs. Davinder Singh case, 2024** the SC allowed states to undertake sub-categorisation of the Scheduled Castes (SCs) for grant of quotas.

Related case laws

Case Laws	Provision
Mandal Commission Case, 1992	Accepted the **idea of creamy layer** within the **OBCs**.
E.V. Chinnaiah V. State of Andhra Pradesh, 2004	Sub-categorization is Constitutionally invalid as it violates **Article 14 (Right to equality).** All states that implemented sub-categorization became void and invalid.
State of Punjab Vs. Davinder Singh case, 2024	Sub-categorization is valid. States can implement sub-categorization but needs to be based on **"Intelligible differentia"**

Arguments in favour Vs. Against sub-categorisation of SCs

Arguments Against Sub-Categorisation	Arguments in Favour of Subcategorisation
Scholar Shalin Maria: 'Caste capital is not economic capital'	**Scholar C. Gopaiaha**: Sub-categorization would help uplift the **Invisible Dalits**, i.e. most Socio-economically backward.
National Confederation of Dalit & Adivasi Organization (NCDAO): The 2024 judgement failed to address structural problems that limits capability of certain castes to take benefit of reservation at first hand. It is a **social band-aid** approach.	**Views of CJI DY Chandrachud**: "Affirmative action is a transformative force to challenge the caste dynamics in India. Therefore, rationalisation in the form of sub-categorization is necessary for social efficiency"

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Arguments Against Sub-Categorisation	Arguments in Favour of Subcategorisation
Constitutional impermissibility: Under Article 341 and 342, the President notifies the list for SC/ST, so states cannot tamper with the SC/ST list.	**Constitutional permissibility**: **Article 341**: Neither including or excluding, only making internal adjustments. **Article 342A**: **105 CAA** recognized that States have the power to maintain their own list of backward classes. **Article 16(4)**: It provides the state to make provisions for reservation for communities not adequately represented but it does not bind the state to provide equal reservation.
Political goblin: Political misuse for electoral gains defeat social efficiency.	**Substantive equality**: As per the Apex court, Substantive equality promises equality of opportunity over equality of treatment.
Categorical mistake: Sub-categorization would act as an economic solution to a solution problem of backwardness.	**Social dynamism**: As the status of different castes is changing, sub-categorization can accommodate social dynamism.
Concept of Constitutional homogeneity: Constitution considered SCs as a homogenous group. But now considered heterogeneous due to sub-categorization.	**Federal social strengthening**: As the power of sub-categorization is with states, it will improve federal relations.

After the Supreme court judgement of 2024, **Justice Gavai** noted, '**Now time has come to introduce creamy layer concept in SC/ST communities.**

Aligarh Muslim University (AMU) verdict

Syllabus Mapping: GS-Paper 2, Minorities, Rights Issues

Context

A seven-judge Bench of the Supreme Court delivered a verdict on Aligarh Muslim University (AMU).

Students at AMU's main gate on Friday morning. *Abhinav Saha*

KEY DATES IN AMU's HISTORY, LEGAL CASE

1877: Syed Ahmad Khan establishes Muhammadan Anglo-Oriental (MAO) College for uplifting Muslims.

1920: The MAO College becomes AMU after the AMU Act is enacted.

1950: Parliament declares AMU an institution of national importance.

1951: AMU Act is amended, allowing non-Muslims to be members of the AMU Court, its supreme governing body at the time.

1965: Another amendment expands powers of AMU's Executive Council; University Court is no longer the supreme governing body.

1967: SC rules on challenge to the amendments; says AMU cannot be classified as a minority institution (*Azeez Basha* case).

1981: Indira Gandhi's government amends the AMU Act, declaring AMU was established for the educational, cultural advancement of Muslims.

2005: AMU introduces 50% reservation for Muslim students in postgraduate medical courses.

2006: Allahabad HC quashes the policy and the 1981 amendment. The UPA government and AMU move SC against the verdict.

2016: The central government withdraws from the appeal, saying the UPA government's stand was "against the public policy of reservation for SCs/STs/OBCs/EWSs as applicable to central universities".

2019: Three-judge SC Bench refers the issue to a seven-judge Bench.

Background of the Aligarh Muslim University (AMU) Minority Status

- In the **S. Azeez Basha vs. Union of India** case (**1967**), the Supreme Court held that AMU was not established by the Muslim community but by an Act of Parliament—the **Aligarh Muslim University Act, 1920**—and thus could not claim minority status.
- To its response, the GOI amended the AMU Act in 1981, declaring that AMU was founded by the Muslim community to promote its cultural and educational objectives.
- The Allahabad HC struck down the 1981 amendment and cancelled AMU's 50% reservation for Muslim students, reaffirming the Supreme Court's Azeez Basha ruling.

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Key Takeaways from the Recent Judgment

- **Overturning S. Azeez Basha vs. Union of India** case (**1967**): The Supreme Court overruled its 1967 judgment, which had stated that **AMU lacked minority status** as it was not "established and administered" by a minority.
- **New Framework to Assess Minority Status**: The judgment introduced a test with three aspects:
  - **Establishment**: Understanding the origin of the institution, its purpose, and how it was conceptualized.
  - **Implementation**: Examining who funded, facilitated, and constructed the institution.
  - **Administration**: Analyzing if the institution's governance reflects its minority character and serves the interests of the minority community.
    - If the administration doesn't align with the minority's interests, it could indicate that the institution wasn't truly intended to benefit the minority.
- **Broader Understanding of Minority Character**: An institution's minority status cannot be dismissed just because it was created by law.
  - Courts should not rely solely on legislative wording to determine its establishment.
  - The term "**established**" in **Article 30(1)** must be interpreted in light of its purpose—to protect minority rights.
  - The court further clarified:
    - A minority institution need not lose its character by admitting non-minority students.
    - **Secular education doesn't affect its minority status.**
    - Government-aided minority institutions cannot compel religious instruction, but their minority status remains intact.

ARTICLE

Safeguards for MEIs

- **Article 30(1)** grants all minorities, whether defined by religion or language, the right to establish and manage educational institutions of their choice.
- **Article 30(1A)** addresses the determination of compensation when acquiring property from any educational institution set up by minorities.
- **Article 30(2)** states that the government should not discriminate against any educational institution managed by a minority when providing aid.

SC upholds validity of UP Madarsa Act

Syllabus Mapping: GS Paper 2, Secularism

Context

The Supreme Court **upheld the constitutional validity of the Uttar Pradesh Board of Madarsa Education** Act, 2004 (Madarsa Act), **except** for its provisions allowing the Board to **award higher degrees like Fazil and Kamil.**

About UP Madarsa Education Act, 2004

- It was created to manage and organise the operation of madrasas (Islamic schools) in Uttar Pradesh.
- This Act set up guidelines for starting, recognizing, and running madrasas in the state, covering everything from their curriculum to administration.
- It also led to the **creation of the Uttar Pradesh Board of Madarsa Education**, which is responsible for overseeing and guiding these schools across the state.

Supreme Court's Ruling on the Uttar Pradesh Board of Madarsa Education Act, 2004

- **Higher Education Provisions Unconstitutional**: The Supreme Court declared that the provisions related to higher education (Fazil and Kamil levels) in the Act were unconstitutional.
  - These provisions conflicted with the UGC Act, 1956, which falls under the Union's exclusive jurisdiction. (Union List)
- **Basic Structure Doctrine:** SC rejected the High Court's application of secularism as part of the Basic Structure doctrine to invalidate the Madarsa Act. It referenced its earlier judgment in **Indira Nehru Gandhi (1975)**, stating that **this doctrine should only apply to constitutional amendments, not ordinary legislation**.
- **Regulation of Minority Institutions**: Although **Article 30** grants minorities the right to establish and manage their educational institutions, the Court clarified that this **right is not absolute**.
  - The state can impose regulatory conditions to maintain educational standards, especially for institutions receiving aid or seeking recognition.

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- **Interpretation of Education:** The Court interpreted "education" in the **Concurrent List** broadly, covering both secular and religious education.
  - The Madrasa Board's role in conducting exams and issuing certificates supports this interpretation.
- **Reversal of Allahabad High Court's Ruling:** The Supreme Court overturned the Allahabad High Court's judgment, which had claimed that the 2004 Act violated **Article 21A (Right to Education) and secularism.**
  - The Court clarified that Article 21A should be viewed alongside the rights of religious and linguistic minorities to establish their institutions.
- **Religious Instruction in Minority Institutions**: Referring to **Article 28(3),** the Court noted that students at state-recognized minority institutions should not be forced to participate in religious instruction or worship, thus safeguarding their freedom of religion.

Net borrowing ceiling : The centre-state tussle

Syllabus Mapping: GS-Paper 2, Federalism

Context

In 2023, the central government imposed a Net Borrowing Ceiling (NBC) on the State of Kerala, restricting its maximum borrowing to 3% of the projected Gross State Domestic Product (GSDP) for FY 2023-24. This ceiling applies to all borrowing avenues, including open market loans, loans from financial institutions, and liabilities from the public account of the State. The measure aims to prevent states from circumventing borrowing limits through state-owned enterprises.

ARTICLE

Constitutional Framework of Borrowing Powers

- **Article 292:** Grants the central government the authority to borrow on the Consolidated Fund of India.
- **Article 293:** Allows State governments to borrow within India on their Consolidated Fund, subject to any borrowing limits set by the State legislature.
- **Article 293(3)** imposes conditions on States with outstanding loans or guarantees from the central government, requiring central approval for new loans.
- **Article 293(4)** gives the central government broad discretion in imposing terms on these loans.

Impact of Imposition of Net Borrowing Ceiling (NBC)

- NBC has significantly impacted Kerala's financial position which made it challenging for the state to meet its expenditure needs.
- The restriction has hindered investments in developmental and welfare activities, leading to political and legal controversies between the central and state governments.
- **Legal Action:** Kerala has approached the Apex court arguing that the central government's actions infringe upon its fiscal autonomy guaranteed under **Article 293** of the Constitution.

This case marks a historic interpretation of Article 293 regarding borrowing powers, which allows states to borrow against their Consolidated Fund.

Historical Context & Missing Clause

- The borrowing provisions in **Article 293 originated from Section 163 of the Government of India Act, 1935.**
- The original clause under Section 163(4) specified that the **central authority should not unreasonably delay or impose excessive conditions when granting loans.**
- However, this clause was excluded from the Constitution as it was assumed a national central government would not unduly restrict States.

Fiscal Responsibility and Budget Management (FRBM) Act

- The FRBM Act (2003) set fiscal targets for the central government and required States to establish their own deficit control laws.
- A 2018 amendment further limited the fiscal deficit to 3% of GDP, aiming to reduce it to below 4.5% by 2025-26.
- The restrictions on State borrowing, driven by the central government's fiscal goals, have raised concerns about States' fiscal autonomy.

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Measures to strengthen Article 293

- **Independent Commission:** Establish a commission similar to the Finance Commission to assess and mediate borrowing issues, considering both State finances and the Centre's fiscal consolidation goals.
- **Guidelines for Exercising Central Powers under Article 293(4):**
  - **Transparency**: Ensure public transparency in the criteria for accepting or rejecting State borrowing requests.
  - **Consultative Process**: Involve States in discussions before imposing borrowing terms, promoting a cooperative approach.
  - **Equitable Treatment**: Apply uniform terms for all States to avoid discrimination.
  - **Fiscal Autonomy:** Preserve States' financial independence by ensuring that borrowing restrictions are reasonable and do not overly constrain States' fiscal management capabilities.

Delimitation exercise

Syllabus Mapping: GS-Paper 2, Elections

Context

Delimitation, a significant issue within the Indian Union, has emerged as a focal point of political discourse.

Background on Delimitation

- Delimitation refers to the process of redrawing the boundaries of electoral constituencies.
- The basic principle behind the regular exercise of delimitation is to ensure that each person has equal weight in determining the democratic process - 'one person one value'.
- **Article 82** of Constitution mandates that the number of Lok Sabha seats per state be recalibrated after each Census by the Delimitation Commission.
- The last delimitation occurred based on the 1971 Census, and subsequent governments, including those led by Indira Gandhi and Atal Bihari Vajpayee, suspended this process for extended periods—first until 2001 and then until 2026.

Challenges Posed by Delimitation

- **Impact on Federalism:** Delimitation may disproportionately empower Hindi-speaking states, undermining federal principles by reducing the influence of non-Hindi states in Union decisions.
- **Risk of Ethno-linguistic Majoritarianism:** Since independence, the Hindi-speaking population has increased from 36% to nearly 43%.
  - Delimitation risks turning India into a majoritarian state, deviating from the multi-ethnic, multi-linguistic vision that has historically defined Indian unity.
- **Gerrymandering:** Delimitation exercises have been used to carve out constituencies which suit a particular outcome.
  - For example, constituencies can be carved in such a way that certain constituencies are always in minority as communities tend to be concentrated in certain geographical areas.

Implications of Delimitation

- **Demographic Shifts:** Non-Hindi-speaking states, such as Kerala, Tamil Nadu, and West Bengal, have maintained low Total Fertility Rates (TFRs) around 1.6-1.8, below the replacement level of 2.1.
  - Conversely, Hindi-speaking states, including Bihar, Uttar Pradesh, and Madhya Pradesh, have TFRs above the replacement level (around 3.5).
  - This disparity would significantly reduce seats for non-Hindi-speaking states if delimitation proceeds.
- **Fiscal Disparities**: Wealthier states like Karnataka, Maharashtra, and Tamil Nadu contribute far more to India's GDP and tax revenues but receive comparatively less in fund allocations.
  - **E.g.,** Karnataka, Maharashtra, and Tamil Nadu receive only 30% of the funds they contribute.
  - Bihar and Uttar Pradesh receive 250%-350% of their contributions.

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Possible Solutions to Address Delimitation

- **Extend the Freeze on Delimitation:** Following the approach taken by Indira Gandhi and Vajpayee, another 25-year freeze could defer the challenge to a future generation.
- **Balance with Decentralization:** Proceed with delimitation but adopt a new federal compact that abolishes the Concurrent List, expands the State List, and decentralises powers from the Union to states.
  - Key areas like defence, external affairs, and currency would remain under the Union's control, creating a counterbalance to the centralising tendencies of delimitation.
- **Proportional Increase in State Representation:** Maintain the current inter-state seat ratio but increase seats within each state, allowing for enhanced representation without altering the proportionate influence of states.

Prisons in India

Syllabus Mapping: GS-Paper 2, Criminal Justice, Rights Issues

Context

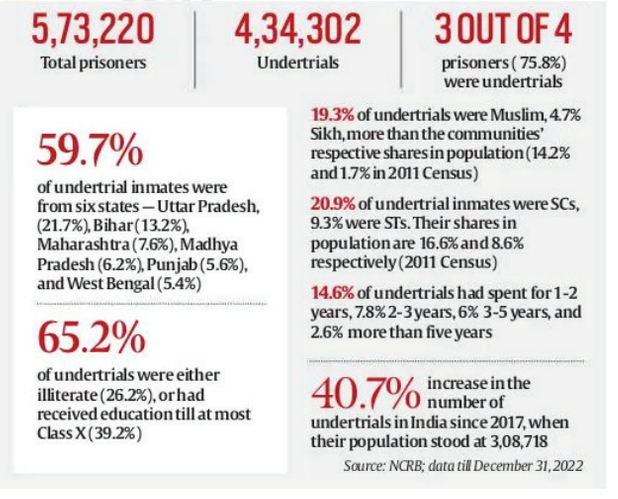
Union Home Minister Amit Shah urged the release of undertrial prisoners who have spent more than **one-third of the maximum prescribed sentence** for their crime before **Constitution Day (November 26).**

Status of Undertrial Prisoners in India

- Prison system in India is currently facing a critical crisis characterised by severe overcrowding, a high percentage of undertrial prisoners, and systemic issues that undermine the rights and dignity of inmates.
- Over 75% of India's prison population are undertrials while overcrowding in Indian prisons stands at 118%.
- This marks a significant increase from 66% in 2012, highlighting a troubling trend over the past decade.

Section 479 of the BNSS

- It defines the **maximum period of detention** for undertrial prisoners and introduces provisions for their release.
- **General Standard for Bail:** Prisoners not accused of offences punishable by **death or life imprisonment** must be released on bail if detained for **half the maximum period** specified for the offence. This aligns with the earlier provision under **Section 436A of the CrPC (1973)**.
- **Relaxation for First-Time Offenders:** First-time offenders (those with no prior convictions) must be released on bond after spending **one-third of the maximum sentence** in detention.
  - **Exceptions**: Pending investigations or trials in multiple cases against the individual.
- **Duties of Jail Superintendents:** Jail superintendents must apply for bail on behalf of eligible undertrials once the stipulated period elapses.



Data on Marginalised communities in jails

- **Prison Statistics India report 2021:** Number of convicts in jails decreased by 9.5 per cent, whereas the number of undertrial inmates increased by 45.8 percent between 2016 and 2021.
  - Over **3 out of 5 undertrial prisoners** lodged across Indian prisons, are from **Dalit, Adivasi and OBC communities**.
- **NCRB data**: **20.94% of undertrials were SC, 9.26% belonged to ST and 35.88% were from a socially and educationally backward community**.

Problems with India's Bail System

- **Inadequate Safeguards:** Data from the **Fair Trial Programme in Yerwada and Nagpur prisons** indicate that migrants, asset-less individuals, and those without family contact or with a history of incarceration are disproportionately affected.
- **Bail Adjudication Practices**: Conditions like **cash bonds and proof of property ownership further alienate undertrials** from marginalised backgrounds, contradicting the intent to ensure 'bail not jail'.

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- **Challenges in Bail Compliance:** Factors such as lack of financial means, absence of local sureties, and navigational challenges in the legal system exacerbate the situation, requiring supportive interventions for vulnerable groups.
- **Misguided Presumptions of the Bail System:** The current bail system operates on flawed assumptions about the financial capabilities and social connections of arrested persons, undermining the principle of 'bail not jail'.

Reasons Behind High Number of Marginalised Communities in Prison

- **Deeply Entrenched Prejudices:** A study found that Dalits are disproportionately represented in custodial deaths and wrongful arrests due to **systemic bias.**
- **High Litigation Costs**: Excessive costs involved in litigation act as a major barrier to accessing justice, leading to prolonged incarcerations.
- **Cycle of Criminalisation**: Once individuals from marginalised communities enter the criminal justice system, they may be repeatedly targeted and profiled for offences.
- **Criminalisation of Customary Practices**: Tribal youths in Tamil Nadu's Nilgiris district are routinely arrested under the POCSO Act for consensual relationships, a common practice among their community.
- **Empathetic Handling Lacking**: The prosecution system is often under-resourced and lacks adequate training, which leads to ineffective handling of cases (without sensitivity) involving marginalised communities.

Challenges for Prisoners with Disabilities

- **Neglect in meeting special needs**: **Father Stan Swamy**, who had **Parkinson's disease**, was denied basic assistive tools like a **straw and sipper**, making it difficult for him to eat or drink.
- **Accessibility Gaps:** A **2018 audit** of Delhi prisons (Tihar, Rohini, and Mandoli) by the **Nipman Foundation** identified:
  - Lack of **functional wheelchairs**.
  - Inaccessible **prison cells, toilets, mulaqat rooms**, and recreational spaces.
  - **Water coolers** located in areas without accessible entries.

Related Case Laws

Upendra Baxi vs State of U.P. (1983)	Prisoners are entitled to equality, freedom, and life with dignity.
Rama Murthy vs State of Karnataka (1996)	The Supreme Court directed the government to address issues like overcrowding, trial delays, torture, and neglect.
Arnesh Kumar vs State of Bihar	Police should ordinarily not arrest people if the offence they are charged with has a maximum sentence of less than or up to seven years.
Hussainara Khatoon v. Home Secretary, State of Bihar (1979)	Keeping undertrial prisoners incarcerated for longer than their potential punishment constitutes a clear **violation of Article 21**

Way forward

- Improvements in conditions of prisons.
- Implementation of Arnesh Kumar Guidelines on Bail.
- Improving conditions of prisons.
- Undertrials arrested in non-severe crimes should be kept in open prisons.
- Legal aid for undertrials for ensuring their freedom.

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TOPICS FOR PRELIMS

SC directives on Remission

Syllabus Mapping: Pardoning Powers, Criminal Justice

Context

The Supreme Court has issued guidelines to improve transparency of policies governing permanent remission for the convicts in the country.

About Supreme Court directives

- **Standardization:** All remission policies, including any updates or modifications, must be made available in prisons and on official government websites in English.
- **Timely Communication:** If a convict's application for remission is denied, the rejection order must be communicated to the convict **within one week.**
- **Case Consideration:** The Court directed that "stereotype conditions" should not be applied to remission grants.
- **Transparency and Accountability in Remission Decisions:** Any modifications to remission policies must be shared promptly, both online and in physical prison locations, to ensure transparency.

Types of Pardoning Powers

- Pardoning powers of the President are provided under **Article-72** & for governor under **Article-161.**
- **Pardon:** When the President grants a pardon, the sentences & punishments given to the offender are nullified.
- **Respite:** A lesser sentence is granted in place of the original one. **E.g.** if a convict has a physical disability or if a female offender is pregnant.
- **Reprieve:** Temporarily suspends the execution of a sentence (particularly the death penalty).
- **Remit:** It is used to reduce the time period of the sentence, but punishment retains its original character. **E.g.** A sentence of two years of strict imprisonment may be reduced to one year of strict imprisonment.
- **Commute:** Original form of punishment is substituted for a lighter form of punishment

E.g. Death penalty being commuted to life imprisonment.

Kendriya Hindi Samiti

Syllabus Mapping: Non-Constitutional Bodies

Context

Recently the 32nd meeting of 'Kendriya Hindi Samiti' was held in New Delhi.

About Kendriya Hindi Samiti

- It is responsible for guiding the promotion and usage of Hindi as the Union's official language in India.
- It was constituted in **1967**.
- **Composition:**
  - **Chairperson:** Prime Minister of India.
  - **Deputy Chairperson:** Union Home Minister
  - **Members (41):** Including Union Ministers & Chief Ministers of 6 States.
- Each ministry in the Central Government of India has its own **Hindi Salahkar Samiti** to ensure the implementation of official work in Hindi.
- India is the **only country** in the world which has **11 classical languages.**

New DGP appointment process in Uttar Pradesh

Syllabus Mapping: Non-Constitutional Bodies, Federalism

Context

Uttar Pradesh establishes a new, independent selection process for its police chief to enhance transparency and reduce political influence. This process is different from the one prescribed by the Supreme Court.

About Appointment Process

- **Eligibility Criteria:**
  - Candidates must be senior officers of the IPS with significant experience at the level of Additional Director General (ADG) or equivalent.
  - Officers should have a minimum of 30 years of service and at least six months of service remaining when the vacancy arises.
- **Empanelment:**
  - States are required to send a list of eligible officers to UPSC at least 3 months before the incumbent DGP is scheduled to retire.
  - The UPSC prepares a panel of three senior-most officers based on merit, service records, and performance appraisals.
- **Selection Committee**
  - A selection committee, which includes members such as the UPSC chairman, Home Secretary to Govt. of India, State's Chief Secretary, Director General of Police of the State Government concerned and one of the heads of the CAPF not from the same cadre, evaluates candidates.
- The state government is **required to appoint one of the officers** from the UPSC panel as DGP immediately after receiving the recommendations.

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Supreme Court Guidelines Prakash Singh vs. Union of India (2006)

- **Minimum Tenure:** The DGP must have a minimum tenure of two years to prevent arbitrary transfers influenced by political pressures.
- **Selection Process:**
  - States must prepare a list of eligible officers and submit it to the UPSC for empanelment.
  - The UPSC panel should consist only of officers who have at least six months left until retirement.
- **Constitution of State Security Commissions:** To insulate police forces from political interference, states are required to establish State Security Commissions that oversee police functioning and ensure accountability.
- **Police Establishment Boards:** These boards are to be set up to handle postings and transfers independently, safeguarding against political meddling.

SC Judgement on Article 39(b)

Syllabus Mapping: Judiciary, Rights Issues, DPSP

Context

The Supreme Court, by an **8-1 majority** of a nine-judge Constitution bench, has restricted the government's power to acquire private resources for public distribution.

About Supreme Court's Ruling

- **Definition of "Material Resources of the Community":** Only resources that are significant to the community and fulfil specific criteria can be acquired by the State under Article 39(b).
- **Balancing Public Welfare and Property Rights:** CJI emphasised that the government must respect private property rights even while pursuing public welfare.
- **Criteria for Acquisition:** The resource must be both "material" and beneficial to the community, such as resources that are scarce or critical for public well-being.
- **Article 39(b) and Article 300A:** The ruling highlights that Article 39(b) should be considered alongside Article 300A, which protects property rights, cautioning against its misuse.
- **Article 31C Immunity:** Laws based on Articles 39(b) and (c) get immunity from challenges under Articles 14 and 19, only if they genuinely promote public welfare. The judgement revived Article 31-C.

Iyer Doctrine

- In **1977, Justice VR Krishna Iyer** interpreted that all private property could potentially qualify for redistribution as a community resource.
- This approach was followed by the SC in the **1982 Sanjeev Coke case**, which had broadly interpreted state power over private resources.

ARTICLE

Related Constitutional Articles

- **Article 14:** Ensures equality before the law, preventing discrimination.
- **Article 19:** Grants fundamental freedoms, including movement, association and profession, with reasonable restrictions for public welfare.
- **Article 31C:** Protects laws that enforce Article 39(b) and (c) from being challenged under Articles 14 and 19 if they serve public welfare.
- **Article 39(b):** Directs the State to distribute resources to benefit society. It guides policies that aim to reduce inequality and ensure resources benefit everyone
- **Article 39(c):** Prevents wealth concentration that could harm common welfare.

Directorate of Revenue Intelligence (DRI)

Syllabus Mapping: Non-Constitutional Bodies

Context

The Supreme Court has ruled that Directorate of Revenue Intelligence (DRI) officers have the authority to issue notices and recover dues under the Customs Act, 1962.

About DRI

- It is India's premier agency for combating smuggling, trade-based money laundering, and customs-related offences.
- It works under the **Central Board of Indirect Taxes & Customs, Ministry of Finance**.
- It was established in **1957.**
- DRI is the lead agency for the **Anti-Smuggling National Coordination Centre (SCord).**
- **Key Functions:**
  - Combating Smuggling
  - Counteracting Trade-Based Money Laundering
  - Intelligence Gathering and Analysis
  - **Customs Law Enforcement:** DRI officers are empowered to issue show-cause notices and recover dues under the Customs Act, 1962. **Section 28 of the Customs Act** empowers DRI officers as **"proper officers"** for issuing show-cause notices and recovering dues.

Supreme Court Judgement on Rules of Public Service recruitment

Syllabus Mapping: Public Employment, Rights Issue

Context

A five-judge Constitution Bench, led by CJI delivered its judgement regarding the eligibility criteria for selection of candidates to public services.

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About SC Judgement on Rules of recruitment

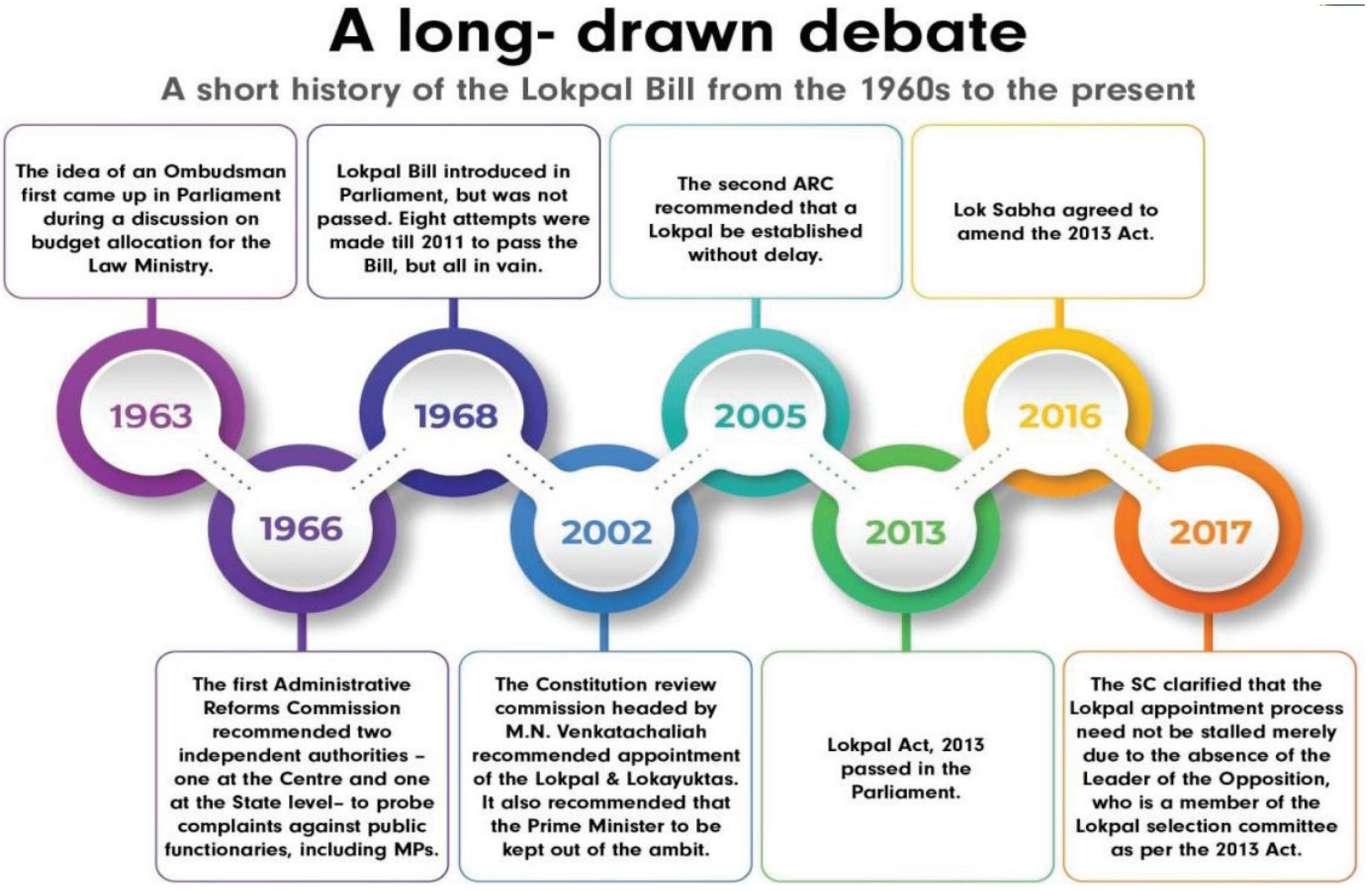
- **No Changes Midway:** The process of selection and appointment for selecting candidates, cannot be altered after the recruitment process has begun.
- **Principles of Equality and Non-Discrimination:**
  - Laws, rules and procedures for recruitment to public services—both for the Union and States—must align with the fundamental principles under **Articles 14 (right to equality) and 16 (equal opportunity in public employment)**
  - Any changes to the eligibility criteria must also satisfy the test of non-arbitrariness, ensuring that the process remains fair and just.
- **No Right to Appointment Despite Selection:** Even if a candidate is placed on the select list, it does not guarantee an **indefeasible right to be appointed to the position**, even if vacancies are available.
  - However, State or its instrumentalities cannot arbitrarily deny appointment to a selected candidate. It would be the State's responsibility to justify such a denial.

Lokpal

Syllabus Mapping: Probity, Non-Constitutional Bodies

Context

The Lokpal is conducting an inquiry into the SEBI chief over allegations of a conflict of interest in the Hindenburg case.



About Lokpal

- It is a **statutory body** established under the **Lokpal and Lokayuktas Act 2013** to inquire and investigate allegations of corruption against **public functionaries**.
- **Composition:**
  - **Chairperson** (Retd./Serving Chief Justice of India/ Judge of the Supreme Court or an eminent person who fulfils the eligibility specified in the act)
  - Maximum of **eight Members out of whom 50% are Judicial Members.**
  - At least 50% of Lokpal members should belong to **SC/ ST, OBC, Minorities** and **Women**.
  - **Tenure:** They hold office for a term of **5 years** from the date on which they enter upon the office or until they attain the age of 70 years, whichever is earlier.
- **Appointment of Lokpal:** The President appoints the Chairperson and the Members on the recommendations of a **Selection Committee -**
  - **Chairperson:** Prime Minister as Chairperson
  - **Members:** Speaker of Lok Sabha, Leader of Opposition Lok Sabha (LoP), Chief Justice of India, one eminent

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jurist to be nominated by the President on the recommendation of the Chairperson and the members of the Selection Committee.

- **Lokpal (Amendment) Act 2016:** Allows the leader of the largest opposition party (LoP) in the Lok Sabha. In the absence of a recognized Leader of Opposition, to be a member of the selection committee.
- **Jurisdiction:** Prime Minister, Ministers, Members of Parliament and group A, B, C, and D of government employees.

Related facts

- **Retd. Justice Pinaki Chandra Ghose** (2019-2022) was the **1st Lokpal of India. (Present - AM Khanwilkar)**
- **M. C. Setalvad (1950-1963),** India's first Attorney General was the first to put forth the idea of the institution of Lokpal in 1962 in the All India Lawyer's Conference.
- Lokpa**l cannot take suo motu cognizance** of any case and proceed ahead with investigation. It can only go ahead if someone files a complaint.

Editors Guild of India

Syllabus Mapping: Media, Non-Constitutional Bodies

Context

The Parliamentary Panel on Communications and Information Technology has called for a review of mechanisms to curb fake news. It has summoned the **News Broadcasters and Digital Association and the Editors Guild of India.**

About Editors Guild of India

- It is a **non-profit organisation** of journalists. Founded in **1978 by Kuldip Nayar.**
- It was founded with the twin objectives of protecting press freedom and for raising the standards of editorial leadership of newspapers and magazines.

News Broadcasters & Digital Association (NBDA)

- It is a private association of news and current affairs broadcasters in India that deals with ethical, operational, and legal issues.
- It was established in **2007** and was previously known as the News Broadcasters Association (NBA).
- In 2021, the association was renamed to include digital media news broadcasters.

Cancellation of FCRA registration

Syllabus Mapping: Development industry, Governance

Context

The Union Home Ministry has listed diversion of foreign funds for carrying out anti-development activities, inciting malicious protests and religious conversions among 17 reasons to deny or cancel the FCRA registration of a non-governmental organisation (NGO)

About Foreign Contribution Regulation Act (FCRA)

- It is a legislative framework established by the Indian Parliament to oversee the receipt and usage of foreign contributions by individuals, associations and companies.
- It was enacted in **1976 during the Emergency period** to address concerns about foreign interference in India's internal affairs.
- Contributions made by a **Non-Resident Indian (NRI)** from their personal savings through normal banking channels are not treated as foreign contributions under FCRA.
- The **Ministry of Home Affairs (MHA)** implements FCRA.
- **2020 Amendment in FCRA**: Introduced restrictions on fund transfers, reduced administrative expense allowance from 50% to 20%, and mandated a specific SBI branch in New Delhi for foreign fund receipts.

FCRA Registration Criteria and Regulations

- **Eligibility**: FCRA registrations are issued to entities engaged in specific sectors such as culture, economy, education, religion and social work.
- **Applicant Authenticity**: Applicants must be genuine, not fictitious or in someone else's name, and must not have engaged in forced or induced religious conversions.
- **Validity Period:** An FCRA registration remains valid for **five years,** requiring renewal submissions **six months before its expiration.**
- **Cancellation Conditions**: Registrations can be revoked if false information is discovered in the application.
- **Post-Cancellation Restrictions:** NGOs with cancelled registrations face a **three-year prohibition on re-registration.**
- **Suspension Authority**: The government can suspend an NGO's registration for up to **180 days** during investigations and can also freeze its financial assets.
- **Legal Recourse**: Decisions made by the government regarding FCRA matters can be appealed in the High Court.

Brakes on 'bulldozer culture'

Syllabus Mapping: Rights Issues, Criminal Justice

Context

The Supreme Court has laid down a series of guidelines to ensure that due process is followed for demolishing the properties of citizens accused of crimes exercising its powers under **Article 142 of the Constitution.**

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About Bulldozer Justice

It refers to the instant justice mechanism that is propagated by the government of various states to punish the alleged rioters and protestors by razing down their houses, stalls or any construction with the use of JCB.

Article-142: It gives the Supreme Court of India the power to make orders and decrees to ensure **"complete justice"** in any case before it.

Supreme Court Guidelines on Demolition Procedures

- **Mandatory Notice Period:**
  - Authorities must issue a minimum 15-day notice to the property owner or occupier before demolition.
  - The notice must detail reasons for the demolition and schedule a "personal hearing" to allow the property owner an opportunity to contest.
- **Hearing and Final Order:**
  - A hearing must be conducted by authorities, and all proceedings should be documented.
  - The final order must include the owner's arguments, the reasons for demolition and clarify if a full or partial demolition is required.
  - The Court stressed that demolition should be a last resort, to be pursued only when absolutely necessary.
- **Post-Order Process:**
  - If a final demolition order is issued, a 15-day period must be granted to allow the owner time to either remove the structure or appeal to the court.
  - Authorities are required to record a video of the demolition process and prepare a report detailing the inspection, personnel involved, and the demolition.

Appointment procedure of CAG

Syllabus Mapping: Constitutional bodies

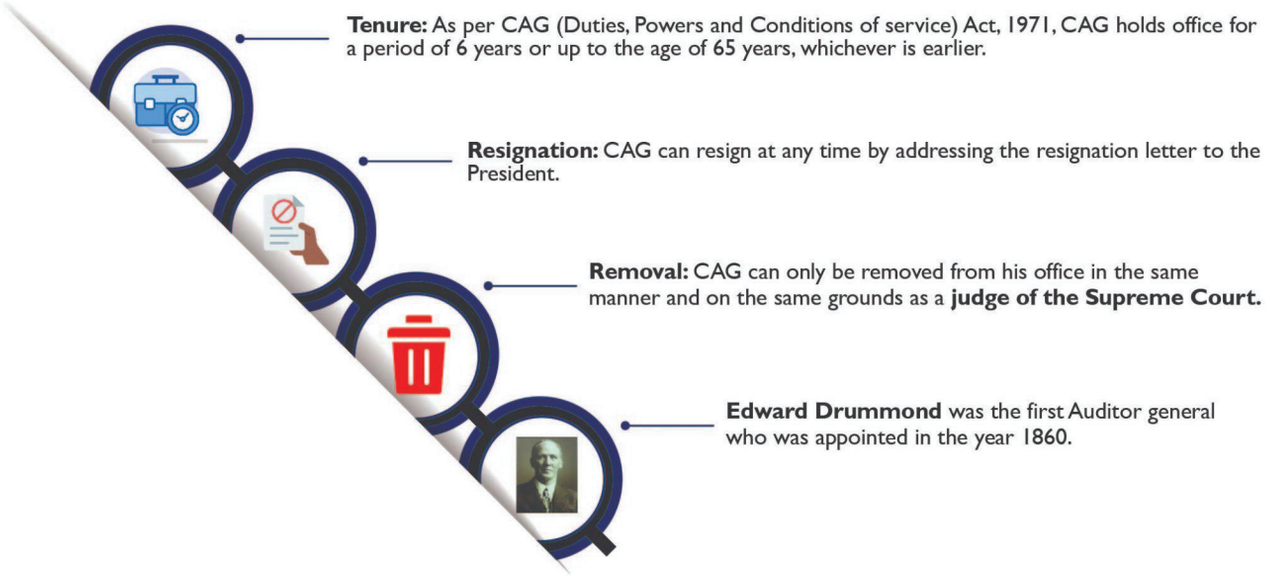
Context

The President of India has appointed **K. Sanjay Murthy**, the new Comptroller and Auditor-General of India.

About Appointment Procedure Comptroller and Auditor General of India (CAG) - Article 148

- **Appointment of CAG:** Appointed by the **President of India** under warrant under his name and seal (Article 148).
- **Oath:** The person chosen to be appointed as CAG, takes an oath in front of the President as prescribed in the Third Schedule of the Constitution.
- **Salary and Allowances:** To be determined by the Parliament. Also, salary, allowances etc will not be varied to his disadvantage after CAG's appointment. Expenses of office of CAG and salaries are charged on the Consolidated Fund of India.
- **Reappointment:** CAG shall not be eligible for re-appointment to any office of Government of India or of any State Government.
- **Removal of CAG:** Similar manner and ground as the judge of Supreme Court (Article 148).
- The procedure starts with the cabinet secretary preparing a shortlist of names, which is approved by the finance minister.
- The PM then recommends a name to the President.
- The **Constitution or the 1971 Act** does not prescribe any required qualifications for candidates.

More about CAG



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Appointment procedure of High Court Judges

Syllabus Mapping: Judiciary

Context

The Supreme Court Collegium has recommended the appointment of Madras High Court judge Justice D. Krishnakumar as the Manipur High Court Chief Justice.

About Appointment of HC Judges

- **Article 217:** Every Judge of a High Court shall be appointed by the President. This is done after consultation with the Chief Justice of India (CJI), the Governor of the State and the Chief Justice of the High Court.
- **Qualifications: (Article-217)**
  - Citizen of India
  - He/she should have held Judicial office for at least **10 years**.
  - They should have for at least **10 years** been an advocate of a High Court.

Facts related to appointment of High Court Judges

- The original constitution provided **60 years** as the age of retirement for HC judges.
- **The 15th Constitutional Amendment Act, 1963** raised the retirement age of HC judges from **60 years to 62 years.**
- A HC Judge is **appointed by the President but his oath is administered by the Governor**.

Procedure of Appointment

- **Initiation:** The proposals of names for appointment as a judge in the High Court are initiated by the Chief justice of a concerned High Court.
- **High Court Collegium:** The Chief Justice of the High Court consults 2 Senior most judges of the High Court before proposing such names.
- **Scrutiny by Government:**
  - Recommendations of HC Collegium are sent to the Governor, Chief Minister and the CJI.
  - The Governor, based on the advice of the Chief Minister, sends the proposal to the Minister of Law and Justice at the Centre.
  - The Union Law Ministry conducts a background check and sends the recommendation to CJI to consider it with the rest of the SC collegium.
- **Supreme court Collegium:**
  - **Composition of collegium:** It consists of CJI and 2 Senior most judges of the Supreme Court.
  - **Decision of collegium:** The Supreme Court collegium then considers such names recommended by the High Court collegium. SC collegium has the power to reject the names recommended by the High Court collegium.
- **Decision of Union government:**
  - After due deliberations on such names, the Union Cabinet advises the President to appoint such persons as judges in the High Court.

Did You Know?

- The strength of the HC judges is determined by the **President**, whereas in the case of the SC it is determined by **Parliament**.
- Unlike the Supreme Court, there is no provision for the appointment of a **distinguished jurist** as a High Court judge.

Civil Registration System (CRS) Mobile App

Syllabus Mapping: e-Governance

Context

The Union Home Minister recently launched the Civil Registration System (CRS) mobile application.

About CRS Mobile App

- **Developed by:** Registrar General and Census Commissioner of India.
- Aims to simplify and accelerate the registration process, making it more accessible and efficient for citizens.
- Through the new app, individuals can conveniently register births and deaths at any time, from any location, in their state's official language.
- **Digital birth certificates will be a single document to prove the date of birth** for various services such as admission to educational institutions, government jobs and marriage registration.
- According to **Registration of Births and Deaths (Amendment) Act, 2023,** all reported births and deaths in the country occurring from October 1, 2023, are to be digitally registered through the **Centre's CRS portal.**

Registrar General and Census Commissioner of India (RGCCI)

- It operates under the **Union Home Ministry.**
- It is responsible for conducting India's decennial Census, compiling demographic and population data and overseeing the Civil Registration System (CRS) nationwide.
- Its head is called **Registrar General of India (RGI)**.

NICeMail service

Syllabus Mapping: e-Governance

Context

The Union government recently issued the 2024 Email Policy, mandating government departments and agencies to use the National Informatics Centre's (NIC) NICeMail service. The policy establishes job-specific email addresses for government roles, along with a name-based email address that remains with officials throughout their service.

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About NICeMail (National Informatics Centre Email)

- The official email service provided by India's National Informatics Centre (NIC) for government officials & employees.
- Designed to offer secure, reliable and standardised email communication across government departments, ensuring data privacy and adherence to Indian cybersecurity protocols.
- NICeMail servers are hosted within India, ensuring that government data stays within the country's jurisdiction.

National Informatics Centre (NIC)

- It was established in **1976** to provide technology-driven solutions to the Central and State Governments.
- **Nodal Ministry:** Ministry of Electronics and Information Technology (MeitY).
- NIC has Centers of Excellence (CoE) in Data Analytics, Artificial Intelligence, Blockchain and Application Security.
- NIC implements many nationwide eGovernance projects, including PFMS, eHospital, Vahan, Sarathi, eOffice, ePrisons etc.

Chhattisgarh tribal commission finds irregularities in mining clearance

Syllabus Mapping: Local Bodies, Vulnerable Sections

Context

The Chhattisgarh State Scheduled Tribe Commission has found irregularities in getting environmental clearance for the Parsa Coal mine in Sarguja Region of the state and recommended cancellation of forest clearance.

Role of Gram Sabha in 5th Schedule Areas

- According to the **Panchayats (Extension to Scheduled Areas) Act, 1996 (PESA) and the Forest Rights Act, 2006 (FRA),** the consent of Gram Sabha is required for any projects that involve acquisition of land in Scheduled Areas.
- This includes mining, industrial projects or any other large-scale development activities.
- Supreme Court of India has also reinforced this requirement, making it clear that development in tribal areas cannot proceed without Gram Sabha approval.

Parsa Coal Mine

- The Parsa Coal Block is located in North Central Part of Hasdeo-Arand Coalfield in Sarjuga District of Chhattisgarh.
- It is located in Mahanadi Valley and is one of the major coal fields of Central India.

Other major Coal Mines in India:

- Jharia (Jharkhand)
- Raniganj (West Bengal)
- Korba (Chhattisgarh)
- Singrauli (Madhya Pradesh)

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GEOGRAPHY, ENVIRONMENT & DISASTER MANAGEMENT

TOPICS FOR MAINS

Harnessing Wind Energy: India's Path to Green Growth

Syllabus Mapping: GS-Paper 1, Distribution of Key Natural Resources

Context:

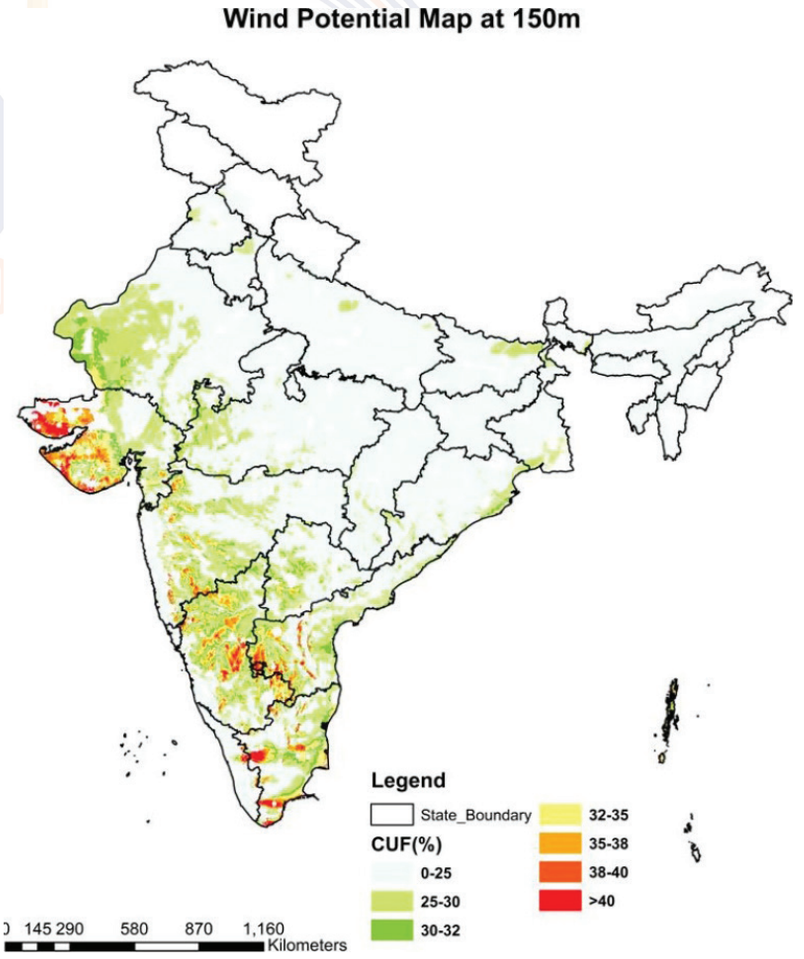
Wind energy operators in Tamil Nadu have opposed the 2024 policy on repowering and refurbishment, securing a court stay and demanding a more supportive framework for wind generation.

About Wind Energy

- Wind energy harnesses the kinetic energy of the moving air with the help of large wind turbines located on land (Onshore) or in Sea or Freshwater (Offshore).
- It has the following **advantages** that make it a good source of energy:
  - natural and inexhaustible resource
  - Low environmental footprint→doesn't produce pollutants or greenhouse gases.
  - Fastest payback period
  - Operation and maintenance costs are low

Status of Wind Energy in India

- **Potential:**
  - The wind resource assessment conducted by the National Institute of Wind Energy indicates an estimated wind power potential of about 695.5 GW at 120 meter and 1,164 GW at 150 meter above ground level.
- **Production:**
  - India has the fourth-highest wind installed capacity in the world with a total installed capacity of 42.02 GW as per REN21 Renewables 2022 Global Status Report.
  - According to the Central Electricity Authority, Wind energy contributes 47.36 GW, accounting for approximately 23.5% of India's total renewable energy capacity as of October 2024.
  - Gujarat, Tamil Nadu, Karnataka, Maharashtra, Rajasthan, and Andhra Pradesh are the leading States for installed wind energy capacity, collectively contributing 93.37% of the country's wind power capacity installation.
- **Target:** India has set a target of harnessing 140 GW (out of which 30 GW is offshore wind) installed wind energy capacity by 2030.



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How wind energy is shaping geopolitics?

The global wind energy landscape is currently dominated by **China**, which leads in installed wind power capacity, followed by the **United States** and **Germany.** Offshore wind is experiencing rapid development, particularly in Europe, with significant investment in large-scale projects.

- Wind energy's influence on global geopolitics is increasingly evident as nations like China invest heavily in the sector, signalling a **shift from traditional geopolitical energy dynamics** centred around fossil fuels.
- In Europe, the push towards wind energy has been accelerated by the need to secure **energy independence,** especially in light of recent geopolitical tensions and disruptions in fossil fuel supplies from Russia.
- The shift towards wind energy is promoting new **international partnerships**, including both academic initiatives like the European Academy of Wind Energy, and political and economic collaborations, such as the North Seas Energy Cooperation (NSEC).
- Wind energy is also influencing global trade, security and diplomatic relations, heralding an era of **"energy diplomacy"** where renewable sources play a central role.

Policy Interventions for Promotion of Wind Energy

- **National Offshore Wind Energy Policy**
  - India's first National Offshore Wind Energy Policy was released in 2015.
  - Objectives of Policy
- Explore Exclusive Economic Zones and promote offshore wind farms.
- Encourage indigenization of offshore wind technologies.
- Promote R&D in offshore wind energy.
- Harness wind potential to reduce carbon emissions.
- Develop skilled manpower for offshore energy.
- Enhance coastal infrastructure for offshore wind operations and maintenance.
- **National Wind-Solar Hybrid Policy**
  - It was released in 2018.
  - It aims to provide a framework for promotion of large grid connected wind-solar PV hybrid system for optimal and efficient utilization of wind and solar resources, transmission infrastructure and land.
  - Also seeks to encourage new technologies, methods and way-outs involving combined operation of wind and solar PV plants.

Green Energy Corridor Project

An initiative of Ministry of New and Renewable Energy, it aims at synchronizing electricity produced from renewable sources, such as solar and wind, with conventional power stations in the grid.

- For evacuation of large-scale renewable energy, Intra State Transmission System (InSTS) project was sanctioned by the Ministry in 2015-16.
- The project is being implemented by the respective State Transmission Utilities (STUs).
- In 2022, the government has approved the Green Energy Corridor - Intra-State Transmission System Phase-II scheme.
  - The transmission infrastructure under the scheme will be setup in seven states namely Gujarat, Himachal Pradesh, Karnataka, Kerala, Rajasthan, Tamil Nadu and Uttar Pradesh.

Challenges in Wind Energy Sector

- **Geographical Constraints**: Optimal wind energy production requires specific wind speeds, which are found in specific regions.
  - The widespread establishment of low capacity wind farms, at high potential sites, hinder optimal utilization of wind energy potential.
- **Intermittency and Variability:** Wind energy is inherently intermittent and variable, posing challenges for grid integration and stability
- **Land and Space Requirements:** Identifying suitable land areas with high wind resources while minimizing conflicts with other land uses, such as agriculture or ecological conservation, is a major issue.
- **High Capital Costs and Financing**:The upfront capital costs of wind turbines and associated infrastructure can be significant.
  - Further, India's dependence on imports of Wind Turbine Components from China adds to the high costs.

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- **Transmission networks:** India's current transmission facilities fall short, resulting in bottlenecks within the grid and the subsequent reduction of wind energy.
- **Unfulfilled RPO Mandates:** In 2022 and 2023, only 13 and 4 states have fullled RPO mandates of 21.18% and 24.60%, respectively.
- **Environmental and Ecological Impact**:The installation and operation of wind turbines can have certain environmental and ecological impacts such as bird collisions, noise pollution, waste generation etc. (**e.g.** impact on Great Indian Bustard).

Way Forward

- **Repower and Refurbish**: Repowering of old wind projects should be prioritized to maximize output from resource-rich sites.
- **Optimize Infrastructure:** Strengthening evacuation and transmission infrastructure near wind sites is essential to optimize generation, alongside modernizing technology to address evolving challenges.
- **Sustainable Site Planning:** Sustainable planning for wind farm locations, in coordination with local habitations, and promoting stakeholder engagement is important to ensure balanced development.
- **Policy Recalibration**:There is an urgent need to establish clear targets at state-level and update the policies to send a positive signal to wind project developers and investors.
- **Stronger RPO Compliance:** The government needs to explore stronger mechanisms to ensure RPO compliance by states and consider imposing significant penalties against defaulting entities.
- **Offshore Expansion:** From a long-term perspective, continuous efforts to enable the deployment of offshore wind capacities are essential to diversify the energy mix.

Soil Health in India: The Hidden Crisis

Syllabus Mapping: GS-Paper 1, Distribution of Key Natural Resources

Context

The Global Soil Conference 2024 was organized by the Indian Society of Soil Science, New Delhi.

Status of Soil Health in India

- According to the National Bureau of Soil Survey and Land Use Planning, 146.8 million hectares, around **30%** of the soil in India, is **degraded.**
- According to a study titled "Geospatial modelling and mapping of soil erosion in India", nearly 30%of the country's landmass is experiencing **"minor" soil erosion**, while a critical 3% faces **"catastrophic" topsoil loss.**
- The National Academy of Agricultural Sciences (NAAS) says **India's annual soil loss** is about **15.35 tonnes per ha,** resulting in a loss of almost 9 million tonnes of nutrients and crop productivity.
- As per the 2019-20 Soil Health Survey conducted by the Indian government, **55%** of the country's soil is deficient in **nitrogen, 42%** in **phosphorus** and **44%** in **organic carbon.**

Causes of Soil Degradation in India

- **Soil Erosion:** It is the accelerated removal of topsoil from the land surface through water, wind, and tillage.
  - An estimated 14 million hectares of land suffer soil degradation due to flooding annually in India.
  - Inappropriate soil management, lack of crop cover during heavy rainfall, etc. is responsible for accelerated soil erosion.
  - Further, excessive grazing and the extension of agriculture to the marginal areas are the major human-induced factors leading to accelerated soil erosion in the states of Rajasthan, Haryana, Gujarat and Punjab.
- **Soil Salinization:** In Gujarat, Rajasthan and Haryana, the high use of water for irrigation has caused salt accumulation in the soil, leading to reduced crop yields and degradation of soil quality.
- **Soil alkalinization:** In Punjab and Andhra Pradesh, excessive use of lime to correct soil acidity has led to soil alkalinization and reduced crop yields.
- **Soil Pollution:** It is the contamination of soil by human and natural activities which may cause harmful effect on living organisms.

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- **Industrial and Mining Activities**: Industrial effluents, including harmful gases and chemicals, pollute soil. E.g., in areas near mining operations, like in the regions of Jharkhand and Odisha.
- **Modern Agricultural Practices:** Excessive use of chemical fertilizers, pesticides, and poor irrigation practices have contributed to soil contamination in Punjab and Haryana.
- **Poor Waste Disposal:** Improper waste management, such as the release of untreated sewage into open landfills, results in soil pollution. E.g., in cities like Delhi and Mumbai.
- **Acid Rain:** It dissolves away some of the important nutrients found in soil and change the structure of the soil.

Impact of Soil Degradation in India

- **Reduced Agricultural Productivity**: Soil degradation leads to lower crop yields and diminished food security.
- **Loss of Soil Biodiversity**: Soil pollution and erosion reduce essential microorganisms, affecting soil health.
- **Water Pollution:** Eroded soil and pollutants contaminate water bodies, affecting water quality.
- **Increased Flooding:** Soil degradation reduces the soil's ability to absorb water, leading to increased surface run-off and more frequent flooding.

Policy Initiatives for Soil Conservation

- **National Soil Health Card Scheme:** Launched in 2015 by the Ministry of Agriculture and Farmers Welfare, it aims to promote sustainable agriculture practices by helping farmers make informed decisions about fertilizer use.
- **Soil Conservation in North Eastern Region (SCNER):** It aims to promote soil conservation and sustainable agriculture practices in the north-east region through interventions such as afforestation, terrace farming, and conservation of soil and water resources.
- **Rastriya Krishi Vikas Yojana (RKVY):** It is a centrally sponsored program that aims to promote sustainable agriculture practices, improve soil health, and increase agricultural productivity.
  - The scheme provides financial support to states for a range of interventions such as soil testing, crop diversification, and organic farming.
- **National Mission for Sustainable Agriculture (NMSA):**It aims at promoting sustainable agriculture practices and increasing soil health through interventions such as organic farming, soil conservation, and integrated nutrient management.
- **Paramparagat Krishi Vikas Yojana (PKVY):** It promotes organic farming and sustainable agriculture practices, including soil conservation and nutrient management.
- **Watershed Development Project in Shifting Cultivation Areas:** It aims to promote sustainable land use practices, such as terracing, contour farming, and agroforestry, to conserve soil and water resources.
- **NABARD Loan - Soil & Water Conservation Scheme under RIDF:** It provides financial assistance to farmers and rural communities for implementing soil and water conservation measures, such as the construction of check dams, contour bunding, and gully plugging, to conserve soil and water resources.

Storm Safeguards: India's Approach to Mitigating Cyclone Impacts

Syllabus Mapping: GS-Paper III, Disaster Management

Context

Cyclone Fengal, originating from a tropical disturbance near Sumatra on November 14, caused 37 fatalities and 20 injuries across India and Sri Lanka.

Initiatives for Cyclone Mitigation

- **National Cyclone Risk Mitigation Project (NCRMP):** It aims to **reduce vulnerability of coastal communities** to cyclone and other hydro meteorological hazards
  - **Principal Components:** The major components under the scheme are as follows:
- Community mobilization and training
- Cyclone Risk Mitigation Infrastructure (construction of cyclone shelters, roads/missing links and construction/repair of Saline Embankments etc.)

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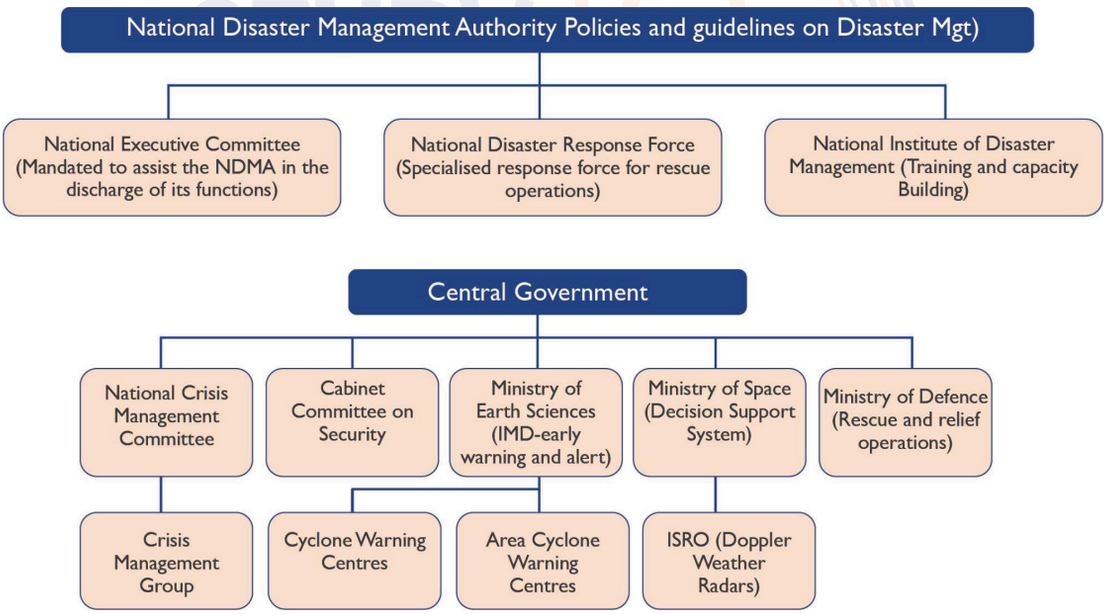
- Technical assistance for capacity building on Disaster Risk Management (risk assessment, damage and need assessment)
- Capacity Building and knowledge creation along with project management and implementation support
- **Integrated Coastal Zone Management Project (ICZMP)**: A World Bank assisted project, it aims to assist the government in building the national capacity for implementation of a comprehensive coastal management approach in the country.
- **Early Warning Systems:**
  - **Four Stage Cyclone Warning:** The Indian Meteorological Department (IMD) issues cyclone warnings (introduced in 1999) using a four-stage classification system. The stages are based on the intensity of the cyclone and the associated wind speeds.
- **Pre-Cyclone Watch** (issued 72 hours in advance of the expected disaster- Color Code-Green): It is issued when the IMD detects the formation of a low-pressure system (depression) that has the potential to intensify into a cyclone.
- **Cyclone Alert** (issued at least 48 hrs. In advance + Colour Code: Yellow): A cyclone alert is issued when the IMD forecasts the likelihood of a cyclone developing and impacting specific coastal areas within the next 48 hours.
- **Cyclone Warning** (issued at least 24 hours in advance + Color code: Orange): A cyclone warning is issued when the IMD predicts the imminent formation of a cyclone and expects it to hit specific coastal areas within the next 24 hours.
- **Post-Landfall Outlook** (Color code: Red): After the cyclone makes landfall, the IMD provides a post-landfall outlook, which includes information about the storm's weakening and the expected weather conditions in the affected areas.
- **Storm Surge Early Warning System (SSEWS):** Indian National Centre for Ocean Information Services (INCOIS) has set up a Storm Surge Early Warning System (SSEWS) for the Indian coasts in active collaboration with IMD.
  - The main aim is to save the lives of coastal communities by forecasting cyclone induced storm surges and inundation extent.
- **GEMINI (GAGAN Enabled Mariner's Instrument for Navigation and Information):** With this device, the fishermen outside the signal range of their phone companies can get warnings and alerts about cyclones.
- **Dynamic Composite Risk Analysis (Web-DCRA) & Decision Support System (DSS)**: Under Phase–2 of the NCRMP, NDMA in collaboration with IMD has developed a web based **Dynamic Composite Risk Analysis (Web-DCRA) & Decision Support System (DSS)** tool for forecasting the expected damage associated with the Land falling of cyclones over the coastal districts.



Naming of Tropical Cyclones

- Each year, tropical cyclones receive names in alphabetical order.
- The name list is proposed by the National Meteorological and Hydrological Services (NMHSs) of WMO of a specific region.
- For the Indian Ocean region, the naming of cyclones started in 2000.
- Eight countries of the Indian Ocean Region - India, Bangladesh, Maldives, Myanmar, Oman, Pakistan, Sri Lanka, and Thailand, contribute a set of names accorded whenever a cyclonic storm develops.
- Cyclone Fengal was named by Saudi Arabia.

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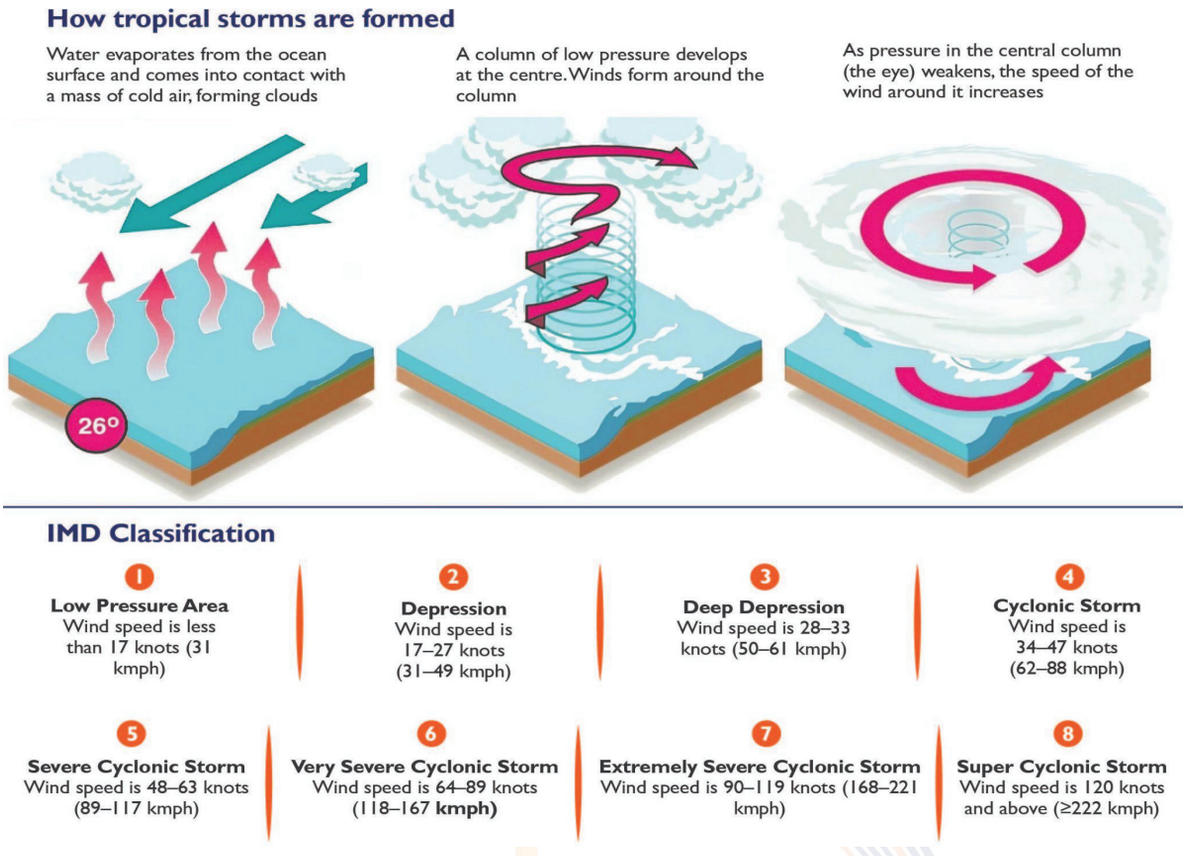

About Tropical Cyclones

NDMA Guidelines on Management of Cyclones (2008)

- Establishing a **state-of-the-art cyclone early warning system (EWS)** involving observations, predictions, warnings and user-friendly advisories.
- Commissioning of the '**National Disaster Communication Infrastructure' (NDCI**) to provide dedicated and failsafe communications to the National, State and District Disaster Management Authorities and officials concerned.
- Expanding the warning dissemination outreach by introducing **'Last Mile Connectivity',** which will include providing public address system along the entire coastline, using VHF technology.
- Implementing the **National Cyclone Risk Mitigation Project (NCRMP)** in all the 13 coastal states and UTs.
- Taking up **structural mitigation measures** like improving structural lifeline infrastructure; construction of multipurpose cyclone shelters and cattle mounds, ensuring cyclone resistant design standards in rural and urban housing schemes, building all-weather road links, bridges, culverts and saline embankments etc.
- **Management of coastal zones** to include mapping and delineation of coastal wetlands, patches of mangroves and shelter belts and identification of potential zones for expanding bio-shield spread based on remote sensing tools.
- Setting up of an **exclusive ecosystem monitoring network** to study the impact of climate change.
- Establishing a comprehensive **'Cyclone Disaster Management Information System' (CDMIS)** covering all phases of Disaster Management.
  - Setting up of a '**National Cyclone Disaster Management Institute' i**n one of the coastal states to address all issues related to cyclone risks.
- Commissioning of "**Aircraft Probing of Cyclone (APC) facility"** to fill the critical observational data gaps and significantly reduce the margin of error in predicting cyclone track, intensity and landfall.

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Cyclone Mitigation Techniques

- **Hazard Mapping:** It involves analysing the patterns of past cyclones, including wind speed, affected areas, flooding frequency, and other associated risks.
- **Land Use Planning:** Effective land use planning ensures that key activities and human settlements are avoided in the most vulnerable areas.
- **Engineered Structures:** Properly engineered structures are designed to withstand high wind forces and thereby reduce potential damage.
- **Retrofitting Non-Engineered Structures:** Retrofitting involves strengthening existing non-engineered structures to improve their resilience. UN-HABITAT suggests the following retrofitting measures:
  - Constructing steep-slope roofs to minimize the risk of being blown away.
  - Anchoring strong posts with solid footings on the ground.
  - Planting trees at a safe distance from houses to break wind forces.
  - Timely repair of shelters to ensure they are cyclone-ready.
- **Cyclone Sheltering:** The construction of cyclone shelters at national, state, and regional levels provides safe havens for vulnerable communities during cyclones.
- **Flood Management:** Well-designed drainage systems help channel excess water away from populated areas, reducing damage.
- **Vegetation Cover Improvement:** Enhancing vegetation cover increases the land's water infiltration capacity and reduces surface run-off, which helps in controlling flooding during cyclones.
- **Mangrove Plantation:** Planting ecologically-efficient mangroves along coastal regions offers a natural barrier against cyclonic winds and storm surges, protecting both lives and property.
- **Saline Embankments** constructed along the coast act as barriers to protect human habitation, agricultural crops, and critical installations from saline water intrusion during cyclones.
- **Levees** serve as obstructions to strong wind forces and provide additional protection during floods, often serving as shelters for communities.
- **Artificial Hills**: Identifying suitable areas for constructing these hills enhances their effectiveness in providing safety during cyclones.

Challenges in Cyclone Management in India

- **Vulnerable Geographical Location**: Coastal areas are susceptible to cyclone impacts because of their geographical vulnerability.
- **Overemphasis on Evacuation:** There is an inadequate attention towards response elements beyond evacuation, like strategies to mitigate crop harm, support for rapid harvesting, sufficient aid, and prompt dissemination of assistance for post-cyclone needs such as damaged housing.
- **Challenges in Early Warning:** In spite of progress in weather forecasting, the exact effects of cyclones can only be accurately projected within a relatively brief window of 36 to 60 hours.
- **Barriers in Communication**: Coastal regions often encounter obstacles like poor signal reception, power failures, and impaired communication infrastructures, impeding successful communication during critical times.

Suggested Measures to Strengthen Cyclone Management in India

- **Improved Resilience:** The dwellings of rural, coastal inhabitants must be strengthened and natural barriers such as mangroves and wetlands must be buttressed for improved resilience.
- **Leveraging Technology:** State governments and the IMD, should continuously work to improve their ways of functioning, making use of technology both in terms of forecasting and information dissemination.
  - There is a need to enhance the deployment of the Doppler Weather Radar Network in the coastal areas and deploy airborne and satellite-enabled warning systems.
- **Enhancing Preparedness:** It is important to formulate inclusive disaster plans at different administrative levels, identifying vulnerabilities and ensuring robust infrastructure.
- **Cooperation and Partnership:** India must improve collaboration with neighbours and leverage regional institutions for disaster management. India should actively engage with BIMSTEC, SAARC, IORA etc. in cyclone reduction risk initiatives and learn from global best practices such as **Bangladesh's 'cyclone preparedness programme'.**

Best Practice-Odisha Model

- In the aftermath of the 1999 super cyclone, the Government of Odisha took up various cyclone mitigation measures.
- These included community-level warning, multipurpose cyclone shelters under the National Cyclone Risk Mitigation Project and an Early Warning Dissemination System with last-mile connectivity.
- Other steps were the setting up of the Odisha State Disaster Management Authority (OSDMA), conducting regular cabinet meetings for disaster preparedness, and building the Odisha Disaster Rapid Action Force (ODRAF).

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Biodiversity on the Agenda: Insights from COP16 of the UN CBD

Syllabus Mapping: GS-Paper III, Environment

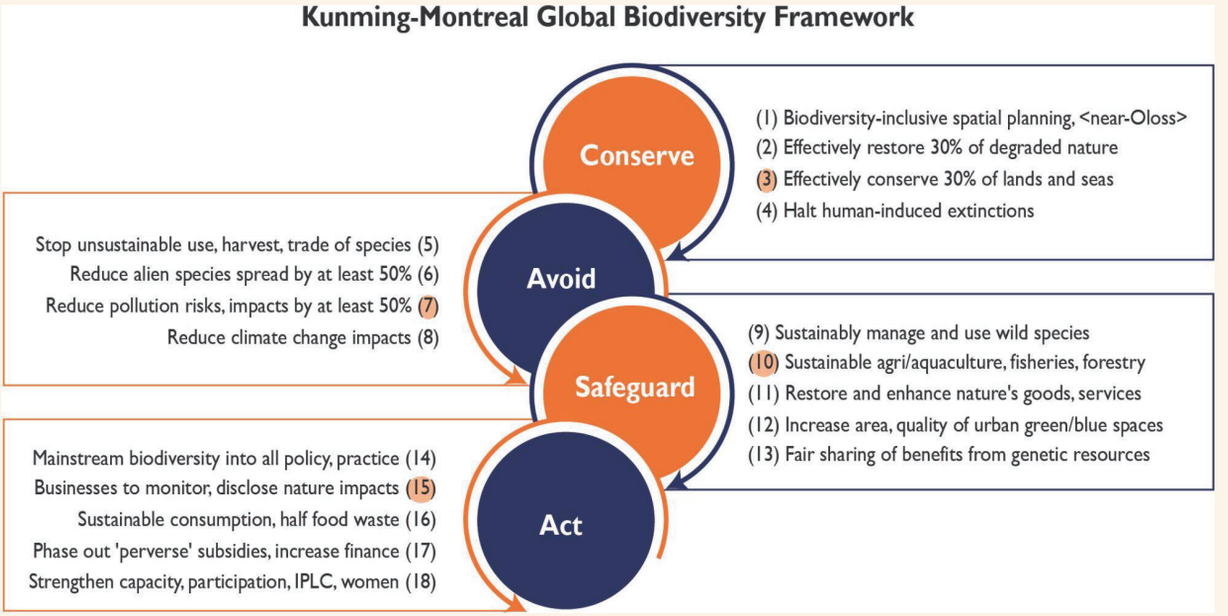
Context

The 16th meeting of the Conference of the Parties to the United Nations Convention on Biological Diversity (CBD COP16) was held in Cali, Colombia from October 21-November 1 2024.

About United Nations Convention on Biological Diversity (CBD)

- **Background:** The UN CBD builds upon the principles put forward in the World Conservation Strategy (1980) and the Brundtland Report (1987), which emphasized upon sustainable use and conservation of biodiversity.
  - The CBD was adopted during the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992.
- **Headquarters and Membership:** The CBD is headquartered in Montreal, Canada.
  - Currently, 196 countries, including India, are party to the CBD. The United States of America (USA) has not ratified the Convention.
- **Goals:** There are three main goals-
  - Conservation of Biological Diversity
  - Sustainable Use of Biodiversity
  - Fair and Equitable Sharing of Benefits arising from the utilization of genetic resources.
- **National Strategies and Biodiversity Action Plans (NSBAPs):** It is the chief instrument of implementing the CBD at national levels.
  - The countries party to the Convention are encouraged to develop and implement these plans.
  - The plans act as roadmaps for integrating biodiversity conservation into national policies, programs, and decision-making processes.
- **Supplementary Agreements:**
  - **Cartagena Protocol on Biosafety:** It is an international agreement that aims to ensure the safe handling, transport, and use of living modified organisms (LMOs) resulting from modern biotechnology.
  - **Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization:** It aims at fair and equitable sharing of benefits arising out of the utilization of genetic resources, thereby contributing to the conservation and sustainable use of biodiversity.

Kunming-Montreal Global Biodiversity Framework (GBF)



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- It consists of four long-term goals for 2050 and 23 targets to be achieved by 2030 to halt and reverse global biodiversity loss.
- Its cornerstone is the target to conserve 30% of the world's land and 30% of the world's oceans by 2030, widely known as the **30×30 pledge.**
- It is **non-legally binding.**

Global Biodiversity Framework Fund (GBF Fund)

- It aims to help countries achieve the Kunming-Montreal Global Biodiversity Framework goals and targets.
- Global Environment Facility (GEF) is the implementing agency for the Fund.
- Trustee for the GBFF: **World Bank.**

Key Takeaways from CoP16 of UN CBD

- **Cali Fund:** It is a new financial mechanism for sharing benefits from Digital Sequence Information (DSI).
  - The users of DSI on genetic resources in sectors that directly or indirectly benefit from its use in their commercial activities should contribute a proportion of their profits or revenue to the global fund according to their size.
  - The fund is expected to raise up to $1 billion yearly for conserving biodiversity.
  - Half of the amount in the U.N.-controlled fund is expected to go to Indigenous peoples and local communities, either directly or through national governments.
- **Permanent Subsidiary Body:** Parties at COP16 agreed to establish a new permanent subsidiary body under Article 8(j), focusing on the preservation and maintenance of the knowledge, innovations, and practices of indigenous peoples.
  - A new **Programme of Work** for indigenous peoples and local communities was adopted, outlining specific tasks to ensure their meaningful contributions to the conservation, sustainable use, and equitable sharing of biological diversity.
- **Synthetic Biology:** COP16 introduced a new thematic action plan addressing inequities in synthetic biology through capacity-building, technology transfer, and knowledge-sharing among developing countries.
- **GBFF Funding:** An additional $163 million was pledged to the Global Biodiversity Framework Fund (GBFF), bringing total funding to around $396 million.
- **Invasive Alien Species:** The conference proposed guidelines to manage invasive alien species through improved databases, cross-border trade regulations, and collaboration with e-commerce platforms to prevent their spread.
- **Ecologically or Biologically Significant Marine Areas (EBSAs):** COP16 established a refined process to identify EBSAs, building on efforts initiated in 2010.
- **Champions Group of Parties**: Eighteen governments launched a champions group to drive embedding the targets, goals, and principles of the GBF across all sectors of the global economy.
- **Debt for Nature Coalition**: Six global environmental organizations launched the Debt for Nature Coalition to scale climate and conservation outcomes through sovereign debt conversions and tools like TNC's Nature Bonds projects.
- **Biodiversity Finance Dashboard:** Release of the 2024 Biodiversity Finance Dashboard, highlighting the urgent need to mobilize increased finance for nature.
- **Global Action Plan on Biodiversity and Health:** CBD Parties approved a Global Action Plan on Biodiversity and Health to address zoonotic disease emergence, prevent non-communicable diseases, and promote sustainable ecosystems.
  - The strategy adopts a holistic "One Health" approach, recognizing the interconnected health of ecosystems, animals, and humans.
- **National Biodiversity Targets**: Out of the 196 Parties, 119 countries have submitted national biodiversity targets aligned with the 23 KMGBF targets.
  - Furthermore, 44 countries have submitted National Biodiversity Strategy and Action Plans (NBSAPs) to facilitate the implementation of these targets.
- **Risk Assessment of LMOs:** Parties to the Cartagena Protocol on Biosafety endorsed voluntary guidance for assessing risks posed by living modified organisms (LMOs) containing engineered genes.

India's updated National Biodiversity Strategy and Action Plan (NBSAP)

Background

- An updated National Biodiversity Strategy and Action Plan (NBSAP) was launched at COP 16.

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- India adopted **'Whole-of-Government'** and **'Whole-of-Society'** approach in updating its NBSAP, outlining strategies to address environmental challenges through ecosystem restoration, species recovery programmes, and community-driven conservation efforts.

Features

- The revised NBSAP outlines 23 National Biodiversity Targets that align with the global objectives of the Kunming-Montreal Global Biodiversity Framework (KMGBF).
- The updated NBSAP is organized into seven chapters that address contextual analysis, capacity-building, financing mechanisms, and biodiversity monitoring frameworks.
- It emphasizes the adoption of a transformative approach and focuses on an ecosystem-based management approach, a bottom-up approach for implementation, main streaming biodiversity, sectoral integration, and inter-agency cooperation.
- India plans to allocate approximately Rs 81,664 crore during FY 2025-30 to support biodiversity and conservation initiatives.

Key Targets

- **Conservation Areas**: Strive to effectively conserve 30% of land and water areas to enhance biodiversity.
- **Invasive Species Management**: Reduce the introduction and establishment of invasive alien species by 50%.
- **Sustainable Consumption**: Promote sustainable consumption practices and reduce food waste by 50%.
- **Pollution Reduction**: Halve nutrient loss and pesticide risks to address pollution.
- **Benefit Sharing**: Ensure equitable sharing of benefits from genetic resources, digital sequence information, and related traditional knowledge.

Conclusion

The discussions and commitments at COP16 of the UN CBD have set a robust foundation for the future of biodiversity conservation. The success in biodiversity conservation will require sustained international cooperation, innovative financial solutions, and the active participation of all stakeholders, including governments, local communities, and the private sector.

Global Climate Action at COP29: Challenges and Breakthroughs

Syllabus Mapping: GS-Paper III, Environment

Context

The 2024 UN Climate Conference (COP29) was concluded in Baku, Azerbaijan.

About United Nations Framework Convention on Climate Change (UNFCCC)

- The UNFCCC is an international environment treaty to address climate change. It sets out the basic legal framework and principles for international climate change cooperation
- **Background:** The UNFCCC was introduced during the United Nations Conference on Environment and Development (UNCED), popularly known as the Earth Summit, held in Rio de Janeiro in 1992. The UNFCCC entered into force on 21st March 1994.
- **Membership:** The Convention has been ratified by 197 states, including India.
- **Objective:** Stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.
  - The objective must be achieved within an adequate time frame.
  - Sufficient time is required to allow ecosystems to naturally adapt to climate change.
  - The timeframe should ensure that the food supply is not put at risk.
  - It should also enable sustainable economic development to progress.

Key Outcomes of CoP29

- **Climate Finance**
  - **New Collective Quantified Goal (NCQG):** Developed countries committed to triple climate finance for developing nations to **USD 300 billion annually by 2035**.
  - A broader target of mobilizing **USD 1.3 trillion annually** from public and private sources by 2035 was also set.

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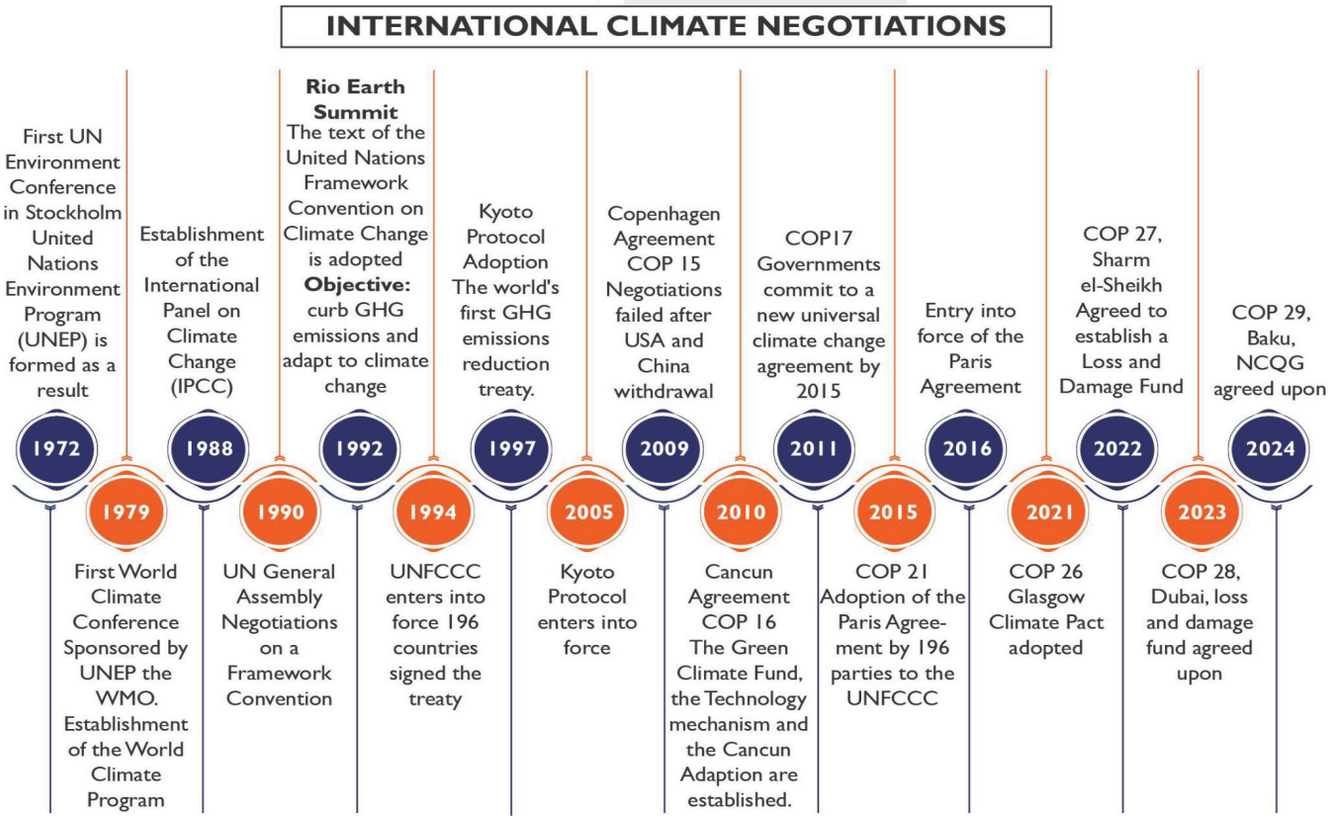
- **Carbon Markets**
  - **Article 6.2:** Finalized rules for bilateral carbon credit trading.
  - **Article 6.4:** Operationalized the Paris Agreement Crediting Mechanism for a centralized UN-managed carbon offset system.
  - **Capacity Building:** Programs were launched to enable least-developed countries (LDCs) to participate in carbon markets effectively.
- **Adaptation and Resilience**
  - **Baku Adaptation Roadmap:** Aimed at accelerating National Adaptation Plans (NAPs) in LDCs.
  - **Support for Farmers:** The **Baku Harmoniya Climate Initiative**, in collaboration with FAO, offered streamlined access to climate finance for farmers.
- **Gender and Inclusivity**
  - Extended the **Lima Work Programme on Gender** for another 10 years.
  - Mandated the adoption of a new Gender Action Plan at COP30.
- **Forests and Methane Reduction**
  - The UK pledged £3 million to enhance transparency under the **REDD+ program** to halt deforestation by 2030.
  - Over 30 countries signed the **COP29 Declaration on Reducing Methane** from organic waste (India abstained).
- **Transparency and Civil Society Engagement**
  - 13 countries submitted their **Biennial Transparency Reports (BTRs)** under the Enhanced Transparency Framework.
  - The **#Together4Transparency** initiative hosted 42 events to strengthen climate action accountability.



Important Milestones under UNFCCC

India's Stance at COP29

- **Opposition to NCQG:** India rejected the NCQG, calling the **USD 300 billion target insufficient**.
  - Emphasized Article 9 of the Paris Agreement, asserting that developed nations should bear the primary responsibility for mobilizing climate finance.

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- **Solidarity with Vulnerable Nations:** Supported Least Developed Countries (LDCs) and Small Island Developing States (SIDS), advocating for a fairer financial target.
- **Major Contributions**
  - **Resilient Infrastructure:** Showcased initiatives like the **Coalition for Disaster Resilient Infrastructure (CDRI)** and **IRIS**.
  - **Industrial Decarbonization:** Co-hosted the **LeadIT Summit** with Sweden, focusing on hydrogen-based solutions.
  - **Solar Energy Leadership:** Promoted solar adoption under the **International Solar Alliance (ISA)**, targeting a 20-fold increase by 2050.
  - **Gender-Inclusive Action:** Highlighted women-led clean energy solutions.

Critical Issues Raised by Developing Nations at COP29

- **Inadequate Financial Commitments:** Developing nations criticized the **$300 billion base target** as insufficient to address their climate mitigation and adaptation needs.
  - India called the package **"too little and too distant"**, stressing that it falls short of the $1.3 trillion annual funding required.
- **Failure to Meet Past Promises:** Developed countries have not fulfilled the earlier promise of mobilizing $100 billion annually by 2020. This undermines trust in the new commitments.
- **Exclusion:** India alleged that its request to speak before the adoption of the climate finance package was ignored, accusing the process of being **"stage-managed"**.
  - Also, Nigeria and Bolivia argued that the NCQG was shaped by the **geopolitical interests of developed nations.**
- **Delayed Action:** The financial mobilization goal is set for **2035**, which developing countries see as too distant given the urgency of the climate crisis.
- **Limited Progress on Trust and Collaboration:** India and others emphasized that **trust and collaboration**—key to addressing climate change—were lacking in the negotiations.

Future Directions

- **Need for Technology Transfer:** Developing countries require not only financial support but also technology transfer and capacity building.
- **Trust and Accountability:** The success of NCQG negotiations will depend on restoring trust between developed and developing nations while addressing historical responsibilities.
- **Critical Questions:** The negotiations must determine whether they will lead to just outcomes or merely promises without substantial commitments.
- **Investment vs. Finance:** Climate finance should prioritize **public funds** directed from developed to developing countries.
  - Counting private investments could dilute developed countries' accountability, as private funding lacks the public oversight needed for effective climate adaptation.
- **Standardized Definitions and Reporting:** Developing a global consensus on what constitutes climate finance and establishing robust reporting frameworks would provide clarity and transparency.

TOPICS FOR PRELIMS

Uranium

Syllabus Mapping: Geography, Minerals

Context

Residents of villages in the Kurnool district (Andhra Pradesh) are protesting against the Union government's decision to assess uranium reserves in the Kappatralla reserve forest.

About Uranium

- Uranium is a naturally occurring radioactive element, which has the atomic number of 92 and corresponds to the chemical symbol U in the periodic table.
- It belongs to a special group of elements called **"actinides".**
- Uranium is "radioactive" – it decays over time and releases energy in the process; and is the main source of fuel for nuclear reactors.

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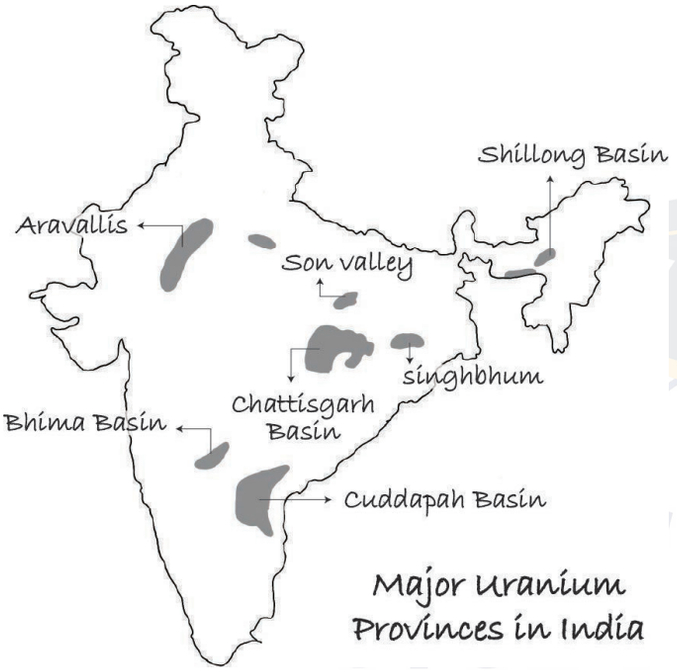
- **Largest Producers:** The leading producers of uranium worldwide include Kazakhstan (largest producer), Canada, and Australia.
  - Some of the important mines include Olympic Dam and Ranger mine in Australia, and the Athabasca Basin region in Canada.
- **Reserves in India:** The major uranium deposits occur in geological basins of the Singhbhum shear zone (Jharkhand), Cuddapah basin (Andhra Pradesh and Telangana), Mahadek basin (Meghalaya), Delhi Supergroup of rocks (Rajasthan) and Bhima basin (Karnataka).



  - **Important Sites:** Jaduguda, Narwapahar, Turamdih and Banduhurang (Jharkhand), Tummalapalle (Andhra Pradesh), Gogi (Karnataka)

Sand and its Regulation in India

Syllabus Mapping: Geography, Minerals, Environment

Context

Villagers of Assam and Meghalaya near Nokmakundi area have come together against illegal sand mining.

About Sand and Types of Sand

- **Sand:** It is a granular material that is non-cohesive. The combined weight of 50% of the particles is smaller than 4.75mm, with less than 15% of material smaller than 75µm.
- **Types of Sand:**
  - **River Sand:** Sand derived from river channels, estuaries, deltas, and river floodplains
  - **Lacustrine Sand:** Sand sourced from lakes.
  - **Marine Sand:** Sand derived from near- and offshore deposits, beaches, bays, and lagoons
  - **Manufactured Sand (M-Sand):** Artificial sand, produced by crushing large hard stone like granite into sand-sized aggregate particles. Generally, the size of M-Sand is less than 4.75mm.
  - **Sub-types:**
- **Ore-sand (O-sand):** Processed sand sourced as a co-product or by-product of mineral ores.
- **Crushed Rock Sand:** Manufactured by crushing the rocks like granite, limestone, sandstone etc.

About Regulation of Sand in India

- It is classified as a **minor mineral** under the **Mines and Minerals (Development and Regulations) Act, 1957 (MMDR Act). The State governments** are vested with the administrative control over minor mineral.
- In 2016, Ministry of Environment, Forest and Climate Change (MoEFCC) issued **Sustainable Sand Mining Management Guidelines, 2016** to address issues related to regulation of sand mining and promote sustainable sand management.
- In 2020, MoEFCC issued **Enforcement and Monitoring Guidelines for Sand Mining 2020** to address illegal sand mining.

Minor Minerals

- According to MMDR Act, 1957 "Minor Minerals" means building stones, gravel, ordinary clay, ordinary sand other than sand used for prescribed purposes, and any other Central Govt notified mineral.
- The Center has the power to notify "minor minerals" under MMDR Act, 1957.
  - India has 86 minor minerals, out of which 31 were added in 2015.
- The power to frame laws for minor minerals is entirely delegated to **State Govts.**
- Andhra Pradesh tops in the value of minor minerals produced in India followed by Gujarat, Maharashtra, Rajasthan and UP.

Major Minerals

- Major minerals are those which are specified in the first schedule of the MMDR Act 1957
  - The common major minerals are Lignite, Coal, Uranium, iron ore, gold etc.
- There is no **official definition for "major minerals"** in the MMDR Act. Hence, whatever is not declared as a "minor mineral" may be treated as a major mineral.
- The power to frame law for major minerals is dealt with by the **Ministry of Mines under the Union Government.**

Nickel

Syllabus Mapping: Geography, Minerals

Context

Scientists have found an unexpected connection between Nickel toxicity and Cholesterol.

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About Nickel

- It is a hard, silvery-white metal.
- Pentlandite (a mixture of nickel, iron, and Sulphur) is nickel ore.
- It is very hard and resistant to erosion.
- It is also very ductile and malleable

Uses of Nickel

- Plants, animals and fungi need nickel for functioning of Enzyme Urease.
  - E.g. Fungus Cryptococcus Neofarmans use Urease to spread and Colonise
- It is used as a colouring agent in cosmetics, paints, and some plastics.
- It is used in electroplating, adding a thin layer of nickel to other metals for better appearance and durability.
- It is found in batteries like nickel-metal hydride and rechargeable nickel-cadmium, used in devices such as laptops and power tools.
- Nickel has a long history of use in coinage. The five-cent piece (known as a "nickel") in the United States comprises 25% nickel and 75% copper.
- It is also used as a catalyst to hydrogenate vegetable oils.

Diseases caused by nickel

- Nickel is carcinogenic.
- It may cause lung fibrosis, kidney and cardiovascular diseases and cancer of the respiratory tract.

Distribution of Nickel

Indonesia (Largest Producer)	Sulawesi, Celebes
Philippines	Rio Tuba
Australia	Queensland and Kalgoorlie
Canada	Sudbury, Lynn Lake
CIS	Sverdlovsk and Orsk in the Urals, Kola Peninsula, Norilsk in Siberia.
India	The Sukinda valley in Jajpur district, Odisha, has important deposits of nickel in the form of limonite. In Jharkhand's East Singhbhum district, nickel is found as a sulphide, along with copper.

Indo-Kazakh Joint Venture Company for Titanium

Syllabus Mapping: Geography, Minerals

Context

IREL signed an agreement with Kazakhstan's Ust-Kamenogorsk Titanium and Magnesium Plant JSC (UKTMP JSC) to establish a joint venture company (JVC) named **IREUK Titanium Limited**.

About Joint Indo-Kazakh Joint Venture Company

- **JVC aims to develop the Titanium value chain in India** by processing low-grade ilmenite (a titanium-iron oxide mineral) into high-grade **Titanium Slag**—a critical input for titanium production.
- **India Rare Earths Limited (IREL)** is a public sector undertaking that mines and refines rare earth metals and other minerals. It is under administrative control of the **Department of Atomic Energy (DAE).**

About Titanium

- Titanium is a transition metal known for its high strength-to-weight ratio, corrosion resistance, and biocompatibility.
- It is primarily obtained from two ores: **ilmenite ($FeTiO_3$) and rutile (TiO_2).**
- The **Kroll process** is the most common method for extracting titanium from its ores.
- **Uses and Applications:**
  - **Aerospace:** Used extensively in aircraft components due to its strength and lightweight characteristics.
  - **Medical Devices:** Used for surgical implants, artificial joints, dental implants and cardiac valves due to its biocompatibility.
  - **Industrial Applications:** Used in piping systems, heat exchangers and chemical processing equipment due to its corrosion resistance.
  - **Consumer Products:** Found in sports equipment (tennis rackets, golf clubs), jewellery and spectacle frames.
  - **Military Applications:** Utilised in missile and naval vessels construction.

Facts

- **Ilmenite:** The world's largest reserves of ilmenite are in **China** (29% of the world's total). Other countries with large ilmenite reserves include Australia, India, South Africa, and Brazil.
- **Rutile:** Australia has the world's largest reserves of rutile (50% of the world's total). Other countries with large rutile reserves -South Africa, India and Sierra Leone.
- India has significant titanium ore reserves in the **beach sands** along its coasts in **Kerala, Tamil Nadu, Odisha and Andhra Pradesh.**
- India has **11% of the world's titanium-iron deposits,** but it still imports $1 billion worth of titanium dioxide annually, due to insufficient mining and processing of beach sand.

Auction of Strategic Mineral Blocks

Syllabus Mapping: Geography, Minerals

Context

The Ministry of Mines has auctioned 8 critical mineral blocks under the Mines and Minerals (Development and Regulation) Act, 1957, as part of the Auction of Critical and Strategic Mineral Blocks initiative.

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About Mines and Minerals (Development and Regulation) Act, 1957

- **Primary Objectives:**
  - Develop the mining industry.
  - Ensure conservation of minerals.
  - Enhance transparency and efficiency in mineral exploitation.

Key Amendments

- **2015 Amendment**:
  - **Auction Method:** Introduced mandatory auctioning of mineral concessions to improve transparency in allocation.
  - **District Mineral Foundation (DMF)**: Established to benefit communities affected by mining activities.
  - **National Mineral Exploration Trust (NMET)**: Created to promote mineral exploration activities.
- **2021 Amendment**:
  - **Captive and Merchant Mines**: Eliminated the distinction between these two types of mines. Captive mines produce minerals for the company's own use, with provisions to sell up to **50% of their output on the open market after meeting their internal needs.** Merchant mines operate to produce minerals for sale on the open market.
- **2023 Amendment**:
  - **Mineral concessions:** The government will exclusively auction mineral concessions for critical minerals. The **revenue from these auctions will go to the state government concerned.**
  - **Exploration licence:** The act introduces an exploration licence for deep-seated and critical minerals.
  - **Sub-surface activities:** The act allows prohibited activities like pitting, trenching, drilling, and sub-surface excavation as part of reconnaissance.

Important Blocks and Their Locations

Name of Block	Location
Balepalyam Tungsten and Associated Mineral Block	Andhra Pradesh
Depo Vanadium and Graphite Block	Arunachal Pradesh
Radhpu Graphite and Vanadium Block	
Sanyasikoppa Cobalt, Manganese and Iron Block	Karnataka
Nayakkarpatti Tungsten Block	Tamil Nadu
Barwar Phosphorite Block	Uttar Pradesh

PM Khanij Kshtriya Kalyan Yojna (2015)

- It aims to provide for the welfare of areas and people affected by mining related operations.
- It is implemented by the District Mineral Foundations (DMFs) of the respective districts, using the funds accruing to the DMF.

Coal Production from Captive/Commercial Mines Crosses 100 MT

Syllabus Mapping: Geography, Minerals

Context

According to latest data released by the Ministry of Coal, India's coal production from Captive and Commercial mines has exceeded 100 Million Tonnes (MT).

About Captive & Non-Captive Mines

- **Captive Mines:** Captive mines are mines owned by companies, where the coal or minerals extracted are solely for the company's own use. The resources from these mines cannot be sold externally.
- **Non-Captive Mines:** Non-captive mines allow the extracted coal or minerals to be used for both the company's own needs and for sale to others.
- **2021 Amendment**:
  - **Captive and Merchant Mines**: Eliminated the distinction between these two types of mines. Captive mines produce minerals for the company's own use, with provisions to sell up to **50% of their output on the open market after meeting their internal needs.** Merchant mines operate to produce minerals for sale on the open market.

Related News

50 Years of Coal India

- Coal India is an Indian public sector undertaking and the **largest government-owned coal producer in the world. (Established - 1975)**
- **Nodal Ministry:** Ministry of Coal. **(HQ-Kolkata)**
- It accounts for around **82% of the total Coal production in India.**
- Nationalisation of Coal was done in two phases:
  - First with the coking coal mines in 1971-72
  - Non-coking coal mines in 1973.
    - Coking coal can be heated without air to produce coke, while non-coking coal cannot.

Mount Lewotobi Laki-Laki

Syllabus Mapping: Geography, Volcanoes

Context

Many International flights cancelled in Bali due to ash clouds from a volcanic eruption in the Indonesian island.

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About Mount Lewotobi Laki-Laki

- **Location:** Flores Island, southeastern Indonesia.
- It is part of the **Lewotobi twin volcano complex**, comprising Lewotobi Laki-Laki (Male) and Lewotobi Perempuan (Female) stratovolcanoes.
- **Strato volcano:** It is a large, steep-sided volcano that's formed by layers of hardened lava, ash, and other volcanic debris. They are known for their steep sides, **explosive eruptions and high viscosity magma.**

Facts

- Indonesia has the most volcanoes in the world, including 120 active volcanoes and 126 total volcanoes, including six submarine volcanoes.
- Most of Indonesia's volcanoes are located on the **Sunda Arc, a 3,000 km long chain.**
- The volcanoes were created by the **subduction of the Indian Ocean crust under the Asian Plate**.

Ancient Ocean on Mars

Syllabus Mapping: Geography, Universe

Context

Findings from **China's Zhurong rover and NASA's Mars Reconnaissance Orbiter**, indicate that Mars had a water ocean around 3.68 billion years ago.

About Mars

- It is the **4th** planet from the Sun and the **2nd** smallest planet in our solar system.
- **Time taken for rotation**: Little over 24 hours
- **Time taken for revolution:** 687 earth days
- Its soil contains iron oxide, which gives the planet its reddish appearance.
- Mars has two small moons, **Phobos and Deimos.**
- Mars has the tallest mountain in the solar system, **Olympus Mons** (it is a Shield Volcano).

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Important Missions to Mars

Name	Launch Year	Type	Agency Involved
Mangalyaan (Mars Orbiter Mission)	2013	Orbiter	ISRO (Indian Space Research Organization)
Curiosity Rover	2011	Rover	NASA
Perseverance Rover	2020	Rover	NASA
Tianwen-1 (Zhurong)	2020	Orbiter/Rover	CNSA (China National Space Administration)
Hope Mars Mission	2020	Orbiter	UAE Space Agency

Sea Weeds

Syllabus Mapping: Environment, Biodiversity

Context

The Ministry of Fisheries, Animal Husbandry, and Dairying has issued the **Guidelines for Import of Live Seaweeds into India.**

About Seaweeds

- Seaweed, or macro algae, refers to thousands of species of macroscopic, multicellular, marine algae.
- It includes Rhodophyta, Phaeophyta and Chlorophyta macro algae. They range in colours from red, green, brown and black.
- They vary in size, from microscopic to large underwater forests.
- **Seaweed V.S. Seagrass:**
  - Seaweeds, classified as algae in the kingdom Protista, are plant-like organisms. They lack features such as a true stem, roots, leaves, and vascular tissues.
  - In contrast, seagrass is a marine flowering plant with distinct stem, roots, and leaves.
  - Seagrass also has the ability to produce fruits and seeds, unlike seaweeds.

Benefits of Seaweed

- Provide crucial habitat and nursery grounds for fishes and other marine organisms. E.g., kelp.
- Help in carbon sequestration.
- Are rich in essential nutrients, vitamins, Omega-3, minerals, and antioxidants.
- Can be used as biofertilizers and soil conditioners.
- Used in aquaculture as feed for fish, shellfish, and other aquatic organisms, promoting their growth and health.
- Have the ability to absorb and remove various pollutants, including heavy metals and nutrients, from marine environments.
- Used in the production of biofuels, bioplastics, and pharmaceuticals. Seaweed extracts are also utilized in cosmetics, skincare products, and food additives.

Species of Seaweed Found in India

- Gracilariaverrucosa in Chilika Lake, Odisha
- Ulva Linza or Ulva prolife rain Chilika Lake, Odisha
- Gracilaria dura in Gujarat
- Ulva Lactuca or Ulva fasciata or Ulva indica all over India coast
- Kappaphycus all over Indian coast

Initiatives taken in India for Promotion of Seaweed Cultivation

Seaweed Mission

- It is a mission for commercial farming of seaweeds, and it's processing for value addition towards boosting national economy.
- It has been launched by Technology Information, Forecasting and Assessment Council (TIFAC).
- **Major Objectives**
  - Establishment of model demonstration farms over one hectare for cultivation of economically important seaweeds in nearshore and onshore along the Indian coast.
  - Establishment of seaweed nurseries for supplying seed material for large scale farming of economically important seaweeds in the country.
  - Establishment and demonstration of processing technologies/recipes for edible seaweeds in line with consumer acceptability or cultural food habits.
  - Setting up of processing plant for integrated production of plant growth stimulants (sap) along with industrially important cell wall polysaccharides (polycocolloids) such as agar, agarose, carrageenan and alginates from fresh seaweeds.

Guidelines for Import of Live Seaweeds into India

- For import of live seaweed into India, the importers may submit a detailed application to the Department of Fisheries, which will be reviewed by the National Committee on Introduction of Exotic Aquatic Species into Indian Waters.
- Upon approval, the Department will issue an import permit within four weeks, facilitating the import of high-quality seaweed germplasm.

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Global Nature Conservation Index

Syllabus Mapping: Environment, Biodiversity, Reports & Indexes

Context

The first ever edition of the Global Nature Conservation Index was released recently.

About Nature Conservation Index (NCI)

- It is developed by the **Goldman Sonnenfeldt School of Sustainability and Climate Change at Ben-Gurion University of the Negev (Israel)** in collaboration with **BioDB.com** (a non-profit website dedicated to maintaining biodiversity data).
- It evaluates countries' conservation efforts using four main criteria: **land management, biodiversity threats, governance capacity and future trends.**
- India scored **45.5 out of 100, ranking 176th among 180 countries**.
  - **Top Ranking Countries:** Luxembourg, Estonia, Denmark.
  - **Bottom Countries:** Kiribati (180), Turkey (179), Iraq (178) and Micronesia (177).

Facts

- India ranks as the fourth-largest illegal wildlife trader globally, with annual trade valued around £15 billion.
- India experiences 53% land conversion due to urban, industrial, and agricultural development.
- From 2001 to 2019, deforestation led to the loss of 23,300 sq. km of tree cover.

Greenhouse Gas Bulletin

Syllabus Mapping: Environment, Reports & Indexes

Context

The World Meteorological Organization's (WMO) 2023 Greenhouse Gas Bulletin revealed that global greenhouse gas concentrations reached an unprecedented high.

Key highlights of 2023 Report

- Carbon dioxide (CO_2) reached an annual mean of 420 parts per million (ppm) in 2023, an increase of 2.3 ppm from 2022. This marks the 12th consecutive year with a rise above 2 ppm.
- The current CO_2 concentration is unprecedented in recent geological history, mirroring levels seen 3-5 million years ago when Earth's temperature was 2-3°C higher and sea levels were up to 20 metres higher.
- Since 1990, the warming effect due to GHGs (radiative forcing) has increased by 51.5%, with CO_2 contributing about 81% of this increase.
- **Factors Driving GHG Increase:**
  - High emissions from fossil fuel use.
  - El Niño exacerbated warming in 2023
  - Drier vegetation and increased wildfires during El Niño years further heightened emissions.

About Greenhouse Gas Bulletin

- It is an **annual publication** by the **World Meteorological Organization (WMO)** that provides a comprehensive analysis of the concentration of greenhouse gases (GHGs) in the atmosphere.
- The bulletin primarily focuses on three major greenhouse gases **Carbon Dioxide (CO_2)**, **Methane (CH_4)** and **Nitrous Oxide (N_2O)**
  - It compares the current levels of **CO2, CH4, and N2O** with the previous year and pre-industrial levels.
- The bulletin is based on data from the **WMO Global Atmosphere Watch (GAW) Programme**, which is a worldwide network of observation stations and scientific infrastructure.

World Meteorological Organization (WMO)

- It is a specialized agency of the United Nations responsible for coordinating global efforts in meteorology, climatology, hydrology, and related fields.
- **Established** in 1950. (HQ - Geneva, Switzerland)
- **Members:** 193, **(India is a founding member of WMO)**
- **The World Meteorological Congress** is the supreme body of the WMO.
- It plays a crucial role in providing reliable weather forecasts, climate data, and early warning systems for natural disasters.

Methanol

Syllabus Mapping: Environment, Energy Transition

Context

NTPC has developed Indigenous Catalyst for Methanol production from Flue Gas CO2.

About Methanol

- Methanol, also known as wood alcohol, is a colourless, volatile liquid with a chemical formula of **CH_3OH.**
- It is the simplest alcohol and is produced primarily from natural gas.
- It can also be derived from biomass and coal.
- **Chemical Properties:**
  - **Polar solvent** and can participate in various chemical reactions, including **oxidation and esterification.**
  - It burns cleanly, producing carbon dioxide and water.
- **Uses of Methanol:**
  - Can be used as a fuel in internal combustion engines and is considered a potential alternative to petrol. It can

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be blended with petrol or used in dedicated methanol vehicles.

- Used in **direct methanol fuel cells (DMFCs)**, which convert chemical energy directly into electrical energy, offering applications in portable power sources and electric vehicles.
- Serves as a key raw material in the production of formaldehyde, acetic acid, and various plastics.
- Used in the manufacturing of paints, varnishes, and adhesives due to its solvent properties.
- Commonly used in windshield washer fluids and as an **antifreeze agent.**

Methanol Economy

- **NITI Aayog's** roadmap for India's Methanol Economy aims to replace **10% of crude imports with methanol by 2030.** The roadmap includes the following provisions:
  - Production of methanol from Indian high ash coal using indigenous technology.
  - Biomass, Stranded gas, and Municipal Solid Waste will be used for methanol production.
  - Utilization of methanol as well as Di-methyl ether in the transportation sector.
  - Utilization of methanol and Di-methyl ether as domestic cooking fuel.
  - Utilization of methanol and Di-methyl ether in fuel cell applications in Marines, Gensets, and Transportation.

Coastal Regulation Zones (CRZ)

Syllabus Mapping: Environment, Environmental Management

Context

The Union Ministry of Environment, Forest and Climate Change has approved the Coastal Zone Management Plan (CZMPs) of 10 coastal districts of Kerala.

About Coastal Regulation Zones

- It is a demarcated area along the coasts of India that is subject to stringent regulations and guidelines.
- The primary objective of CRZ regulations is to safeguard the coastal environment, its ecosystems, and the livelihoods of the coastal communities from the adverse impacts of developmental activities.

Key Provisions of Coastal Regulation Zone Regulations, 2019

Provision	Details
Expansion of the Coastal Zone	• CRZ 2019 has expanded the coastal zone from the earlier 100 meters to 500 meters from the high tide line.
No Development Zone:	• Designated a No Development Zone (NDZ) of 20 meters, which is to be measured from the High Tide Line. • No construction activity such as Roads and buildings is allowed in this zone, except construction important for the security of India and public safety, subject to appropriate permissions.
CRZ Classification	2019 regulations have divided Coastal zones into four categories according to sensitivity, such as: • **CRZ-I or Ecologically Sensitive Areas:** These areas are of significant ecological importance, such as mangroves, coral reefs, breeding and spawning grounds of fish, and habitats of endangered species. • **CRZ-II or Urban Areas:** This category includes areas that are already developed or have existing infrastructure, such as municipal areas or other local authorities • **CRZ-III or Rural Areas**:This category comprises relatively underdeveloped areas with a population density of fewer than 2,161 persons per square kilometre. • **CRZ-IV or Water Area**:This category includes all water areas within the coastal zone.
Redefining Hazard Line:	• It is a line that separates the area which is more prone or vulnerable to natural disasters, such as floods, cyclones, sea level rise, etc from the other areas. • The redefined Hazard line is scientifically drawn according to factors like tidal waves, sea level rise, shoreline changes, and other natural phenomena.
Tourism Activities	• Though tourist activities such as shacks and water sports are allowed in the coastal zones, they are subject to stringent regulations and require certain prior permissions.
Coastal Zone Management Plans (CZMP)	• Mandate the preparation of CZMP for each coastal state and union territory, which act as the blueprint for all the regulations and are required to be reviewed every five years.

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ASSET Platform

Syllabus Mapping: Environment, Energy Transition

Context

The government launched the ASSET Platform (Accelerating Sustainable Solutions for Energy Transition) Platform.

About ASSET Platform

- **Launched by:** NITI Aayog in collaboration with the Ministry of New & Renewable Energy.
- **Aim:** To support state governments in accelerating their green transition.
  - It will assist state governments in:
  - Formulating state energy transition blueprints
  - Aid states in the implementation of energy transition blueprints
  - Preparing a pipeline of bankable projects
  - Showcasing best practices across states
  - Showcasing upcoming technology and innovations in critical sectors like Battery & Energy Storage System (BESS), Green Hydrogen, energy efficiency, e-mobility, offshore wind etc.

LeadIT

Syllabus Mapping: Environment, Sustainability

Context

India and Sweden co-chaired the Annual Summit of LeadIT, on the sidelines of UNFCCC COP29 at Baku, Azerbaijan.

About LeadIT

- It is a global initiative that aims to accelerate the transition of challenging sectors such as steel, cement, chemicals, aviation and shipping to low-carbon pathways.
  - It gathers countries and companies that are committed to action to achieve the Paris Agreement.
- **Launched by: India & Sweden** at the **UN Climate Action Summit in 2019** and is supported by the **World Economic Forum.**
- **Members**: 41**,** including countries and companies.
  - **Important Member countries:** USA, Australia, South Africa, France, Germany, Japan etc.
- Its management board is made up of representatives from India, Sweden and the World Economic Forum.
- **LeadIT 2.0** was launched at COP28 in Dubai in 2023. It has three main components:
  - Global Forum for a Just and Equitable Industry Transition
  - Technology Transfer and Co-development
  - Industry Transition Partnership

Exported Emissions

Syllabus Mapping: Environment, Climate Change

Context

Fossil fuel exports remained a hot topic at the United Nations climate conference in Baku recently.

About Exported Emissions

- Exported emissions refer to the greenhouse gas (GHG) emissions generated when fossil fuels (such as oil, gas and coal) are extracted in one country and then exported to another country, where they are burned or used.
- These emissions are not accounted for in the exporting country's national emission inventories under current international frameworks, such as the **Paris Agreement.**
  - Instead, the importing country bears responsibility for these emissions.
- These countries **benefit from growing fossil fuel demand while maintaining their international climate commitments.**
- **Major Exporters:** United States, Norway, Australia and Canada.
  - USA's Exported fossil fuels in 2022 generated over **2 billion tonnes of CO_2 equivalent emissions** abroad.

Concerns

- **Double Standards**: Exporting countries maintain domestic climate goals but ignore the global impact of their fossil fuel exports.
- **Environmental Burden on Importers**: Importing nations, often developing countries, are held responsible for emissions resulting from fossil fuels they did not produce.
- **Climate Goals at Risk:** Without addressing exported emissions, global targets such as limiting warming to 1.5°C may be jeopardized.

India's fossil-based CO2 emissions to spike 4.6% in 2024

Syllabus Mapping: Environment, Climate Change

Context

According to a **Global Carbon Project study,** Global fossil-based CO2 emissions are projected to reach 37.4 billion tonnes in 2024, marking a 0.8% increase from 2023.

Key facts of the study

- India's CO2 emissions from fossil fuels are expected to rise by **4.6% in 2024, the highest among major economies.**
- The largest contributions to global fossil CO2 emissions were **China (31%), the USA (13%), India (8%), and the European Union (7%) in 2023.**

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  - These **four regions account for 59%** of global fossil CO2 emissions, while the rest of the world contributed 41%
- **Carbon sinks** (oceans and land) continue to absorb a significant amount of CO2, but their effectiveness is impacted by climate change.
- **Carbon Budget:** It is the maximum amount of carbon dioxide (CO2) that can be emitted by human activities while limiting global warming to a specified level.

Global Carbon Project (GCP)

- It is a leading international scientific initiative that aims to provide accurate and up-to-date information on the carbon cycle and its implications for global climate change.
- It was established in **2001.**
- It publishes global budgets for three major greenhouse gases — **carbon dioxide, methane and nitrous oxide.**

Artificial Reef Project in Kerala

Syllabus Mapping: Environment, Biodiversity, Corals

Context

Kerala Fisheries Department has undertaken an Artificial Reef Project to replenish marine population in the state.

About Artificial Reef project

- The Kerala State Coastal Area Development Corporation (KSCADC) is implementing the project with technical support from the **Central Marine Fisheries Research Institute (CMFRI).**
  - **CMFRI** was established by the Central Government in **1947 in Kochi, Kerala.**
  - It is under the **administrative control** of the Ministry of Agriculture and Farmers Welfare.
- The project is part of the Central Government's **Pradhan Mantri Matsya Sampada Yojana (PMMSY).**
- **Artificial Reefs:** They are human-made structures placed in underwater areas to improve marine habitats, increase fish populations and enhance scientific research.
  - Artificial reefs can be made from a variety of materials, including concrete, limestone, steel, rocks, wood and old tires.
- **Sea Ranching:** It is a type of aquaculture which involves raising fish in hatcheries and then releasing them into the ocean.

Black Buck

Syllabus Mapping: Environment, Climate Change, Flora & Fauna

Context

Gangster Lawrence Bishnoi has brought the Bishnoi community in news who revere the Blackbucks.

About Blackbuck

- It is also known as the Indian antelope and is **endemic to India & Nepal.**
- **Habitat:** open grasslands, scrublands and savannas.
- **Features:**
  - Males are characterised by their striking black and white coloration, with a dark brown to black coat on their upper body and white underparts.
  - Females are generally lighter in colour, with a tan or fawn coat.
  - **Male blackbucks have long, corkscrew-shaped horns** but Females generally do not have horns.
  - Blackbucks are social animals and live in herds.
  - Also they are herbivorous and primarily graze on grasses, herbs and leaves.
- **Protection status:**
  - **IUCN Red List:** Least concerned.
  - **Wildlife Protection Act of 1972:** Schedule I
  - **CITES:** Appendix III
- In India it is found in Andhra Pradesh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan and Tamil Nadu.
- **The Bishnoi community and blackbucks share a deep cultural and environmental relationship.**

King Cobra

Syllabus Mapping: Environment, Biodiversity, Flora and Fauna

Context

Recently scientists have reclassified King Cobra into 4 different species.

About King Cobra

- It is the **world's largest venomous snake** reaching up to 18 feet (5.5 metres).
- It is unique for **being the only snake to build nests for its eggs.**
- **Conservation status**

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  - **IUCN:** Vulnerable
  - **CITES:** Appendix II
- It has been reclassified into **4 distinct species**:
  - **Northern King Cobra (Ophiophagus hannah):** Found from Pakistan to Indo-China and parts of northern India.
  - **Sunda King Cobra (Ophiophagus bungarus):** Found in Southeast Asia, including Malaysia, Singapore, and Indonesia.
  - **Western Ghats King Cobra (Ophiophagus kaalinga):** Endemic to the Western Ghats in southern India.
  - **Luzon King Cobra (Ophiophagus salvatana):** Found on Luzon Island, Philippines.

Protected Areas in News

Protected Area	Location	Details
Similipal Tiger Reserve	Mayurbhanj District, in the Northern-most part of Odisha.	• It is a National Park, Tiger Reserve & Biosphere Reserve. • Rivers: Budhabalanga, Palpala Bandan, Salandi, Kahairi and Deo. • **Flora:** Mix of deciduous with some semi-evergreen forests. Sal is the dominant tree species. • **Fauna:** Tiger, Elephant, Leopard, Barking deer, jungle cat, four-horned antelope etc. ▪ It holds the highest tiger population in the state of Odisha. ▪ **Black tigers** (melanistic tigers) are found here.
Bandhavgarh National Park/ Tiger Reserve	Umaria district of Madhya Pradesh	• Surrounded by the Vindhya and Satpura ranges. • **Flora:** Sal tree, along with mixed forests featuring Bamboo, Saj, Arjun, and Mahua. • **Fauna:** Tigers, leopards, gaur, sloth bears etc. • The park contains ancient man-made caves, some of which date back to the 1st century BC • **Bandhavgarh Fort:**estimated to be over 2,000 years old, stands within the park atop a hill.
Dinosaur Fossil Park and Museum	Raiyoli, near Balasinor, Gujarat.	• Recognized as one of the most significant sites for dinosaur fossils in India. • Considered one of the largest hatcheries of dinosaur eggs globally.
Guru Ghasidas-Tamor Pingla Tiger Reserve	Chota Nagpur plateau and partly in the Baghelkhand plateau, Chhattisgarh	• 56th Tiger Reserve of India • Connected to the Bandhavgarh Tiger Reserve in Madhya Pradesh to the West and Palamau Tiger Reserve in Jharkhand to the East. • **Rivers:** It serves as the origin of significant rivers such as Hasdeo Gopad and Baranga.
Bandipur Tiger Reserve	Mysore and Chamarajanagar districts of southern Karnataka.	• Located at the **ecological confluence of the Western and Eastern Ghats.** • **Rivers:** Kabini & Moyar • **Flora:** Teak, rosewood, sandalwood, Indian-laurel, Indian kino tree, bamboo etc. • **Fauna:** Bengal tigers, Indian elephants, sloth bears, dholes, four-horned antelopes, gray langurs, bonnet macaques etc. • It is surrounded by Mudumalai Tiger Reserve, Wayanad Wildlife Sanctuary and e Bandipur and Nagarahole Tiger Reserve. • Part of the larger Nilgiri Biosphere Reserve, which is recognized as a UNESCO World Heritage Site. • Beladakuppe Sri Mahadeshwaraswamy Temple, is in the core area of the reserve
Ranthambore Tiger Reserve	Situated at the junction of the Aravalli and Vindhya hill ranges in Sawai Madhopur district of Rajasthan.	• **Fauna:** Tiger, Leopards, sloth bears, striped hyenas, sambar deer • **Flora:** Dry deciduous forests, grasslands, and scrublands, dominant species: Dhok, acacia.

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ECONOMY & AGRICULTURE

TOPICS FOR MAINS

Paradox of Stagnant Rural Wages

Syllabus Mapping: GS-Paper 3, Employment

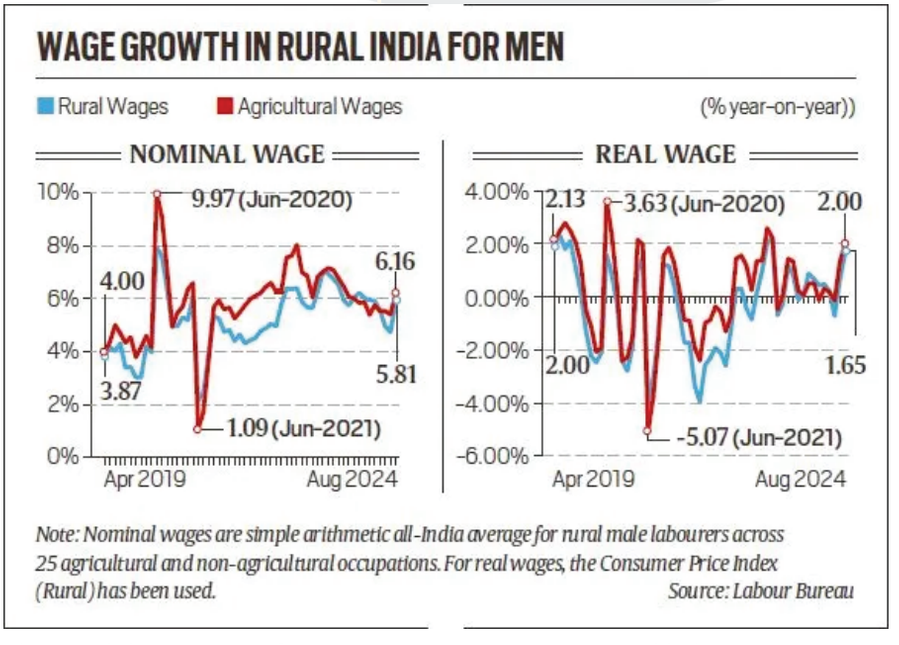
Context

The Indian economy has experienced notable growth from 2019-20 to 2023-24, with an average annual rate of 4.6% and a more robust 7.8% in the last three fiscal years. However, this economic expansion has not translated into significant improvements in rural wages, leading to a paradoxical situation where real wages remain stagnant or even negative.

More in News

- **GDP Growth:** The Indian economy grew at an average annual rate of 4.6% from 2019-20 to 2023-24, with a higher growth rate of 7.8% in the last three fiscal years.
- **Agricultural Sector Growth:** The farm sector's growth averaged 4.2% during this period and 3.6% over the same five years.

Wage Growth Analysis



Labour Bureau collects data on daily wage rates for various occupations across rural India:

- **Nominal Wage Growth**:
  - Average nominal year-on-year growth in rural wages was 5.2% for the five years ending in 2023-24.
  - Agricultural wages saw a slightly higher growth at 5.8%.
- **Real Wage Growth**:
  - In real terms (adjusted for inflation), average annual growth was -0.4% for rural wages and 0.2% for agricultural wages during the same period.
  - For the current fiscal year (April-August), overall rural wages increased by 5.4% nominally and only 0.5% in real terms, while agricultural wages rose by 5.7% nominally and 0.7% in real terms.

Paradox of Stagnant Wages

- **Rising Labor Force Participation Rates (LFPR):** One explanation for stagnant real wages is the increase in Labor Force Participation Rates (LFPR), particularly among women:
  - The all-India average female LFPR rose from 24.5% in 2018-19 to 41.7% in 2023-24.

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  - Rural female LFPR specifically increased from 26.4% to 47.6% over the same period.
  - This rise is attributed to government initiatives such as:
    - Ujjwala (clean cooking fuel)
    - Har Ghar Jal (piped drinking water)
    - Saubhagya (electricity access)
    - Swachh Bharat (sanitation)
  - These programs have reduced the time women spend on household chores, enabling them to seek employment outside the home.
- **Increased Labor Supply and Its Impact:** The influx of women into the workforce has led to a rightward shift in the labour supply curve, increasing competition for jobs and exerting downward pressure on real wages.
- **Disguised unemployment in the agriculture sector:** High disguised unemployment in the agricultural sector means that there is a large supply of labour in the agricultural sector. Thus, despite a large increase in demand for labour, workers do not have bargaining power resulting in slow increase in wages.
- **Shift in Employment Patterns:** Despite more women entering the labour force, a significant portion remains employed in agriculture. Agriculture's share of employment increased from 71.1% to 76.9%, indicating that new entrants are primarily finding work in low-productivity agricultural jobs rather than higher-paying non-farm sectors.
- **Demand-Side Factors:** The nature of economic growth has also contributed to stagnant wages:
  - Economic growth has become increasingly capital-intensive and labour-saving, resulting in fewer workers needed per unit of output.
  - This trend leads to a greater share of income accruing to capital rather than labour, further suppressing wage growth.

Mitigating Factors

While stagnant wages present challenges, various income transfer schemes have been implemented to provide financial support:

- States such as Andhra Pradesh, West Bengal, and Tamil Nadu have introduced schemes targeting women, with total annual payments estimated at around ₹2 lakh crore.
- The central government also offers a ₹6,000 annual income transfer to approximately 11 crore farmer households.
  - **E.g., Maharashtra's Ladki Bahin Yojana** provides ₹1,500 per month to eligible women, which is significant compared to the average daily wage of ₹311.5 for rural female labourers engaged in agriculture.

Conclusion

Despite robust GDP growth and improvements in agricultural productivity, real rural wages remain stagnant due to increased labour supply and shifts in employment patterns towards low-paying agricultural jobs. The government's income transfer schemes offer some relief but highlight the need for comprehensive strategies to enhance wage growth and improve living standards in rural India.

Dedicated freight corridors are adding to GDP growth

Syllabus Mapping: GS-Paper 3, Infrastructure, Railways

Context

In a recent study, conducted by the University of New South Wales (UNSW), India's Dedicated Freight Corridors (DFCs) were projected to boost the country's GDP by Rs. 16,000 crore.

Dedicated Freight Corridors (DFCs)

- They are specialised railway routes designed exclusively for freight transport. They enable faster and more efficient movement of goods.
- The creation of DFCs was announced in the Railway Budget for FY 2005-06. Dr. Manmohan Singh, the then Prime Minister, laid the foundation stone for the Eastern Dedicated Freight Corridor (EDFC) in Ludhiana in 2006, and the Western Dedicated Freight Corridor (WDFC) in Mumbai in 2006.

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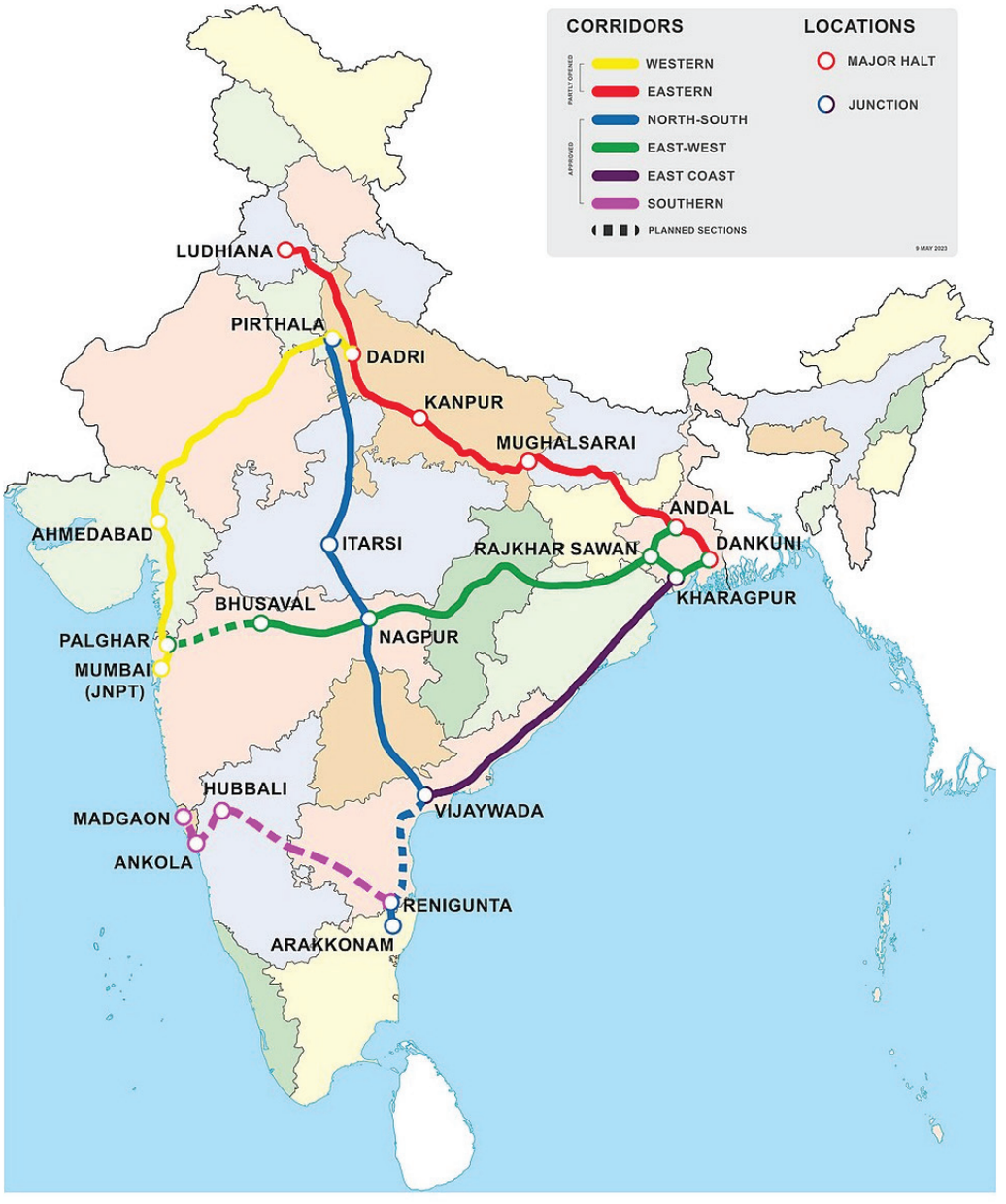
- In 2006, Dedicated Freight Corridor Corporation of India Limited (DFCCIL) was established as a Special Purpose Vehicle for the construction, operation, and maintenance of the DFCs.



DEDICATED FREIGHT CORRIDORS OF INDIA

Dedicated Freight Corridors in India

- **Eastern Dedicated Freight Corridor (EDFC):** from Ludhiana to Sonnagar (1337 Km) - Already Complete. Focuses on Coal, Steel and agricultural commodities.
- **Western Dedicated Freight Corridor (WDFC):** from Jawaharlal Nehru Port Terminal (JNPT) to Dadri (1506 Km) - Last 102 km stretch from Vaitarna and JNPT is remaining rest complete. Focuses mostly on containarised import and export.

Proposed Dedicated Freight Corridors

- **East Coast Corridor**: From Kharagpur to Vijayawada (1115 km).
- **East-West Sub-corridors:**
  - **Sub-corridor-I:** From Palghar to Dankuni (2073 km).

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  - **Sub-corridor-II:** From Rajkharsawan to Andal (195 km).
- **North-South Sub-corridor:** From Vijayawada to Itarsi (975 km).

Feature	Existing on IR	On DFC
	Heavier Axle load	
Axle Load	22.9 T/25T	25/T (Track Structure), Bridges & Formation Designed for 32.5T
Track loading Density		
Minimum Speed	75 Kmph	100 Kmph
Grade	Up to 1 in 100	1 in 200
Curvature	Up to 10 Degree	Up to 2.5 Degree
Traction	Electrical (25 KV)	Electrical (2x25 KV AT Feeding)
Station Spacing	7-10 Km	40 km on Double Line 10 Km on Single Line
Signalling	Absolute/Automatic with 1 Km spacing	Automatic With 2Km Spacing
Communication	Emergency Socket/Mobile Train Radio	Mobile Train Radio

Need for Dedicated Freight Corridors (DFCs)

- **Overutilization of Existing Rail Network:** The Railways' golden quadrilateral, linking Delhi, Mumbai, Chennai, and Howrah, along with its two diagonals (Delhi-Chennai and Mumbai-Howrah), constitutes only 16% of the total route but handles over 52% of passenger traffic and 58% of revenue-earning freight traffic.
- **Declining Rail Freight Share:** The Railways' share of total freight traffic has been declining. According to NITI Aayog's report, "Improving Rail efficiency and share in India's freight transport", the percentage share of Indian railways in freight traffic in the country is 26%.
  - The National Rail Plan aims to increase the rail freight share to 45% by 2030.

Year	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Freight Carried by Railways (MMT)	1160	1221	1208	1231	1416	1512	1590

(Table Showing Freight Carried by Railways- Overall freight carried by Railways has been increasing in recent years, however its share has been decreasing)

Benefits of Dedicated Freight Corridors

- **Increased Capacity:** DFCs allow for higher transport capacity, facilitating the operation of double stack container trains and heavy haul trains.
- **Improved Supply Chain**: These corridors enhance the supply chain for industries and logistics companies located near economic hubs, boosting export-import activities.
- **Carbon efficient:** Rail transport is less carbon intensive when compared to road transport. Thus, promoting DFCs aligns with India's goal of achieving carbon neutrality by 2070.
- **Export competitiveness:** DFCs are expected to improve logistics efficiency of India and make Indian exports competitive as high logistics cost is a big reason for making Indian exports less competitive. Currently, India's logistics cost is 14% of GDP as compared to 8% in advanced economies, the DFCs will help bridge this gap.
- **Hinterland development:** DFCs will promote industrialization and integration of India's hinterland with world markets and promote industrialization and employment avenues in these regions. To further boost, the government of India has proposed building industrial corridors in regions from where the DFCs are passing through.

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- **Decongestion of roads:** Well functional DFCs will lead to decongestion of roads leading to reduced road accidents. DFCs will also make space for more passenger trains leading to reduced demand for private road transport.
- **Benefits for industries:** Eastern Dedicated Freight Corridor links major coals and steel producing areas in Jharkhand, West Bengal, Odisha with Punjab and Western Uttar Pradesh. Also, food stocks from Punjab can be transported to Eastern India swiftly. Power plants in Punjab have reduced their stock of coal to 15 days since the operationalisation of Eastern Dedicated Freight Corridors.

Current Status of DFCs

- **Increased Train Operations**: An average of 325 trains are now running daily on the DFCs, representing a 60% increase from the previous year.
- **Freight Traffic Performance:** Since its inception, DFCs have carried over 232 billion Gross Tonne Kilometres (GTKMs) and 122 billion Net Ton Kilometres (NTKMs) of payload.
- **Share of Railways Freight:** Over 10% of Indian Railways' freight is now handled by the DFCs.
- **Economic Impact Study:** DFCCIL is conducting a comprehensive study to assess the DFCs' impact on the Indian economy, with results expected soon.

Challenges faced in completion of DFCs

- **Slow Land acquisition, forest and other environmental clearances** leading to increased cost and time overrun.
- **Utility shifting** such as existing national highways, roads, railway tracks needs to be shifted, requiring a lot of time.
- **Securing finances has been a challenge** as the low operational margin of railways allows it to have limited financial resources to invest in DFCs.
- **Lack of consensus on design and operations:** There has been a lot of discussion on alignment of DFCs, the use of diesel vs electric engines on DFCs which leads to erosion of time and project rebidding.
- **Monopolistic in practice:** The DFCs are currently end to end run, managed by Indian railways. There is a need to bring in innovation and private players to operate logistics trains on the DFCs.
- **End to end connectivity:** Though the pricing of freight transport on DFCs is competitive, but considering the fact that roadways offer end to end last mile connectivity, often road transportation is still cheaper when compared to that on DFCs.

Way forward

- Integrating DFCs with local trains and logistics hubs at various locations.
- On boarding states through which DFCs are passing as stakeholders in the DFCs.
- Integrating private sector in running and last mile connectivity in DFCs.
- Pricing of freight transport on DFCs to be made competitive by an independent regulatory agency.

Debroy Committee Charted Railway Path Towards Competitiveness

Syllabus Mapping: GS-Paper 3, Infrastructure, Railways

Context

Bibek Debroy Committee – in its report in 2015– suggested comprehensive reforms for the Indian Railways to **improve operational efficiency, financial viability, and competitiveness.**

Key Recommendations of the Bibek Debroy Committee for Indian Railways

- **Empowering Railway Officers:**
  - The committee suggested empowering field officers, including General Managers (GMs) and Divisional Railway Managers (DRMs), by giving them more decision-making power.
  - The government has partly implemented this, allowing GMs and DRMs to handle tenders, make independent decisions, and manage their divisions like business units.
- **Setting Up an Independent Regulator:**
  - To promote fair competition and manage pricing, the committee recommended creating an independent regulatory body.

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  - In 2017, the government approved the Rail Development Authority (RDA), which advises on service pricing, boosts non-fare revenue, and encourages competition.
- **Opening Up to Private Players:**
  - The committee recommended liberalising Indian Railways by allowing private operators to participate in services to improve competition and service quality.
  - This does not mean "privatisation" but aims to create a competitive environment.
  - Due to resistance from unions and political parties, the government has only partially implemented this, focusing on Public-Private Partnership (PPP) projects in freight services.
- **Redesignating Railway Board Chairman as CEO:**
  - To streamline decision-making, the committee suggested that the Railway Board Chairman should also act as the Chief Executive Officer (CEO) with the final decision-making authority.
  - This was implemented in 2020, giving the board a more corporate-style structure.
- **Outsourcing Non-Core Services:**
  - The committee recommended that Indian Railways focus on its core responsibility of operating trains, while outsourcing non-core services like security (Railway Protection Force), medical, and educational services for employees.
  - The government is currently reviewing this proposal to reduce its operational load and allow Railways to concentrate on its primary function.
- **Reforming the Accounting System:**
  - A major shift from cash-based to accrual-based accounting was recommended to improve financial transparency.
  - This has been implemented through an Accounting Reforms project, with Railways now preparing financial statements using both methods.
- **Enhancing Safety with Rashtriya Rail Sanraksha Kosh (RRSK):**
  - The committee recommended a strong focus on safety, leading to the creation of the Rashtriya Rail Sanraksha Kosh (RRSK) in 2017. This fund, starting at ₹1 lakh crore, is dedicated to replacing, upgrading, and maintaining critical safety assets.
  - In 2022-23, the government further extended this with an additional ₹45,000 crore in budgetary support.
- **Integrating Advanced Technology:**
  - To modernise operations, the committee advised adopting advanced technology, such as high-speed trains like Vande Bharat and safety systems like KAVACH.
  - Gati Shakti Vishwavidyalaya has been established for skill development and training in rail technology, supporting these modernization goals.

Implementation Status

- **Fully Accepted (19):** Key recommendations such as appointing the Railway Board Chairman as CEO, accounting reforms, and setting up RRSK were fully implemented.
- **Partially Accepted (7):** Decentralising power to DRMs and giving more authority at the divisional level were partly implemented.
- **Rejected (14):** Recommendations, mainly those around liberalisation and private sector entry in passenger services, were rejected due to union resistance and political concerns.

India-UAE Bilateral Investment Treaty (BIT)

Syllabus Mapping: GS-Paper 3, Investment, Mobilisation of Resources

Context

Recently, the Bilateral Investment Treaty (BIT) signed between India and the United Arab Emirates (UAE) in February 2024 was made public. This treaty replaces the previous agreement, the **Bilateral Investment Promotion and Protection Agreement (BIPPA) 2013.**

Bilateral Investment Treaty (BIT)

- A Bilateral Investment Treaty (BIT) is an agreement between two countries to promote and protect investments made by investors from one country to another.
- BIT contains various aspects related to investment like definition of investment, sovereign rights of state with respect to treatment of investment, protection of investment, dispute resolution process etc.

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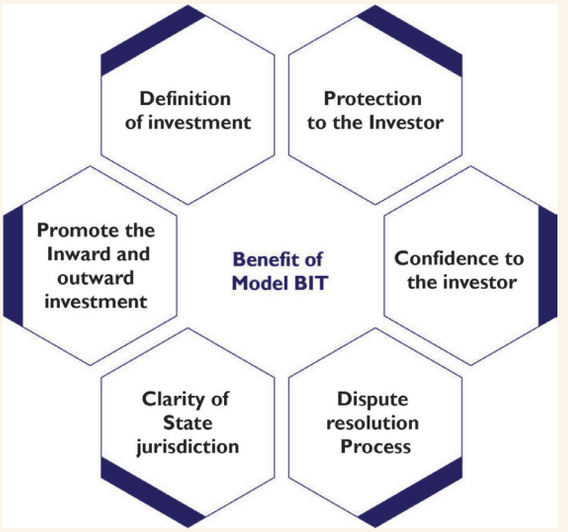
- BITs usually contain an arbitration clause submitting disputes to a neutral arbitration tribunal, normally Investor-State Dispute Settlement (ISDS)
- Investor-State Dispute Settlement (ISDS) is a legal mechanism that allows foreign investors to **sue their host country's government** in an international tribunal for certain actions that affect their investment.

Benefits of the Bilateral Investment Treaty



India' Model BIT

The Government of India brought a new **Model Bilateral Investment Treaty (BIT) in 2016** and it became effective from April 2017 onwards. Few points of the Model BIT are as follows:

- **"Enterprise" based definition of investment**: Enterprise that has been constituted, organised, and operated in good faith by an investor in accordance with the domestic laws of the country
- **Non-discriminatory treatment through due process:** Each Party shall accord full protection and security to the investments and investors.
- **National treatment and protections against expropriation:** Neither Party may nationalize or expropriate an investment of an investor directly or through measures having an effect equivalent to expropriation.
- **Investor State Dispute Settlement (ISDS) mechanism:** A foreign investor should first exhaust local remedies at least for a period of five years before going for ISDS mechanism.

In case of a violation of a Bilateral Investment Treaty (BIT)

- **Notice of Dispute**: The investor sends a formal notice to the host state outlining the alleged breach of the BIT.
- **Initiation of Arbitration**: If the dispute cannot be resolved amicably, the investor can initiate an international arbitration proceeding. This is usually done through a specialised institution like the International Centre for Settlement of Investment Disputes (ICSID), or an ad hoc arbitration tribunal.
- **Arbitration Process:** The arbitration process involves:
  - **Appointment of Arbitrators:** Both parties agree on the appointment of one or more arbitrators.
  - **Submission of Claims and Evidence:** Each party presents its case and supporting evidence.
  - **Hearings:** Oral hearings may be held to allow both sides to present their arguments.
  - **Decision:** The tribunal issues a final and binding award, which may include compensation for damages suffered by the investor.

Key Features of the India-UAE BIT

- **Exhaustion of Local Remedies:** The BIT reduces the period for foreign investors to exhaust local remedies before seeking international arbitration from **5 years to 3 years**.
  - Aims to provide **quicker access to Investor-State Dispute Settlement (ISDS)** mechanisms, addressing concerns about lengthy judicial processes in India.
- **Definition of Investment:** Simplifies the definition of what constitutes an investment by removing the requirement that it must **significantly contribute to the host state's development.**
  - Instead, an investment must demonstrate key economic characteristics such as **capital commitment, profit expectation, and risk assumption**. This alteration reduces subjective interpretations by ISDS tribunals.

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- **Treatment of Investments: Article 4** explicitly lists circumstances under which state actions may constitute **treaty violations**, such as denial of justice or fundamental breaches of due process.
  - Notably, this article does not reference **customary international law (CIL)**, which previously allowed for broader interpretations by arbitral tribunals. This omission aims to provide greater clarity and limit arbitral discretion.
- **Exclusion of Most-Favoured-Nation (MFN) Clause**: The India-UAE BIT does not include an MFN provision, which is crucial for **non-discrimination in international economic relations**.
- **Taxation Issues:** The BIT excludes state actions related to taxation from its scope, meaning **foreign investors may not challenge tax measures** even if deemed abusive, thereby maximising state regulatory powers at the expense of investment protection.
- **Limitation on ISDS Tribunal Jurisdiction:** Bars ISDS tribunals from reviewing the merits of domestic court decisions.
  - **Ambiguity**: States might interpret merits to block ISDS claims on cases already adjudicated domestically.
- **Disallowance of Third-Party Funding:** Investors cannot rely on external financiers to fund ISDS claims. This impacts investors' ability to pursue claims without sufficient financial backing.
- **Fraud and Corruption Exclusion:** ISDS becomes unavailable if there are allegations of fraud or corruption against the investor.

Implications of India-UAE BIT

- **Increase the bilateral trade:** Aims to enhance bilateral economic cooperation by providing a stable legal framework that encourages investment flows between the two nations.
- **Increased investment:** UAE contributed approximately $19 billion from 2000 to 2024 (about 3% of total FDI inflows) into India. BIT will further accelerate FDI inflows.
- **Reverse declining trends in investment:** BIT's introduction comes at a time when India's previous investment treaties have faced challenges, leading to a decline in active bilateral treaties and a drop in FDI inflows—specifically a 24% decline in equity inflows and a 15.5% reduction in total FDI between 2023 and 2024.
- **Decrease in arbitration:** While the BIT may attract more UAE investments into India, it could also increase the likelihood of arbitration claims against India due to reduced local remedy requirements.
- **Reduce the arbitrariness of state:** This duality reflects India's attempt to balance investor protection with its sovereign right to regulate.

India's tea, sugar exports raise sustainability concerns at home

Syllabus Mapping: GS-Paper 3, Agriculture, Agricultural Exports

Context

India stands as one of the world's largest agricultural product exporters, with agricultural exports valued at $53.1 billion in 2022-23, a significant increase from $8.7 billion in 2004-05. This six-fold growth in less than two decades underscores the importance of exports in bolstering the economy, enhancing revenue, foreign exchange, and transactional options. However, this rapid surge in agricultural exports raises critical challenges regarding the sustainability of production, processing, and distribution systems.

Defining Sustainable Agricultural Commodities

- **Three Pillars of Sustainability:** An agricultural commodity is considered truly sustainable when it meets the following criteria:
  1. **Ecological Factors:** Ensuring that production methods do not harm the environment.
  2. **Economic Aspects**: Achieving productivity that supports economic viability for farmers & communities.
  3. **Social Aspects:** Upholding fair labour practices and community welfare.

These pillars are supported by robust policies that integrate ecological health, economic stability, and social equity.

- **Lifecycle Considerations:** Sustainability must encompass all stages of an agricultural commodity's lifecycle:
  - Pre-sowing
  - On-farm Production
  - Post-harvest Stages

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Case Studies: Tea and Sugar

Tea Industry

- India is the world's fourth-largest tea exporter and second-largest producer, contributing 10% to global exports.
- In 2022, tea exports totaled 188.76 million kg, valued at $641.34 million, representing a year-on-year increase of 21.47% in volume and 12.43% in value.
- The total value of Indian tea exports for 2022-23 was $793.78 million, with domestic consumption accounting for 80% of total production.

Challenges in the Tea Industry

- **Human-Wildlife Interactions:** Approximately 70% of tea plantations are near forests, leading to conflicts with migratory elephants.
- **Chemical Use:** Synthetic pesticides account for up to 85% of pesticide use on tea plantations, raising health concerns due to chemical residues like DDT and Endosulfan.
- **Labor Rights Issues:** More than half of tea plantation workers are women, facing underpayment and hazardous working conditions despite existing regulations under the Plantations Labour Act 1951.

Sugar Industry

- India is the second-largest sugar producer, with an annual production of 34 million metric tonnes, contributing about a fifth of global production.
- Sugar exports surged by 291%, from $1,177 million in FY 2013-14 to $4,600 million in FY 2021-22.
- The industry supports approximately 50 million farmers, with an annual turnover estimated at ₹1 lakh crore.

Challenges in the Sugar Industry

- **Water Resource Management:** Cultivating sugar cane requires between 1,500 and 2,000 kg of water per kg of sugar, leading to significant stress on water resources.
- **Environmental Degradation:** The expansion of sugar cane cultivation has resulted in the conversion of natural ecosystems and increased biodiversity loss.
- **Labour Conditions:** Reports indicate poor working conditions with long hours and rising temperatures exacerbating risks to workers' health.

Promoting Sustainability through Millets

Millets present a sustainable agricultural option with potential for both domestic consumption and exports:

- In FY 2021-22, India exported millets valued at $62.95 million, a substantial increase from $26.97 million in FY 2020-21.
- In FY 2022-23, millet exports reached approximately 169,049 metric tonnes, valued at $75.45 million.
- Millets are resilient crops that require fewer inputs, preserve soil health, and contribute to nutritional security.

Conclusion

- While commodities like tea and sugar have seen significant export growth, they also face sustainability issues related to environmental impact and social equity.
- Millets exemplify a sustainable approach that could inform practices for other commodities.
- To develop an inclusive agrarian economy that benefits local communities while engaging effectively in global markets, there must be a concerted effort to address environmental concerns and improve labour conditions across all agricultural sectors.

Climate Change and Trade

Syllabus Mapping: GS-Paper 3, Trade, Environment, Economy

Context

The recent climate conference in Baku, Azerbaijan, was delayed due to a formal submission by China, India, and other countries regarding climate change-related trade measures.

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EU's Carbon Border Adjustment Mechanism (CBAM)

- **Purpose of CBAM**: CBAM is designed to impose a fair price on carbon emissions associated with the production of carbon-intensive goods entering the EU.
  - It aims to promote cleaner industrial practices in non-EU countries.
  - Address the issue of carbon leakage i.e. when domestic policies make carbon emissions costly in an economy, cheaper imports from regimes where the carbon emissions regime is relaxed can continue leading to carbon leakage. Thus, avoiding production shifting to countries where emission norms are less stringent.
- **Carbon Pricing:** CBAM ensures that the carbon price applied to imports is equivalent to the carbon price imposed on goods produced within the EU, thereby maintaining fair competition.
- **Functioning Framework:**
  - Registration and Certification: EU importers of CBAM-covered goods must register with national authorities and acquire CBAM certificates that reflect the carbon emissions embedded in their imports.
  - Annual Declaration: Importers are required to declare the emissions associated with their imported goods and surrender the corresponding number of certificates each year.
  - Payment of Carbon Price: Importers must demonstrate that a carbon price has already been paid during the production of goods in a non-EU country to receive a deduction from their CBAM payment.
- **Goods Covered by CBAM:** Initially, CBAM targets high-risk carbon leakage goods, including:
  - Cement
  - Iron and steel
  - Aluminium
  - Fertilisers
  - Electricity
  - Hydrogen
  - Over time, CBAM is expected to encompass more than 50% of emissions from sectors included in the EU Emissions Trading System (ETS), such as oil refineries and shipping.
- **Impact on Indian Exports:** The EU accounts for approximately 20.33% of India's total merchandise exports, with 25.7% of these exports affected by CBAM.
  - In the last five fiscal years, iron and steel have constituted 76.83% of these exports, followed by aluminium, cement, and fertilisers.

Impact on Developing Countries

- Countries like China and India argue that CBAM acts as an unfair trade barrier, violating international agreements such as the Paris Agreement, which seeks to protect developing nations from adverse economic impacts of climate measures.
- **Arbitrary Nature**: India has criticised CBAM as "**unilateral and arbitrary,**" arguing that it imposes unfair burdens on developing countries that are still industrialising.
- **Overlooks the differentiation principle** in global climate negotiations that allows developing nations to be treated differently from developed ones.
- **Discriminatory Tool:** India asserts that CBAM functions as a non-tariff barrier that undermines existing trade agreements and disproportionately impacts developing economies. The mechanism could lead to tariffs ranging from 20% to 35% on carbon-intensive goods such as steel and aluminium.
- Industries in developed economies may benefit from CBAM since their products would not face similar taxes, thus gaining a competitive edge in the EU market.
- **Trade Competitiveness:** The imposition of CBAM could significantly increase costs for Indian exporters, making their products less competitive in the EU market. **E.g.,** iron and steel exports to the EU are vital for India's economy, and any additional tariffs could reduce demand.
- **Potential Revenue for the EU:** The revenues generated from CBAM are expected to fund the EU's climate initiatives, estimated to be between €5 billion to €14 billion annually by 2030. India questions the fairness of this revenue not being shared with non-EU trading partners.

Broader Trends in Protectionism

The BASIC group, which includes Brazil, South Africa, India, and China, formally requested discussions on these trade measures at COP29. However, this proposal faced strong opposition from the EU and other nations and has been postponed for now. CBAM is

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not unique; it is part of a broader trend where climate-related trade measures are being considered by other countries, including the UK and Canada.

- **Increasing Protectionism Linked to Climate Change:** Climate change is accelerating protectionist policies driven by various factors, including economic security concerns.
  - **E.g.**, former U.S. President Donald Trump promised tariffs on imports from China, reflecting fears over energy security rather than climate concerns.
  - The dominance of China in renewable energy resources has raised alarms in other nations about dependency on a single country for critical technologies.
- **Supply Chain Vulnerabilities:** The COVID-19 pandemic highlighted vulnerabilities within global supply chains concentrated in specific regions.
  - This has led to a trend of "nearshoring" (moving production closer to home) or "reshoring" (bringing production back home) as countries seek greater control over key resources.
  - A study by the Asian Development Bank indicated that measures like CBAM may have minimal impact on reducing greenhouse gas emissions compared to other available options.

Natural Disasters and Supply Chains

- Climate change is increasing the frequency and severity of natural disasters, disrupting global supply chains and causing significant economic losses.
- These disruptions are prompting countries to reassess their reliance on extensive global networks.

Proposed Indian Arguments at COP29

- **Preparation Time:**
  - The EU achieved its targets gradually:
    - **2020**: 20% GHG emissions reduction compared to 1990 levels (EU Climate Action and Renewable Energy Package, 2008).
    - **2019**: Extended target to 55% below 1990 levels under the European Green Deal and Fit for 55 Package.
  - India could question whether CBAM allows developing countries comparable adaptation time.
- **Revenue Sharing**:
  - **Estimated Revenue**: CBAM is expected to generate **€5–14 billion annually by 2030**.
  - **Use of Funds**: Revenues will fund the **NextGenerationEU recovery tool** and operate CBAM.
  - **Indian Argument**: Advocate for sharing CBAM revenues with non-EU trading partners to:
    - Build capacity.
    - Facilitate technology transfer in developing nations.
- **Alternative Framework: Equity-Based Accounting (EBA)**:
  - **Principles**: Advocates a shared obligation for emission reductions among trade partners, emphasising:
    - **Horizontal intra-generational equity**: Fair distribution within the current generation.
    - **Vertical inter-generational equity**: Fairness to future generations.
  - **Proposal**:
    - Develop a tariff formula for EU imports considering:
- Per capita GDP.
- Per capita emissions.
- Trade benefits.
- Avoided emissions through trade.
- **Justice in Emission Responsibilities**:
  - CBAM violates principles of **Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC)**.
  - It ignores:
    - **Compensatory justice**: Addressing historical contributions to climate change.
    - **Distributive justice:** Assigning equitable emission responsibilities.

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Conclusion

The discussions surrounding climate-related trade measures highlight a complex interplay between environmental objectives and international trade dynamics. While initiatives like CBAM aim to promote sustainability, they risk exacerbating protectionism and disadvantage developing nations. As countries navigate these challenges, it is crucial to foster dialogue that balances climate goals with equitable trade practices.

Centralised Pension Payments System (CPPS) and Related Issues

Syllabus Mapping: Inclusive Development, Pension Reforms, Financial Inclusion

Context

The recent announcement regarding the successful pilot run of the Centralised Pension Payments System (CPPS) under the Employees' Pension Scheme (EPS) 1995 is a significant development for pensioners and members of the Employees' Provident Fund Organisation (EPFO).

Key Features of the Centralised Pension Payments System (CPPS)

- **Flexibility in Bank Selection:** Pensioners will no longer need to open accounts in specific banks to receive their pensions. They can collect their pension from any bank branch across India.
- **Elimination of Verification Requirement**: The new system removes the necessity for pensioners to visit banks for verification at the commencement of their pensions, streamlining the process.

Ongoing Challenges

Despite these advancements, several critical issues remain unaddressed:

- **Pending Applications for Higher Wages**: There are significant delays in processing applications for pensions based on higher wages.
- **Minimum Pension and Wage Ceiling Concerns:** Minimum pension amount remains at ₹1,000, and the wage ceiling is capped at ₹15,000. Trade unions have demanded an increase in the minimum pension to ₹9,000 and the wage ceiling to ₹40,000.
- **Documentation Issues:** Applicants are often required to provide outdated documentation (e.g., pay slips from 25 years ago), which poses a challenge for many. Additionally, there are stringent conditions for pre-September 2014 retirees seeking higher pensions.

Financial Health of the EPFO

- **Concerns about Actuarial Deficit:** The EPFO highlights a deficit of ₹9,500 crore (approx. ₹25 lakh per person) based on sample data of 38,000 applicants. This is used as an argument against large-scale disbursal of higher pensions.
- **Contrary Financial Indicators:** The EPFO's 2022-23 annual report indicates no cash flow problems in the last five years.
- **Contributions have steadily increased despite challenges posed by the COVID-19 pandemic:**
  - In the three years ending March 2023, annual contributions rose by approximately ₹13,000 crore, and the total corpus grew by nearly ₹2.5 lakh crore.
  - The EPFO's draft annual report for 2023-24 highlighted an increase in both contributing establishments and members by about 6.6% to 7.6%.

Recommendations for Reform

- **Financial Measures:** The government could provide a **one-time fund infusion** to support the Pension Fund.
- Increase the **existing PF contribution** (currently 12%) by employers and employees.
- **Transparency and Problem-Solving Approach:** Union government and EPFO should publicly explain challenges and feasible timelines for providing higher pensions.

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Maharashtra Sugar Mills and Mechanisation in Cane Harvesting

Syllabus Mapping: GS-Paper 3, Agriculture, Sugarcane

Background

The sugar industry in Maharashtra has faced recurring labour shortages for harvesting operations, primarily due to:

- Drudgery of manual cane harvesting.
- Alternative employment opportunities in other sectors (in construction, manufacturing and informal services).
- Welfare schemes (MGNREGA, free food and direct cash transfers)
- These factors have raised the opportunity cost of agricultural labour.

To address these challenges, sugar mills in Maharashtra have **increasingly turned to mechanical cane harvesters as a sustainable solution.**

Current System of Labour-Driven Harvesting

- **Labour Dependency**: Cane harvesting is coordinated through **muqaddams (contractors)**, who recruit and supervise labour gangs (**tolis**) of 10 man-woman pairs. Harvesting labourers are paid **₹366/tonne**, with a **20% commission** to the muqaddam.
- **Labour Dynamics**: Maharashtra has around **12-12.5 lakh cane-harvesting labourers**, mostly migrants from economically weaker districts like Beed, Hingoli, and Nanded. Challenges include ageing labour force, irregular availability, and increased absenteeism during events like elections.
- **Limitations**: Labour shortages disrupt cane crushing schedules. Manual harvesting leaves 4-6 inches of cane uncut, reducing sugar recovery rates.

Shift to Mechanical Harvesting

- **Pioneering Effort**: **Manjara Farmers' Cooperative Sugar Factory** in Latur began deploying mechanical harvesters in 2020-21. By 2023-24, **93% of its total cane** was mechanically harvested using **55 machines**.
- **Mechanisation Model**: Machines are owned by the mill or private entrepreneurs who are provided loans by the **Latur District Central Cooperative Bank (LDCCB)** with guarantees from the factory. Owners of machines are paid **₹475/tonne**, higher than the labour rate of ₹439/tonne.
- **Cost Efficiency**: Machines reduce dependency on labourers and cut operational costs. Labour management staff requirements dropped significantly from 80-100 to 24-25 people.

Economic and Environmental Impacts

- **Farmer Benefits:** Mechanisation increases efficiency, reducing the time and cost associated with cane harvesting. Farmers receive better recovery rates as machines cut the entire cane.
- **Environmental Impacts:** Cane tops chopped by machines act as mulch, enhancing soil organic matter and reducing water loss.
- **Challenges:**
  - Cane tops, a critical source of fodder for livestock, are pulverised during mechanical harvesting, making them unsuitable for feeding animals.
  - Lack of adequate availability of mechanised sugarcane harvesters during the peak season.
  - Inadequate commercial returns for operators of mechanised sugarcane harvesters as these are used during a very small period of three to four months in a year.
  - Lack of opportunities for farm labourers, their problems are accentuated as they lack skills to find employment in the modern industrial sectors.

Future Prospects and Expansion

- **Scalability**: The Manjara Group aims for **50% mechanical harvesting** across its other nine mills by the 2024-25 season. Other factories like Natural Sugar & Allied Industries Ltd project a gradual shift, targeting **50% mechanisation in five years**.

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- **Sustainability**: Mechanisation is seen as inevitable, offering a long-term solution to labour shortages and improving sugar recovery rates.
- The government should make low cost financing available for easier availability and procurement of mechanised harvesters.
- Custom Hiring Centres should be encouraged to stock up mechanised sugarcane harvesters, particularly in sugarcane growing areas of UP and Maharashtra.
- Research and Development to make the mechanised harvesters energy efficient and agronomically freindly.

Conclusion

The Maharashtra sugar industry's move towards mechanisation demonstrates a pragmatic response to rural labour challenges. While mechanical harvesting is transforming the sector, balancing efficiency with concerns like livestock fodder needs and high initial investment costs remains crucial. This case highlights the need for integrated solutions to ensure both economic and social sustainability in the agricultural sector.

TOPICS FOR PRELIMS

Land Ports Authority

Syllabus Mapping: Trade, Infrastructure

Context

The Union Home Minister inaugurated a Passenger Terminal Building and Maitri Dwar at the **Petrapole land port in West Bengal,** developed by the Land Ports Authority of India.

About Land Port Authority (LPAI)

- It was established in **2012 under the Land Ports Authority of India Act, 2010.**
- It is an **autonomous body under the Ministry of Home Affairs (MHA).**
- Its primary role is to develop, manage, and maintain **Integrated Check Posts (ICPs)** at India's international borders, promoting trade, travel and security at these strategic points.

Facts

- There are **11 operational land ports**, strategically located along the international borders with Bangladesh, Nepal, and Pakistan.
- They are **Attari, Agartala, Dawki, Petrapole, Raxaul, Rupaidiha, Jogbani, Moreh, Sutarkandi, Srimantapur and the Passenger Terminal Building (PTB) at Dera Baba Nanak**.

Why is RBI bringing back its Gold assets?

Syllabus Mapping: Central Banking, External Sector

Context

The Reserve Bank of India (RBI) has brought back nearly 130 metric tonnes of Gold from the Bank of England in the last two and a half years.

Reasons for RBI to bring back Gold

- **Improved Capacity:** RBI's capacity to keep its gold has improved in the recent years. Hence, it is now feasible for RBI to store more Gold in the country.
- **Strategic Reserve Management:** RBI aims to optimise its foreign exchange reserves and diversify its asset allocation.
- **Cost Savings:** By bringing gold back to India, the RBI eliminates the storage fees associated with holding gold in foreign banks like the Bank of England.
- **Improved Balance of Payment position:** Now Indian Forex Reserve has grown to cover 11.2 months of the import cover. Hence, there is no need to keep gold outside the country as India did in 1991.
  - In the 1991 Financial crisis, India shipped 47 tonnes of Gold to the Bank of England to raise money to repay its loans.

Potential Impacts of RBIs move

- **Increase in Gold holdings:** RBIs measure of shipping back the Gold has resulted in **60%** increase in the Gold holdings of RBI.
- **Self Reliance:** By controlling more of its gold reserves, India reduces its reliance on foreign institutions and mitigates risks associated with geopolitical tensions and economic shocks.
- **Reducing dependence on the US dollar:** Many Central Banks worldwide are buying Gold and increasing its share in their Forex Reserve to reduce dependence on the US dollar.
- **Protection against inflation:** Gold is viewed as a hedge against inflation. By increasing its gold reserves, India can protect itself from the erosion of purchasing power caused by rising prices.

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- **Boost to economic growth:** A strong forex reserve position ensures confidence of both domestic and foreign investors. It may potentially lead to increased foreign direct investment (FDI) and economic growth.

Gold vault of Bank of England

- The Bank of England has one of the largest Gold vaults in the World.
- After the New York Federal Reserve, it is the second largest custodian of Gold Reserve in the World.

About India's Gold Reserves

- RBI holds **854.73 metric tonnes of gold**, of which 510.46 metric tonnes were held domestically & 324.01 metric tonnes of gold were kept in safe custody with the **Bank of England and the Bank for International Settlements (BIS).**
- As of September 2024, the share of gold in the total foreign exchange reserves is about **9.32%.**
- **Top Gold Reserve Holding Countries:**
  - United States (8,133.46 tonnes)
  - Germany
  - Italy
  - France
  - India **(8th)**
- **Top Gold Producers:** China, Australia, Russia, Canada, USA.
- **Karnataka is the largest producer of gold in India.**
  - **Hutti Gold Mines** (Karnataka) is the only producer of primary gold in the country.

RBI invites applications for Deputy Governor

Syllabus Mapping: Economy, Central Banking

Context

The Reserve Bank of India has invited the application for the post of Deputy Governor.

About Deputy Governor of RBI

- The Central Bank has 4 Deputy Governors **appointed by the Central Government**.
- **Qualifications:**
  - A person must have at least 25 years of work experience in Public Administration including experience at the level of Secretary or equivalent in the Government of India;
  - or At least 25 years of work experience in an Indian or International Public Financial Institution.
- **Tenure:** 3 years (Eligible for reappointment).
- **Participation in a meeting of the Central Board**: A Deputy Governor, if nominated, may attend any meeting of the Central Board of RBI and take part in its deliberations but is **not entitled to vote.**
- **Salaries and allowances** are determined by the Central Board, with approval of the Central Government.
- **Removal:** By the Central Government.

Financial Sector Regulatory Appointments Search Committee (FSRASC)

- FSRASC is the final authority to recommend nomination of Governor and Deputy Governor of RBI.
- It is headed by the **Cabinet Secretary.** The other members of the committee include the Secretary Department of Financial Services, RBI Governor and **3** outside experts.

Cabinet approves infusion of equity in Food Corporation of India

Syllabus Mapping: Agriculture, Public Distribution System

Context

The Cabinet Committee on Economic Affairs (CCEA) has approved an equity infusion of ₹10,700 crore in the Food Corporation of India to strengthen its financial base.

About Food Corporation of India (FCI)

- FCI is a statutory body set up in **1965 (under the Food Corporation Act, 1964)**
- It operates under the **Ministry of Consumer Affairs, Food and Public Distribution,** Government of India.
- The FCI is the main agency responsible for the execution of food policies of the government.
- **Main 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.
  - Maintaining satisfactory level of operational and buffer stocks of food grains to ensure National Food Security.

Cabinet Committee on Economic Affairs

- It is **headed by the Prime Minister.**
- Presently it has **11 members** including key Union Ministers like the Minister of Finance, Commerce and Industry, agriculture and others.
- It is responsible for high-level economic decision-making in India.

Engineering Export Promotion Council of India

Syllabus Mapping: Foreign Trade

Context

Recently, the Union commerce and Industry Minister launched EEPC India's 70th year celebrations.

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About Engineering Export Promotion Council of India (EEPC)

- It is a non-profit, non-commercial organisation that promotes India's engineering exports. **(Not a Statutory Body)**
- It was established in **1955 under the Ministry of Commerce, Government of India.**
- It is the largest Export Promotion Council in India.
- It helps MSMEs to raise their standard at par with international best practices & encourages them to integrate their business with the global value chain.

Europe's Digital Euro

Syllabus Mapping: Money & Banking

Context

The European Central Bank (ECB) has taken up a project to create a central bank digital currency (CBDC) that could serve as a complement to cash in the Eurozone.

Key Features of the Digital Euro

- **Central Bank-Issued:** Unlike cryptocurrencies or private digital payments, the digital euro is issued directly by the ECB, providing users with a safe, stable, and government-backed digital currency.
- **Accessible to All:** Digital euro will be accessible to citizens across the Eurozone, allowing for everyday use in transactions via digital wallets.
- **Offline and Online Payments:** Users could make offline and online payments directly from their digital wallets using Bluetooth, browser extensions or smartphone contacts.
- **Cost-Effective Microtransactions:** The digital euro can facilitate micropayments, which are often costly due to existing bank fees.

Central Bank Digital Currency (CBDC)

- It is a digital form of national currency **issued and regulated by a country's central bank,** representing a digital version of physical cash and legal tender.
- **It can also be programmed** for certain selected users or within a specific region of a country.
- **Types of CBDC**
  - **Retail CBDC:** CBDC that can be used for people for day-to-day transactions.
  - **Wholesale CBDC:** CBDC that can be used only by financial institutions such as Banks, NBFCs etc.
- RBI has also launched **e-rupee,** a digital version of currency notes.
- CBDC/e-rupee appears as a **liability on the RBI's balance sheet.**
- **Finance Act 2022** amended the **RBI Act,** enabling it to introduce Central Bank Digital Currency.

RBI issues new framework for reclassification of FPI to FDI

Syllabus Mapping: Investment, FDI

Context

The RBI has directed FPIs to obtain necessary approvals from the government and concurrence from the investee companies when their equity holdings go beyond the prescribed limits

About FDI and FPI

- **Foreign Portfolio Investor (FPI)**: FPIs are investors who hold a stake in a country's financial assets, such as stocks and bonds, without gaining significant control over the companies they invest in. The current cap for FPIs is below 10% ownership in a listed firm.
- **Foreign Direct Investment (FDI)**: FDI involves investing directly in the production or business in a country by a foreign entity, by acquiring a significant ownership stake (more than 10%) in a company. FDI is a more stable form of investment compared to FPI, as it involves a long-term interest in the economy.

About RBI's Directive

- **FPI Investment Limit:** According to theForeign Exchange Management (Non-debt Instruments) Rules, 2019, an FPI's investment in any company must not exceed 10% of the total paid-up equity capital on a fully diluted basis.
  - If an FPI's investment surpasses this limit, it must either **divest the excess holdings or reclassify them as FDI within five trading days** from the settlement date of the trade causing the breach.
- **Reclassification Process**: FPIs wishing to reclassify their holdings as FDI must:
- Obtain necessary **government approvals**.
- Ensure the acquisition beyond the prescribed limit complies with FDI regulations such as **entry routes, sectoral caps, investment limits** and **pricing guidelines**.
- The **Indian investee company** must also **consent** to the reclassification to ensure compliance with FDI sector-specific conditions, including sectoral caps, restrictions on certain sectors and government approvals.

Domestic Systemically Important Banks

Syllabus Mapping: Money & Banking

Context

The Reserve Bank of India (RBI) has released the list of Domestic Systematically Important Banks.

About Domestic Systemically Important Banks (D-SIB)

- D-SIB is a financial institution that is so large and significant that its failure could have a catastrophic impact on the

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financial system and economy. They are also known as **"Too Big To Fail" (TBTF) banks.**

- **Qualifying Criteria:** To identify the D-SIBs, the RBI considers only those banks whose size is equal to or more than **2% of GDP.**
- **The Basel Committee on Banking Supervision (BCBS)** has recommended **4** indicators to assess the importance of a bank: **size, interconnectedness, substitutability and complexity.**
- Presently **SBI, ICICI Bank and HDFC Bank** have been identified as Domestic Systemically Important Banks (D-SIBs
- **Bucket-Based Surcharges**: Banks are categorised into buckets based on systemic importance scores. These buckets determine the **Common Equity Tier 1 (CET1) capital requirement**:
  - **SBI (Bucket 4)**: Additional CET1 requirement of **0.80%**.
  - **HDFC Bank (Bucket 3)**:Additional CET1 requirement of **0.40%**.
  - **ICICI Bank (Bucket 1)**:Additional CET1 requirement of **0.20%**.

Global Systemically Important Banks (G-SIBs)

- The **Financial Stability Board (FSB)** in consultation with the **Basel Committee on Banking Supervision** annually identifies G-SIBs.
- **Qualifying Criteria:** Only 75 largest Global Banks considered.
- In 2023, **29 banks** were accorded G-SIB status.
  - **Important G-SIBs:** JP Morgan Chase, Bank of America, Citigroup, HSBC, Agricultural Bank of China, Bank of China, Barclays etc.

Central Value Added Tax Credit

Syllabus Mapping: Taxation

Context

The Supreme Court has allowed telecom companies to claim Central Value Added Tax (CENVAT) credit for the installation of mobile towers and prefabricated buildings (PFBs).

About Central Value Added Tax (CENVAT)

- It is a tax credit system allowing manufacturers or service providers to claim a set-off on excise duty or service tax paid on inputs or input services used for manufacturing or providing output services.
- During the course of the manufacture of final products, the raw materials travel through various stages of production, wherein a duty is levied on every value-added at each stage.
- CENVAT eliminates this double taxation, simplifying the taxation process for both manufacturers and consumers.
- **CENVAT Credit** refers to the credit/set-off available to manufacturers when they use certain inputs to complete their product.
- A manufacturer can claim CENVAT credit on the following cases:
  - **Excise duty on a final product:** For manufacturers and producers of final products.
  - **Service tax on output services:** For providers of taxable and exempted services.
  - **Inputs and capital goods:** If these goods are being partially processed.

Open Market Sale Scheme

Syllabus Mapping: Agriculture, Public Distribution System

Context

The Food Corporation of India (FCI) has announced the sale of rice under the Open Market Sale Scheme.

About Open Market Sale Scheme (OMSS)

- It is a government initiative that aims to **reduce the excess stock of food grains** held by the FCI and state agencies.
- Under this scheme, the **FCI sells surplus food grains from the central pool** (especially wheat and rice) **in the open market through e-auctions** to traders, bulk consumers, retail chains and so on **at predetermined prices**.

Recently Revised OMSS Guidelines by Central Government

- The Centre decided to restrict the quantity that a single bidder can purchase in a single bid. From 3000 metric tonnes (MT) per bid to 10-100 metric tonnes.
- Quantities have been reduced **to accommodate more small and marginal buyers**.

Trade and Economic Partnership Agreement (TEPA)

Syllabus Mapping: Foreign Trade

Context

The Union Commerce Secretary recently visited Norway to advance the implementation of the Trade and Economic Partnership Agreement.

About Trade and Economic Partnership Agreement (TEPA)

- It is a comprehensive trade deal between India and the European Free Trade Association (EFTA) member nations.

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- It was signed in March 2024, to strengthen economic ties, boost trade in goods and services and promote investment between the parties.
- **Key Features:**
  - **Tariff Reduction:** EFTA is proposing to eliminate tariffs on 92.2 % of its tariff lines, covering 99.6 % of India's exports.
  - **EFTA countries** will invest **$100 billion** in India over the next few years.
  - It will facilitate technology access in areas like **renewable energy**, **precision engineering** and **health sciences**.

European Free Trade Association (EFTA)

- It is a group of 4 countries - **Iceland, Liechtenstein, Norway and Switzerland.**
- **Establishment**: In 1960 through the Stockholm Convention.
- **Aim**: To promote free trade and economic integration among its members.
- **Relationship with EU:** EFTA operates alongside the European Union (EU), with all members participating in the European Single Market and the Schengen Area but not in the EU Customs Union.

National Livestock Census

Syllabus Mapping: Agriculture, Livestock

Context

Union Government. has launched the 21st livestock census. More than one lakh field officials and veterinarians will be engaged in this exercise.

About National Livestock Census

- It is conducted every **5 years (Quinquennial)** by the **Ministry of Fisheries, Animal Husbandry, and Dairying**. (First conducted in 1919-1920)
- It covers a variety of animals including **cattle, buffaloes, sheep, goats, pigs, poultry** and other domesticated animals like horses, camels and mithuns.

Key Highlights of 20th Livestock Census

- The total livestock population in India stands at 535.78 million, reflecting a 4.6% increase compared to the 2012 census.
- Cattle contribute the highest percentage (35.94%) to the total livestock population, followed by goats (27.80%), buffaloes (20.45%), sheep (13.87%) and pigs (1.69%).
- States with the highest livestock populations in India were:
  - Uttar Pradesh
  - Rajasthan
  - Madhya Pradesh

Pandemic Fund Project

Syllabus Mapping: Agriculture, Livestock

Context

Union Minister for Fisheries, Animal Husbandry and Dairying launched a $25 **Million Pandemic Fund Project,** aimed at strengthening Animal Health Security in India.

About Pandemic Fund Project

- It is a corpus established under the Department of Animal Husbandry & Dairying (DAHD), to strengthen India's readiness for outbreaks of zoonotic diseases.
- The World Health Organization (WHO) has declared six public health emergencies of international concern in recent decades, five of which originated from animals.
- It is funded by the **G20 Pandemic Fund (established under Indonesia's G20 Presidency),**
- The project will be implemented in partnership with three key entities: Asian Development Bank (ADB), World Bank, and the Food and Agriculture Organization (FAO), with expected project completion by August 2026.
- **The Pandemic Fund Project aims to:**
  - Strengthen India's animal health systems to mitigate zoonotic disease risks and protect public health.
  - Reduce pandemic risks by establishing an integrated system for monitoring and managing animal-origin diseases.

One Health approach

It is a way to balance and improve the health of people, animals, and ecosystems by recognizing their interdependency. It involves collaboration across sectors and disciplines to prevent, detect and respond to health threats.

Medicinal foods

Syllabus Mapping: Agriculture

Context

According to a recent study it is found that of the 7,564 medicinal species listed in 11 referenced sources, approximately a quarter were documented as food as well as medicine. This has made their regulation regime complex.

Turmeric

- Turmeric (Curcuma longa) is a bright yellow spice derived from the rhizomes of the turmeric plant.
- It has been used for centuries in Ayurvedic medicine due to its numerous health benefits.
- **Medical Uses:**
  - **Anti-inflammatory Properties:** Curcumin, the active compound in turmeric, has potent anti-inflammatory

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effects that can help relieve conditions like arthritis and joint pain.
  - **Antioxidant Effects:** Protects against oxidative stress and lowers the risk of chronic diseases.
  - **Digestive Health:** Used to treat digestive disorders, it can alleviate symptoms of indigestion and bloating.
  - **Cancer Prevention:** Some studies suggest that curcumin may inhibit cancer cell growth and reduce the risk of certain types of cancer.
- **Effects of High Consumption:**
  - **Gastrointestinal Issues:** High doses (over 8 grams per day) can cause abdominal pain, nausea or diarrhoea.
  - **Blood Thinning Effects:** Turmeric can act as a natural blood thinner, which can pose risks for individuals on anticoagulant medications or those about to undergo surgery.

Facts about Turmeric

- India is the **largest producer, consumer and exporter** of turmeric in the **world.**
- India has more than 62% share of world trade in turmeric.
- The largest producing states of Turmeric are **Maharashtra, Telangana, Karnataka and Tamil Nadu.**
- The Government of India established the **National Turmeric Board in 2023 for** Developing and promoting the turmeric sector in India
  - **Nodal Ministry:** Ministry of Commerce and Industry

Lemon

- Lemons (Citrus limon) are citrus fruits known for their tangy flavour and high **vitamin C content.** They are widely used in culinary applications and traditional medicine.
- **Medical Uses:**
  - **Rich in Vitamin C:** Supports the immune system, helps in the absorption of iron, and promotes skin health.
  - **Antimicrobial Properties:** Helps combat infections due to its antibacterial properties.
  - **Antioxidant Properties:** Protects cells from oxidative stress and free radical damage.
  - **Detoxification:** Acts as a natural detoxifier, helping to flush out toxins from the body.
- **Effects of High Consumption:**
  - **Tooth Enamel Erosion:** Excessive lemon consumption can lead to enamel erosion due to high acidity, increasing the risk of tooth decay.

Facts about Lemon

- India is the world's largest producer of lemons, producing around 17% of the world's lemons.
- **Top Lemon producing states in India:** Andhra Pradesh, Maharashtra, Gujarat, Odisha and Tamil Nadu.

New MIDH guidelines to support Vertical Farming

Syllabus Mapping: Agriculture, Scheme

Context

The Union Government has decided to expand MIDH by incorporating advanced agricultural techniques like hydroponics, aquaponics, vertical farming and precision agriculture.

Mission for Integrated Development of Horticulture (MIDH)

- MIDH is a **Centrally Sponsored Scheme** for the holistic growth of the horticulture sector covering fruits, vegetables, root & tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew, cocoa and bamboo.
- The **Ministry of Agriculture and Farmers Welfare** is implementing MIDH from 2014-15.
- MIDH is implemented under **Green Revolution - Krishonnati Yojana.**
- It focuses on the holistic growth of horticulture through support for pre-production, production, post-harvest management and marketing of diverse horticulture crops.

- **Hydroponics:** This is a method of cultivating plants without soil, where roots are immersed in nutrient-rich water. It allows for highly controlled environments, enabling efficient growth and higher yields in compact spaces.
- **Aquaponics:** This system combines aquaculture and hydroponics, using fish waste to fertilise plants, which, in turn, purify the water for fish. This creates a symbiotic environment that conserves water and supports both plant and fish cultivation.
- **Vertical Farming:** A modern approach to farming that uses stacked layers to grow crops indoors. Vertical farms rely on LED lighting and climate control systems to enhance crop production, making it ideal for urban areas or places with limited agricultural land.
- **Precision Agriculture:** A data-driven farming approach using GPS, IoT, and data analytics to monitor and manage water, fertilisers, and pesticides with precision/accuracy.

Record production in Kharif Season 2024

Syllabus Mapping: Agriculture, Trends

Context

India's 2024-25 kharif season records a surge in rice production due to favourable monsoon, while pulses, sugarcane, and cotton see a decline.

Key facts related to Kharif Production

- India's rice production for the current kharif season (2024-25) is estimated to reach a record high of **119.93 million tonnes**, a **5.89% increase** from last year.

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- The increase is due to a higher area under paddy cultivation in states like Uttar Pradesh, Madhya Pradesh, West Bengal, Haryana, Jharkhand, Bihar, and Chhattisgarh
- The total kharif foodgrain production is estimated to reach **164.70 million tonnes**, a **5.73% increase** from last year's 155.77 million tonnes.
- The production of **sugarcane and cotton** is estimated to be lower than the previous year's output.
- **Digital Agriculture Mission**: This season, the Ministry of Agriculture utilised a **Digital Crop Survey** under the Digital Agriculture Mission for area estimates, replacing the traditional manual Girdawari system.

Maize Production in India

- **Growing Conditions:**
  - It is primarily a rainfed Kharif crop grown in regions with **semi-arid conditions (25 - 75 cm rainfall).**
  - It cannot be cultivated in areas with more than 100 cm of rainfall.
  - It grows best in well-drained, fertile soil.
  - Maize requires consistent moisture throughout its growing season but it is highly sensitive to **water logging.**
- In India, maize is grown **in both the rainy (kharif) and winter (rabi) season.**
  - Kharif maize - 83% of maize area, while rabi maize- 17% maize area.
- **Top Maize Producing Countries:** USA, China & Brazil **(India -6th)**.
- **Top Maize producing states in India:** Karnataka, Madhya Pradesh, Maharashtra, Rajasthan & UP.

Centre allows procurement of soyabean with higher moisture content

Syllabus Mapping: Agriculture, Oilseeds

Context

To address farmers' unrest over low soybean prices in Maharashtra, the Central government has relaxed the permissible moisture content for soybean procurement under the **Price Support Scheme (PSS)**.

About New Norms

- **New Moisture Content Limit:** Increased to 15% from the standard 12%.
- **Condition:** Any losses or additional costs due to higher moisture content will be borne by the state government.
- **Price Support Scheme (PSS)**
  - PSS is a government initiative that aims to ensure farmers receive a remunerative price for their produce.
  - The **Department of Agriculture & Cooperation** implements the PSS for procurement of oil seeds, pulses and cotton, through **NAFED** which is the Central nodal agency, at the MSP declared by the government.
  - It is one of the components of the **Pradhan Mantri Annadata Aay Sanraksan Abhiyan (AASHA)** scheme.

Soybean

- It is a leguminous crop known for its high protein and oil content. It is a major source of edible oil, protein-rich animal feed, and industrial products like biodiesel.

(Soybean)

- **Growing Conditions:**
  - It is a **kharif crop.**
  - It grows well in fertile, well-drained loamy soil.
  - It requires an optimal temperature of **20°C to 30°C** during the growing season.
- **Top 3 Soyabean producing states of India:** Madhya Pradesh, Maharashtra & Rajasthan.
- **Top Soyabean producing countries:** Brazil, USA, Argentina, China & **India.**
  - **Brazil-** World's largest exporter
  - **China-** World's largest importer

New Microbe reverting sesame flowers

Syllabus Mapping: Agriculture, Oilseeds

Context

Researchers at Bose research institute Kolkata have identified a new microbe responsible for a peculiar disease that has been affecting the sesame fields.

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About Sesame

- Sesame is an **oil seed** grown as a **Kharif crop in arid/ semi-arid areas and Rabi/summer crops in cooler regions.**
- It is the **oldest indigenous oilseed crop,** its remnants were discovered at Harappa and Mohenjodaro.
- **Growing Conditions:**
  - Sesame plants need well-drained, fertile, medium-textured soils with a neutral pH.
  - Grows best in warm climates with temperatures between 20–31 °C.
  - It is a **rainfed crop.**
  - Requires adequate moisture for germination and early growth, but is drought-tolerant once established.
- **Top producing States:** West Bengal, Madhya Pradesh, Rajasthan, Uttar Pradesh, Gujarat, Andhra Pradesh and Telangana account for over **85% of production.**
- **Top Producing Countries:** Myanmar, **India**, Tanzania, Nigeria and China.
- Sesame has the **highest** minimum support price (MSP) among **kharif crops in India.**

National Cooperative Development Corporation

Syllabus Mapping: Cooperatives, Inclusive Development

Context

Union Minister of Cooperation addressed the 91st General Council Meeting of the National Cooperative Development Corporation in New Delhi.

About National Cooperative Development Corporation (NCDC)

- NCDC is a **statutory corporation under the Union Ministry of Cooperation.**
- It was established in **1963 by an Act of Parliament.**
- **Structure:**
  - **Governing Council:** It is a 51 member body which shapes NCDC's policies and programmes.
  - **Board of Management:** It is a 12 member body to cater day-to-day activities of the corporation.
- **Functions of NCDC:**
  - Planning, promoting and financing programs for the production, processing, marketing, storage, export, and import of agricultural produce, food stuffs and other commodities.
  - Financing projects in the rural industrial cooperative sectors.
  - Providing financial assistance to cooperatives, societies and federations.
  - Promoting farmer cooperatives to increase production and productivity.

Nandini Sahkar Yojna

- It was launched by **NCDC** to provide financial assistance to women cooperatives for business model-based activities.
- **Features:**
  - There is **no minimum or maximum limit** on financial aid for projects.
  - It assists women cooperatives in project formulation, ensuring their business plans are well-structured.
  - It brings together critical inputs such as credit, subsidies, and interest subvention from other schemes to support women's enterprise.

News in Brief

India's Electronic Exports

- India's total electronics exports for the fiscal year 2023-24 was **$29.1 Billion.**
- Electronics is India's largest export in **air cargo** while it's **ranked third overall behind engineering and petrol.**
- **Top 5 destinations for Indian electronic goods export:** USA, UAE, China, Netherlands & Germany.

Semiconductor Fabs in India

India Semiconductor Mission (ISM) has-approved **5 semiconductor units** who will all receive central and state government subsidies under the programme for development of semiconductors and display manufacturing ecosystem in India.

- **Micron technology** - Sanand, Gujarat
- **Tata Electronics Private Limited (TEPL)** - Dholera, Gujrat
- **Tata Semiconductor Assembly and Test Pvt Ltd (TSAT)** - Morigaon, Assam.

Jeevan Pramaan

- Jeevan Pramaan is a **biometrically enabled digital service for pensioners** launched in **2014** by the Government of India.
- It replaces the traditional method of submitting a physical life certificate by allowing pensioners to generate their **Digital Life Certificate (DLC) online.**
- Pensioners no longer need to visit pension-disbursing offices (e.g., banks, post offices).
  - DLCs are generated digitally and directly shared with the disbursing authority.
- DLC facility is not available to remarried or re-employed pensioners.
- Every November, retirees have to submit a life certificate to continue to receive their pensions for another year.

Gati Shakti Vishvavidyalaya (GSV)

- It is **India's first university in the transportation and logistics sectors located in Vadodara.**
- It was established in **2018** as the National Rail & Transportation Institute but was later **renamed GSV in 2022.**
- GSV uses experiential learning and an academia-industry interface to create highly skilled professionals.

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INTERNATIONAL RELATIONS & SECURITY

TOPICS FOR MAINS

US Presidential Election and Impact of Trump's election

Syllabus Mapping: GS-Paper 2, Great powers

Context

US citizens had cast their votes on November 5 and elected Donald Trump as president of the U.S. for the second time.

Process of Elections of President of USA

- **Eligibility Requirements:** To run for President, a candidate
  - Must be at least **35 years old**
  - **Natural-born citizen** of the United States.
  - Have lived in the U.S. for **at least 14 years.**
- **General Election:** The general election takes place on the first Tuesday after the first Monday in November.
  - Voters cast their ballots for presidential candidates.
  - In the general election, voters are actually voting for electors in the Electoral College, not directly for a president and vice president.
- **Electoral College:** Electoral College is the body that officially elects the President and Vice President.
  - Consists of 538 electors, with each state allocated electors based on its **congressional representation.**
  - **Winner-Takes-All System**: In most states (except Maine and Nebraska) , the candidate who wins the majority of votes in the state wins all of that state's electoral votes.
  - **Proportional System**: Maine and Nebraska allocate their electoral votes based on the proportion of the vote each candidate gets.
- **Electors Meeting:** In mid-December, electors meet in their respective states to cast their votes for President and Vice President.
- **Congressional Count:** In January, Congress counts these votes in a joint session, and the candidates with a **majority of at least 270 electoral votes are declared winners.**
- **Inauguration:** The President-elect and Vice President-elect take the oath of office and are inaugurated on January 20th following the election.

Implications of the Trump Presidency

Implications For India

Positive Implications for India

- **Strengthening Bilateral Ties:** Trump has expressed interest in resuming negotiations for a Free Trade Agreement (FTA) with India, which had stalled during Biden's administration.
  - Could enhance market access for Indian goods and services in the U.S. and vice versa,
  - Boost bilateral trade, which was valued at approximately $128.78 billion in 2023.
- **Defence Cooperation:** Continue facilitating military hardware sales to India.
  - Aligns with India's strategic interests amid rising regional tensions, particularly concerning China & Pakistan.
- **Limited Pressure on Domestic Issues:** Unlike the Biden administration, which raised concerns over democratic norms and human rights in India, Trump's administration is expected to adopt a more lenient stance on these issues.
  - Relieve India from facing public scrutiny regarding its internal policies, such as those affecting minority rights and press freedoms.
- **Energy Partnerships:** Encourage India to invest in U.S. energy resources, particularly oil and liquefied natural gas (LNG), rather than pressuring India on carbon emission cuts.
  - Aligns with previous agreements like the **Driftwood LNG project.**
- **Focus on Countering China:** Trump administration is likely to maintain a hard line against China, further solidifying the U.S.-India partnership as both nations seek to counter Chinese influence in the Indo-Pacific region.

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- Revival of Quad alliance (involving India, the U.S., Japan, and Australia) is expected to continue.

Negative implication

- **Trade Tariffs and Protectionism**: Focus on reducing trade deficits and cutting tariffs could renew friction.
  - Trump might push India on issues like tariffs, as seen with previous disputes over GSP (Generalised System of Preferences) and counter-tariffs on U.S. imports.
- **Impact on Professionals**: Likely visa (H1B and L1 visas) and trade restrictions which will affect IT services and pharmaceuticals.
- **Unpredictability and Diplomatic Disclosures**: Trump's tendency to disclose or embellish private conversations with leaders can lead to diplomatic missteps.
  - India may face unwanted complications, especially if Trump offers to mediate sensitive issues like Kashmir or makes public comments about India's stance on China or other regional matters.
- **Pressure on Iran Policy**: Although Trump might be less concerned with India's ties with Russia, he could resume pressure to cut oil imports from countries like Iran.
  - Could impact India's energy security, as seen when Trump previously pressured India to stop importing Iranian oil.
- **Regional Instability Concerns**: India's neighbours might face challenges under Trump's presidency, with reduced U.S. aid and potential neglect of diplomatic engagements in South Asia.
  - Countries like Pakistan and Bangladesh could see decreased U.S. support, which may impact regional stability and potentially create security and economic spillover effects for India.
- **Limited Influence on Middle Eastern Peace**: Although Trump might not be heavily involved in the Israel-Palestine issue, India may still **hope for his intervention to help stabilise the Middle East**, which will help in India's plans for initiatives like the **India-Middle East-Europe Economic Corridor**.

Implications for West Asian Region

Trump's Previous Policies	Biden Administration's Approach
During his first term, Trump adopted a robustly pro-Israel stance: • Moved the U.S. embassy to Jerusalem. • Recognized Israel's annexation of Golan Heights. • Withdrew from Iran nuclear deal, which had been a cornerstone of U.S. diplomacy in the region. • Trump facilitated Abraham Accords, promoting normalisation between Israel and Arab nations. His policies were largely aimed at countering Iran, perceived as a common adversary for both Israel and Gulf Arab states.	• Under President Biden, U.S. sought to build on Abraham Accords, which aimed at normalising relations between Israel and several Arab states. • Biden's tenure has been marred by resurgence of violence in Gaza following the Hamas attacks on October 7, 2023. • Biden administration's dual approach involved supporting Israel's military actions while attempting to mitigate the conflict's escalation into a larger regional war. • This strategy has been criticised for failing to achieve stability, with over 43,000 Palestinians reportedly killed & increasing tensions with Iran and Hezbollah.

Implications of Trump's Second Term

- **Continuation of Pro-Israel Policies:**. Previous record of Trump suggests that he would support Israeli military operations while avoiding deeper U.S. military entanglement in regional conflicts. This will lead to:
  - Increased Military Support to the Israel
  - Limited Pressure for Ceasefires
  - Humanitarian crisis in the Gaza
  - Wider regional conflict could evolve as can be seen in the recent Syrian civil war.
- **Avoiding Regional Wars:** Despite his pro-Israel stance, Trump is avoiding its entanglement in prolonged military engagements in West Asia. His priorities include:
  - Focusing on domestic issues such as rising inflation and economic concerns
  - Avoiding direct military confrontation with Iran or other regional actors unless provoked.
  - Focusing on countering China's influence globally.
- **Challenges with Arab Allies:** Ongoing violence and humanitarian crisis in Gaza could complicate Trump's relationships with Arab nations (normalisation agreements with Arab nations) may face setbacks.

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  - Countries like Saudi Arabia may hesitate to fully embrace normalisation without significant concessions from Israel regarding Palestinian rights.
- **Potential for Increased Tensions:** If Trump continues aggressive policies against Iran or supports Israeli operations against Hezbollah, it could lead to broader regional conflicts.
  - The already strained relations could worsen, particularly if Trump attempts to reassert pressure on Iran through sanctions or military posturing.

Impact on Global Economy

- **Escalating Trade Wars:** Trump's "America First" policy is likely to reignite trade tensions not only with China but also with other countries, including India.
  - Previous administration of Trump imposed tariffs on various imports, and he has indicated a willingness to do so again. This could lead to:
    - **Higher Tariffs:** Trump has suggested a blanket 10% tariff on all imports and up to 60% on Chinese goods, which may extend to Indian products as well.
    - **Trade Deficits:** Focus on reducing trade deficits could lead to aggressive negotiations that might disadvantage countries with trade surpluses with the U.S., including India.
- **Withdrawal from Multilateral Agreements:** Trump's preference for bilateral trade deals over multilateral frameworks like the World Trade Organization (WTO) could lead to increased instability in global trade norms, making it more challenging for countries to resolve trade disputes.
- **Global Supply Chain Disruptions:** As the U.S. commands a significant share of global exports in technology and agricultural products, inflationary pressures in U.S. could ripple through global markets, affecting prices elsewhere.
- **Impact on Foreign Direct Investment (FDI):** While Trump's policies may attract some investment back to the U.S., they could deter foreign investment in other regions:
  - Companies may reconsider their global supply chains and investment strategies in response to increased tariffs and trade uncertainties.
  - Emerging markets like India may face capital outflows as investors seek higher returns in a potentially more favourable U.S. economic environment.
- **Step against De-dollarisation:** Dollar as a global currency in world trade has been threatened by the BRICS currency swap agreement. Trump has threatened the heavy tariffs against countries challenging the dollar's primacy.

Impact on Multilateral Institution

Biden administration sought to revive U.S. participation in multilateral agreements, rejoining the Paris Accord, WHO, and UNESCO. However, with control of both Congress chambers, Trump is expected to take decisive actions that challenge multilateralism:

- **Shift in US Foreign Policy**: Trump's first term (2017-2021) marked a departure from traditional US foreign policy, emphasising unilateralism over multilateralism. Key actions included:
  - Withdrawal from the Paris Agreement, Trans-Pacific Partnership (TPP), UNESCO, WHO, and the UN Human Rights Council (UNHRC).
  - Weakened the World Trade Organization (WTO).
  - Articulated an "America First" doctrine prioritising national sovereignty.
- **Criticism of Globalism:** Critics within the US argue that international engagement has led to significant costs for American taxpayers, including:
  - Prolonged military interventions.
  - Job losses due to shifts in manufacturing to countries like Mexico and China.
- A likely **withdrawal from the Paris Agreement** and removal of regulations on U.S. energy production, especially hydrocarbons.
- Intensification of policies prioritising domestic energy production and economic growth, potentially hindering international climate cooperation.
- Rising influence on other nations to scale back climate commitments, thus potentially weakening global efforts.

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- **Disagreement in G20:** During his first term, Trump's policies on trade, climate, and migration clashed with other G20 members. Biden achieved a global corporate tax agreement, but tension persists over issues like climate action, debt relief, and development priorities.
- **Issue in APEC:** Various countries cautioned against Trump's protectionist policies that may hamper the barrier free trade within the APEC member countries. Trump's proposed tariffs on Chinese imports signal a potential intensification of trade conflicts.

Decline of Multilateralism and India's Strategic Shifts

Multilateral institutions are facing severe strain, and while some globalists see this as the end of an era, nations like India are adjusting:

- **Rise of Minilateralism**: With collective global solutions becoming politically impractical, Trump's return could shift focus toward unilateral technology development, bilateral trade, and minilateral coalitions.
- **India's Engagements**: India is already active in minilateral and bilateral initiatives:
  - **Renewable Energy Development** through International Solar Alliance(ISA) and new **bilateral trade agreements**.
  - Participation in groups like the **Quadrilateral Forum (QUAD)**, **Mineral Security Partnership**, **Global Partnership on AI**, and **Artemis Accords** for space cooperation.

Impact of the Trump Administration on Environmental Pledges

- **Withdrawal from Paris Agreement:** President Trump pulled the United States out of the Paris Climate Agreement, a global accord aimed at reducing greenhouse gas emissions. This withdrawal signalled a reduction in U.S. commitment to collective global climate goals.
- **Defunding of World Health Organization (WHO):** Under Trump, the U.S. stopped funding the WHO, which affected global efforts on health and environmental fronts, as WHO plays a role in addressing the health impacts of climate change.
- **Censorship and Promotion of Anti-Scientific Policies:** Trump administration censored scientific research findings and promoted pseudoscience. This included supporting carbon-intensive industries and restricting scientific collaborations that focused on climate research.
- **Environmental Deregulation through Judicial Changes:** Appointees by Trump to Supreme Court overturned the Chevron Doctrine, which limits federal agencies' ability to interpret regulatory statutes. This decision weakened federal agencies' capacity to regulate industries, especially in emerging environmental and technological fields.
- **Transnational and Domestic Policy Shifts:** The administration's shift towards transactionalism over international cooperation could impede the implementation of climate agreements, making it challenging to secure sustained global climate commitments.
- **Funding Reduction for Biodiversity and Adaptation Initiatives**: Trump administration's hesitation in financing climate adaptation and biodiversity management created gaps in global environmental funding, which other countries or organisations had to fill.

Rethinking India's National Interest in the Neighbourhood

Syllabus Mapping: GS-Paper 2, Neighbourhood

Context

Recent shift in the political dynamics in neighbouring countries raises critical questions about the effectiveness of India's foreign policy in its neighbourhood.

Current Neighbourhood Landscape

- **Nepal**: Return of K P Oli as Prime Minister has reignited tensions, as he has opted for a visit to China over India, breaking the norm of Nepalese PMs visiting India first.
- **Bangladesh**: New government under Mohammed Yunus has shown signs of anti-India sentiment and violence targeting non-muslim minorities, complicating relations further.
- **Maldives**: Mohamed Muizzu's election campaign centred on removing Indian military presence, indicating a shift in public sentiment against India.
- **Sri Lanka**: President Anura Dissanayake's coalition does not openly oppose India but has historical grievances regarding Indian intervention.

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- **Bhutan**: Although stable, Bhutan's King has shown a slight tilt towards China, reflecting broader regional trends.
- **Myanmar:** The ongoing civil war in Myanmar between the Military Junta and regional rebel groups has compromised India's relations with threats like refugees, infiltration etc.

Underlying Factors in Regional Discontent

- **India's big brother attitude:** India feels that it is a regional hegemon in the sub-continent and sees South Asia as its own backward.
  - For example, Concerns in Nepal when India blockaded its trade through India.
- **India's poor track record in facilitating development in South Asia:** India has been slow in fulfilling its developmental projects, often there are large cost and time over-runs tarnishing India's image as a reliable development partner in the region.
  - For example, the Kaladan Multi-modal project has still not been completed.
- **China's Counterbalancing Role:**
  - Neighbouring countries increasingly use China to counterbalance India's influence.
  - China's asymmetric capabilities to offer larger developmental support in terms of aid or loans, makes the South Asian countries look towards China for boosting their development.
  - **For example:** Nepal uses China card to balance India in its foreign policy.
- **Interference in domestic Politics:** Many of the challenges stem from long-standing practices of Indian interference and dominance, not unique to the Modi government.
  - The stay of ousted leader Sheikh Hasina in India has infuriated the people of Bangladesh.
  - Playing the **anti-India card** remains a rewarding political strategy for many leaders in South Asia.
- **India's Foreign Policy Approach**
  - **Lack of Clear Priorities:** "Neighbourhood First" policy lacks clarity on whether it prioritises neighbourly concerns or India's global aspirations.
  - **Overreach Without Gains:** India's interventions have not delivered significant strategic benefits, eroding moral authority and trust.
  - **India's attitude towards SAARC:** Despite the promise of SAARC grouping India has been sceptical about it and sees the grouping as an institution where its neighbours can lobby against India.

Recommendations for Future Policy

- **"Neighbourliness First" approach by following the Gujral Doctrine:**
  - Respecting sovereignty and non-interference.
  - Peaceful resolution of disputes without imposing conditions or expectations of reciprocity. For example, the territorial issue of the Kalapani and Lipulekh with Nepal should be resolved with mutual consensus to build mutual trust.
  - Acknowledging the unique needs and concerns of each neighbour.
- **Decency Over Dominance:**
  - Emphasise respect, peaceful coexistence, and regional stability.
  - Avoid policies of browbeating and imposing India's will on its neighbours.
- **Help in Economic distress:** Project itself as the first responder in any economic distress situation will help build mutual respect among the people of the neighbourhood.
  - For example, India helped Maldives in debt default with a $100 million treasury bills roll over and $400 million currency swap deal.
- **Fasttrack projects:** Streamline the connectivity projects like BBIN, IMT trilateral highway etc to cross-border transfer of goods, people etc. It will increase the interdependence in the countries.
  - A parliamentary committee has suggested establishing a **regional development fund** under the BIMSTEC for enhancing the connectivity.
- **Regional trade:** South-Asia is the least integrated region with respect to the trade as South Asia's intra-regional trade is only 5% of the region's total trade. It can be increased through ensuring speedy custom clearance and simplifying payment procedures besides bridging connectivity deficit.

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- **Regional organisation:** After the defunct SAARC, there is a need for continuous diplomatic talks of BIMSTEC countries to further the engagement in various aspects among the member countries.
- **Capacity building in the Neighbourhood:** Effectively utilising the development initiatives like ITEC in the neighbourhood will help the trust building with the neighbourhood.
- **South-South cooperation:** Countries in the neighbourhood face similar problems like poverty and hunger. India should advance this concern in the regional groupings like BRICS and G20 which will help building mutual trust. For example,
  - India should raise the issue of the **3F Crisis(Crisis of Food, Fuel and Fertiliser)** emerging with the conflict in Ukraine and Middle East.It is impacting mostly the South countries.
  - India advocated increase of the membership of south countries in the BRICS
  - India invited Bangladesh in the G20 summit as a guest country in its presidency in 2023.
- **Utilising complementariness in hydro-energy:** India should increase investment in Nepal and Bhutan to boost their hydroelectric output and export surplus power to India. It will be win-win for both.

India-China Relation

Syllabus Mapping: GS-Paper 2 & 3, Neighbourhood, Border Issues

Context

Recently, India and China resumed flights between the two countries. Flights were suspended between the two following the Galwan Clash. **India-China Border Patrol Agreement signed** in late October 2024 to de-escalate tensions across LAC paved the way for flights to resume between the two countries.

India-China Border Patrol Agreement

Key elements

- **Patrolling Rights:** After the agreement Indian and Chinese soldiers would be able to patrol the border area in the way they did before the May 2020 face-off.
- **Disengagement:** Disengagement at Depsang and Demchok has been declared complete.

Benefits from the Agreement

- **De-escalation:** Move towards de-escalation in the region where both countries have stationed thousands of troops.
- **Stabilisation:** Helps stabilise the situation along the LAC by potentially reducing confrontations at friction points such as Depsang Plains and Demchok.
- **Confidence-building**: Resumption of patrolling as per pre-2020 terms is a confidence-building measure. It indicates a mutual willingness on both sides to return to a status quo.
- **Political implication:** Facilitate higher-level diplomatic interactions, like possible meetings between leaders at international forums, and enhance bilateral relations outside military confrontations.

Pending Issues

- Under the latest agreement, the following friction points were left out—Galwan Valley (PP 14), Pangong Tso (North and South Banks), Gogra (PP 17A) and Hotsprings (PP 15).
- Despite agreement, troop de-escalation and de-induction remain incomplete, needing further verification on the ground and through satellite imagery.
- A formal agreement framework or detailed "patrolling arrangements" has not been disclosed, adding to the lack of transparency.

Tensions Between India and China

- **2017 Doklam Standoff:** Doklam is an area spread over less than a 100 sq km comprising a plateau and a valley at the trijunction between India, Bhutan and China. It is surrounded by Chumbi Valley of Tibet, Bhutan's Ha Valley and Sikkim. Indian and Chinese troops were engaged in a two-month stand-off in the summer of 2017.
- **June 2020:** In the Galwan Valley, 20 Indian and 4 Chinese soldiers were killed in hand-to-hand combat, the first deadly border clash in nearly 60 years. India responded with protests, restrictions on Chinese investments, a ban on Chinese apps, and severed direct flights.
- **Stationing Troops along the Border:** PLA is relentlessly consolidating its military positions and support infrastructure in various depth and staging areas along the LAC, including near the **buffer zones** created after troop disengagements in eastern Ladakh. Nearly **50,000–60,000 troops** stationed on either side of the LAC in eastern Ladakh.

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- **January 2021:** A "minor face-off" occurred between Indian and Chinese soldiers along the Sikkim border, as reported by the Indian Army.
- **December 2022**: Border skirmishes erupted in Arunachal Pradesh's Tawang sector. India claimed Chinese troops encroached and attempted to alter the status quo, while China accused India of obstructing a routine patrol.

Reasons for Expansionary Steps

- **"Every Inch of Territory" Doctrine (2014):** Under President Xi Jinping's policy to control every inch of China's perceived territory, the Chinese military has made assertive moves in multiple regions. This includes territorial claims over Taiwan, areas in the South China Sea, disputed boundaries with Bhutan at Doklam, and along the India-China Line of Actual Control (LAC) in Ladakh, Sikkim, and Arunachal Pradesh. This doctrine signals China's intent to solidify and expand control over contested areas.
- **Strategic Reminder on Continental Realities:** China seeks to remind India that despite India's close maritime partnership with the United States, its long 3,500-kilometre land boundary with China remains a pressing and primary security concern. China emphasises this to ensure India remains aware of its continental vulnerabilities and potential border threats.
- **Pushback Against Indian Border Infrastructure:** India's substantial infrastructure development along the LAC — such as the Daulat Beg Oldie (DBO) airstrip, roads, bridges, and villages — has increased China's perceived security risks, especially near sensitive regions like Xinjiang and Tibet. China is concerned about India's enhanced access to border areas, which could compromise Chinese security, particularly with infrastructure projects like the G695 highway through Aksai Chin and new connectivity with Pakistan-occupied Kashmir (PoK). However, this pushback has arguably backfired, as India has intensified its infrastructure work even further in recent years.
- **Response to India's Jammu and Kashmir Reorganisation (2019):** Timing of Chinese troop movements in 2020 likely links to India's August 2019 reorganisation of Jammu and Kashmir, which China opposed. Following which India's Union Home Minister asserted that Aksai Chin — a territory under Chinese control — is part of India.
  - China responded with diplomatic protests, particularly against changes in Ladakh's status, which it considers a disputed area.
  - New Indian maps delineating boundaries also provoked China, potentially triggering its subsequent border actions as snows melted in early 2020.
- **India's stand on CPEC Corridor:** India was one of the few countries which did not support and even criticised China's One Belt One Road initiative. Particularly, the CPEC Corridor and its part Karakoram highway running through Pakistan Occupied Kashmir was seen by India as a direct challenge to India's sovereign claim over the territory.
- **Structural reasons leading to tensions between China and India:**
  - Unresolved border in the Ladakh region between India and China.
  - Large economic and military superiority of China over India.
  - India's growing closeness with the USA on strategic issues, especially those targeting China.
  - China's close support to Pakistan and Pakistan military establishment.
  - China's perception such as the middle kingdom (China is ruler of the world) and denial of India's powers.

Series of Recent Diplomatic Moves

- **Modi-Xi Meeting at BRICS:** Indian Prime Minister **Narendra Modi** and Chinese President **Xi Jinping** met on the sidelines of the **BRICS summit in Kazan, Russia**, on October 23. Chinese officials called the meeting a "restart and re-launch" of relations.
- Chinese government official recently emphasised the importance of trust between India and China Both countries have discussed:
  - Resumption of direct flights: Pre-pandemic, Chinese airlines like Air China and China Southern operated flights to India.
  - Easing visa restrictions for diplomats, scholars, and journalists.

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  - Allowing media exchanges: Currently, there is one Indian journalist in Beijing and no Chinese journalist in Delhi, a result of visa non-renewals in recent years.
  - Cultural and business exchanges, including Indian movies in Chinese theatres.
- **Jammu and Kashmir**: Local elections were held, and statehood may soon be restored.
- **Ladakhi Protest Resolution**: A high-level committee was established to discuss demands for Ladakh's statehood, tribal status, and employment guarantees.
- **Pakistan Diplomacy:** External Affairs Minister Jaishankar's visit to Pakistan for the SCO conference in Islamabad marked a significant gesture.

Way Forward

- **Need for Transparency and Public Trust:** Need government transparency regarding border plans and lessons learned from China's unexpected 2020 transgressions.
- **Engage citizens in significant strategic moves,** unlike the more opaque governance methods employed by China.
- **Using the institutional mechanism to normalise relations**
  - Special Representatives-level talks, the last of which took place in **December 2019**.
  - The Foreign Secretary-Vice Minister mechanism.
  - Exploring other forums for continuous engagement between the two countries.
- **Utilising platforms such as BRICS, SCO, G20, UN etc.** to push India's point of view on Chinese aggressive tactics.
- **Long Term Solutions**
  - Engaging with China to resolve and clearly delineate the borders.
  - Boosting military infrastructure such as roads, air-strips in the region.
  - Confidence building measures in the Indian population living close to the borders. They are our sentinels.

India Nepal Relations

Syllabus Mapping: GS-Paper 2 & 3, Neighbourhood, Border Issues

Context

Opposition leader Pushpa Kamal Dahal 'Prachanda' recently expressed concerns that Nepal-India relations are strained due to Oli's policies and his perceived alignment with China.

Importance of Nepal for India

- **Strategic Importance:** Nepal is strategically positioned in the heart of India's Himalayan frontiers, serving as a significant northern buffer state, along with Bhutan, to counter any potential aggression from China.
- **Ecological and Hydropower Impact:** Rivers that originate in Nepal significantly contribute to the perennial river systems in India, impacting the ecological balance and offering significant hydropower potential.
- **Development projects:** Security of India aided development projects such as cross border railways, Pacheshwar multipurpose project, bridges over Mahakali river etc.
- **India's internal security:** Harmonious relations between the two countries are necessary to curb terrorism and Maoism.
- **Religious Significance:** Nepal houses numerous Hindu and Buddhist religious sites, making it a crucial pilgrimage destination for a substantial number of Indian devotees.
- **Soft Power Influence:** India's historical and cultural ties with Nepal have allowed it to exercise soft power influence in the region. India's support for development projects and cultural exchange programs enhances its goodwill and influence in Nepal.
- **Addressing Cross-Border Issues**: Nepal and India have ongoing discussions and agreements to address cross-border issues such as water resources management, border disputes, and immigration challenges.

Key Areas of Engagement between India and Nepal

Trade and Economy

- India is the **largest trading partner of Nepal and highest source of FDI.**

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- India comprises about 64.1% of total trade of Nepal, equating to $8.85 billion USD (Indian FY 22-23))

Connectivity

- **Electric Rail Track**: Both countries have signed Memorandums of Understanding (MOUs) to lay an electric rail track connecting **Kathmandu, the capital of Nepal, with Raxaul** in India. This project aims to enhance connectivity and facilitate smooth movement of people and goods between the two nations.
- **Inland Waterways Development**: India is actively working to develop inland waterways for cargo movement, within the framework of trade and transit arrangements.
- This initiative provides Nepal with additional access to the sea, **linking Sagarmatha (Mt. Everest) with Sagar (Indian Ocean) and easing trade logistics.**
- **Funding Major Transmission Corridors**: India has extended a line of credit amounting to **$680 million** to support the construction of three significant transmission corridors in **Nepal - the Bheri Corridor, Nijgadh-Inaruwa Corridor, and Gandak-Nepalgunj Corridor.**
- **Building Bridges**: India has committed to funding and constructing **two additional bridges across the Mahakali River.**
- **Cross-Border Freight Rail Operations:** The inaugural run of cross-border freight rail operations has been initiated **between Bathnaha in India and the** Nepal **customs yard on the Jogbani-Biratnagar rail link.**

Development Partnership

- **Build Own Operate and Transfer (BOOT):** A MoU was signed between the **Government of Nepal and Sutlej Jal Vikas Nigam (SJVN)** Limited for the project in 2008 for execution on a Build Own Operate and Transfer (BOOT) basis for a period of 30 years including five years of the construction period.
- **International Centre for Buddhist Culture and Heritage:** During the visit of the Prime Minister of India, he performed the 'shilanyas' ceremony to launch the construction of the India International Centre for Buddhist Culture and Heritage in the **Lumbini Monastic Zone.**
- **Hydropower Projects**: One between the **Satluj Jal Vidyut Nigam (SJVN) Ltd and the Nepal Electricity Authority (NEA**) for the development and implementation of the **490.2 megawatts Arun-4 hydropower project.**
  - India and Nepal signed an MoU to develop the 1,200 MW **West Seti and Seti River (SR6) projects.** Additionally, they agreed to advance the **Sapta Kosi high dam project on the Kosi river. West Seti River**, located in Nepal's far western region, is a tributary of the Karnali River.
  - Other projects include the **6,480 MW Mahakali Treaty, 900 MW Upper Karnali Project in western Nepal**, and the **900 MW Arun-III Project in eastern Nepal.**
- **Setting up a Satellite Campus:** India has offered to set up a **satellite campus of the Indian Institute of Technology (IIT) in Rupandehi** and has sent some draft memoranda of understanding for signing between Indian and Nepali universities.
- **Double Circuit Transmission Line:** Another project includes a 90 km long 132 kV double circuit transmission line connecting **Tila (Solukhumbu) to Mirchaiya (Siraha)** close to the Indian border.

Multilateral Partnership

- India and Nepal share multiple multilateral forums such as **BBIN (Bangladesh, Bhutan, India, and Nepal), BIMSTEC (Bay of Bengal Initiative for Multi Sectoral Technical and Economic Cooperation), Non Aligned Movement, and SAARC (South Asian Association for Regional Cooperation) etc.**

Defence Cooperation

- Bilateral defence cooperation includes **assistance to the Nepalese Army** in its modernisation through the provision of equipment and training.
- The **Gorkha Regiments of the Indian Army are raised partly** by recruitment from hill districts of Nepal.
- India from 2011, every year undertakes a **joint military exercise** with Nepal known as **Surya Kiran.**

Humanitarian Assistance

- Nepal lies in the sensitive ecological fragile zone which is **prone to earthquakes and floods** causing massive damage to both life and money, whereby it remains the biggest recipient of India's humanitarian assistance.

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Challenges In India-Nepal Relations

- **Border Dispute:** The ties between the two countries came under severe strain after Kathmandu published a new political map in 2020 that showed three Indian territories -- **Limpiyadhura, Kalapani and Lipulekh -- as part of Nepal.**
- **Perceived interference in domestic politics:** Persistent allegations of Indian meddling in Nepalese domestic politics, including favouritism toward certain leaders and parties.
- **Trust Gap**:Widespread perceptions of Indian intelligence operations and interference have led to mistrust among neighbouring countries.
- **China's influence**: China has increased its economic engagement with Nepal through projects under its **Belt and Road Initiative (BRI).** Also, there are concerns over **Chinese interference in Nepal's politics.**
- **Security issues**: Porous border facilitates **arms smuggling, terrorist activities and flow of counterfeit Indian currency**, all of which pose serious security risks to India.
- **Gurkha issues:** Relations came under strain when Nepal government blocked recruitment of Nepalese Gurkhas for the Indian Army's Gorkha Regiment claiming that the **Agnipath Scheme violated the 1947 Tripartite Agreement** signed between the two countries and the UK.
- **Connectivity issues**: Despite several requests from Nepal, **India refused to open more air routes to Nepal** as it requires opening up India's airspace close to its border with China.
- **Treaty of Peace and Friendship, 1950**: India's **lackadaisical approach** for Nepal's request to revise the 1950 Friendship treaty is an **irritant in the relationship**.
- **Nepal's Democratic Transition:** Complaints persist regarding India's perceived interference during Nepal's transition to democracy, including accusations related to the blockade in 2015, which many Nepalis view as punitive.

1947 Tripartite Agreement

- In 1947, upon India's independence, an agreement was reached to **divide Gurkha regiments between the British and Indian armies**.
- Gurkhas had been serving under the British since the early 19th century, starting with the armies of the East India Company and later in the British Indian Army.
- Recruitment of Gurkhas by East India Company began after the **Anglo-Nepalese War (Gurkha War)** which concluded with the signing of the **Treaty of Sugauli in 1816.**
- Treaty of Sugauli ensured that Gurkhas in British and Indian service would enjoy similar conditions of service, including perks, remuneration, facilities, and pension schemes.
- Gorkha recruitment opened opportunities for Nepali youth to work abroad for the first time.

Ways to Strengthen India-Nepal Relations

- **Addressing Contentious Issues**: Establishing bilateral mechanisms to discuss and resolve contentious issues, such as border disputes, is essential. The resolution of boundary disputes between India and Bangladesh can serve as a model for inspiration.
- **Revisiting Friendship Treaty:** Considering recommendations from the Eminent Persons Group, jointly set up by both countries, can lead to a revision of the Friendship treaty to better reflect the current dynamics.
- **Countering China's Hegemony:** Nepal aims to balance China and India to extract maximum benefits for its own development. India should be sensitive to Nepal's choices while preserving its own interests.
- **Delivery of developmental projects:** Despite large potential, India has been slow in delivering its developmental projects such hydropower and connectivity projects in time. India should work on quickly manifesting projects so that maximum mutual benefits and trust can be achieved. This will also check Nepal from looking towards China for support.
- **Digital Connectivity:** Focusing on digital connectivity initiatives like e-governance and cross-border collaborations can enhance connectivity, boost economic opportunities, and foster stronger bilateral ties.
- **Utilising Multilateral Platforms:** Engaging in multilateral platforms like BBIN, BIMSTEC, and SAARC can address common interests in areas such as climate change, disaster management, and regional security.
- **Respectful Engagement:** Ensuring sustained engagement and refraining from undue interference in Nepal's politics will contribute to maintaining a stable and friendly relationship.
- **Enhancing Air Connectivity:** Strengthening air connectivity between the countries is crucial for Nepal's economy and will facilitate smoother movement of people and goods.

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- **Cultural Exchanges:** Organising joint cultural events, film festivals, and wellness retreats can showcase India's rich heritage and positively influence public opinion in Nepal.

BBIN (Bangladesh, Bhutan, India, and Nepal) Corridor

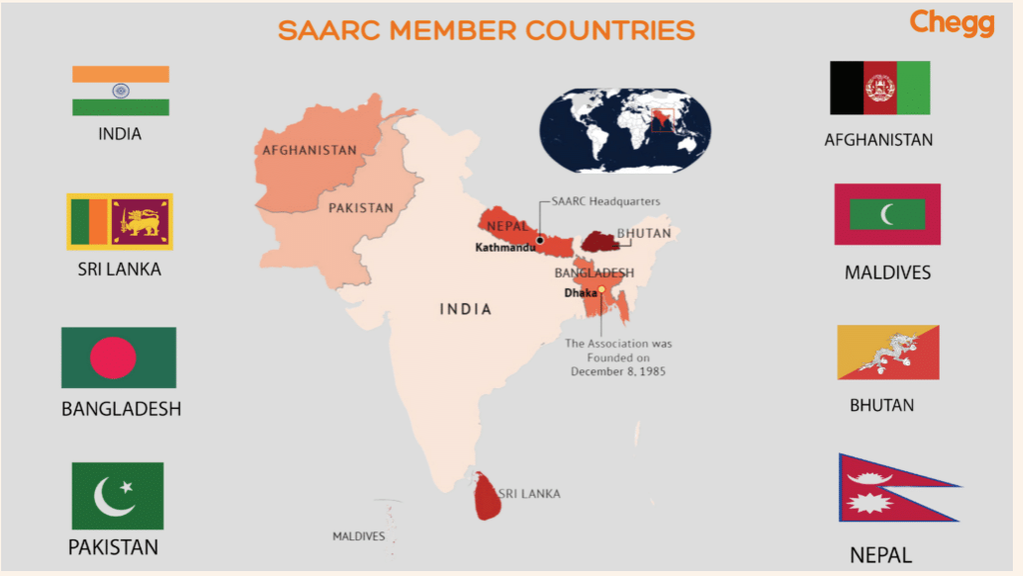
- BBIN pact was signed in **2015** in **Bhutanese capital Thimphu** to facilitate the **cross-border movement of passenger and cargo vehicles** between Bangladesh, Bhutan, India and Nepal.
- **Note: Bhutan has not yet ratified the Agreement.** Bangladesh, India and Nepal, have already ratified it.

Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)

- BIMSTEC was established in 1997 with the signing of **Bangkok Declaration** by representatives of Bangladesh, India, Sri Lanka, and Thailand.
- Initially known as BIST-EC (Bangladesh-India-Sri Lanka-Thailand Economic Cooperation), it expanded to BIMST-EC with the inclusion of Myanmar in 1997.
- Later, Bhutan and Nepal joined in 2004 leading to the renaming of the group as **Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)** during the First Summit in Bangkok in 2004.
- **Aim:** To promote economic cooperation among countries bordering the Bay of Bengal.
- **BIMSTEC Secretariat was established in Dhaka, Bangladesh**, in 2014 following a decision at the Third BIMSTEC Summit, providing an institutionalised framework for cooperation.

South Asian Association for Regional Cooperation (SAARC)

- Established in **1985** with the signing of the SAARC Charter in **Dhaka**.
- Eight Member States: **Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.**
- **Secretariat:** Established in **Kathmandu in 1987**.
- **Objectives:** Promoting the welfare of people in South Asia, accelerating economic growth, fostering mutual trust, and providing assistance in various fields.
- **Decisions are taken on the basis of unanimity**, and bilateral and contentious issues are excluded from SAARC deliberations.



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Modifying Indus Water Treaty

Syllabus Mapping: GS-Paper 2, Neighbourhood

Context

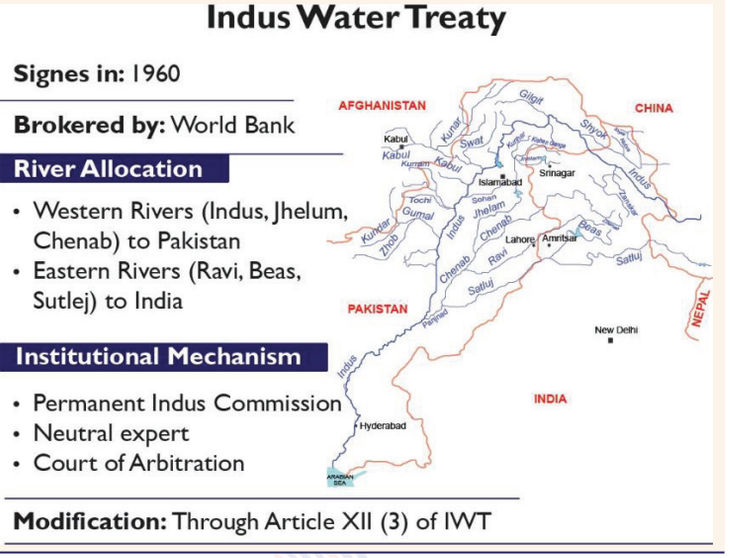
On August 30, 2024, India served a formal notice in accordance with Article XII (3) of the Indus Waters Treaty (IWT). It was the second time in over one-and-half years that India issued a notice to Pakistan seeking modification of the IWT.

Indus Water Treaty

- Signed in 1960 between India and Pakistan with the help of the World Bank, which is also a signatory.
- Allocated the Western Rivers (Indus, Jhelum, Chenab) to Pakistan and Eastern Rivers (Ravi, Beas, Sutlej) to India.
- At the same time, the Treaty allows each country certain uses on the rivers allocated to the other.
- Established a mechanism for handling issues that may arise between the two countries:
  - Questions: Handled by the Permanent Indus Commission, which has a commissioner from each country
  - Differences: Resolved by a neutral expert
  - Disputes: Referred to the ad hoc arbitral tribunal Court of Arbitration.

What is the Article XII (3) of IWT?

- According to this article, the Treaty may from time to time be modified by a duly ratified treaty concluded for that purpose between the two Governments.



Reasons Behind India's notice under Indus Water Treaty

- **Fundamental Changes:** Increasing domestic water needs of India requires India to modify the changes in the IWT which was agreed upon 64 years ago. Changes in **population demographics** and **agricultural demand** also called for its review.
- **Use of Hydro-energy:** Need to accelerate development of hydropower based **clean energy development** to meet emission targets.
- **Cross-Border Terrorism:** Issues posed by **cross-border terrorism** in **Jammu and Kashmir**, which hinder India's full utilisation of treaty rights.
- **Reconsideration of Dispute resolution Process:** There has been prolonged controversy with respect to Kishanganga and Ratle Hydro Projects. Thus, India called for the reconsideration of the dispute resolution mechanism under the treaty.

Challenges Associated with IWT

- **Different interpretation:** India and Pakistan have **different interpretations of the IWT's objectives**:
  - **India (upper riparian)** views the treaty as a means for optimal utilisation of water resources.
  - **Pakistan (lower riparian)** emphasises the need for uninterrupted water flow to its territory.

These divergent perspectives have **led to disputes**, with each side making claims and counterclaims about water use rights.

- **Issue in water management:** The IWT divides the Indus Basin into eastern and western waters, granting India proprietary rights over eastern **rivers and Pakistan rights over western rivers.** This partitioning has disrupted hydrological relationships among rivers which **complicates integrated water resource management**.
- **Pakistan's sensitivities:** Pakistan being a lower riparian state with its large parts being arid in character is very sensitive about the Indus Water Treaty. There is a fear in Pakistan that any change in the IWT will be used by India to weaponise the water issue and compromise its water security.
- Although the IWT lacks a specific provision for the **"no harm" rule**, both riparian countries are bound by customary international law to **prevent significant harm** while pursuing projects on shared watercourses.

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- **Exclusion of China:** Rivers Indus and Satluj which are covered under the IWT have their origins in China which is not a party under the IWT. China is keen to build dams on the upper course of the Brahmaputra, any such dam building on Indus or Satluj will compromise the viability of IWT.
- **Demands in J&K:** There is an ongoing demand in the state of J&K that its concerns for development and water were not addressed while negotiating IWT. Hydropower would have given the state a potent revenue source and cheap power to boost industries and development in the region.
- **Environmental Concerns:** The IWT is bling towards the ecological role of rivers and glaciers and related flora and fauna. There is **no provision of environmental flows or hydro-zonation or environmental assessment**. These are essential in the face of climate change and vulnerability of the region.

International Jurisprudence on Transboundary River Disputes

- **International Court of Justice (ICJ)** in the **Pulp Mills case (2010)** established that **transboundary environmental impact assessments (EIA)** are necessary for projects with potential cross-border impacts. This implies that both India and Pakistan should conduct EIAs for any hydropower project that may have transboundary effects.
- **Kishenganga Hydropower Project:** In **2013**, the **Permanent Court of Arbitration (PCA)** permitted India to construct the **Kishanganga Hydropower Project** but mandated that **India maintain a minimum flow of 9 cubic meters per second** to mitigate potential ecological harm. India currently has 33 hydropower projects either under construction or in planning along western tributaries, which are permitted under the IWT.

Way Forward

- **The UN Watercourses Convention (1997)**, particularly **Article 5 (ERU)** and **Article 6 (factors for ERU)**, could serve as a guideline for both nations. ERU may help address challenges like **climate change** impacts, including a potential **30%-40% decrease in the Indus's water flow** due to **glacial melt**.
- Utilising formal negotiation procedures within the IWT framework to develop a memorandum of understanding.
- Exploring cooperative avenues to address emerging issues while using the treaty as a foundation for basin development. **Article VII(1c)** of the IWT suggests the possibility of **joint engineering projects** if both countries agree. Such collaborations could help mitigate water variability, especially in light of **climate change**.

The Indus Water Treaty has served as a beacon of hope and stability in the tumultuous relationship between India and Pakistan. Both countries should be accommodative and forthcoming about each other's sensitivities while ensuring that water is not a security issue but a human rights issue.

16th BRICS Summit

Syllabus Mapping: GS-Paper 2, Global groupings

Context

Sixteenth annual BRICS summit was held from October 22 to 24, 2024 in Kazan, Russia. It was the first BRICS summit to include Egypt, Ethiopia, Iran, Saudi Arabia and the United Arab Emirates as members, following their accession to the organization at the 15th BRICS summit.

BRICS Grouping

- It is an intergovernmental organisation established in 2009.
- BRICS is an acronym that stands for **Brazil, Russia, India, China, and South Africa.**
- The acronym "BRICS" was formulated by economist **Jim O'Neill, of Goldman Sachs**. He believed that the BRICS countries will be the drivers of global economic growth in the coming century.
- **First Summit** of BRICS grouping took place at **Yekaterinburg, Russia in 2009.**
- **Membership of BRICS**:
  - Originally it was just BRIC i.e. Brazil, Russia, India, China.
  - South Africa joined the group in 2010.
  - Additional members joined in 2023, including Egypt, Iran, the United Arab Emirates (UAE), Saudi Arabia, and Ethiopia.
  - Argentina was also invited to join the bloc but it rejected to join it.

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Reason for recent increase in the membership:

- Greater representation of the global south countries in the grouping.
- Strengthening the multipolar world order.
- Strengthening the Global south cooperation in the developing countries.

Bodies created by BRICS

New Development Bank (NDB)

- During the **6th BRICS Summit in Fortaleza (2014)** the leaders signed the Agreement establishing the **New Development Bank (NDB).**
- **Members of NDB**: Besides five founding members of NDB(Brazil, Russia, India, China, and South Africa), New members admitted are **Bangladesh, United Arab Emirates (UAE), Egypt.**
- **Shareholding:** The five founding members (Brazil, Russia, India, China and South Africa) have equal shareholding of 18.98% each.The new members varying shareholding in NDB:
  - Bangladesh: 1.79%
  - Egypt: 2.27%
  - UAE: 1.06%
- **Permanent HQ:** Shanghai.

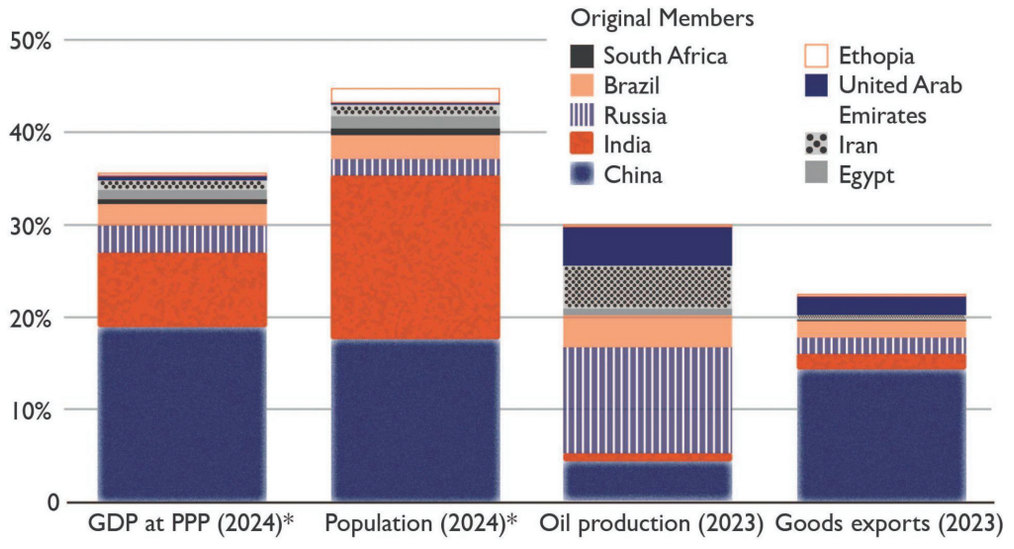
Contingent Reserve Arrangement (CRA)

- **Aim:** Provide short-term liquidity support to the members through currency swaps to help mitigate the BOP crisis situation.
- **Enforced:** entered into force at the 7th BRICS summit in July 2015.
- Capital of $100 billion is distributed among the Five founding members

Key Focus Areas at the Kazan Summit (16th BRICS Summit)

- **Summit's theme (2024)**:"Strengthening Multilateralism for Equitable Global Development and Security"
- **Expanding BRICS Membership:** BRICS kept up the momentum from its last summit by welcoming 13 new "**partner states**".This expansion shows the grouping's ambition to become a bigger player in global affairs.
  - **Latin America:** Cuba and Bolivia;
  - **Eurasia:** Belarus and Türkiye;
  - **Africa**:Algeria, Nigeria, and Uganda;
  - **Southeast Asia**: Indonesia, Malaysia, Thailand, and Vietnam; and
  - **Central Asia**: Kazakhstan and Uzbekistan.

BRICS countries share of global GDP, Population, Oil production and goods exports



*IMF estimates as of April 2024 **UN estimates, medium variant
sources: IMF,UN Population Division, Energy Institute, WTO

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- **Focus on Peace and Security in Conflict Zones:** The summit called for a ceasefire in the West Asia conflict and supported an independent Palestinian state.
  - In Ukraine, BRICS continued to encourage peace talks without taking a strong stance, likely out of sensitivity to Russia's leadership at this summit.
- **Boosting Economic and Financial Ties:** BRICS members agreed to use local currencies for trade among themselves, aiming to reduce dependency on the dollar. However, despite initial hopes, Saudi Arabia's caution slowed plans to bring in big investments for the New Development Bank.
- **Pushing for Fair Representation in Global Institutions:** BRICS reiterated the need to reform the UN, particularly advocating for stronger representation from Asia, Africa, and Latin America. However, China's position limited further support for permanent Security Council seats for India, Brazil, and South Africa.
- **Encouraging Cultural and Social Connections:** BRICS emphasised cooperation beyond politics and finance, encouraging exchanges in areas like sports, culture, and civil society. These connections are seen as valuable for building trust and unity among member countries.
- **Critique of Unilateral Sanctions:** The summit firmly opposes unilateral economic sanctions, arguing they harm global fairness and human rights, and don't align with international law.

India's Strategic View on BRICS

- **Supporting a Multipolar World:** India sees BRICS as a way to promote a world where power isn't dominated by just one or two global forces.
- **Strengthening Russia Ties:** BRICS provides India with a platform to strengthen its relationship with Russia and helps to **balance its Western partnerships and Eastern alliances**.
- **Voicing the Needs of Developing Nations:** India uses BRICS to bring attention to the challenges and priorities of developing nations which reinforces its leadership in the Global South.
- **Improving Relations with China:** The summit led to agreements on border management between India and China. This improvement may help India balance its relationships with Western allies and its immediate neighbours.
- **Positioning as a Bridge between Global Regions:** Through BRICS, India can strengthen its role in international diplomacy as it sees itself as a connector between East and West, North and South.
- **Expanding BRICS' Influence carefully:** India now supports BRICS' expansion and believes that larger group could **amplify BRICS' voice globally.** However, it stresses the need for growth that maintains cohesion and doesn't dilute BRICS' core objectives.

Bilateral meeting between India and Iran on the sidelines of BRICS

- **Historic First Meeting**:This was the first meeting between Indian Prime Minister Narendra Modi and Iranian President Masoud Pezeshkian. Both leaders acknowledged the untapped potential in their bilateral relationship.
- **Iran's Recognition of India's Role**: President Pezeshkian praised India's global stature and its role in facilitating Iran's 2023 entry into major multilateral organisations like Shanghai Cooperation Organisation (SCO) & BRICS.
- **Focus Areas for Cooperation**:
  - **Chabahar Port**: Both nations explored further collaboration at Chabahar port, critical for India's connectivity and trade.
  - **International North-South Transport Corridor (INSTC):** Discussions included enhancing connectivity via the INSTC.

Cooperation Between India and Iran

Energy security

- Iran has 209 billion barrels of oil and 33,988 billion cubic metres of natural gas reserves which represents **24% of West Asia's oil reserves and 12% globally.**
- Despite sanctions and Gaza conflict, Iran's crude production **rose** to 3.4 million barrels per day (bpd) in May 2024, with exports averaging 1.61 million bpd in March 2024.
- **Iran-Oman-India Gas Pipeline**: Since 1993, Iran and Oman have considered undersea gas pipelines, and an extension to India could be explored.

Connectivity

- **Chabahar Port Operations:** India and Iran signed a **10-year contract for port operations** in 2024.
- **Rail Link:** A **700-km rail link between Chabahar and Zahedan**, to connect with Iran's rail network.
- **Road link:** A planned **road link from Zahedan to Zaranj, Afghanistan** that will facilitate India's humanitarian aid to Afghanistan.

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Military Cooperation

- **Defence Agreement**: India and Iran signed a defence cooperation agreement in 2001, though implementation was hindered by sanctions.
- **Possible Collaboration on Defence Technology**:
  - Iran's advancements in short and medium-range missiles, hypersonic missiles, and armed drones may align with India's defence needs.
  - Iran's recent supply of armed drones to Russia in the Ukraine conflict highlights its capabilities, which could interest India.

Counterterrorism and Naval Cooperation

- **Joint Counterterrorism Measures**: India and Iran could conduct joint exercises and share intelligence to combat terror threats from Pakistan.
- **Naval Presence:** Port calls and logistical facilities in Iran's Persian Gulf ports could be mutually beneficial.

India's Diplomatic Approach to Iran

- **De-Hyphenated Diplomacy:** India's ability to maintain relations with adversarial nations (e.g., Iran and Israel) positions it uniquely for diplomatic engagements.
- **Strategic Autonomy:** India's neutral stance on the Ukraine crisis demonstrated its focus on strategic autonomy, a principle it can apply in its Iran relations.

Challenges to the Bilateral Relationship

- **Out-of-Context Comments:** Occasional comments, like Iran's Supreme Leader's statement on the "sufferings" of Indian Muslims in comparison to Gaza, have risked diplomatic friction.
- **India's growing closeness to the USA:** India's increasing strategic alignment with the USA and the western countries on key issues of security, does not suit Iran's interests. Iran has been under increasing pressure from western countries led by the USA due to its nuclear program, support for rogue actors like Houthi rebels and Hezbollah etc.
- **India-Israel relations:** India's close relations with Israel is also an issue preventing further deepening of India-Iran ties. Israel and Iran see each other as their chief adversaries have been in direct and in-direct conflict through proxies in the West Asia region. India needs to balance both, which is not easy when a war is on-going.
- **India's growing reliance on UAE and Saudi Arabia:** In the recent past, India's relations with UAE and Saudi Arabia have been on an upswing with sharp increase in trade and strategic convergence. Saudi Arabia and Iran are both competing regional powers, often seeing countries friendly to others as an adversary.

Conclusion and Future Outlook

- India aims to strengthen ties in West Asia, while Iran is consolidating its diplomatic reach and considers India an essential partner.
- Both countries must prioritise the broader importance of their bilateral relationship over isolated remarks.
- This meeting could serve as a turning point, revitalising the India-Iran partnership with an emphasis on connectivity, energy security, and regional stability.
- India should aim to act like a bridge between Iran and the World

G20 Meeting in Brazil

Syllabus Mapping: GS-Paper 2 ,Global groupings

Context

Brazil hosted the **19th G20 meeting** in Rio de Janeiro on 18-19 November 2024. It was chaired by Luiz Inácio Lula da Silva, the President of Brazil. The 2024 Summit's theme was **'Building a Just World and a Sustainable Planet'**. It was the first time that the African Union(AU) attended it as its member after its inclusion in 2023 during India's presidency.

G20 Grouping (Group of Twenty)

The Group of Twenty (G20) is the premier forum for international economic cooperation. It plays an important role in shaping and strengthening global architecture and governance on all major international economic issues.

- **Formation:** Founded in 1999 after the Asian financial crisis as a forum to discuss global economic and financial issues as a forum for the Finance Ministers and Central Bank Governors.
- **Upgradation at Summit Level:** G20 was upgraded to the level of Heads of State/Government in the wake of the global economic and financial crisis and in 2009, was designated the "premier forum for international economic cooperation". The G20 Summit is held annually, under the leadership of a rotating Presidency.
  - First G20 Summit was held in 2008. Washington DC, USA.
  - At the G20 Summit held at Pittsburg, USA in 2009 - G20 was elevated as the main decision making body on the global economy.
  - India hosted the G20 Summit in 2023 (75th Year of India's Independence).

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- **Membership:** G20 Comprises 19 countries and 2 Organisations. These are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, South Korea, Mexico, Russia, Saudi Arabia, South Africa, Türkiye, United Kingdom, United States, African Union and European Union.
- **Note:** African Union became a full member of the G-20 in 2023 during India's Presidency in 2023.
- **Economic Clout:** G20 Members account for around 85% of the global GDP, over 75% of the global trade, and about two-thirds of the world population.
- **Secretariat:** Does not have a permanent secretariat and is supported by the previous, current, and future holders of the presidency, known as the troika.
- **Summit and Presidency:** The G20 Summit is held annually with a rotating presidency
  - 2023 Presidency: India
  - 2024 Presidency: Brazil
  - 2025 Presidency: South Africa

Key Outcome of the meeting

- **Global Alliance Against Hunger and Poverty:** Launched to tackle the issue of systemic global inequalities that leave over 733 million people undernourished despite an abundance of global food production. It will **serve as a platform** for connecting countries in need of assistance with public policies targeted towards eradicating hunger and poverty, with partners willing to offer expertise or financial support.
- **Task Force on a Global Mobilization against Climate Change:** Established to mainstream climate change into the global financial, economic and development agendas. It will help reduce greenhouse gas emissions and promote climate-resilient development.
- **Urgency for climate change action:** Emphasized the need for G20 nations to accelerate their **climate neutrality targets**, suggesting deadlines of **2040 or 2045 instead of 2050.**
- **Climate Finance:** Recognised the **need for trillions of dollars in climate finance** for low-income countries. It urged COP29 negotiators to finalise a substantial financial framework for climate action.
- **Taxing ultra-high-net-worth individuals:** Respecting national sovereignty**,** it called for effective taxing of the world's ultra-rich. Further, cooperation could involve exchanging best practices, encouraging debates around tax principles, and devising anti-tax avoidance mechanisms, including addressing potentially harmful tax practices.
- **Against Plastic pollution:** Reiterated the promise to develop a **legally binding treaty** on plastic pollution by the end of 2024
- **Reform of Global Governance Institutions:** G20 advocated for reform in the current global governance model to address contemporary challenges and maintain peace. It emphasised **reforming the UNSC to ensure a diversity of voices** that include representation of the underrepresented and unrepresented regions and groups, such as **Africa, Asia-Pacific, Latin America and the Caribbean.**
- **Inclusion of Sustainable Development Goal 18 (SDG 18):** A new SDG to address **ethnic-racial inequality** was included as a key element among the G20 priorities.

Concerns from 19th G20 Summit in Brazil

- **Sidelined the core conflict:** The G20 Summit failed to address the escalating conflicts in the Middle East and the Ukraine-Russia war. Unlike the 2022 summit in Bali, which explicitly condemned Russia's "aggression" against Ukraine, and last year's summit in New Delhi, India, which called on G20 members to shun the use of force, Brazil's G20 declaration avoided direct blame.
- **Deadlock on Climate finance:** It failed to bridge the gap between developed and developing countries on climate finance. This adversely impacts the achievable targets of climate solutions.
- **Political rivalries among the countries:** On various global issues, consensus could not be attained due to geopolitical tension between the US and China. For example, China was focused on courting G20 nations to join its financial networks to circumvent Western sanctions in a potential Taiwan conflict, while the US and G7 comply with critical supply-chain restrictions against the mainland.

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Way forward

- **Addressing the 3F crisis:** It must cooperate to address the **3F Crisis(Crisis of Food, Fuel and Fertiliser)** that is looming over the world due to conflict in Ukraine and the Middle East. Global South is most adversely impacted by the 3F crisis caused by global conflicts, and the G20 must give primacy to their concerns and priorities.
- **Binding commitment for climate finance:** Scaling up climate finance is necessary to deal with climate change mitigation and adaptation. G20 countries need to deliver an enforceable commitment to mobilise $1 trillion annually. Contributions from both developed and wealthy developing nations are crucial with channelising private sector investments into green projects.
- **Tackling geopolitical issues:** G20 members represent around 85% of the global GDP. It has a huge standing in the world. It needs to address the global conflict that has adversely impacted the world instead of avoiding it.
- **Raising the issue faced by the Global South:** For the last 3 years the presidency of G20 is with countries of the Global South. It provides the countries of the global south to use it as a platform to raise their concerns.

2nd India-Australia Annual Summit

Syllabus Mapping: GS-Paper 2, Bilateral relations

Context

Prime Minister of India and Australia held the second India-Australia Annual Summit on the sidelines of the Group of 20 (G20) Summit in Rio de Janeiro. The meeting reviewed the progress in bilateral ties and laid out initiatives to strengthen cooperation, ahead of the **fifth anniversary of the Comprehensive Strategic Partnership (CSP)** in 2025.

Key Highlights of Second India-Australia Annual Summit

Economy, Trade, and Investment

- **Economic Cooperation**: Progress under the **India-Australia Economic Cooperation and Trade Agreement (ECTA)** was acknowledged. Further, work was welcomed towards a **Comprehensive Economic Cooperation Agreement (CECA)** to fully realise bilateral economic potential.
- **Complementary Initiatives:** Synergy between India's **'Make in India'** and Australia's **'Future Made in Australia'** programs could drive job creation and economic growth.
- **Australia-India Business Exchange (AIBX)**: Extension of the AIBX program **for 4 years** from July 2024 to boost business partnerships.

Energy, Science, and Space

- **Renewable Energy Partnership (REP):** Launched to foster cooperation in areas like:
  - Solar PV
  - Green hydrogen
  - Energy storage
  - Skills training for the renewables workforce.
- **Critical Minerals Collaboration**: Progress under the **KABIL-Australia Critical Minerals Office MoU** to develop sustainable supply chains for global clean energy needs. Emphasis on innovation, skills development, and professional exchanges in critical minerals.
- **Space Collaboration**: Strengthened partnership on **Gaganyaan missions** and satellite launches planned for **2026**. Joint projects involving space industries of both nations.

Defence and Security Cooperation

- **Enhanced Defence Collaboration**: Renewal of the **Joint Declaration on Defence and Security Cooperation** in 2025 to reflect increased strategic convergence. Boost in defence exercises and implementation of the **Mutual Logistics Support Arrangement**.
- **Maritime Cooperation**: Development of a **joint maritime security collaboration road map**. Reciprocal defence information-sharing and enhanced maritime domain awareness.
- **Defence Industry Engagement**: Indian participation in:

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  - **Indian Ocean Defence & Security Conference** (Perth, 2024).
  - **Land Forces Exposition** (Melbourne).
- Strengthened connections between Indian and Australian defence start-ups.

Education, Sports, and People-to-People Ties

- **Consular Expansions**: New **Australian Consulate-General in Bengaluru** and **Indian Consulate-General in Brisbane** to deepen trade and cultural ties.
- **Mobility and Education Initiatives**:
  - Launch of Australia's **Working Holiday Maker visa** for Indians (October 2024).
  - Upcoming **Mobility Arrangement for Talented Early-professionals Scheme (MATES)** to promote STEM graduate mobility.
  - Australian universities establishing campuses in India.
- **Sports Cooperation:** Focus on capacity building in:
  - Workforce training.
  - Sports science and event management.

Regional and Multilateral Cooperation

- **Indo-Pacific Vision**: Commitment to an **open, inclusive, peaceful Indo-Pacific** with adherence to international laws like **UNCLOS**. Support for the **Quad** as a force for regional resilience and progress.
- **ASEAN Engagement**: Support for the **ASEAN Outlook on the Indo-Pacific (AOIP)** and enhanced bilateral collaboration under the **Indo-Pacific Oceans Initiative (IPOI)**.
- **Indian Ocean and Pacific Island Support**: Success of the **2024 Indian Ocean Conference** co-hosted in Perth. Ongoing commitment to the **Pacific Islands Forum's 2050 Strategy for the Blue Pacific Continent**.
- **Counter-Terrorism**: Strong emphasis on combating terrorism through collaboration in the **Financial Action Task Force (FATF)** and other initiatives.

Importance of India-Australia Relations

- **Convergence on Indo-Pacific Region:** Australia is a key part of the US and Western Security matrix. Australia has been opposed to China's design in the oceania and south-china sea region. Both countries have joined the QUAD grouping aiming to ensure order and freedom of navigation in the Indo-Pacific.
- **Mineral Wealth:** Australia is a key supplier of critical and other minerals in the world. For example, Australia has one of the largest reserves of Uranium and Lithium in the world. Australian companies like BHP Billiton and Rio Tinto are also pioneers in mining technology and are active in India.
- **Diaspora:** According to the 2021 census, about 9,76,000 in Australia trace Indian ancestry. Indian diaspora is the second largest and fastest growing diaspora in Australia. Indian students numbering 1,22,391 (September 2023) form the second largest cohort of foreign born students in Australia. The Indian diaspora acts like the human bridge between the two countries.
- **Trade and economic ties:** Trade ties between the two countries have been on an upward trend since 1991 LPG reforms in India and stand at about $50 bn in 2023. India and Australia have concluded the **Economic Cooperation and Trade Agreement (ETCA)** which was **concluded in 2022** resulting in expansion of trade between the two countries. For further liberalising trade, both countries are currently negotiating the **Comprehensive Economic Cooperation Agreement (CECA).**
- **Defence and strategic ties:** Both countries have elevated security and defence relations by entering into **Comprehensive Strategic Partnership in 2020**. Australia is a regular participant in **Malabar Exercises.**
- **Cultural and historical reasons:**
  - Both countries are part of the commonwealth and largely the British model of Parliamentary democracy.
  - Love for Cricket is common to both countries.

Challenges in India-Australia Relations

- **Economic challenges:** Trade between the two countries has been far from its potential.
  - Currently, bilateral trade is dominated by coal imports from Australia to India.

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  - India has been sceptical of entering FTAs with Australia fearing adverse impacts on India's dairy and livestock sector.
  - Australia has also been unwilling to liberalise the movement of labour and skilled personnel from India.
- **Ambiguity in defence relations:** There is an ambiguity in defence and strategic side among both sides.
  - While India aims to gain from closer defence and strategic ties with Australia, India does not want to become a treaty or alliance partner with it. Also, while India wants to counter China, it also wants to engage China by joining forums like SCO, BRICS, AIIB etc.
  - On the other hand, the western countries are also not comfortable in sharing critical defence and intelligence with India. Despite being a QUAD partner, India was not made a party to the AUKUS i.e. not given access to strategic nuclear submarines by the USA, UK & Australia. Also, despite India's interests in joining Five Eyes Alliance, India has not been made a part of it.
- **Immigration and treatment of Diaspora:** Australia has been wary of issuing visas liberally to India which often creates issues.
  - Also, the treatment of Indian diaspora in India is also often not proper, there are reports of xenophobic and racial discrimination, which creates challenges in the relationship.

Armed Forces (Special Powers) Act, 1958 (AFSPA)

Syllabus Mapping: Internal Security, Armed Forces

Context

The Centre has reimposed Armed Forces (Special Powers) Act (AFSPA) in several locations in ethnic violence-hit Manipur.

About Armed Forces Special Powers Act (AFSPA), 1958

- It is an **act of the Parliament** that grants **special powers to Indian Armed Forces** to maintain **public order** in **"disturbed areas".**
- The Act is enforced by **the Ministry of Home Affairs.**
- **Aim of the AFSPA** is to create a suitable legal backing to armed formed enabling them to tackle the **secessionist** activities in the **disturbed areas.**
- **Origin:** Originally promulgated by the **British** in response to the **Quit India movement in 1942.** After Independence, the act was retained, first brought in as an ordinance and then notified as an **Act in 1958.**
- **Initially, AFSPA was invoked** to overcome the **Naga movement. Later, it was extended** to other disturbed areas in the country.
- **Disturbed Area:** A disturbed area is declared under **Section 3 of the AFSPA.**
  - An area can be disturbed due to **differences or disputes** between members of different religious, racial, language or regional groups or castes or communities.
  - **Union Government or the Governor** of the State or administrator of the Union Territory can **declare the whole or part of the State or Union Territory** as a disturbed area.
  - **MHA issues** periodic **"disturbed area" notification** to extend the AFSPA **only for Nagaland and Arunachal Pradesh.**
  - The notification for **Manipur and Assam** is issued by the **State governments.**
- **Current status of its imposition:**
  - **AFSPA is currently active** in the states of **Assam** (some districts), **Arunachal Pradesh** (some districts), **Manipur** (entire state except for Imphal municipal area), **Nagaland** (some districts), and the **UT** of **Jammu** & **Kashmir** (entire UT).
  - It was **completely withdrawn** in **Meghalaya** in 2018, **Tripura** in 2015 and **Mizoram** in the 1980s.
- **Powers under AFSPA:**
  - **Firing: Armed forces** and **Central Armed Police Forces** deployed in specified "disturbed areas" can **fire and kill** anyone acting in accordance with law.
  - **Arrest and detention:** Arrest anyone based on **suspicion**, without a **warrant**. Individuals **arrested and taken into custody** under this act have to be handed over to the **officer in charge** of the nearest police station.
  - **Search:** Security forces can search any **premises** without a **warrant**. They can **stop and search** any vehicle based on suspicion.

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  - **Protection from prosecution:** Security forces are given **protection** from **prosecution and legal suits**. Central government's **sanction** is required for prosecution.
  - **Destruction:** Destroy any **arms dump, hide-outs, fortified shelter** from which armed attacks are carried out.
- **Judicial review:** There shall not be any **judicial review** of the government's **judgment** on why an area is found to be **disturbed**.

Success of AFSPA So Far

- **Decline in Extremist Incidents:** According to Ministry of Home Affairs (MHA), there has been a 76% reduction in extremist incidents from 2014 to 2022.
- **Decline in Fatalities:** MHA reported a 90% reduction in deaths of security personnel and a 97% decrease in civilian fatalities between 2014 and 2022.
- **Decline in Areas Under Imposition**: AFSPA has been partially withdrawn from several regions, including Tripura (in 2015) and Meghalaya (in 2018).

Criticism of AFSPA

- **Alienating people of north-east:** Use of force to overcome popular movements has further alienated people of north-east. Many families have lost their loved ones to military actions. People of the region feel alienated from India.
- **Violation of human rights:** India's judicial organs and other international groups have described AFSPA as a symbol of oppression. There are widespread instances of extended custody and torture by the security forces. Innocents have suffered under the draconian law.
- **Misuse by armed forces:** Security forces have used the law for their own personal benefits. There were instances of them carrying out kidnapping and extortion under the protective veil of AFSPA.
- **Encroaching upon the powers of state governments:** Security personnel operating in AFSPA areas work parallel to the state security forces. Their actions sometimes encroach upon the jurisdiction of state security agencies.
- **Violation of International Law Documents**: Many experts argue that AFSPA contradicts several international legal documents, including:
  - Universal Declaration of Human Rights
  - International Covenant on Civil and Political Rights (ICCPR)
  - Convention Against Torture
  - **Customary law principles from**:
    - UN Code of Conduct for Law Enforcement Officials
    - UN Body of Principles for the Protection of All Persons Under Detention
    - UN Principles on Effective Prevention and Investigation of Extra-legal, Arbitrary, and Summary Executions

India's Obligations Under the ICCPR & AFSPA

Since signing the ICCPR in 1978, India has been responsible for upholding citizens' rights under the Covenant, both in times of peace and limited emergencies. However, AFSPA is said to breach both derogable and non-derogable rights protected by the ICCPR.

- **Article 4: Suspension of Rights:** According to Article 4 of the ICCPR, derogation from rights is allowed only under strict conditions:
  - A formally declared national emergency threatening the nation's survival
  - Derogation must be necessary and proportionate
  - No discrimination based on race, colour, sex, language, religion, or social origin.

AFSPA does not require an emergency declaration but enacts a quasi-emergency through the "disturbed area" classification, creating a prolonged state of artificial emergency since 1958.

- **Violation of Article 9: Arbitrary Detention:** AFSPA's broad powers of arrest and detention are viewed as violations of Article 9 of the ICCPR, which requires timely judicial oversight and reasonable timeframes for detention. AFSPA lacks fixed time limits for detentions, neglecting protections enshrined in ICCPR.
- **Contradiction to Non-Derogable Rights (Articles 6, 7, and 10)**
  - **Article 6**: Right to life
  - **Article 7**: Prohibition of torture
  - **Article 10**: Right to dignified treatment

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These non-derogable rights are allegedly breached by AFSPA's provisions allowing unrestricted use of force, arrest without judicial safeguards, and indefinite detention before handing detainees over to civilian police.

- **Breach of Article 2: Right to Judicial Remedy:** Article 2 of ICCPR mandates judicial processes for enforcing rights, yet AFSPA allows detention under broad conditions, potentially infringing on this right.

Further, India has not informed other ICCPR signatories of derogations, as required when violating ICCPR provisions.

Incidents of misuse of AFSPA law

- **Mon incident:** Armed Forces fired upon a group of civilians returning from work in 2021, assuming they were members of the banned outfit NSCN (K). Civilians lost their lives owing to the firing but Armed Forces Personnel responsible for the incident were not charged due to immunity under AFSPA.
- **Malom Incident:** In 2000, 10 civilians waiting at the bus stop were killed by the 8th Assam Rifles at Malom town, near Imphal's Tulihal airport. It was alleged to be a fake encounter. Following the incident, Irom Sharmila went on a hunger strike, demanding complete withdrawal of AFSPA.
- **Tinsukia Fake encounter**: In 1994, 18 Punjab regiment picked up nine youths from their homes following the death of a Tea estate manager, who was allegedly killed by members of ULFA. Following a Habeas Corpus petition, 4 of them were released while the rest of them were shot dead in a remote location.

Judicial pronouncements on AFSPA

- **Naga People's Movement of Human Rights vs. Union of India (1998):** Supreme Court held that the act **cannot** be considered **as violative of the Constitution** and the powers conferred under the Act are **not arbitrary and unreasonable** and therefore not in violation of the provisions of the Constitution. However, the court held that the
  - Army personnel are required to **strictly follow minimum force** under Section 4 which allows use of force
  - Act has to be **reviewed every six months** by the state.
- **July 2016 judgement:** Supreme Court directed the armed forces and police not to use "excessive or retaliatory force" in even areas declared 'disturbed' where the AFSPA is applicable.
- **July 2017 judgement:** Supreme Court's judgement on alleged unlawful encounter killings in Manipur marked an important institutional step. Supreme Court **overruled the objections of the Centre and the Army** and ordered the **Central Bureau of Investigation** to set up a special investigation team to probe encounter deaths.

Recommendations By Various Committees

- **B P Jeevan Reddy Committee (2005):** AFSPA must be reviewed and security forces must be brought under the purview of ordinary criminal law rather than under army law.
- **Santosh Hegde committee (2013):** The committee was of the view that if greater power was given then greater would be the restraint and stricter would be the mechanism to prevent its misuse or abuse. There were no powers with citizens against high-handedness of armed forces.
- Second **Administrative Reforms Commission** on public order has also recommended the **repeal of the AFSPA.**
- **Justice J S Verma Committee** recommended revocation of protection of prosecution granted to Armed Forces in case of violence against women.

Way Forward

- **Building Trust and Community Involvement:** Armed forces should actively engage with the local population and work towards building trust and understanding.
- **Ensuring justice for victims:** Security forces and government need to expedite pending cases and establish a transparent process to address allegations of human rights violations by the forces.
- **Strengthening local law enforcement:** State governments should focus on strengthening the local law and order machinery. If the local police can effectively handle security situations, the need for AFSPA might diminish, allowing for its withdrawal from the region.
- **Case-by-case application:** Government should consider implementing and lifting AFSPA on a case-by-case basis, limiting its application to specific districts facing significant disturbances rather than applying it to the entire state.

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- **Restoring normalcy and development:** Restore normalcy in the region for India to fulfill its Act East policy and leverage the Northeast as a gateway to Southeast Asia. Demilitarisation and addressing the underlying issues can contribute to long-term stability, allowing for the region's socio-economic development.

A Mixed Report Card of IMEC

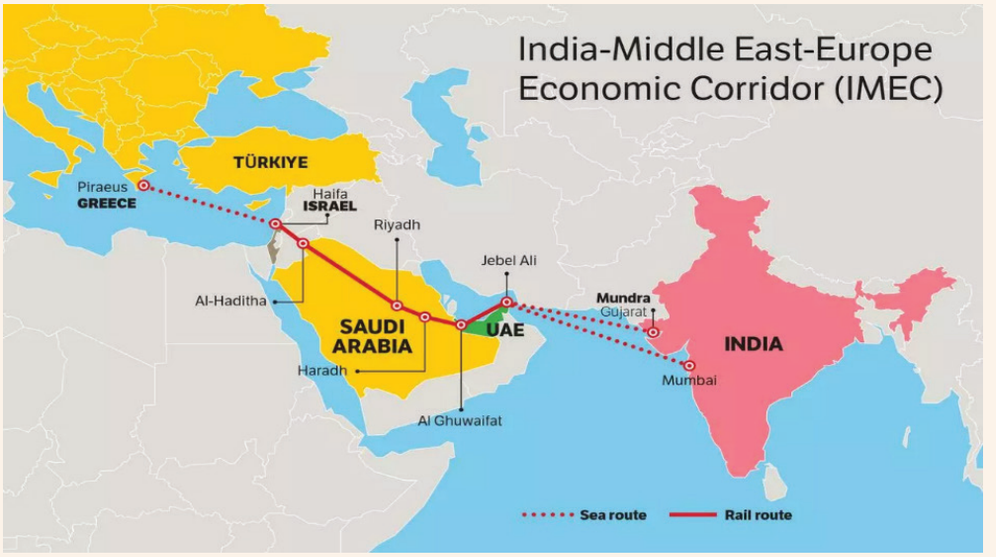
Syllabus Mapping: Regional Initiative

Context

Even after one year of the launch of India-Middle East-Europe Corridor (IMEC) In September 2023 the progress of the initiative is slow, which is a cause of concern.

India-Middle East-Europe Economic Corridor (IMEC)

- India-Middle East-Europe Economic Corridor (IMEC) is a strategic trade and connectivity initiative linking Asia, Europe via Railroad, Ship-to-Rail networks.
- **Aim:** To enhance trade and connectivity between India, the Middle East, and Europe, offering significant reductions in transit time and costs.
- **Signatories:** India, US, Saudi Arabia, UAE, European Union, Italy, France, and Germany.



- **Connectivity:**
  - **India**: Mundra, Kandla (Gujarat), and Jawaharlal Nehru Port Trust (Navi Mumbai).
  - **Middle East**: Fujairah, Jebel Ali, and Abu Dhabi (UAE); Dammam and Ras Al Khair (Saudi Arabia).
  - A railway line will link Fujairah (UAE) to Haifa (Israel) via Saudi Arabia (Ghuwaifat, Haradh) and Jordan.
  - **Israel**: Haifa.
  - **Europe**: Piraeus (Greece), Messina (South Italy), and Marseille (France).

Benefits of IMEC

- **Transit Time Reduction**: Projected to reduce transit time between its eastern & western nodes by 40%.
- **Cost Efficiency**: Transportation costs are expected to decrease by 30% compared to routes via the Suez Canal.
- **Impact on Maritime Trade:** Once operational, IMEC is anticipated to be transformative for international maritime trade.

Current Status of IMEC

- **Eastern Leg Progress**: Connecting the UAE and Indian ports is advancing more rapidly due to strengthening economic relations. **E.g.,** Bilateral trade between **India and the UAE surged** from $43.30 billion in 2020-21 to $83.64 billion in 2023-24, marking a 93% increase.
  - **Non-oil trade** between India and the UAE grew significantly, reaching $57.81 billion in 2023-24 from $28.67 billion in 2020-21. This aligns with India's objective to expand its export base in the region.

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- **Western Part**: Faces uncertainty due to ongoing conflicts, while the eastern part is committed to enhancing connectivity. Elements like clean energy exports, undersea fibre-optic cables, and pipelines, which were part of the broader IMEC vision, are yet to see progress due to instability in West Asia.

Issue and concerns

- **Geopolitical tension:** Despite initial optimism, geopolitical tensions (escalation of conflict between Israel and Palestine) have hindered progress on the IMEC.
- **Coordination**: There are issues with coordination among the multiple countries involved.
- **Regional competition**: Competition from China's BRI will impact the IMEC's operational strategy and political and economic interests.

Strategic Recommendations for India

To maximize the potential benefits of IMEC, India should focus on:

- **Port Development:** Enhancing port infrastructure and creating specific economic zones along connectivity nodes.
- **Logistics Improvement:** Upgrading domestic logistics systems to integrate seamlessly with IMEC.
- **Digital Integration:** Expanding digital capabilities within logistics to reduce time and costs associated with exports.
- **Global Value Chain Integration:** Strengthening manufacturing competitiveness to position India as a viable alternative in global supply chains.
- **IMEC Secretariat**: Establishing a formal IMEC secretariat could organise the corridor's structure, streamline trade processes, and produce research on the corridor's benefits, encouraging neighbouring countries to consider joining the initiative.

TOPICS FOR PRELIMS

Russia -North Korea Defence Treaty

Syllabus Mapping: International Developments

Context

Russia's Lower Parliament House (Duma) has ratified Russia - North Korea defence treaty.

About Russia - North Korea Defence Treaty

- **Mutual Military Assistance:** Obligates both nations to provide immediate military assistance to each other if either is attacked. This assistance can include "all means" available, reflecting a commitment to collective defence.
- **Response to External Aggression:** Emphasises that military support will be provided in accordance with **Article 51 of the UN Charter**, which allows for self-defence against armed attacks.
- **Comprehensive Strategic Partnership:** Establishes a framework for deeper military cooperation, which includes potential joint exercises and sharing of military technology.
- **Training and Troop Deployment:** Reports indicate that North Korea has sent approximately 3,000 troops to Russia for training, with plans for more troops to be deployed in the coming months.

About North Korea

- Situated in **East Asia.**
- Occupies northern portion of the Korean peninsula (55% of land area of Korean Peninsula).
- Separated by South Korea by 38th parallel.
- **Bordering Countries:** China, Russia to the north and South Korea to the south.
- **Surrounding water bodies:** Sea of Japan & Yellow Sea.

United Nations Relief and Works Agency for Palestine Refugees (UNRWA)

Syllabus Mapping: International Organisation

Context

Israel's parliament (Knesset) has passed two bills to ban **United Nations Relief and Works Agency for Palestine Refugees (UNRWA)** from operating in Israel and the Palestinian territories. The Knesset also voted to designate **UNRWA a terrorist organisation**, cutting all ties with the agency.

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About UNRWA

- Established in **1949 by the UN General Assembly** to provide aid to about 700,000 Palestinians who were forced to leave their homes during the **1948 Arab-Israeli war.**
- Operates in **Gaza, West Bank, Lebanon, Syria and Jordan. (HQ - Gaza)**
- Runs education, health, relief, social services, microfinance and emergency assistance programmes inside and outside refugee camps in these areas.
- In the absence of a solution to Palestine refugee problem, the General Assembly has repeatedly renewed UNRWA's mandate, most recently extending it until 30 June **2026.**

Asset Recovery Inter-agency Network-Asia Pacific

Syllabus Mapping: International Organisation

Context

India has joined the steering committee of the Asset Recovery Inter-agency Network-Asia Pacific (ARIN-AP). The Directorate of Enforcement (ED) represented India in the steering committee of ARIN-AP.

About ARIN-AP

- ARIN-AP was founded in **2013** to support the tracing, freezing and confiscation of criminal assets across borders.
- Includes **28 member jurisdictions and nine observers**, operating as an informal network under the global **Camden Asset Recovery Interagency Network (CARIN).**
- The network operates through a system of contact points across member jurisdictions to enable effective communication and intelligence sharing.
- Provides access to over 100 jurisdictions within CARIN, facilitating rapid informal exchanges on individuals, assets and organizations tied to economic crimes.

- **India will assume the presidency of ARIN-AP in 2026** and will host the Annual General Meeting (AGM) that year.

Camden Asset Recovery Interagency Network (CARIN)

- An informal network **established in 2004** to enhance international cooperation in the recovery of criminal assets.
- Founded during an asset recovery conference hosted by the Irish Criminal Asset Bureau.
- **Membership:** 61 registered member jurisdictions, including 27 EU Member States and 13 international organisations.
- **Headquarters**: Europol Headquarters in the Hague
- **President:** Steering Group consisting of up to nine members, from which one member is elected President.

India should be part of RCEP, CPTPP: NITI Aayog CEO

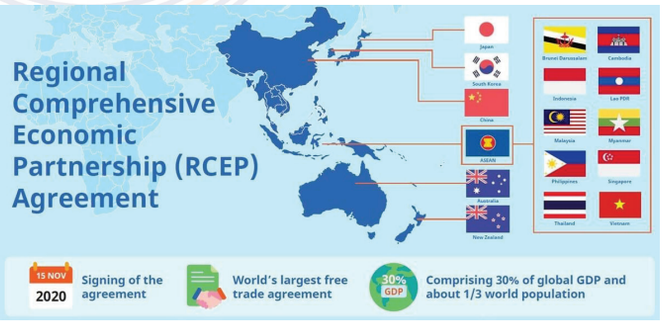
Syllabus Mapping: Regional Groupings

Context

CEO of NITI Aayog has stated that India should consider joining the **Regional Comprehensive Economic Partnership (RCEP) and Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).**

About RCEP

- It is a free trade agreement between **15 Asia-Pacific countries** that aims to create a modern, mutually beneficial economic partnership.
- It is the **world's largest free trade agreement by members' GDP.**
- The idea of RCEP was conceived at the **2011 ASEAN Summit in Bali, Indonesia.** But it came into force in **2022.**

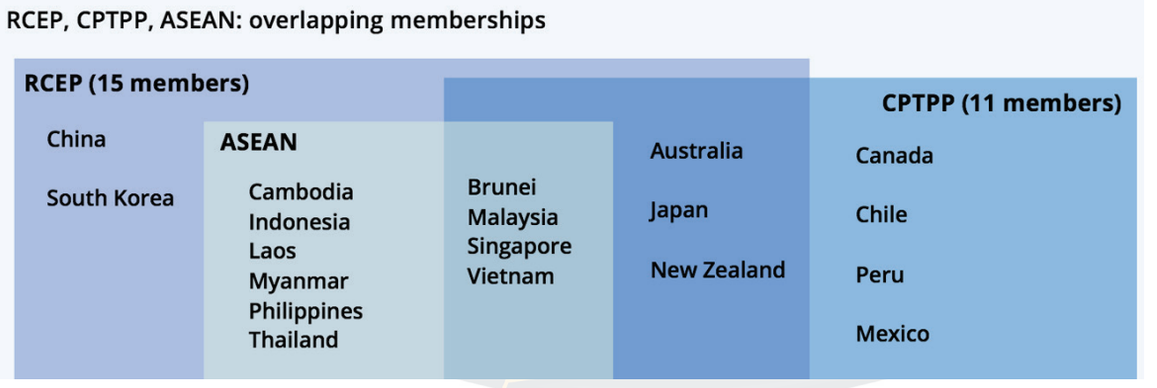


- **Members:** 10 ASEAN group members (Brunei, Cambodia, Indonesia, Malaysia, Myanmar, Singapore, Thailand, the Philippines, Laos and Vietnam) and **5 FTA partners** — China, Japan, South Korea, Australia and New Zealand.
- **Note:** Though India has an FTA with ASEAN, **India was among the founding negotiators of RCEP, but in 2019, India decided to withdraw** from the RCEP

negotiations based on concerns about the impact on its domestic economy.

About CPTPP

- It is a free trade agreement (FTA) between **Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, Peru, New Zealand, Singapore, Vietnam and the United Kingdom (UK will accede to the CPTPP on December 15, 2024).**
- Initially known as **Trans-Pacific Partnership (TPP)** but was renamed after USA withdrew from the agreement in 2017.

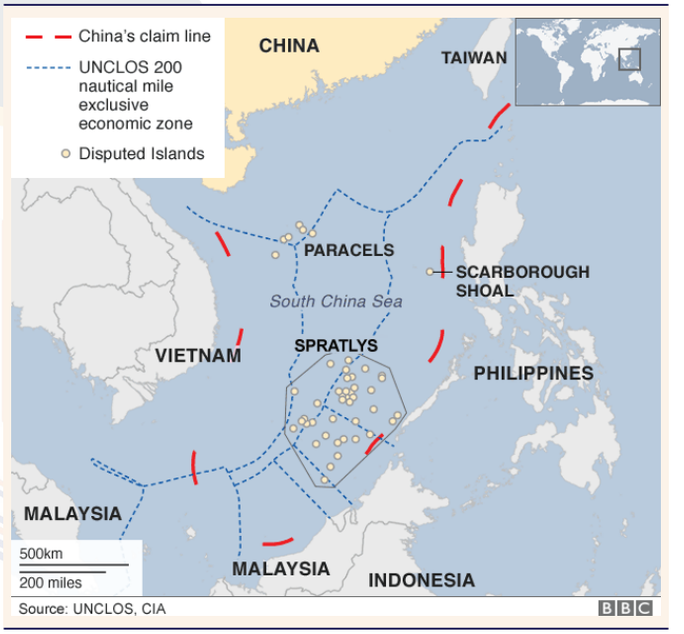


Philippines 'retakes' an island in disputed sea in mock combat

Syllabus Mapping: Locations

Context

The Philippine military conducted a combat exercise in the South China Sea to practice retaking an island. The exercise took place **near Loaita Island** (known locally as Kota Island), one of the islands claimed and occupied by Philippines in the disputed region.



About Disputed locations in South China Sea

Nine-Dash Line

- China historically claims sovereign rights over South China Sea through the Nine-dash line.
- It is a **unilateral demarcation** that encompasses around **90% of South China Sea.** It stretches from Chinese mainland down to coasts of Malaysia and Indonesia.
- In 2016, the **Permanent Court of Arbitration** in The Hague ruled that China's claim, based on the Nine-Dash Line, has **no legal basis** under international law.

Claims of various countries on Island

Location	Description	Claimants
Spratly Island	A group of islands, reefs and atolls claimed by multiple countries. China has heavily militarised the area, constructing artificial islands and military facilities.	China, Philippines, Vietnam, Malaysia, Brunei
Paracel Islands	Under Chinese control since 1974. The islands are surrounded by productive fishing grounds and potential oil and gas reserves.	China, Vietnam
Scarborough Shoal	Rich fishing grounds situated west of the Philippines.	China, Philippines
Luzon Strait	Critical waterway for military and commercial navigation, situated between the Philippines and Taiwan.	Philippines, Taiwan

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Do you Know?

- **Senkaku/Diaoyu islands:** Situated in the East China Sea and claimed by **China and Japan**
- **Kuril Islands:** Territorial dispute over ownership between **Japan and Russia.**

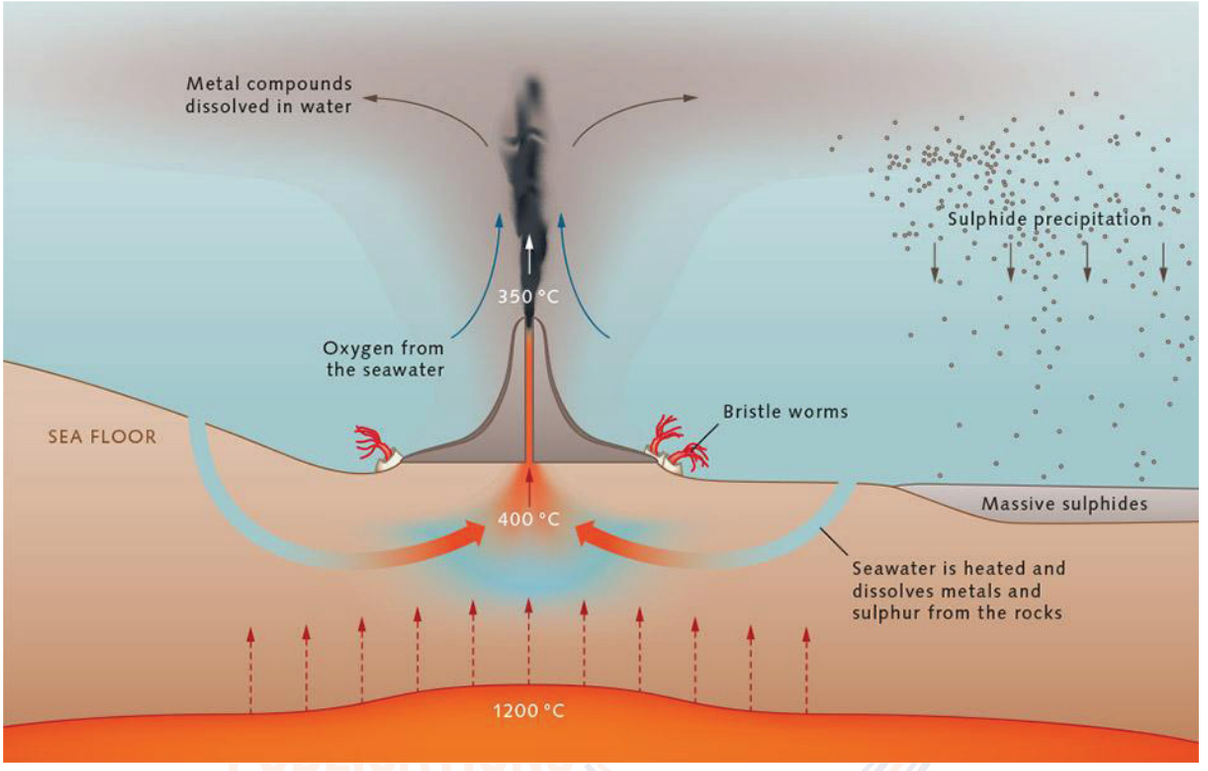
International Seabed Authority

Syllabus Mapping: International Organisation

Context

Union Minister of State for Earth Sciences felicitated 21 trainees nominated by ISA who completed a two-month training program on deep-sea mineral exploration for Polymetallic Nodules (PMN) and Polymetallic Sulphides (PMS).

Polymetallic Nodules (PMN)



- Also known as manganese nodules.
- **Constituent:** Made up of metals like manganese, iron, nickel, copper, cobalt, lead, molybdenum, cadmium, vanadium, and titanium.
- **Size:** Vary in size from tiny particles visible only under a microscope to large pellets more than 20 centimetres across.
- **Distribution:** Centre of north Pacific Ocean, Peru Basin in south-east Pacific Ocean & centre of north Indian Ocean.

Polymetallic Sulphides (PMS):

- Rich source of metals like copper, Zinc, gold, silver etc
- **Formation:** Formed in hydrothermal vents where mineral rich superheated water from the Earth's mantle interacts with the cold ocean water, resulting in the precipitation of metal sulphides.
- **Distribution:** Found in different regions of the ocean floor, primarily along mid-ocean ridges, back-arc basins, and active volcanic arcs.

About International Seabed Authority (ISA)

- Autonomous organisation that regulates and controls activities in the seabed beyond national jurisdiction.
- Area under its jurisdiction covers around **54% of the total area of the world's oceans.**
- **Formation:** Established in **1994 under UNCLOS**
- **Members:** 168 Member States (including India) and European Union. All nations that ratify UNCLOS automatically become members of ISA.
- **Headquarters: Kingston, Jamaica**

Functions of ISA:

- Regulating conduct of all exploration activities and exploitation of deep-sea minerals.
- Protection of marine environment from harmful effects of deep seabed related activities.
- Encourage marine scientific research.

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United Nations Convention on the Law of the Sea (UNCLOS)

- An **international treaty** that governs the use and management of the **world's oceans and seas.**
- **Adopted in 1982** and entered into force in 1994 and has been **ratified by 168 countries (including India).**

Key features of UNCLOS:

- Establishes **legal framework** for activities in **oceans and seas,** including fishing, shipping, and exploration and **exploitation of natural resources.**
- Recognizes the **rights of coastal states** over their **territorial waters**, **exclusive economic zones and** sets out rules for the **delimitation of maritime boundaries** between adjacent states.
- Establishes the **International Tribunal for the Law of the Sea (ITLOS),** to hear disputes related to the interpretation and application of UNCLOS.

Asia Pacific Economic Cooperation

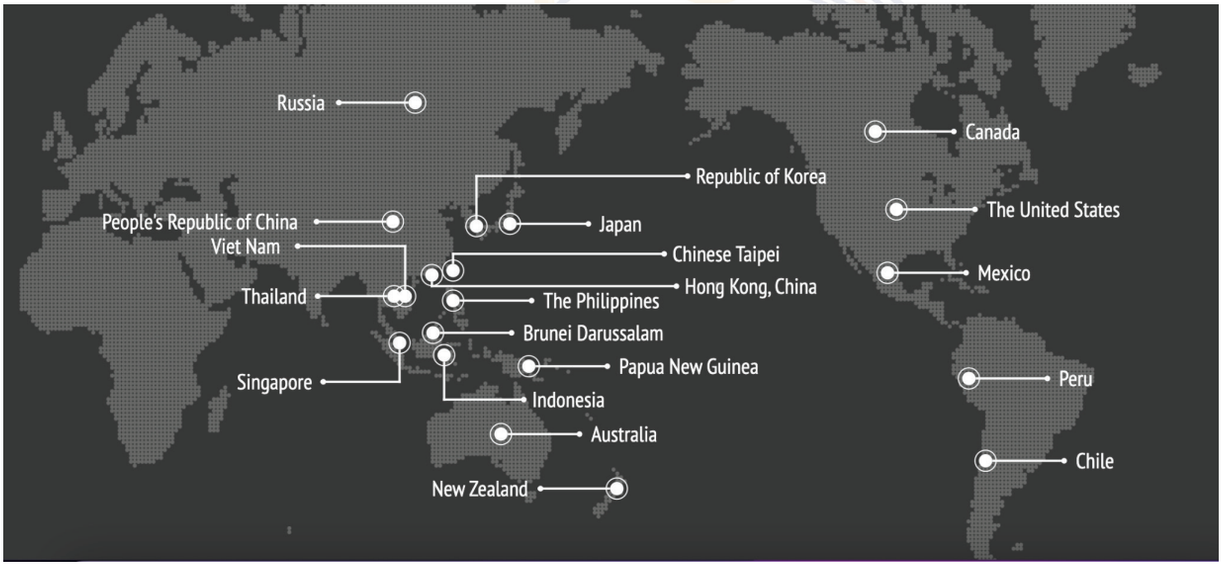
Syllabus Mapping: Regional Groupings

Context

36th Asia-Pacific Economic Cooperation summit will be hosted by Peru.

About Asia-Pacific Economic Cooperation (APEC)

- **Formation:** formed in **1989** to promote trade, investment, and economic growth across the Asia-Pacific region.
- Accounts for about 62 per cent of global GDP and almost half of global trade.
- **21 Member Countries:** Australia, Brunei, Hong Kong, New Zealand, Papua New Guinea, the Philippines, Indonesia, China, Japan, South Korea, Russia, Canada, United States, Mexico, Peru, Chile, Malaysia, Vietnam, Singapore, Thailand and Taiwan.
- India is **not a member of APEC,** presently it is an **Observer state.**
- **Membership Criteria:** Members must be an independent economic entity, rather than a sovereign state. (e.g. Hong Kong & Taiwan)
- Decisions made within APEC are based on consensus and are **not legally binding.**
- Hosting of APEC rotates each year among member economies.



(APEC Member Countries)

Do you Know?

- India attempted to join APEC in 1991, but was rejected by some members due to India's protectionist instincts and economic reform record. India has been vouching for its membership since then.
- Another reason for India not being included in the grouping was a membership freeze, which was in force since 1997
- **Benefits to India on joining APEC:** Promoting closer economic relations, facilitate trade and investment flows, reduce transaction costs, open market access to major economies, facilitate technology transfer.

World Intellectual Property Indicators Report 2024

Syllabus Mapping: Global Reports

Context

World Intellectual Property Organization (WIPO) has published the World Intellectual Property Indicators (WIPI) 2024.

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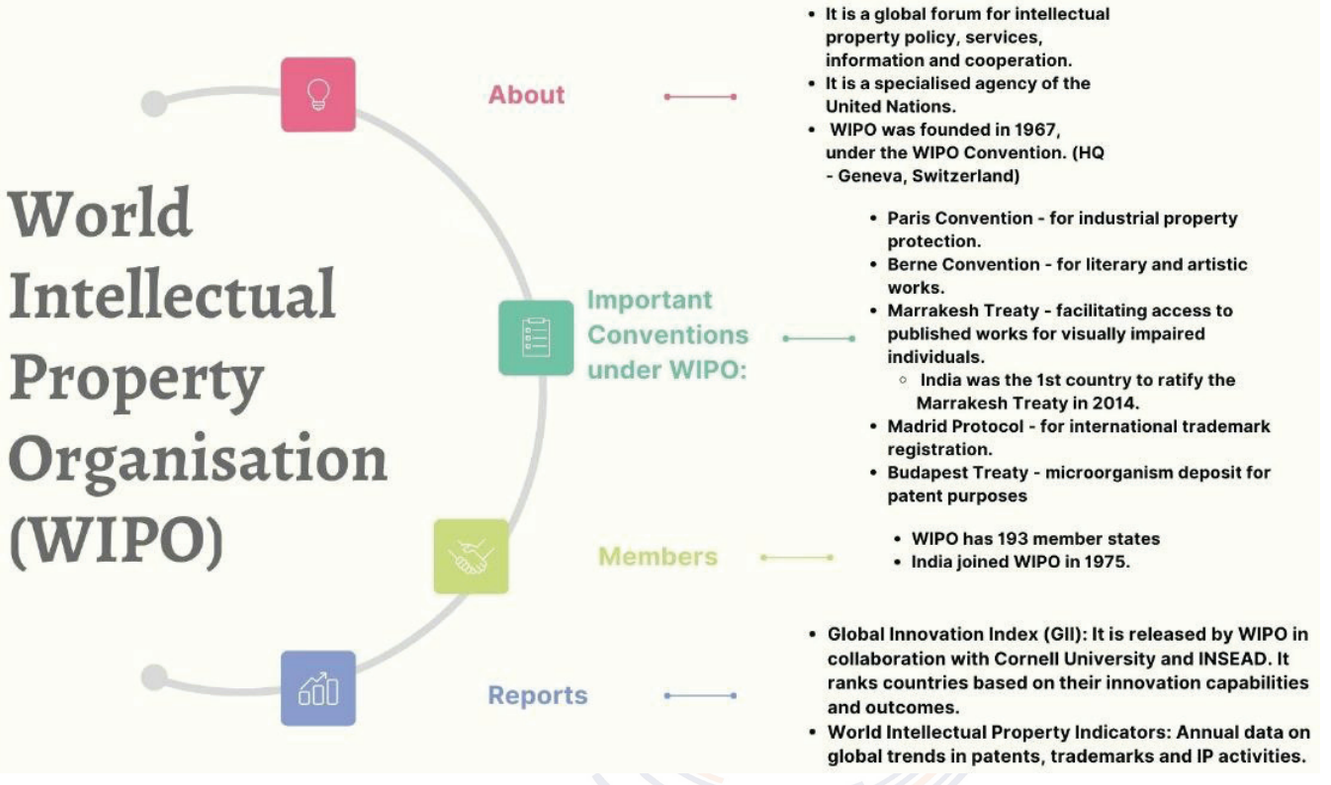
Key Insights of WIPO World Intellectual Property Indicators 2024

- **India's Position in Global IP Filings:** India has earned a place in **global top 10** for all major **Intellectual Property (IP)** categories—patents, trademarks and industrial designs.
- **Patent Growth:** India recorded the highest growth rate among the top 20 origins with a 15.7% increase in patent applications in 2023.
- **Industrial Design Filings:** India recorded a 36.4% increase in industrial design applications.
- **Trademark Filings:** India ranked fourth globally in trademark applications, with a 6.1% increase in 2023 filings.
- **Global Registration Strength:** India's trademark office held over 3.2 million active registrations, positioning it as the **second-largest trademark holder worldwide.**
- **Patent-to-GDP Ratio:** India's patent-to-GDP ratio has increased from 144 to 381 over the past decade.



Revised Nuclear Doctrine of Russia

Syllabus Mapping: Nuclear Doctrine

Context

Recently, Russian President Vladimir Putin signed a revised nuclear doctrine marking a significant shift in Russia's nuclear deterrence policy.

Key Provisions of the Revised Doctrine

- **Response to Conventional Attacks with Nuclear Support**: A conventional attack on Russia by any nation, if supported by a nuclear power, will be treated as a joint attack on Russia.
- **Russia reserves the right to use nuclear weapons in the following scenarios**
  - In response to a nuclear strike.
  - If a conventional attack poses a critical threat to Russia's sovereignty or territorial integrity or that of its ally, Belarus.
  - A massive aerial attack involving ballistic missiles, cruise missiles, drones or other flying systems could also justify a nuclear response.
- **Aggression from Military Alliances:** An attack on Russia by a member of a military alliance (e.g., NATO) will be interpreted as an attack by the entire alliance.
- **Uncertainty in Application:** The doctrine intentionally leaves the scale, timing and location of potential nuclear responses ambiguous to maintain strategic deterrence.

Reason for change in the nuclear Doctrine:

- Protecting the Russian interest in case of western support to the Ukraine war
- Lowering the threshold of using nuclear weapons in the war.

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- Increase the Nuclear deterrence against Russia.

India's Nuclear Doctrine

It is a set of principles and views that guide how India will use its nuclear weapons. It was established in **2003.**

Key Features of India's Nuclear Doctrine

- **Doctrine of No-First Use:** India will not use nuclear weapons unless **it is first attacked by nuclear means.**
- **Minimum Credible Deterrence:** India will maintain a sufficient nuclear capability to deter adversaries without engaging in an arms race.
- **Massive Assured Damage:** Nuclear retaliation to a first strike will be massive and designed to inflict unacceptable damage.
- Non-use of nuclear weapons against non-nuclear weapon states.
- India will strictly control the export of nuclear and missile-related materials and technologies.
- India will continue to support global efforts to create a nuclear-free world.
- **Civilian Control over Nuclear Weapons: Nuclear Command Authority (NCA)** will authorise nuclear retaliatory attacks. NCA is made up of **two** councils:
  - **Political Council:** Chaired by the Prime Minister (only body that can authorise the use of nuclear weapons).
  - **Executive Council:** Chaired by the National Security Advisor, it advises NCA and carries out orders from the Political Council.

Second India-CARICOM Summit

Syllabus Mapping: Regional Groupings

Context

Prime Minster of India co-chaired the 2nd India-CARICOM Summit, along with PM Dickon Mitchell of Grenada, the current chair of CARICOM.

About Second India-CARICOM Summit

- During the summit, Prime Minister Modi proposed **7 key pillars to strengthen ties between India and CARICOM.** Seven pillars listed by Modi also form the acronym **C-A-R-I-C-O-M**. They are
  - Capacity Building
  - Agriculture and Food Security
  - Renewable Energy and Climate Change
  - Innovation, Technology and Trade
  - Cricket and Culture
  - Ocean Economy and
  - Medicine and Healthcare.
- First CARICOM-India Summit took place in **2019** on the sidelines of the 74th Session of the United Nations General Assembly (UNGA).

Caribbean Community (CARICOM)

- A **political and economic union** of 15 member states and 6 associate members in the Caribbean, Atlantic Ocean and Americas.

- **Established:** through **The Treaty of Chaguaramas in 1973.**
- **Member states:** Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname and Trinidad and Tobago.
- **Headquarters:** Georgetown, Guyana
- **Chairmanship: Rotated every 6 months** among the member countries' Heads.
- **Main Goals:** Promote economic integration and cooperation, Ensure equitable sharing of the benefits of integration and Coordinate foreign policy.

ICC issues arrest warrants against Netanyahu, Gallant, Hamas leaders

Syllabus Mapping: International Organisation

Context

The International Criminal Court has issued arrest warrants for Israeli Prime Minister Benjamin Netanyahu, his former Defence Minister Yoav Gallant and Hamas officials, accusing them of war crimes and crimes against humanity.

About International Criminal Court (ICC)

- Permanent judicial institution **established in 2002** under the **Rome Statute of 1998.**
- **Headquarter: Hague, Netherlands.**
- **Mandate:** To investigate, prosecute, and adjudicate individuals accused of committing genocide, war crimes, crimes against humanity and the crime of aggression.

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- **Members:** 123 (Important **non-member** countries: **India, US, China & Russia)**
- **Composition:** It has **18** judges, each from a different member country, elected for a **nine-year term**.
- ICC **can only hear a case if either** the country where the crime was committed or the perpetrator's country of origin is a party to the Rome Statute.
- After issuing **an arrest warrant ICC relies on countries to make arrests and transfer suspects to the ICC**.
- Unlike the International Court of Justice (ICJ) it is **not an organ of the United Nations.**

Difference between ICC & ICJ

Parameter	ICC (International Criminal Court)	ICJ (International Court of Justice)
Establishment & HQ	2002, Hague (Netherlands)	1946, Hague (Netherlands)
UN Relation	Independent- may receive case referrals from UN Security Council	Official court of the UN, known as the World Court
Case types	Criminal prosecution of individuals	Contentious between parties, and advisory opinions
Subject matter	Genocide, crimes against humanity, war crimes, crimes of aggression	Maritime disputes, sovereignty, natural resources, trade, treaty violations and treaty interpretations, human rights, etc.
Funding	Contributions from parties to Rome Statute, voluntary contributions from UN, governments, corporations, organisations, etc.	UN

Global Alliance Against Hunger and Poverty & Global Energy Efficiency Alliance

Syllabus Mapping: Global Initiative

Context

Two new alliances were launched at COP 29 held in Baku namely Global alliance against Hunger & Poverty and Global Energy Efficiency Alliance.

About Global Alliance Against Hunger and Poverty

- The alliance aims to eradicate hunger and poverty by 2030, aligning with the Sustainable Development Goals (SDGs).
- **Members:** 81 countries (including India), 26 international organisations, 9 financial institutions, and 31 philanthropic foundations and NGOs have already joined the Alliance.
- **Key Pillars of the Alliance**
  - **National:** Coordination of public policies specific to eradicating hunger.
  - **Knowledge:** Integration of data and technologies for evidence-based solutions.
  - **Financial:** Large-scale resource mobilisation to fund programs.

Global Energy Efficiency Alliance (GEEA)

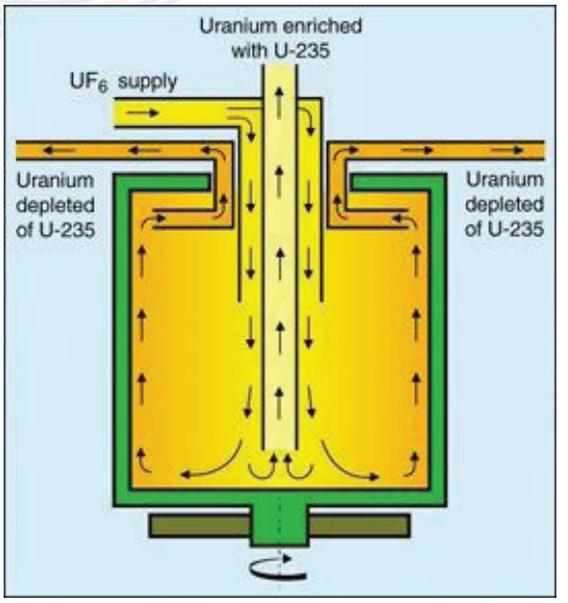
- It is an international initiative launched **at COP29 in 2024 by the UAE.**
- **Aim:** Significantly advance global energy efficiency and tackle climate change by **doubling the annual global energy efficiency rate by 2030.**

Iran to launch 'advance centrifuge' in response to IAEA censure

Syllabus Mapping: Nuclear Proliferation

Context

In response a censure motion was passed by the International Atomic Energy Agency (IAEA) Board of Governors against it, Iran plans to install new and advanced centrifuges.



About Centrifuges

- Centrifuges are the machines that enrich uranium transformed into gas by rotating it at very high speed, increasing the proportion of fissile isotope material (U-235).
- Centrifuge rotors are made from strong, lightweight materials like carbon fibre, aluminium or maraging steel.
- Output of a centrifuge is measured in SWU per year, which reflects the effort needed to separate the two uranium isotopes.

About International Atomic Energy Agency (IAEA)

- It is an **autonomous international organisation (established in 1957)** within the **United Nations system.**
- **Member States: 175 (**India has been a member since its inception.)
- **Headquarters**: Vienna, Austria.
- **Function of IAEA:**
  - Promote safe, secure and peaceful use of nuclear energy
  - Assists its Member States and promotes the exchange of scientific and technical information between them
  - Setting framework for cooperative efforts to build and strengthen an international nuclear safety and security regime.
  - Verify States' fulfilment of their non-proliferation undertakings under the NPT.

IAEA and NPT

- The IAEA is not a party to the NPT but is entrusted with a key verification role under it.
- Under the NPT, the IAEA has a specific role as the international safeguards inspectorate.
- The IAEA serves also as a multilateral channel for transferring peaceful applications of nuclear technology

Non-Proliferation of Nuclear Weapons Treaty (NPT)

- **Adoption:** Adopted in 1968 at United Nations, New York, USA. The treaty entered into force in 1970.
- **Aim of Non-Proliferation of Nuclear Weapons Treaty (NPT)**
  - To prevent the spread of nuclear weapons and weapons technology
  - To foster the peaceful uses of nuclear energy
  - To further the goal of disarmament.
- **Segregation of members into Nuclear and Non-nuclear States:** The treaty segregates the member States into two types as follows:
- **Nuclear States:**
  - **Definition:** States, who manufactured and exploded a nuclear weapon or other nuclear explosive device before 1 January 1967.
  - There are five nuclear-weapon States parties to the Treaty namely – US, UK, France, Russia and China have signed the treaty.
  - **Obligation:** They committed not to in any way assist, encourage or induce any non-nuclear-weapon State to manufacture or acquire nuclear weapons.
- **Non-nuclear states:**
  - These are member States parties who have committed themselves not to manufacture or otherwise acquire nuclear weapons.

India and NPT

- India is not a signatory to the NPT.
- India considers the NPT as discriminatory as it segregates the member states into nuclear and non-nuclear states and restrict the non-nuclear states to acquire the nuclear weapon. Instead India advocates for universal nuclear disarmament.

Fossil Fuel Non-Proliferation Treaty (FF-NPT)

- It is a **global initiative** that aims to address climate change by targeting the supply side of fossil fuels—coal, oil, and gas through international cooperation.
- The treaty proposes to make it **legally binding** on nations to end fossil fuel extraction, wind down existing production, and manage a just transition to renewable energy.
- Conceptualised in 2016 and officially launched in 2019.
- Inspired by treaties on nuclear non-proliferation and other disarmament efforts.
- It is backed by **13 Small Island Developing States like Vanuatu, Tuvalu, Tonga, Fiji and the Solomon Islands** who are least responsible for global warming but are most vulnerable to its impact.

Canada ends Student Direct Stream

Syllabus Mapping: Policies of the developed Nation

Context

Canada recently announced the end of the Student Direct Stream (SDS) which had fast-tracked study permit processing for international students, benefiting a large number of Indian applicants

About Student Direct Stream (SDS)

- SDS was launched in **2018** to provide faster processing for eligible post-secondary students from 14 countries, including India.
- To qualify for SDS, students had to meet criteria like obtaining a **Guaranteed Investment Certificate (GIC)** for proof of funds.
- In **2023**, **60% of the 400,000** Indian students who sought Canadian study permits used the SDS route.
- India remains largest source of international students in Canada, with **427,000 Indian students** currently studying there.

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India's first private facility for Military Aircraft Production

Syllabus Mapping: Armed Forces, Defence Technology

Context

Indian Prime Minister and Spain's Prime Minister Pedro Sanchez jointly inaugurated the Final Assembly Line (FAL) facility for the C295 tactical transport aircraft in Vadodara, Gujarat.

Key Highlights of the C295 Aircraft Project

- C295 aircraft will replace **IAF's Avro fleet** and enhance medium-lift tactical transport capability of the Indian Air Force (IAF).
  - Designed for tactical transport of up to 71 troops or 50 paratroopers and can operate from short, unprepared airstrips.
  - Supports medical evacuations (medevac), airdrop operations and can serve disaster response and maritime patrol roles.
- Vadodara facility is the first private military transport aircraft production plant in India and the first "Make in India" aerospace project in the private sector.
- The project is a collaborative effort between **Tata Advanced Systems Limited (TASL) and Airbus.**
- It is Airbus's first full production facility outside of Spain for the C295 aircraft.
- Vadodara facility will handle manufacture, assembly, testing, qualification and maintenance for the C295.
- **Project Specifications:** India has ordered **56 C295 aircraft:**
  - First 16 are being delivered directly from Airbus's Seville, Spain facility,
  - Remaining 40 will be manufactured and assembled in Vadodara.

Bomb Threats

Syllabus Mapping: Security

Context

In response to a recent wave of false bomb threats targeting Indian airline flights, authorities have implemented updated threat assessment protocols.

New Threat Assessment Protocols

- **Enhanced Criteria:** Threat assessment criteria now factor in the source of the threat, such as whether it originates from anonymous accounts threatening multiple flights and if VIPs are onboard.
- **Specific vs. Non-Specific Threats:** The new criteria allow for greater selectivity in classifying threats as "specific," thus minimising unnecessary disruptions.
- **Centralised Coordination:** Airport-specific Bomb Threat Assessment Committees (BTACs) now receive guidance from cyber experts and central authorities to make informed threat classifications.

Bomb Threat Assessment Committees (BTAC)

- As per the current practice, a BTAC is convened at a designated airport to analyse a bomb or security threat issued against an airline, airport or any part of the aviation ecosystem.
- BTAC comprises representatives from the Central Industrial Security Force (CISF), Bureau of Civil Aviation Security (BCAS), local police, the concerned airline, and airport operators.

About Bureau of Civil Aviation Security (BCAS)

- It was initially set up as a Cell in the DGCA in 1978 on the recommendation of the Pande Committee.
- Later it was reorganised into an independent department under the Ministry of Civil Aviation in 1987.
- Lays down standards & measures with respect to the security of civil flights at international and domestic airports in India.

Chicago Convention-1944

- Chicago Convention (also known as the Convention on International Civil Aviation), established the **International Civil Aviation Organisation (ICAO),** a specialised agency of the United Nations charged with coordinating and regulating international air travel.
- It establishes rules for air travel, including airspace, aircraft registration and safety.
- It **exempts air fuels in transit from taxation**.

SIMBEX & AUSTRAHIND

Syllabus Mapping: Defence exercises, armed forces

Context

The 31st edition of Singapore India Maritime Bilateral Exercise (SIMBEX) and third edition of India-Australia military exercises took place recently.

About SIMBEX

- It is an annual naval exercise between the Indian Navy and the Republic of Singapore Navy (RSN).
- It started in **1994.**

About AUSTRAHIND

- Third edition of joint military **Exercise AUSTRAHIND** commenced at Foreign Training Node, Pune in Maharashtra.
- It is a joint military exercise held annually between India and Australia.

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- Conducted alternatively in India and Australia. Last edition was conducted in Australia in December 2023.

List of Exercises by Indian Armed Forces

Exercise	Countries Involved	Type of Exercise
Malabar	India, US, Japan, Australia	Naval
Yudh Abhyas	India - United States	Army
Garuda Shakti	India - Indonesia	Army
Shakti	India - France	Army
Varuna	India - France	Naval
Mitra Shakti	India - Sri Lanka	Army
Harimau Shakti	India - Malaysia	Army
Indra	India - Russia	Tri-service (Army, Navy, Air Force)
Sampriti	India - Bangladesh	Army
Surya Kiran	India - Nepal	Army
Al-Nagah	India - Oman	Army
Ekuverin	India - Maldives	Army
Dharma Guardian	India - Japan	Army

Autonomous Surface Vessel

Syllabus Mapping: Armed Forces, Defence Technology

Context

An autonomous surface vessel built by Sagar Defence Engineering has completed a 1,500-km voyage from Mumbai to Thoothukudi without human intervention. It is supported by the Indian Navy's Naval Innovation and Indigenisation Organisation.

About Autonomous Surface Vessel (ASVs)

- ASVs are unmanned vessels capable of operating independently or with minimal human intervention.
- These ships use advanced technologies like sensors, artificial intelligence (AI), and self-learning systems to navigate safely, steer clear of obstacles, chart routes, and carry out other important functions.

Naval Innovation and Indigenisation Organisation (NIIO)

- It was established by the Indian Navy in 2020.
- Aims to streamline the development and deployment of advanced indigenous technologies, equipment and systems, reducing dependence on foreign imports for critical defence needs.
- **Vice Chief of Naval Staff (VCNS)** heads NIIO.

Pinaka multi-barrel rocket launch (MBRL) system

Syllabus Mapping: Armed Forces, Defence Technology

Context

France is considering India's Pinaka multi-barrel rocket launcher system as part of its military upgrade.

About Pinaka multi-barrel rocket launch (MBRL) system

- **Developed by:** Armament Research and Development Establishment (ARDE), a DRDO laboratory. (First used during Kargil War)
- **Launch Capacity:** Can fire a salvo of **12 rockets within 44 seconds**.
- **Payload:** Each rocket can carry a payload of around 100 kg, with various warhead options including high explosives and anti-tank mines.
- **Variants of Pinaka:**
  - **Pinaka Mk-I:** Initial version with a range of 40 km.
  - **Pinaka Mk-I Enhanced**: Range up to 60 km.
  - **Pinaka Mk-II:** Range upto 90 km.
  - **Pinaka Mk-III:** Currently under development, expected to reach up to 120 km
- Presently, Indian Army has four Pinaka regiments in service and six more are on order.
- **Armenia** became the first export customer for the indigenously developed Pinaka

Defense Research and Development Organisation (DRDO)

- India's largest **Research and Development (R&D) agency** which develops technologies and systems for the Indian Armed Forces.
- **Formation:** 1958 (HQ- New Delhi)
- **Major Achievements:**
  - **Light Combat Aircraft (LCA):** Tejas
  - **Missiles**: Agni, Prithvi, Nag, BrahMos, trishul etc.
  - Laser-Guided Anti-Tank Guided Missiles (ATGM), Lightweight Bullet Proof Jackets etc.

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First Ever Space Exercise 'Antariksha Abhyas – 2024

Syllabus Mapping: Armed Forces, Defence Technology

Context

First Ever Space Exercise 'Antariksha Abhyas – 2024' hosted by **Defence Space Agency** starts in New Delhi.

About Antariksha Abhyas

- **India's first space war-game exercise,** designed to simulate and address the growing threats to and from space-based assets.
- **Organised by:** Defence Space Agency, under Headquarters Integrated Defence Staff
- **Objectives:**
  - Secure India's strategic interests in space.
  - Understand dependencies on space-based assets.
  - Identify vulnerabilities in space operations.

Defence Space Agency (DSA)

- It is a tri-service agency of the Indian Armed Forces that operates India's space-warfare and satellite intelligence assets. **(HQ - Bengaluru, Karnataka)**
- **Purpose:** Help India build offensive capabilities in space warfare.
- DSA draws personnel from **all three branches of the Armed Forces.**
- Works in coordination with the **Defence Space Research Agency (DSRA),** which provides research and development support.

DRDO carries out maiden test of Long Range Cruise Missile

Syllabus Mapping: Armed Forces, Defence Technology

Context

DRDO successfully tested a new Long Range Land Attack Cruise Missile with a 1,000 km range from Odisha's coast.

About Long Range Land Attack Cruise Missile (LRLACM)

- LRLACM is a completely indigenous project.
- Developed by DRDO's Aeronautical Development Establishment (ADE).
- Designed to be launched from both **mobile ground-based systems and ships,** using a universal vertical launch module.
- **Other Examples of LRLACM:** Tomahawk (USA) and Kalibr (Russia)

Difference Between Cruise And Ballistic Missiles

Aspect	Cruise Missile	Ballistic Missile
Flight Path	Low-level, terrain-hugging, within the atmosphere	High arcing, parabolic trajectory, exits and re-enters atmosphere
Propulsion	Jet engine, sustained propulsion throughout flight	Rocket boosters, propelled initially, coasts without propulsion mid-flight
Guidance Systems	Advanced guidance with GPS, inertial, TERCOM or image-based systems	Inertial, sometimes with star sighting or GPS, terminal phase guidance
Speed and Altitude	Generally subsonic or supersonic, flies at lower altitudes	Hypersonic speeds, reaches extremely high altitudes
Defensive Countermeasures	Hard to detect due to low altitude and potential for stealth technology	Easier to detect at launch, difficult interception due to speed and trajectory
Purpose and Use	Precision strikes against specific targets requiring controlled flight paths	Delivery of strategic payloads, including nuclear, across continents
Examples (India)	BrahMos, Nirbhay	Prithvi I, Prithvi II, Agni I, Agni II and Dhanush missiles.

India conducts 'historic' flight test of hypersonic missile with a range of 1,500 km

Syllabus Mapping: Armed Forces, Defence Technology

Context

Defence Research and Development Organisation (DRDO) conducted a successful flight-trial of India's first long-range hypersonic missile from APJ Abdul Kalam Island off the coast of Odisha. This missile has been **indigenously developed** by DRDO.

About Hypersonic Missiles

- Hypersonic missiles are advanced weapon systems capable of travelling at speeds exceeding Mach 5 (five times the speed of sound, approximately 6,125 km/h).

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- **Key Characteristics:**
  - **Speed:** Hypersonic missiles travel at speeds of Mach 5 or higher, enabling them to cover vast distances in a fraction of the time compared to traditional missiles.
  - **Manoeuvrability:** Unlike ballistic missiles, which follow a predictable arc, hypersonic missiles can manoeuvre during flight, making them challenging to detect and intercept.
  - **Trajectory:** They fly within the atmosphere (at altitudes of 20-100 km), avoiding traditional ballistic arcs and complicating radar tracking.
- **Types of Hypersonic Missiles:**
  - **Hypersonic Glide Vehicles (HGVs):** HGVs are launched by rockets and glide to their targets at hypersonic speeds.
  - **Hypersonic Cruise Missiles:** They are powered by **scramjes**sonic speeds throughout their flight.

Mach Number

Ratio of the speed of an object to the speed of sound in the same medium is called the Mach number.

- **Mach ≈ 1:** Transonic
- **Mach > 1:** Subsonic
- **Mach 1 - 5:** Supersonic
- **Mach < 6**: Hypersonic

News in Shorts

1st all-women CISF battalion

- The Union Home Ministry has approved the establishment of the **first all-women battalion in the Central Industrial Security Force (CISF).**
- CISF was established in **1969** under an Act of the Parliament of India. Later it made an **armed force of the Republic of India in 1983.**
- It guards India's most critical infrastructure facilities like nuclear installations, space establishments, airports, seaports, power plants etc.
- CISF also offers security consultancy services to private entities.

Exercise Sea Vigil

- It is a National Level **Coastal Defence Exercise conducted by the Indian Navy** which will cover India's entire 11,098 km coastline and a vast EEZ of 2.4 million sq km.
- It is the **fourth edition** following the initial exercise held in 2018.

Exercise Poorvi Prahar

- It is a joint effort of the **Indian Army, Navy and Air Force** to improve combat effectiveness for Integrated Joint Operations in challenging mountainous terrain.
- The exercise is conducted in the forward areas of **Arunachal Pradesh**.

Bharat National Cyber Security Exercise (Bharat NCX) 2024

- It is a 12-day national-level cybersecurity exercise aimed at strengthening India's cybersecurity resilience.
- **Organised by:** National Security Council Secretariat (NSCS) in collaboration with Rashtriya Raksha University (RRU).
- **Objectives:**
  - Train cybersecurity professionals in advanced defence, incident response, and decision-making.
  - Prepare leadership to handle national-level cyber crises.

Army Tactical Missile System (ATACMS)

- Recently the Ukrainian Military has used US made ATACMS missiles to strike into Russia for the first time.
- It is a **surface-to-surface ballistic missile** manufactured by **Lockheed Martin.**
- **Features:**
  - It is equipped with **Ground Positioning System (GPS) & Inertial Guidance**
  - **Technology** for precise targeting.
  - It can strike targets up to 305 km (190 miles) away.
  - **Launched from** the High Mobility Artillery Rocket System (HIMARS) and the M270 Multiple Launch Rocket System (MLRS).
  - It is capable of deploying **cluster munitions,** which scatter multiple bomblets over a target area instead of delivering a single warhead.

Russia launched an ICBM for the first time: Ukraine

- Ukraine has claimed that Russia has used **Intercontinental Ballistic Missiles (ICBM)** in its recent attacks.
- **ICBM** is a **long-range ballistic missile system** primarily designed for nuclear weapons delivery.
  - It has a range greater than **5,500 kilometres and up to 16,000 kilometres.**
  - **Countries having operational ICBM:** Russia, United States, China, France, India, United Kingdom, Israel and North Korea.
  - **Agni V** is India's solid-fuelled ICBM. It has a strike range of 7,000-10,000 km.

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SOCIETY, SOCIAL JUSTICE & SCHEMES

TOPICS FOR MAINS

Two Child Rule repealed in Andhra Pradesh

Syllabus Mapping: GS-Paper 1, Population Issues

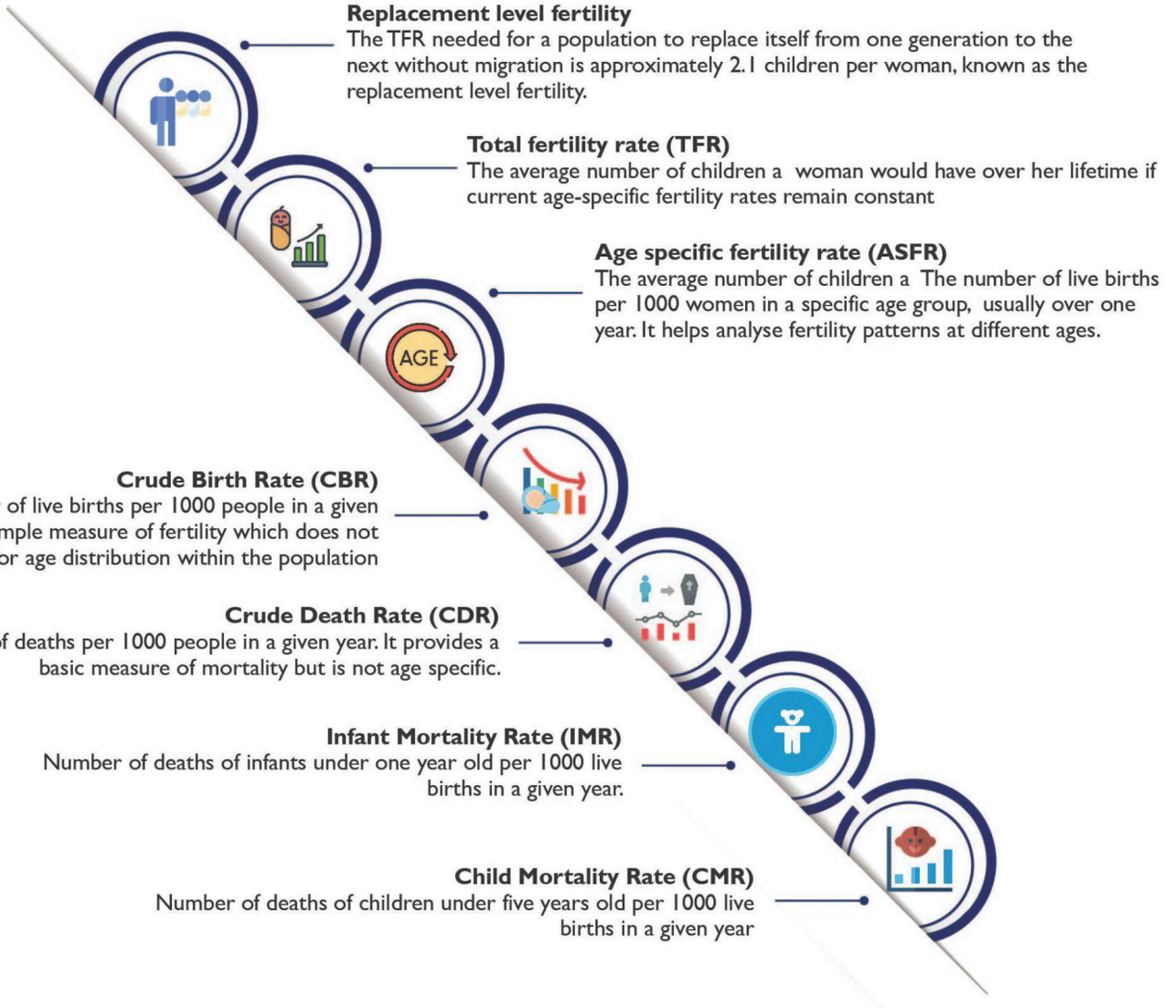
Context

The Andhra Pradesh government has repealed the three-decade-old **"two-child rule"** that barred individuals with more than two children from contesting local body polls. The rollback reflects the state's concern over its **ageing population** and its intent to incentivize larger families.

Why Was the Policy Introduced?

- To control population growth based on data from the 1981 and 1991 census, which showed India's population growth as unsustainable.
- Recommended by the **National Development Council** aimed at discouraging large families to regulate population.
- Introduced across many states like Maharashtra, Gujarat, Chhattisgarh, Madhya Pradesh, and Haryana between 1993 and 2005.

Important demographic indicators



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Why Was the Policy Rolled Back?

- **Ageing Population Concerns**: With India's **Total Fertility Rate (TFR)** already falling below the replacement level in most states (TFR < 2.1), policymakers are concerned about **negative population growth** in the long term. India's TFR dropped to 1.9 according to NFHS-5, suggesting plateauing of population growth.
  - **Regional divide:** Kerala and Tamil Nadu are projected to have around 22.8% and 20.8% elderly populations by 2036. States like Bihar, still have relatively high fertility rates.
  - **Underrepresentation:** The differing growth rates between states could affect federal representation and resource allocation
  - **Eg**: The national TFR is 2.1, Andhra Pradesh's TFR is **only 1.5**, signalling a decline in the working-age population.
- **Population Growth Momentum:** Despite the declining TFR, India's population will continue to grow until around 2070 due to population momentum, where a large cohort of women entering reproductive age contributes to ongoing population growth.
- **Socio-Economic Impact**: Policies like these led to unintended consequences, including skewed **sex ratios** and a decline in **child rights**.
  - The **sex ratio at birth (SRB)** fell to **880 girls per 1,000 boys** between 2003 and 2005 in some areas, raising alarms over demographic imbalance.
- **Policy Realignment**: Andhra Pradesh, following states like Chhattisgarh, Haryana, and Himachal Pradesh, decided to abolish the rule to align population goals with changing realities.
  - The **National Population Policy (2000)** called for a **free approach** to reproductive health instead of coercive measures.
- **Impact on Economic Growth:** Currently, Approximately three-fourths of India's population falls within the working-age group. However, projections indicate that within 10 years, the proportion of working-age individuals will begin to decline.

Middle-Income Trap Threat

- Rapid decrease in TFR challenges traditional assumptions linking lower birth rates to high income and educational improvements.
- With the demographic dividend not fully leveraged due to many individuals remaining trapped in low-productivity agricultural jobs or are unemployed while preparing for competitive exams. This risks India falling into the middle-income trap.
- India's labour force participation rate (LFPR) in urban areas stands at just 50%.
- For comparison, China, after three decades of liberalisation, reduced its workforce in agriculture by 32 percentage points, from 70% to 38%, whereas India's reduction has been only 17 points, from 63% to 46%.

About Natalism/ Pro-Natalism

Natalism (pronatalism or pro-birth position) is a policy paradigm or personal value that promotes the reproduction of human life as an important objective of humanity and therefore advocates high birthrate. Pro-natalist policies are policies which are designed with the purpose of increasing the birth rate/fertility rate of an area.

Are Pro-Natalist Policies the Solution?

Arguments in favour of Natalism	Arguments Against Natalism
Addressing Workforce Shortages: As the population ages, there will be a smaller workforce to support the economy and provide services, including healthcare and eldercare.	**High Economic and Social Cost:** High living costs, inadequate housing, and expensive childcare dissuade young couples from having larger families. **For women,** career interruptions due to child-rearing responsibilities further add to the opportunity cost.
Balancing Regional Demographics: Encouraging higher birth rates in states with slower population growth, like Tamil Nadu and Kerala, could potentially balance demographic trends across India. Avoids the burden on certain states to support an ageing population.	**Ineffectiveness of Incentives:** Countries with pro-natalist policies, like Hungary and Poland, offer cash incentives, extended maternity/ paternity leave, and tax breaks. However, such measures have **shown limited success as they do not address issues** such as work-life balance, affordable childcare, and job security for parents.

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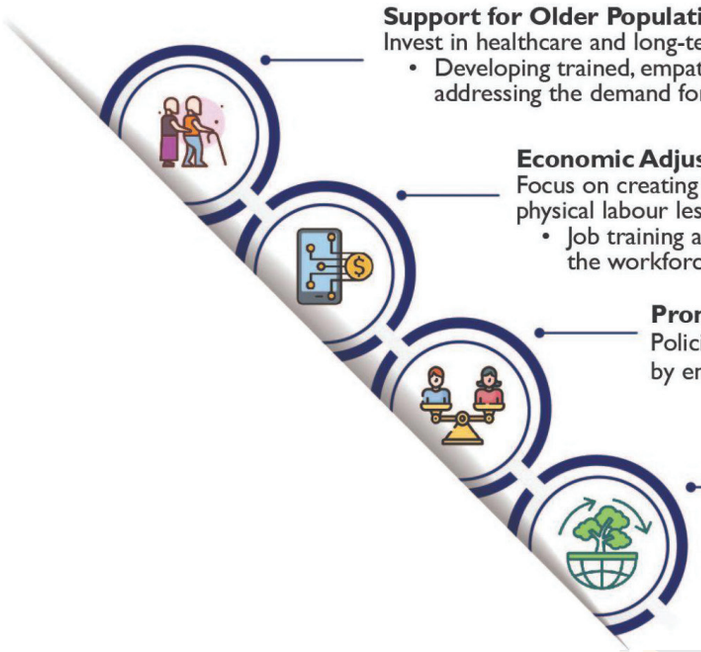
Alternative Approaches



Support for Older Population:
Invest in healthcare and long-term care services tailored to the needs of an ageing population.
- Developing trained, empathetic care workers can also help create job opportunities while addressing the demand for eldercare.

Economic Adjustments and Technology:
Focus on creating jobs suitable for older workers, as technological advances make physical labour less crucial.
- Job training and reskilling programs can help older individuals remain active in the workforce.

Promoting Gender Equality in Work and Family
Policies should focus on reducing the opportunity cost of child-rearing by ensuring affordable childcare, flexible work arrangements.

Sustainable Development and Quality of Life
Rather than focusing solely on population numbers, policies could emphasise quality of life, environmental sustainability, and ensuring a balanced work-life environment for families.

Unsafe Online Spaces For Women

Syllabus Mapping: GS-Paper 1, Women Issues

Context

Kamala Harris (a Democratic Party nominee in the 2024 U.S. presidential election) faced heavy online harassment as her campaign has been marred by a surge of **disinformation and AI-generated deepfakes** that have **targeted her character and integrity.**

Other instances

- **U.S. politician Nikki Haley** was in the running in the Republican primaries faced manipulated and explicit images of hers that were circulated online.
- **Italian Prime Minister Giorgia Meloni** was featured in a deepfake and explicit video.
- In **Bangladesh**, deepfake images of women politicians **Rumin Farhana and Nipun Roy** were on social media just before the Bangladesh general election on January 7, 2024.

Associated challenges

- **Gendered Nature of Abuse**: While male leaders are occasionally targeted with misinformation about their policies, **women leaders are objectified and face body-shaming and sexually explicit attacks.**
- **Illusion of Empowerment**: Although technology is celebrated for empowering women, AI and digital platforms often reflect societal biases.
  - **Artificial Intelligence** is largely developed by male-dominated teams, **lacks inclusivity** and **may reinforce existing stereotypes and prejudices** rather than challenge them, exacerbating risks of digital abuse against women.
- **Safe Harbour Protection: Big tech companies often evade accountability** by claiming that their platforms merely reflect **user-generated content.**
  - **Concept**: Legal provisions that shield these platforms from liability for user content as long as they aren't directly involved in creating or promoting it.
- **Limiting Women's Participation**: For many women, digital harassment leads to reduced use of technology, with some families restricting women's device access, thus hindering their professional and public lives.

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Suggested measures

- **Enhanced Content Moderation:** Social media platforms should prioritise hiring diverse moderation teams to identify and remove harmful content swiftly.
- **Accountability Measures:** Tech companies must be held accountable for the spread of misinformation and deepfakes on their platforms.
  - **E.g.,** Giorgia Meloni exemplifies this approach by seeking €100,000 in damages for a deepfake that misrepresented her.
- **Increased Female Representation:** Encouraging more women to participate in tech development can help create more inclusive technologies.
- **Proactive Reporting Mechanisms:** Users should be empowered to report abusive content without facing additional burdens.

Changing Gender Attitudes

Syllabus Mapping: GS-Paper 1, Women Issues

Context

The **India Human Development Survey (IHDS)**, conducted by the University of Maryland and the National Council of Applied Economic Research, offers insights into changing social norms and economic participation among Indian women.

Key Findings from the IHDS Survey Waves (2011-12 and 2022-24)

- **Rising Educational Attainment and Delayed Marriage**
  - **Educational Achievement**: Education levels for young women aged 20-29 have significantly increased:
    - In 2011-12, **27%** of women had completed Class 12, with **12%** holding college degrees.
    - By 2022-24, **50%** had completed Class 12, and **26%** had a college degree, closing the gender gap in education.
  - **Marriage Trends**: Marriage age has been rising, with fewer young women marrying early:
    - In 2011-12, 76% of women in their 20s were married, whereas in 2022-24, this figure dropped to 66%.
- **Increasing Autonomy in Marriage Decisions**
  - **Choice in Partner Selection:** Young women's input in choosing marriage partners increased from 42% in 2012 to 52% in 2022.
  - **Premarital Interaction**: Premarital contact with future spouses has risen, reflecting changing norms:
    - In 2011, **30%** of young women had met their husbands before marriage, and **27%** had connected via phone, WhatsApp, or email.
    - By 2022, 42% met before marriage, and 54% had connected via technology.
- **Changing Social Norms and Gender Preferences**
  - **Son Preference Decline:** Fewer women now believe having more sons is essential, dropping from 23% in 2012 to 12% in 2022.
- **Expanding Social Engagement and Mobility**
  - **Comfort with Travel**: The proportion of women comfortable travelling short distances alone by bus or train increased from **42%** to **54%**.
  - **Self-Help Group Participation**: Membership in Self-Help Groups for women in their 20s grew from **10%** to **18%**.
  - **Political Involvement**: Slight increases were seen in political engagement, with **8%** of women attending local governance meetings in 2022, up from **6%** in 2012.

Persistent Stagnation in Economic Opportunities

Despite advances in autonomy and social participation, economic opportunities for women, specifically in wage labour, have stagnated:

- **Wage Labour Participation**: Among women aged 20-29, participation in wage labour fell from **18%** in 2012 to **14%** in 2022.
- **Interest in Employment**: Among married, unemployed women:
  - In 2011, **73%** expressed willingness to work if jobs were available, rising to **80%** in 2022.
  - **72%** of these women reported that their families would support them working if suitable jobs were available.

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- **MGNREGA Impact**: Programs like MGNREGA, which offers equal pay for men and women, saw a high uptake by women, surpassing male participation due to job accessibility and fair wages.

Empowerment Metrics: Improvements and Gaps

According to the IHDS, Indian women have experienced progress in three of four empowerment domains:

- **Personal Efficacy:** Increased educational attainment and delayed marriage reflect higher individual agency.
- **Intra-Household Power:** Rising input in marriage choices and reduced son preference indicate improved decision-making power.
- **Societal Engagement:** Higher mobility and political participation mark expanding societal involvement.

However, access to income-generating activities remains limited, underlining the need for policies that enable women to participate fully in the economic landscape.

UNICEF's State of the World's Children 2024 Report

Syllabus Mapping: GS-Paper I & 2, Vulnerable Sections, Children

Context

The UNICEF report highlights a critical planetary crisis affecting children globally, with nearly one billion children living in countries at high risk of climate and environmental hazards.

Climate Destabilisation and Environmental Hazards

- **Adverse Effects on Children:** Children are facing an increasingly hazardous environment, being particularly vulnerable to pollution and extreme weather conditions.
- **Health Risks:** Rising temperatures contribute to increased mosquito populations, leading to the spread of diseases such as malaria, dengue, and Zika.
  - Flooding can contaminate water supplies, resulting in waterborne diseases.
  - Extreme weather events can be traumatic for children causing mental health issues.
- **Food Insecurity:** Extreme weather events disrupt food production and access, heightening the risk of food insecurity among children.
  - Emotional toll includes feelings of anxiety stemming from climate-related disasters.

Educational Disruptions

- Since 2022, approximately 400 million students worldwide have experienced school closures due to extreme weather events. It violates child rights and learning outcomes.
- Climate hazards contribute to the displacement of children from their homes, exacerbating their vulnerabilities.

Demographic Shifts

- By the 2050s, the global child population is expected to stabilise at around 2.3 billion. However, this figure masks significant regional disparities:
- South Asia will continue to have a large child population alongside eastern and southern Africa, as well as western and central Africa.
- These regions face challenges in meeting children's basic needs while grappling with substantial climate risks and inadequate digital infrastructure.

Frontier Technologies

- The report discusses the potential benefits of frontier technologies such as artificial intelligence, neurotechnology, renewable energy advancements, and vaccine breakthroughs in improving childhood experiences.
- While digitalization can empower children, it also poses risks including exposure to online dangers like sexual exploitation and abuse.
- Over 95% of individuals in high-income countries have internet access compared to only about 26% in low-income countries.

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STEM Research Demands Revitalised Education

Syllabus Mapping: GS-Paper 2, Education

Context

Higher educational institutions in India are currently facing significant challenges that threaten the quality of education and the preparedness of graduates for the workforce.

Current Landscape of Higher Education

- **Expansion vs. Quality:** While private engineering colleges and newer Indian Institutes of Technology (IITs) have increased access to education, a majority of graduates lack essential skills required by industries.
  - This discrepancy raises alarms about the quality of students entering higher studies and workforce.
- **Statistics on Enrollment**: Premier institutes like IITs and National Institutes of Technology (NITs) admit only about 5% of undergraduate students in India.
  - **E.g.,** IIT Bhubaneswar accepts fewer than 60 students annually for its computer science program, whereas private institutions like KIIT University enroll over 2,000 students in the same field.
- **Industry Concerns:** Industries are struggling to find skilled professionals, exacerbated by a dwindling number of students pursuing higher education.
  - This situation is compounded by faculty shortages in institutions.

Root Causes of Quality Issues

- **Training Quality:** Quality of training in teaching institutions is often compromised as faculty members prioritise research output—such as papers and patents—over effective teaching practices.
  - This leads to a cycle where poor-quality graduates emerge.
  - As a consequence, this negatively impacts industry standards and research capabilities.
- **Predatory Research Practices:** The pressure to publish can drive faculty towards predatory conferences and journals.
  - This diverts the resources from improving pedagogy to generating low-quality research outputs.

Proposed Solutions

- **Separate Rankings for Teaching and Research Institutions:** Rank teaching institutions based on **teaching quality rather than research output** to reduce pressure on low-quality research production and improve pedagogy.
- **Shift Faculty Development:** Teaching institutions should prioritise faculty development programs, mentorship, and innovative course offerings.
  - Collaborations with research institutions can improve teaching methods.
  - Establishing a dedicated academic hierarchy for teaching roles could incentivize faculty to focus on pedagogy.
- **Establish Pedagogy-Focused Promotion Criteria:** Funding agencies could incentivize teaching quality through the establishment of pedagogy-focused centres of excellence and inter-institutional partnerships.
- **Joint Degree Agreements Between Institutions:** Research institutions could establish joint degree programs with teaching institutions.
  - Students could spend their final years at research institutions, earning a "**hyphenated degree**" and benefiting from high-quality training.
- **Faculty and Student Exchange Programs:** Increase collaborations and exchange programs between teaching and research institutions to enhance curriculum alignment and teaching quality, promoting skill transfer and resource sharing.

India's Nutraceutical Industry Poised for Global Growth with Supportive Initiatives

Syllabus Mapping: GS-Paper 2, Health

Context

The global nutraceutical market is currently estimated at approximately $400 billion, integrating aspects of food, pharmaceuticals, and biotechnology. Despite this significant market size, India's share remains under 2%. This limited participation is largely attributed to the absence of a clearly defined industry classification within Indian ministries, which hampers targeted support for the sector.

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About Neutraceticals

- The term "nutraceutical" consists of the words "nutrient" – a nourishing food component – and "pharmaceutical" – a medical drug.
- A nutraceutical is a food or food-related component that provides health benefits beyond basic nutrition. Nutraceuticals can be found in food or taken as dietary supplements.
- Neutraceticals are currently regulated by the FSSAI under the FSS (Health Supplements, Nutraceuticals, Food for Special Dietary Use, Food for Special Medical Purpose and Prebiotic and Probiotic Food) Regulations, 2022 ("Nutra Regulations, 2022").
- Despite claiming to possess medicinal value, the Neutraceticals are currently not regulated as 'drugs' by the CDSCO. However, the Ministry of Health & Family Welfare has cautioned that there is an increasing mis-selling of neutraceticals as medicines, which will result in them being regulated as 'drugs' by CDSCO.

India's Position in the Nutraceutical Sector

India is recognized as a key player in the nutraceutical industry due to several advantages:

- **Traditional Knowledge:** India boasts a rich heritage in health sciences, particularly through Ayurveda, which provides unique traditional knowledge applicable to nutraceuticals.
- **Agro Climatic Diversity:** The country has 52 agroclimatic zones, making it suitable for cultivating a wide range of medicinal plants.
- **Medicinal Plant Resources:** India is home to over 1,700 medicinal plants, including well-known varieties like curcumin, bacopa, and ashwagandha, which are awaiting modern scientific validation.
- **Pharmaceutical Expertise:** The Indian pharmaceutical sector has a strong foundation in formulation, which influences high-quality nutraceutical standards.
- **Startup Ecosystem:** A thriving startup environment has led to a growing number of successful nutraceutical companies that are driving sectoral growth.

Government and Institutional Initiatives Supporting Nutraceutical Growth

- **Nutraceutical Sector Task Force (TF):** Established in November 2021 by the Council of Scientific and Industrial Research (CSIR), this Task Force includes representatives from multiple ministries and industry stakeholders. such as:
  - Department of Commerce
  - Department of Pharmaceuticals
  - Food Safety and Standards Authority of India (FSSAI)
  - Ministry of AYUSH
  - Ministry of Food Processing
  - Chaired by India's Principal Scientific Adviser, the TF focuses on regulatory frameworks and policies to boost the nutraceutical sector.
  - It aims to create a **"Harmonized System of Nomenclature"** and align India with global standards.
- **Introduction of Harmonized System of Nomenclature (HSN) Codes:** India has developed its first-ever HSN codes for nutraceuticals to facilitate standardised trade practices and ease export procedures.
- **Production-Linked Incentive (PLI) Scheme:** For the first time, the nutraceutical industry is eligible for a **PLI scheme**. This incentive is designed to stimulate domestic production, making Indian nutraceuticals more competitive globally.
- **Nutraceutical Industry Panel under SHEFEXIL**
  - A dedicated industry panel was established under SHEFEXIL (Shellac & Forest Products Export Promotion Council), aiming to strengthen regulatory and export support for the sector.
- **Compliance and Export Incentives:** SHEFEXIL has recommended that nutraceuticals be classified as food products under FSSAI (Food Safety and Standards Authority of India) for regulatory clarity.
  - Additionally, nutraceutical exports now qualify for the **Remission of Duties and Taxes on Export Products (RoDTEP) Scheme**, which offsets export costs to boost competitiveness in the European market and beyond.
- **Infrastructure and Research Support:** India has prioritised infrastructure for innovation in nutraceuticals:

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  - **NIFTEM-Kundli, Centurion University, and AIC-CSIR-CCMB** have set up hubs focused on nutraceutical R&D.
  - In 2024, the **Kerala government launched the first government-backed Nutraceutical Centre of Excellence**, fostering cutting-edge research and development.
- **Global Engagement and Trade Promotion:** Through the Department of Commerce, India has showcased its nutraceutical products at global trade fairs, raising international awareness and building partnerships with foreign stakeholders.

Nationwide Digital Strike this Deepavali organised by women gig workers

Syllabus Mapping: GS-Paper 3, Employment

Context

On Diwali, women gig workers across India, led by the Gig and Platform Services Workers Union (GIPSWU), organised a digital strike labelled as "Black Diwali."

More in News

- The strike called attention to exploitative labour practices in the gig economy, particularly targeting the conditions faced by women gig workers. GIPSWU is India's first union **primarily dedicated to women gig workers**, aiming to unify gig workers and customers against the unfair practices of platform companies.

Facts about Gig Workers in India

- The current gig workforce in India is approximately 7.7 million, projected to grow to 23.5 million by 2029-30.
- Gig workers' contribute over 60% of India's GDP through informal work.

Demands of the Strikers

The union's demands include:

- Recognition of gig workers as employees of platform companies.
- Implementation of statutory minimum wages.
- Establishment of grievance redressal mechanisms for workers.
- Inclusion in social security schemes, such as provident funds, pension schemes, and maternity benefits.

Exploitation in the Gig Economy

- Gig workers highlighted that discounts offered by platform companies during **festive seasons often come at the expense of their wages**, resulting from exploitative working conditions.
  - Many gig workers reported earning as little as ₹100-150 per day, struggling with expenses like transportation and service products.
- The **digital gig economy mirrors traditional patriarchy by exploiting women's labour** under the guise of empowerment.
  - Digital platforms assign jobs like beauticians, cooks, and housekeepers, roles traditionally designated to women, reinforcing age-old gender roles.
- Job security for women hinges on **acceptance of "auto-assigned" jobs and ratings**.
  - Refusal to accept these often exploitative terms leads to the risk of being "illegally terminated."
- Women gig workers often face additional challenges, including harassment and violence while working in private residences.
  - The making campaigns like "**Beti Bachao Beti Padhao**" feel contradictory when so many women gig workers struggle under exploitative conditions.
- Despite **promises of flexible hours**, women gig workers face pressure to **meet unrealistic targets**.
  - The gig platforms' "freedom" narrative masks a system that **imposes heavy financial burdens** such as transportation costs, platform fees, and the need to buy service supplies.
- Many women **lack basic social security**, such as health benefits and minimum wage protections, leading to economic insecurity despite working long hours.

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Key Takeaways and Call to Action

- **Worker Rights as a Form of Nation-Building:** The gig workers contribute significantly to India's economy, and their exploitation undermines national progress.
- **Advocating for Legislative Change:** GIPSWU urges a shift from symbolic social security measures toward substantial legal protections for gig workers.
- **Message of Unity:** The article concludes by affirming the importance of organised, grassroots movements, and calls for continued solidarity among gig workers worldwide to bring lasting change in labour laws and practices.

TOPICS FOR PRELIMS

Child Adoption in India

Syllabus Mapping: Vulnerable Section, Children

Context

The Ministry of Women and Child Development along with Central Adoption Resource Authority has started an initiative to celebrate November as Adoption Awareness Month to raise awareness about the legal adoption process.

About Adoption Process

- Adoption is the formal process through which a child is permanently separated from their biological parents to become the lawful child of their adoptive parents.
- **Legislations that deal with the adoption of a child:**
  - The Hindu Adoption and Maintenance Act, 1956 (HAMA)
  - The Juvenile Justice (Care and Protection of Children) Act, 2015
- **Stakeholders Involved:**
  - **CARA:** Oversees the adoption process and issues guidelines.
  - **SARA:** State-level nodal body for adoption and non-institutional care.
  - **SAA:** Specialised Adoption Agencies place children for adoption.
  - **AFAA:** Authorised Foreign Adoption Agencies facilitate international adoptions.
  - **DCPU:** District Child Protection Units identify children eligible for adoption.

About Central Adoption Resource Authority (CARA)

- It is a **statutory body** established under the Juvenile Justice (Care and Protection of Children) Act, 2015.
- **Nodal Ministry:** Union Ministry of Women & Child Development.
- It deals with adoption of orphan, abandoned and surrendered children through its associated/recognised adoption agencies.
- CARA is designated as the Central Authority to deal with inter-country adoptions in accordance with the provisions of the **Hague Convention on Inter-country Adoption, 1993.**
- A database of children and registration of prospective parents is done on a **centralised Child Adoption Resource Information and Guidance System (CARINGS),** which is maintained by CARA.

Decline in Out-of-Pocket Expenditure in Health in India

Syllabus Mapping: Health

Context

Recently released National Health Accounts (NHA) data for 2021-22 showed a reduction in Out-of-Pocket Expenditure (OOPE).

About OOPE and its Trends

- OOPE refers to the money people pay directly from their own pockets for medical services, such as doctor visits, medicines and hospital stays.
- It excludes those expenses covered by public or private insurance or social protection schemes.
- Between 2014-2022, the **share of Out of Pocket Expenditure (OOPE)** in the Total Health Expenditure **has declined** from 62.6% to 39.4%.

Reasons for decline in Out-of-Pocket Expenditure

- **Increased Government Health Expenditure (GHE):** Between 2014-15 and 2021-22, the government's share of health expenditure grew from **1.13% to 1.84% of GDP. (Target - 2.5% of GDP by 2025)**
- **Expansion of Social Security Expenditure (SSE):** SSE on healthcare, including government-funded health insurance and social health programs, has increased from 5.7% of Total Health Expenditure (THE) in 2014-15 to 8.7% in 2021-22.
- **Growth of Government-Funded Insurance Schemes:** Programs like Ayushman Bharat, along with various state-level health insurance schemes, have provided insurance coverage to economically vulnerable populations.
- **Focus on Public Health Infrastructure and Workforce:** Increased investment in healthcare infrastructure and workforce development, especially in

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underserved areas has improved service availability and affordability.

- **Targeted Programs for Non-Communicable Diseases (NCDs):** Government programs to manage and prevent NCDs reduced the financial burden on patients.

Expansion of PMJAY

Syllabus Mapping: Schemes, Health

Context

The Prime Minister has launched the expanded Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) scheme.

About Pradhan Mantri Jan Arogya Yojana (PM-JAY)

- It is a health insurance scheme in India that provides coverage for secondary and tertiary care hospitalisation. It is also known as **Ayushman Bharat**.
- **Launched:** In 2018 **(Centrally Sponsored Scheme)**
- **Expansion:** The scheme was expanded to include citizens over **70 years** of age, regardless of their socio-economic status.
  - Eligible senior citizens, who belong to families already covered under AB-PMJAY, will get an additional top-up cover up to Rs 5 lakh per year for themselves, over the Rs 5 lakh already given to the family.
  - Senior citizens will receive the **Ayushman Vaya Vandana Card**, which enables them to access free hospital treatment
- **Coverage:** It provides a cover of **₹5 lakh per family per year** for hospitalisation.
- **Pre-existing conditions:** All pre-existing conditions are covered from the day of enrollment.
- **Cashless access:** It provides cashless access to health care services at empanelled public and private hospitals across India.
- **Other benefits:** It also covers up to 3 days of pre-hospitalization and 15 days post-hospitalization expenses.

PM Vidya Laxmi Scheme Unveiled

Syllabus Mapping: Schemes, Education

Context

The Union Cabinet chaired has approved a new **Central Sector scheme**, PM Vidyalaxmi, which seeks to provide financial support to meritorious students in their pursuit of higher education.

About Vidyalaxmi Scheme

It is a new government initiative designed to provide financial assistance to students pursuing higher education in Quality Higher Education Institutions (QHEIs).

Key Features and Eligibility

- **Collateral-Free Loans:**
  - Students enrolled in QHEIs can access collateral-free and guarantor-free loans that cover the full tuition fees and related course expenses.
  - Loans up to ₹7.5 lakh are backed by a 75% credit guarantee provided by the central government.
- **Interest Subsidy for Priority Groups:**
  - Students with an annual family income up to ₹8 lakh qualify for a **3% interest subsidy** on loans up to ₹10 lakh during the moratorium period.
  - Priority will be given to those pursuing technical or professional courses in government institutions.
- **Institutions and Ranking Criteria:**
  - The scheme applies to selected higher education institutions identified based on National Institutional Ranking Framework (NIRF) rankings:
  - **Top 100 Institutions:** All government and private higher education institutions (HEIs) ranked within the top 100 in overall, category-specific, and domain-specific NIRF rankings.
  - **State Government HEIs:** Institutions ranked 101-200 in NIRF rankings.
  - **Central Government Institutions:** All centrally run HEIs are eligible under the scheme, regardless of their NIRF rank.
- **Unified Application Portal:** The Department of Higher Education will establish a dedicated 'PM-Vidyalaxmi' portal.
- **Reimbursement System:** Banks and financial institutions will be reimbursed for the subsidies via E-vouchers and Central Bank Digital Currency (CBDC) wallets.

Scheme for strengthening Medical Device Industry

Syllabus Mapping: Schemes, Health

Context

Union Chemicals and Fertilisers Minister launched a **Rs 500 crore** scheme to strengthen India's medical devices industry.

Key Features of the Scheme

The scheme consists of five sub-schemes, each addressing different aspects of the medical device industry:

- **Common Facilities for Medical Devices Clusters:** It will provide financial assistance to create common infrastructure facilities like R&D labs and testing centres.
- **Marginal Investment Scheme for Reducing Import Dependence:** It aims to deepen the MedTech supply chain by supporting local manufacturing of key components and raw materials.

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- **Capacity Building and Skill Development for Medical Devices:** It offers financial support for running various courses to develop skilled technical workforce.
- **Medical Device Clinical Studies Support Scheme:** It will support established companies and start-ups in conducting clinical studies.
- **Medical Device Promotion Scheme:** It aims to support industry associations in organising conferences and conducting surveys to promote medical device activities.

India's medical device market is valued at approximately $14 billion and is expected to grow to $30 billion by 2030.

EV as a Service' Programme

Syllabus Mapping: Schemes, Transportation

Context

Recently the **Union Minister of Power and Housing & Urban** launched 'EV as a Service' programme.

About EV as a Service' Programme

- **Objective**: To increase EV adoption within government fleets, aiding **India's goal of net-zero emissions by 2070.**
- **Deployment Target**: The programme aims to deploy 5,000 E-Cars over the next two years.
- **Nodal Agency**: Convergence Energy Services Limited (CESL), a subsidiary of Energy Efficiency Services Limited (EESL).
- **Flexible procurement model:** Govt. offices can choose E-Cars that best align with their operational requirements.

Energy Efficiency Services Limited (EESL)

- It is a government-owned company that promotes energy efficiency in India and around the world.
- It is a **joint venture** between **4 public sector undertakings (PSUs)** under the Ministry of Power, Government of India: NTPC Limited, Power Finance Corporation Limited, REC Limited and POWERGRID Corporation of India Limited.
- It was **established in 2009** and is registered under the Companies Act, 1956.

National Technical Textiles Mission

Syllabus Mapping: Schemes, Textiles

Context

The Ministry of Textiles approves 12 research projects under the National Technical Textiles Mission.

About National Technical Textiles Mission (NTTM)

- It was launched by the Ministry of Textiles in **2020** to increase the penetration level of technical textiles in India
- **Aim of the mission:**
  - To position India as a global leader in technical textiles.
  - To expand the domestic technical textile market to $40–50 billion by 2024, targeting an average annual growth rate of 15–20%.

Technical Textiles

- They are specialised textile materials and products designed primarily for their functional properties rather than aesthetic appeal.
- They are engineered for specific applications across various industries, emphasising performance characteristics such as **strength, durability and resistance to environmental factors.**
- These products are broadly classified into **12 different categories-** Agrotech, Oekotech, Buildtech, Meditech, Geotech, Clothtech, Mobiltech, Hometech, Sportstech,Indutech, Protech, Packtech.

Loan Limit Doubled under PM Mudra Yojna

Syllabus Mapping: Schemes, Financial Inclusion

Context

The Union government has doubled the loan limit under the Pradhan Mantri Mudra Yojana (PMMY) to ₹20 lakh.

About PM Mudra Yojna (PMMY)

- Launched in 2015, for providing collateral free loans up to Rs. 10 lakh to the **non-corporate, non-farm small/ micro-enterprises.**
- **Funding Provision:**
  - MUDRA stands for **Micro Units Development & Refinance Agency Ltd.**, is a financial institution set up by the Government.
  - These loans are given by Commercial Banks, RRBs, Small Finance Banks, MFIs and NBFCs.
  - MUDRA does not lend directly to micro-entrepreneurs/ individuals.
  - Three products are created under MUDRA, as per the stage of growth and funding needs of the beneficiary micro unit.
    - **Shishu:** up to ₹50,000.
    - **Kishore:** ₹50,000 - ₹5 lakh.
    - **Tarun:** ₹5 lakh - ₹10 lakh.
    - **Tarun Plus:** ₹10 lakh - ₹20 lakh (It would be available to entrepreneurs who have availed and successfully repaid previous loans under the Tarun category).
- The guarantee coverage loans for amounts up to ₹20 lakh will be provided under the **Credit Guarantee Fund for Micro Units (CGFMU).**

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  - CGFMU is a government-backed initiative aimed at providing credit guarantee coverage to loans extended to micro-enterprises and small businesses.
  - Established in 2015, this fund is managed by the **National Credit Guarantee Trustee Company Ltd. (NCGTC).**
- Loans under the MUDRA scheme are collateral-free loans.

Fifth edition of Global Access to Nutrition Index

Syllabus Mapping: GS-Paper 2, Health

Context

The **Access to Nutrition Initiative (ATNi)** has released its **5th edition of the Global Access to Nutrition Index.** The report revealed that F&B companies sell **less healthy products** in **low-and-middle-income countries (LMICs)** compared to those in **high-income countries (HICs)**.

What were the Key Findings?

- The healthiness score for products in LMICs averaged 1.8 which is significantly lower than the 2.3 average in HICs.
- It was noted that micronutrient data was less available for products in LMICs compared to those sold in HICs.

Health Star Rating System

- The report utilised a health star rating system to evaluate products, scoring them out of 5. A score above 3.5 is considered a healthier choice.
- The rating system takes into account:
  - **Components increasing health risks**: energy, saturated fat, total sugars, and sodium.
  - **Components decreasing health risks:** protein, fibre, and the presence of fruits, vegetables, nuts, and legumes.

Significance of the Report for India

- **Non-Communicable Disease (NCD) Burden: India** faces an escalating **NCD burden**, with approximately **10.13 crore Indians** suffering from **diabetes**.
  - According to **National Family Health Survey 5 (NFHS-5), 24% of women** and **23% of men** in India are **obese**.
  - At the same time, **undernutrition**, **anaemia**, and **micronutrient deficiencies** continue to be pressing concerns.
- **Dietary Shifts:** The upsurge in consumption of **processed foods** rich in **sugars and fats**, coupled with reduced physical activity, has contributed significantly to these health problems.
  - The **Economic Survey of India 2023-24** noted that **56.4% of India's disease burden** is linked to **unhealthy diets**, as per the **Indian Council of Medical Research's (ICMR) dietary guidelines**.
  - ICMR findings suggest that **processed food consumption** is exacerbating micronutrient deficiencies and increasing rates of **overweight** and **obesity** in India.
- **Affordability Issues: Over 50% of Indians** cannot afford a **healthy diet**, with households spending an increasing proportion of their food budgets on **processed foods**.

News in Brief

Saami community

- The Norwegian Parliament has issued a formal apology to Sami, Oven and Forest Finn people and outlined several resolutions to address discrimination they still face in the country.
- Sami people are an **indigenous group** who have been living in northern Norway for centuries.
- Majority of Sami settlements are in Finnmark County in northern Norway.
- Sami culture includes **traditional clothing, song and a deep relationship with nature.**
  - Sami traditional clothing is called **"kofte"**. They also have a rich song tradition called **"joik"**.

Digital Population Clock

- Bengaluru's first digital population clock was inaugurated at the **Institute for Social Economic Change (ISEC).**
- It will display real-time estimates of the population of Karnataka and India.
- It will update the figures of the state's population for every 1.10 minute and the country's population at every two seconds.
- It is established jointly by ISEC, and the Union Ministry of Health and Family Welfare (MoHFW).

Chhattisgarh's Dhudhmaras picked for UN best tourism village upgrade programme

- Dhudmaras is located in Chhattisgarh's Bastar district inside the **Kanger Valley National Park.**
- It is known for its natural beauty, biodiversity, traditional lifestyle and local cuisine.
- This programme is an initiative of the **United Nations World Tourism Organization (UNWTO).**
  - **UNWTO** is a **specialised agency of the United Nations** established in **1975** that promotes sustainable, responsible, and universally accessible tourism.

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International Cooperative Alliance (ICA)

- For the first time in 130 years India will host the Global conference of ICA.
- ICA is a non-governmental organisation founded in 1895 which represents and promotes cooperatives around the world.
- It has over 1.2 billion members from national and international cooperative organisations in more than 100 countries.
- The Global Cooperative Conference in India will also mark the **official launch of the 'UN International Year of Cooperatives-2025'**.

"Bhu-Neer" Portal

- Recently the Union Minister of Jal Shakti launched the newly developed "Bhu-Neer" portal.
- It is developed by **Central Ground Water Authority (CGWA)** & National Informatics Centre (NIC).
- This portal will serve as a one-stop platform for managing and regulating groundwater resources.
- **Central Ground Water Authority (CGWA):**
  - It is a **statutory body** established in **1997** under the **Environment Protection Act, 1986** that regulates and manages groundwater in India.

VISION Portal

- The Union Minister of Science and Technology has launched VISION Portal which is aimed at nurturing education, skill development, and innovation among underprivileged children.
- **Nodal Ministry:** Ministry of Science & Technology
- **Features:**
  - It will provide mentorship, training and resources for aspiring innovators and entrepreneurs.
  - It will act as a platform for students in rural areas to leverage technology for educational and professional growth.

Indira Gandhi Peace Prize Awarded to Palestine Peace Activist Daniel Barenbolm

- Indira Gandhi Peace Prize 2024 was awarded to **Daniel Barenboim,** a world-famous pianist and conductor and **Ali Abu Awwad,** a Palestinian peace activist.

Indira Gandhi Peace Prize

- It recognizes individuals or organisations who have made exceptional contributions to **international peace, disarmament and development**.
- It is one of the highest honours in the field of peace and development established in **1986.**
- The award is given by **Indira Gandhi Memorial Trust**.

Paragliding locations of Himachal Pradesh

- Second edition of the Paragliding World Cup Association Asian Tour 2024 took place at Bir-Billing, Himachal Pradesh
- **Bir-Billing, known as a 'paraglider's paradise,'** benefits from strong, stable air currents that enable extended flights, establishing it as one of Asia's premier paragliding sites.
- **Other Paragliding locations of India:** Solang valley (Himachal), Kamshet (Maharashtra), Nainital (Uttarakhand), Nandi Hills (Karnataka).

Inauguration of first trilateral power transaction – from Nepal to Bangladesh

- India, Nepal and Bangladesh have launched their first trilateral power transaction, marking a major milestone in regional energy cooperation.
- Nepal will export up to **40 MW of electricity** to Bangladesh using the **Indian grid** as the conduit.

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SCIENCE & TECHNOLOGY

TOPICS FOR MAINS

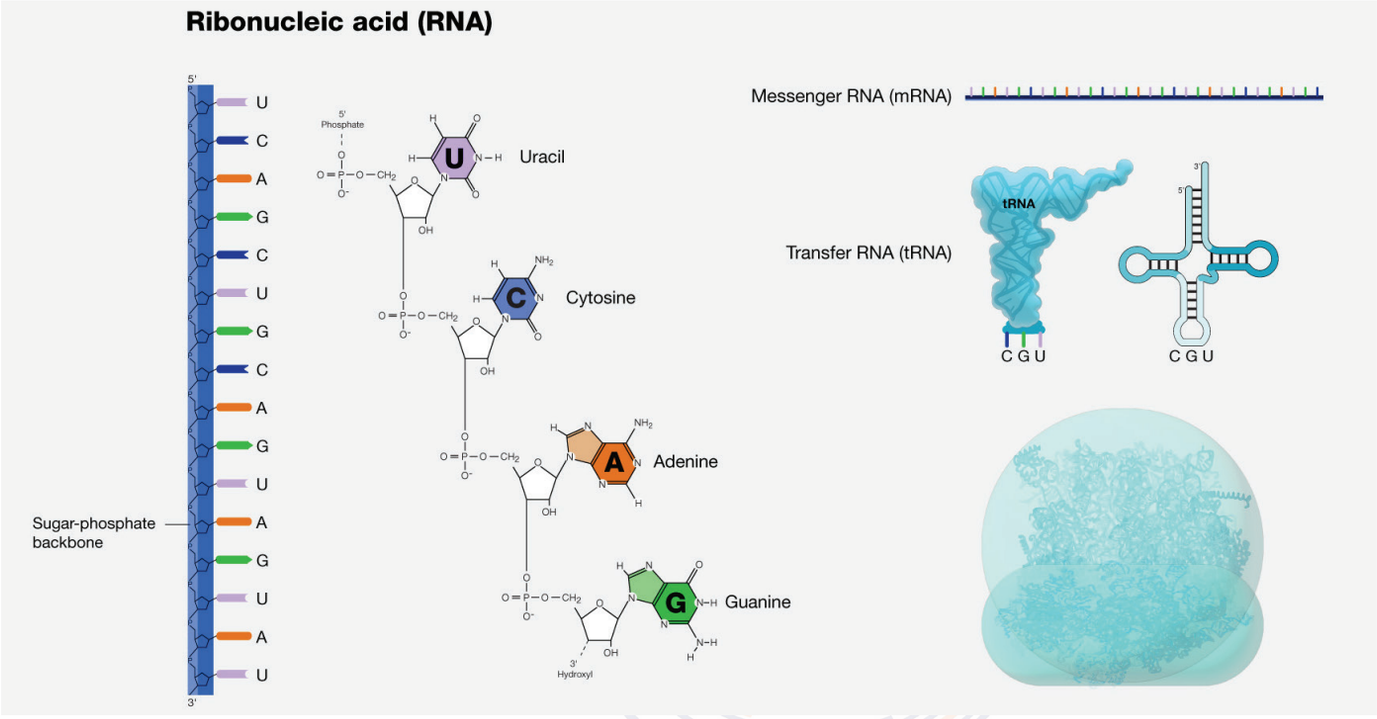
RNA Editing

Syllabus Mapping: GS-Paper 3, Biotechnology

Context

A biotechnology company in Massachusetts in the U.S. named Wave Life Sciences became the first company to treat a genetic condition by editing RNA at the clinical level.

What is RNA?



- Ribnucleic Acid (RNA) is a molecule found in almost all living things and viruses. It's made of smaller units called nucleotides, each with three parts: a sugar (ribose), a nitrogen base, and a phosphate group.
- The nitrogen bases in RNA are **adenine, guanine, cytosine & uracil (AGUC).**
- The most recognized function of RNA is its role in protein synthesis, which follows the central dogma of molecular biology: **DNA → RNA → Protein**.
- This process involves several types of RNA:
  - **Messenger RNA (mRNA):** This type carries genetic information from DNA to the ribosomes, where proteins are synthesised.
    - mRNA serves as a template that dictates the amino acid sequence of the protein being formed.
  - **Transfer RNA (tRNA):** tRNA transports specific amino acids to the ribosome during protein synthesis.
    - Each tRNA molecule recognizes a specific codon on the mRNA and brings the corresponding amino acid, facilitating the assembly of proteins.
  - **Ribosomal RNA (rRNA):** rRNA is a structural component of ribosomes, which are the cellular machinery that synthesise proteins.
    - It plays a critical role in ensuring proper alignment of mRNA and tRNA during translation and catalyses the formation of peptide bonds between amino acids

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What is RNA Editing?

- RNA editing is a technique that lets scientists fix errors in a cell's RNA to make sure the right proteins are produced.
- Cells follow instructions from DNA to make messenger RNA (mRNA), which then guides the making of proteins.
- But sometimes, mistakes slip into mRNA, which can lead to incorrect or harmful proteins. Faulty proteins can cause serious diseases.
- RNA editing provides a way to correct these mistakes in the mRNA before the cell uses it to make proteins.

How Does RNA Editing Work?

- **Substitution Editing**: In this type of editing, certain nucleotides in the RNA are changed into different nucleotides.
  - For example, an adenosine (A) can be converted into inosine (I) by enzymes known as adenosine deaminases (ADARs).
  - Inosine behaves like guanosine (G) during protein synthesis, effectively correcting potential mistakes in the mRNA sequence.
- **Insertion/Deletion Editing:** This involves adding or removing nucleotides from the RNA sequence.
  - This type of editing often requires a guiding RNA (gRNA) that directs the editing enzymes to the specific location on the mRNA where changes need to be made.
  - For instance, uridine nucleotides can be added to the mRNA based on the complementary sequence provided by the gRNA.

Role of ADAR Enzymes

ADAR enzymes play a significant role in RNA editing:

- They bind to double-stranded regions of RNA and catalyse the conversion of adenosine to inosine.
- By changing A to I, ADARs alter how the RNA is read during translation, potentially changing which amino acids are incorporated into proteins.

Applications of RNA Editing

Scientists are developing RNA editing treatments for several diseases caused by genetic mutations:

- **Alpha-1 Antitrypsin Deficiency (AATD):** A condition where a protein called alpha-1 antitrypsin builds up in the liver and lungs, harming these organs. A company called Wave Life Sciences developed a therapy (WVE-006) using RNA editing to fix single-point mutations in the gene for alpha-1 antitrypsin.
  - By correcting this error, the cell can produce normal protein levels, potentially eliminating the need for liver transplants or weekly treatments.
- **Expanding Treatment Options:** Wave Life Sciences is also testing RNA editing for diseases like Huntington's disease, Duchenne muscular dystrophy, and some types of obesity, which all involve single-point mutations that RNA editing could potentially fix.
- **Other Companies in RNA Editing:**
  - Korro Bio is using ADAR enzymes for AATD and **Parkinson's disease.**
  - ProQR Therapeutics focuses on RNA editing for **heart disease and liver issues.**
  - Shape Therapeutics is exploring RNA editing for **neurological conditions**.

These companies use various delivery methods and guides to improve RNA editing.

- **Editing Larger Genes:** For genes too large to replace with traditional gene therapy, like ABCA4 (linked to a retinal disease), RNA editing may help.
  - Ascidian Therapeutic is testing this approach for retinopathy, a serious eye condition. Its candidate started clinical trials in early 2024, receiving fast-track approval from the U.S. Food and Drug Administration.
- **Cancer Treatment:** The South Korean company Rznomics is trialling an RNA editing treatment for certain liver cancers. This approach controls a protein, human telomerase reverse transcriptase, which can influence tumour growth.

RNA vs. DNA editing

RNA Editing

- **Temporary Changes:** RNA editing makes changes that fade over time, allowing flexibility to stop therapy if issues arise, which helps mitigate long-term risk.

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- **Lower Immune Reaction Risk:** RNA editing uses ADAR enzymes, which naturally exist in the human body, reducing the risk of allergic or immune responses.
  - This is especially beneficial for patients needing repeated treatments or those with immune sensitivities.

DNA Editing

- **Permanent Changes:** DNA editing makes irreversible changes to the genome, which can sometimes lead to lasting errors.
- **Potential Immune Reactions:** DNA editing tools like CRISPR-Cas9 use bacterial proteins for gene editing, which can trigger immune reactions in some patients.

What are the Challenges Associated With RNA Editing?

- **Specificity Issues**: ADAR enzymes may perform edits on both targeted and non-targeted mRNA regions, or they may skip the targeted area altogether, which can lead to unintended side effects.
  - Current efforts are focused on improving the precision of guide RNA (gRNA) by adding mechanisms to protect non-targeted mRNA parts from accidental edits.
- **Transient Nature of RNA Editing**: RNA editing is temporary, so individuals may require repeated treatments to maintain therapeutic effects.
- **Delivery Limitations**: The delivery systems, such as lipid nanoparticles and adeno-associated virus (AAV) vectors, have limited capacity, making it difficult to transport large molecules effectively.

Future Outlook

- RNA editing is in its nascent stage, yet there are already at least 11 biotechnology companies worldwide developing RNA editing methods for a range of diseases.
- As research and clinical trials advance in the field of RNA editing, it seems like only a matter of time before RNA editing becomes a fixture of the gene-editing toolkit in clinical practice.

Big Tech Companies Influence on AI

Syllabus Mapping: GS-Paper 3, ICT, AI

Context

The growing influence of Big Tech companies over the Artificial Intelligence (AI) ecosystem has raised significant concerns among policymakers globally.

- Countries like India are taking steps to democratise AI development by investing in sovereign cloud infrastructure, creating open data platforms, and supporting local startups.
- However, these initiatives may not be sufficient to counteract Big Tech's dominance.

Challenges of Big Tech Dominance

- **Computational Costs:** Building deep learning models incurs enormous computational expenses, making it difficult for smaller players to compete.
  - As of 2023, the Gemini Ultra model was reported to cost around $200 million to train, illustrating the financial barrier for new entrants who would need to rely on Big Tech for compute credits.
- **Deep Learning Popularity:** Deep learning has become the preferred method in AI due to its generalised capabilities, but its high computational demands reinforce the dominance of established companies.
  - Big Tech firms advocate for larger models, which helps them maintain their market position and recover costs through primary revenue streams.
- **Infrastructure and Tools:** Proposals for public compute infrastructure or a federated model are emerging, inspired by India's Digital Public Infrastructure model.
  - However, merely providing alternative infrastructure is insufficient; it must also be competitive with offerings from Big Tech, which provide a suite of optimised developer tools that enhance workflow efficiency.
- **Data Monopoly:** Big Tech companies benefit from vast data streams across various domains, giving them a competitive edge through sophisticated "data intelligence."

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  - Smaller AI firms often find themselves selling out to Big Tech, further entrenching the cycle of dominance.
- **Academic Influence:** The shift towards deep learning has resulted in commercial entities dominating AI research, with industry players outpacing academia in publications and citations.

A New Approach to AI Development

To address these challenges, a radically different approach to AI development is necessary—one that does not attempt to replicate the Big Tech model but instead seeks to change the underlying rules:

- **Theory of Change:** This model emphasises understanding causal mechanisms and developing targeted interventions rather than relying solely on big data.
  - It advocates for "small AI" that leverages domain expertise and lived experiences to create purpose-driven models.
- **Historical Precedents**: Significant advancements in fields like medicine and aviation have historically relied on theory-driven models rather than sheer data volume. This approach should be revisited in AI development.

Missed Opportunities and Future Directions

- The recent Global Development Compact is viewed as a missed opportunity for rethinking AI paradigms.
- Although it promotes democratising AI, it risks falling into the trap of assuming that large datasets and computational access alone will solve issues related to Big Tech monopolies.
- Continuing down the current path of prioritising Big Data and deep learning only increases dependence on Big Tech, hindering genuine progress toward equitable AI development.

Aadhar Biometric Data Access Will Aid Forensics

Syllabus Mapping: GS-Paper 3, ICT

Context

Data disclosure regulations of Aadhaar database hinders the police investigations involving unidentified deceased individuals.

Regulations on Data Disclosure

- Unique Identification Authority of India (UIDAI) has strict regulations about the disclosure of data in order to protect a person's right to privacy and ensure that there is no misuse of personal data.
- **Section 33(1) of the Aadhaar Act** allows the disclosure of certain information under **an order of a court not inferior to that of a High Court judge.**
- **Sections 29(1) and 33 of Aadhaar Act** explicitly state that **core biometric information (fingerprints and iris scans)** cannot be disclosed under any circumstances.

Standard Investigative Procedures

When an unidentified body is discovered, police typically follow these steps:

- **Examination and Documentation:** The body is examined, photographed, and distinctive features (tattoos, scars) are noted.
- **Evidence Collection**: Scene evidence is collected, CCTV footage analysed, and phone records checked if available.
- **Fingerprint Analysis:** Fingerprints are collected and sent to fingerprint bureaus for matching against criminal records.

Hurdles Faced by Police Investigations

- **Lack of Access to Biometric Data:** Aadhaar Act complicates the identification process for deceased individuals. This restriction means that police cannot utilise potentially vital fingerprint data that could lead to identifying victims and facilitating investigations.
- **Limited Fingerprint Databases:** Current police fingerprint databases primarily consist of records from individuals with known criminal histories. Many states have not digitised these records which makes it difficult to cross-reference data efficiently.
- **Investigative Delays:** The inability to quickly access biometric data can lead to delays in identifying victims, which may hinder timely investigations into possible homicides or other crimes.

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Court Rulings on Treatment of Deceased Bodies

A number of rulings by High Courts and the Supreme Court of India have highlighted the need for respectful and humane treatment of bodies. **E.g.,** Courts have addressed issues such as the inhumane practice of keeping a prisoner's body hanging for an extended period after death during an execution (as outlined in certain prison manuals), as well as the need to ensure the respectful repatriation of the bodies of migrant workers who die abroad.

Populations Most Affected

The individuals who suffer the most from these restrictions are often those from marginalised backgrounds.

- **Economically Disadvantaged Individuals:** Many unidentified bodies belong to daily wage workers, migrants, or homeless individuals who lack identification documents and have strained family ties.
- **Vulnerable Groups:** These include people with mental health issues or those living in precarious conditions, making them more susceptible to becoming unidentified victims due to their transient lifestyles.
- **Social Isolation:** Individuals from strained family relationships are less likely to have missing person reports filed, exacerbating the issue of unidentified bodies.

Potential Benefits of Accessing Aadhaar Data

Allowing police access to Aadhaar biometric data could yield several benefits:

- **Enhanced Identification Capabilities:** Accessing fingerprint data could significantly improve the chances of identifying deceased individuals, thereby providing closure to families and enabling proper last rites.
- **Improved Investigation Efficiency:** Quick identification through biometric matching can facilitate more effective investigations into homicides and other crimes, potentially leading to timely justice for victims.
- **Public Safety Enhancement:** By identifying victims promptly, law enforcement can address public safety concerns more effectively and prevent future crimes.

Proposed Disclosure Mechanisms

To balance privacy concerns with the need for effective policing, a well-defined disclosure mechanism is essential:

- **Court Orders Based on FIRs:** Allow access based on a jurisdictional judicial magistrate's order after verifying an FIR regarding an unidentified body (per Section 194 of the Bharatiya Nagarik Suraksha Sanhita). This could streamline processes and reduce the burden on higher courts.
- **Clear Protocols for Privacy**: Restrict access strictly to deceased individuals and ensure data cannot be misused.
- **Accountability**: Police requests should include documented reasons for Aadhaar access to ensure responsible use of data.

TOPICS FOR PRELIMS

Bhartiya Antriksh Station

Syllabus Mapping: Space Technology

Context

Indian Space Research Organisation (ISRO) and **Department of Biotechnology (DBT)** have entered into a collaboration to design and conduct various experiments for the **Bharatiya Antariksha Station (BAS)**, India's proposed indigenous space station.

About Bhartiya Antriksh Station (BAS)

- BAS is India's upcoming space station, It is part of the broader ambitions of the Indian Space Research Organisation (ISRO) to enhance its capabilities in human spaceflight and scientific research.
- **Specifications:**
  - **First Module:** The first module of BAS, referred to as BAS-1, is currently under development.
  - **Launch Date:** The first module is expected to be launched by 2028, with the operational space station aimed for completion by 2035.
  - **Crew Capacity:** The station will be designed to accommodate a crew of 3-4 astronauts.
  - **Orbit**: Positioned in **Low Earth orbit (LEO)** at an altitude of approximately 300 to 400 kilometres.
  - **Microgravity Research:** Facilitate long-duration human space missions and support scientific experiments in microgravity.

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Need for a Space Station

- **Scientific Research:** A space station allows for extensive research in various fields such as biology, physics, astronomy, and materials science in a microgravity environment.
- **Technological Development:** It serves as a platform for developing and testing new technologies that can be used in future deep-space missions.
- **International Collaboration:** Establishing a space station positions India as a key player in global space exploration efforts, fostering international partnerships.
- **Preparation for Lunar Missions:** The station will support preparations for India's planned manned lunar mission by 2040, enhancing capabilities for sustainable human presence beyond Earth.

Global Context: Other Space Stations

- **International Space Station (ISS)**
  - It was launched in 1998.
  - It is approximately the size of a football field and can support six crew members.
  - It is a collaborative effort involving five space agencies (NASA, Roscosmos, ESA, JAXA, and CSA).
- **Tiangong Space Station (China)**
  - The first module, Tianhe, was launched in April 2021.
- **Russian Orbital Service Station (ROSS):**
  - Scheduled launch 2027, completion by 2033

Government notifies telecom cybersecurity rules

Syllabus Mapping: ICT, Cybersecurity

Context

Union Government has notified the telecom cyber security rules, that aim to safeguard India's communication networks and services.

Key Features of the Rules

- **Reporting of Security Incidents:**
  - Telecom entities must report security incidents to the central government **within 6 hours of detection.**
  - The report should include details of the affected system and a description of the incident.
- **Appointment of Chief Telecommunication Security Officer (CTSO):**
  - Telecom entities are required to appoint a CTSO responsible for managing and overseeing telecommunication cyber security measures.
- **Data Disclosure Authority:**
  - The central government or its authorised agencies are empowered to seek traffic data or other relevant information (excluding the content of messages) from telecom entities.
- **IMEI Registration Requirements:**
  - Manufacturers of devices with an International Mobile Equipment Identity (IMEI) number must register the IMEI number with the government before the first sale of the equipment in India.

Digital Arrest

Syllabus Mapping: Digital Technology, Cybercrime

Context

In his latest episode of "Mann Ki Baat," Prime Minister cautioned citizens about the growing threat of 'Digital Arrest' scams in India.

About Digital Arrest

- It is a cyber scam where fraudsters impersonate law enforcement authorities to extort money from victims.
- It involves creating a scenario where victims believe they are under investigation for serious crimes, such as drug trafficking or money laundering.
- Scammers often use video calls via platforms like Skype or WhatsApp, presenting themselves in a convincing manner that includes props like uniforms, fake arrest warrants and ID cards.
- Victims are coerced into remaining on video calls, creating an atmosphere of intimidation and fear. They are advised against discussing the matter with anyone, which isolates them further.
- In some cases, they involve friends or family members, claiming that the victim is in custody or involved in a serious incident.

Indian Cyber Crime Coordination Centre (I4C)

- **I4C** is a government initiative that works to combat cybercrime in India.
- It facilitates easy filing of Cybercrime related complaints and identifying Cybercrime trends and patterns.
- It assists States in capacity building of Officials in the area of cyber forensic, cyber hygiene, cyber-criminology etc.
- **Nodal Ministry:** Ministry of Home Affairs
- **According to I4C, There are 4 types of Scams:** Digital arrest, Trading Scam, Investment Scam (Task Based), Romance/ Dating Scam.

Tardigrades

Syllabus Mapping: Biology & Biotechnology

Context

A team of researchers has identified the genetic mechanisms that help tardigrades (Hypsibius henanensis) withstand high levels of radiation.

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About Tardigrades

- They are also known as **water bears or moss piglets.**
- They are microscopic, water-dwelling animals belonging to the phylum Tardigrada.
- **Physical Characteristics:**
  - **Body Structure:** They have a segmented body with four pairs of stubby legs, each ending in claws or disks that help them grip surfaces.
  - **Cuticle:** Covered by a tough, flexible cuticle that allows them to withstand various environmental stresses.
- **Habitat:**
  - **Mosses and Lichens:** Commonly inhabit these plants, where they absorb moisture.
  - **Soil:** Live in the upper layers of soil and leaf litter.
  - **Aquatic Environments:** Found in freshwater, marine environments, and even extreme habitats like hot springs and deep-sea sediments.
- **Ability to survive extreme conditions:**
  - **Desiccation:** They can survive complete dehydration by entering a cryptobiotic state, effectively suspending their metabolism.
  - **Extreme Temperatures:** Can endure temperatures from just above absolute zero (-273°C) to over 150°C.
  - **Radiation:** Capable of withstanding high levels of ionising radiation.
  - **High Pressure:** Survive pressures greater than those found in the deepest ocean trenches.
  - **Vacuum of Space:** Tardigrades have been shown to survive exposure to the vacuum and radiation of outer space.
- Tardigrades reproduce **both sexually and asexually.**
- Tardigrades play an important role in ecosystems by contributing to **nutrient cycling and serving as bioindicators of environmental health** due to their sensitivity to changes in habitat conditions.

How Tardigrades Resist High Radiation?

- **DNA Repair Protein (TRID1):** This protein is essential for repairing double-strand breaks in DNA caused by radiation exposure. Its activity allows tardigrades to recover from genetic damage effectively.
- **Gene Activation for Mitochondrial Proteins:** Upon exposure to radiation, a specific gene is activated that produces two proteins necessary for mitochondrial synthesis. These proteins also play a role in repairing DNA, providing an additional layer of protection against radiation-induced damage.
- **Antioxidant Pigments (Betalains):** Tardigrades produce betalains, antioxidant pigments that help neutralise harmful reactive chemicals generated by radiation within their cells.

National Commission for Indian System of Medicine (NCISM)

Syllabus Mapping: Health, Regulatory Bodies

Context

National Commission for Indian System of Medicine conducted a workshop for drafting the Ayurveda Process Handbook.

About National Commission for Indian System of Medicine (NCISM)

- NCISM is a **statutory body** established by the NCISM Act, 2020.
- Replaced the Central **Council for Indian Medicine (CCIM)** to promote transparency and improve the Indian System of Medicine (ISM) healthcare system.
- **Composition:** Chairperson, 15 ex-officio members and 23 part-time members.
- **Functions:**
  - Laying down policies for regulating medical institutions, medical research and medical professionals
  - Improving access to quality and affordable Ayurveda, Unani, Siddha and Sowa-Rigpa (AUS&SR) medical education
  - Ensuring availability of adequate and high quality AUS&SR medical professionals in all parts of the country.
- **NCISM oversees 4 autonomous boards:**
  - **Board of Ayurveda and Unani:** for Ayurveda education.
  - **Board of Siddha and Sowarigpa:** for Siddha and Sowa Rigpa education.
  - **Board of Assessment and Rating:** for assessing and granting permission to ISM educational institutions.
  - **Board of Ethics and Registration:** for maintaining the National Register and ethical issues related to ISM practice.

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Hydrogels

Syllabus Mapping: Biology & Biotechnology, Novel Materials

Context

Scientists have discovered a new way to create hydrogels using tiny protein fragments of just five amino acids from the SARS-CoV-1 virus.

About Hydrogels

- Hydrogels are **three-dimensional, hydrophilic polymer** networks that can retain a large amount of water while maintaining structure due to their cross-linked nature.
- They are soft and flexible, similar to natural tissue, due to their significant water content.
- **Composition:** Hydrogels can be made from natural or synthetic polymers, such as collagen, gelatin, polyethylene glycol (PEG), cellulose, starch, chitin and chitosan.
- **Applications:**
  - **Tissue engineering:** Hydrogels can be used as scaffolds for tissue engineering because their structure is similar to the extracellular matrix of many tissues.
  - **Wound healing:** Hydrogels are a common wound care solution because they are soft, moisturising and can quickly absorb and retain water.
  - **Drug delivery:** Hydrogels can be loaded with drugs and controlled subcutaneously, orally or intramuscularly.
  - **Environmental Cleanup:** They are also used to capture and remove pollutants, especially in water.
  - **Agriculture:** Used to retain soil moisture, especially in arid regions.
  - They are also used in **Contact lenses & Diagnostic devices.**

Vaccine Durability

Syllabus Mapping: Health, Biology & Biotechnology

Context

To achieve durable immunity, the generation of LLPCs, memory B-cells, and T-cells is essential.

About Lymphocytes

B-Cells

- They are a type of white blood cell that play a central role in the immune response by recognizing antigens and producing antibodies
- They originate from **hematopoietic stem cells in the bone marrow.**
- They have two main roles:
  - **Memory B-Cells:** Created during affinity maturation in germinal centres, they remember the antigen and respond quickly upon re-exposure.
  - **Plasma Cells:** B-cells transform into plasma cells that secrete antibodies; some are short-lived, while others migrate to the bone marrow as LLPCs to provide durable immunity.

T-Cells

- These are immune cells that assist in activating B-cells and ensuring a robust immune response.
- They develop from precursor cells in the bone marrow and mature in the thymus
- **Types of T Cells:**
  - **Helper T Cells:** Activate and regulate other immune cells, including B cells and cytotoxic T cells, by producing cytokines.
  - **Cytotoxic T Cells:** Directly kill infected or cancerous cells by recognizing specific antigens presented on their surfaces.
  - **Regulatory T Cells (Tregs):** Help maintain immune tolerance and prevent autoimmune responses.

Long-Lived Plasma Cells (LLPCs):

- LLPCs are plasma cells that migrate to the bone marrow, where they produce antibodies over extended periods.
- Their presence and sustained antibody production are critical for the long-term effectiveness of vaccines.

Toy trains on Green Hydrogen

Syllabus Mapping: Health, Biology & Biotechnology

Context

Himachal Pradesh Chief Minister has urged the Indian government to explore the possibility of using green hydrogen to power the Kalka-Shimla narrow-gauge railway.

About Kalka Shimla Railway (KSR)

- KSR is a narrow-gauge railway in North India that connects the towns of Kalka and Shimla.
- It was declared a **UNESCO World Heritage Site** in 2008.
- It was built in **1898** to connect Shimla (then the summer capital of British India) to the Indian rail network.

Hydrogen for Heritage Project

- Under this project Indian Railways plan to run 35 hydrogen trains on select heritage routes by retrofitting existing diesel electric multiple units (DEMUs) with hydrogen fuel cells.

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Other Toy Trains in India

- **Darjeeling Railway Network:** It is situated between New Jalpaiguri and Darjeeling in West Bengal.
- **Nilgiri Mountain Railway:** It runs through the Nilgiri Mountain Range in Tamil Nadu.
- Both are part of **UNESCO World Heritage Sites**.

Proba-3 Mission of EU to be launched by ISRO

Syllabus Mapping: Space Missions

Context

European Union's Solar Observatory Satellite Proba-3 will be launched by **Indian Space Research Organisation (ISRO).**

About Proba-3 Mission

- It is the **European Space Agency's (ESA)** first mission related to precision formation flying.
- **Goals of the PROBA-3 mission**:
  - **Formation Flying Demonstration:** To validate technologies required for maintaining precise formation flying between two spacecraft, simulating a large rigid structure in space.
  - **Scientific Research:** To study the Sun's corona by creating an artificial eclipse, allowing scientists to observe solar phenomena such as solar flares and coronal mass ejections (CMEs) without interference from the Sun's bright light.
- **Mission Components:**
  - **Coronagraph Spacecraft (CSC):** Equipped with scientific instruments to observe the Sun's corona.
  - **Occulter Spacecraft (OSC):** Designed to block sunlight, enabling the CSC to capture clearer images of the corona.
- The mission is scheduled to be launched by ISRO using its **PSLV-XL rocket.**

Airships

Syllabus Mapping: Space Missions

Context

Several companies are working to solve the buoyancy problem of airships, which has stopped them from being used for cargo

transport. Recently, efforts have intensified to better control airship buoyancy for practical cargo use.

About Airships

- Airships are vertical-lift aircraft that use gas to float and steer in the air. **Airships don't fly - they float.**
- There are three main types of airships: non-rigid (or blimps), semi-rigid and rigid.
- They are bullet-shaped craft filled with **helium or hydrogen.**
- **Airship has 3 main parts:** a balloon-like hull, a gondola and a propulsion system.
- **Advantages:**
  - Airships can take off and land in various locations, without requiring runways or airports.
  - Airships can carry large payloads in comparison to traditional aircraft.
  - Airships require less fuel and can travel for longer distances than other aircraft.
- **Challenge with varying Buoyancy:** Airships require the ability to vary their buoyancy to adjust for weight changes when picking up or dropping off loads.

Working Mechanism of Airships

- Airships use gases which have density lower than atmospheric gases. (Helium balloons also use the same principle).
- Early airships used hydrogen as the lifting gas as it was cheap, easy to produce and the lightest existing gas. But its use was discontinued as it was highly flammable.
- Modern airships use **helium, which is non-combustible.**

Buoyancy

- Buoyancy is the force that makes things float. It acts in the opposite direction to gravity.
- When an object is placed in a fluid (like air or water), the fluid pushes up against the object, helping it to stay afloat.

Lightning rods prevent lightning strikes

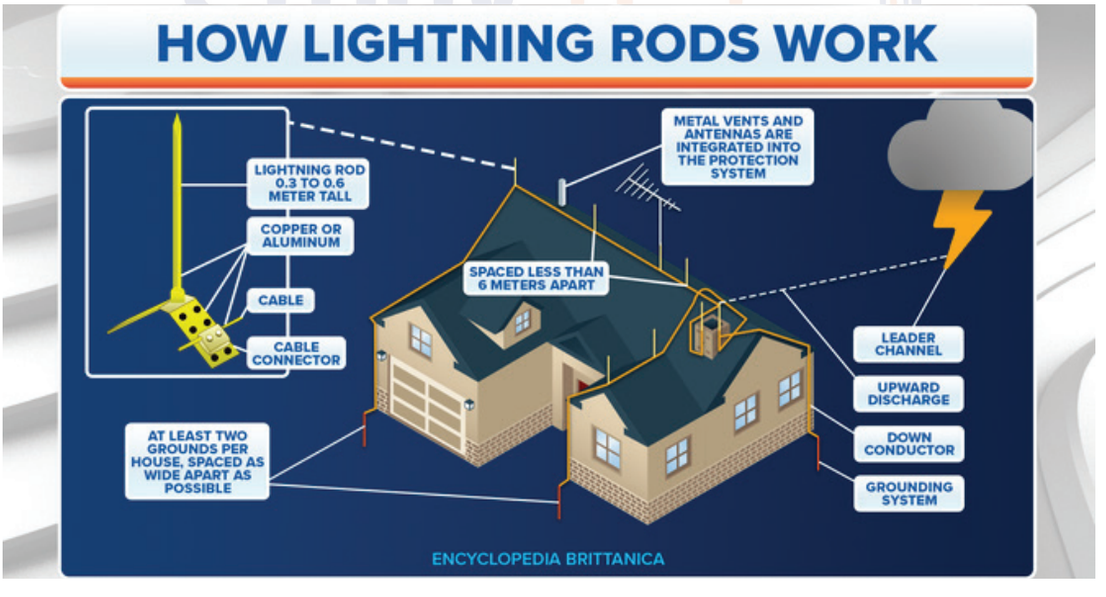
Syllabus Mapping: General Science

Context

Climate change has intensified the frequency and deadliness of lightning strikes globally. In India, lightning strikes killed 2,887 people in 2022.

About Lightning

- Lightning is a powerful electrical discharge that occurs when opposite charges build up in the atmosphere and break down the air's insulating capacity.
- Lightning strikes occur when electrical charges build up in a cloud beyond the air's resistance.



About Lightning Rods

- A lightning rod is an electrical conductor installed on building tops to divert lightning strikes.
- Lightning prefers the path of least resistance, and the rod's pointed shape creates a stronger electric field, ionising the air and offering a route for the current to flow.
- The lightning rod is connected to a wire leading to the ground, where the electric charges dissipate.
- This process uses the earth as an infinite source of lower electric potential.

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Gluten: animator of the dough

Syllabus Mapping: Biology & Biotechnology

Context

Gluten and allergies caused by it.

About Gluten

- Gluten is a protein network found in cereal grains.
- Gluten consists mainly of two proteins: **glutenin and gliadin.** It forms when proteins gliadins and glutenins combine with water, creating an elastic structure. It gives dough its elasticity and chewy texture, allowing it to rise during baking.
- **Common sources of gluten include:** Wheat, Barley Rye, Triticale (a hybrid of rye and wheat) and Oats
- Gluten is difficult to break down completely, as **protease enzymes** struggle to digest it. **Protease** is an enzyme that breaks down proteins into smaller **polypeptides or amino acids.**
- When undigested gluten reaches the small intestine, it can lead to gastrointestinal issues.

Celiac Disease

- It is an autoimmune disorder where the **ingestion of gluten** leads to damage in the small intestine. This condition affects about 1% of the population.
- **Symptoms:** Diarrhoea, constipation, Bloating and abdominal pain, Fatigue, Skin rashes etc.
- When individuals with celiac disease consume gluten, it triggers an immune response that damages the intestinal lining, leading to nutrient malabsorption and various complications.

First wooden satellite LignoSat launched by Japan

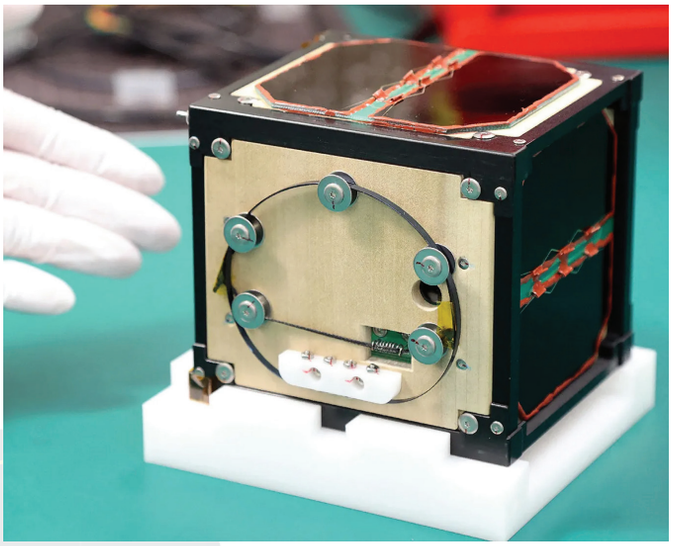
Syllabus Mapping: Space

Context

Recently, a wood-panelled satellite, LignoSat was launched to explore timber's potential as a renewable material for future space missions.

About Lignosat

- It is **the world's first wood-panelled satellite.**
- **Developed by:** Kyoto University and Sumitomo Forestry of Japan.
- Built with **magnolia wood** panels, using a traditional Japanese technique that avoids screws and glue.
- Will test the durability of wood in the extreme environment of space where temperatures fluctuate from **-100 to 100 degrees Celsius every 45 minutes.**
- Sent to the **International Space Station (ISS) aboard a SpaceX Dragon cargo capsule.** After a month, it will be released into orbit above Earth, where it will remain for 6 months.



South Asian Telecom Regulators' Council

Syllabus Mapping: ICT, Telecom

Context

Recently, TRAI hosted the plenary session of SATRC, where TRAI Chairman was voted the chair of SATRC for the coming year.

South Asian Telecommunication Regulators' Council (SATRC)

- It is a sub-regional activity of the **Asia-Pacific Telecommunity (APT)** that coordinates and discusses telecommunication and ICT regulations among South Asian countries.
- SATRC was formed in **1997** by the APT and the International Telecommunication Union Regional Office for Asia and the Pacific.
- SATRC is composed of the heads of the regulatory bodies of **9** South Asian countries: **Afghanistan, Bangladesh, Bhutan, India, Iran, Maldives, Nepal, Pakistan and Sri Lanka.**

Asia-Pacific Telecommunity (APT)

- APT is an inter-governmental organisation aiming to promote development of ICT in the Asia-Pacific region with particular focus on expansion in less developed areas.
- It is a joint initiative of the UN Economic and Social Commission for Asia and Pacific (UNESCAP) and International Telecommunication Union (ITU).
- Established in 1979

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- Membership: 38 Member administrations, 4 associate members and 135 private companies as Affiliate members.

Telecom Regulatory Authority of India (TRAI)

- It is a **statutory body** that regulates the telecommunications industry in India.
- **Established in 1997** by the Telecom Regulatory Authority of India Act, 1997.
- **Regulates** telecom services, including fixation/revision of tariffs for telecom services.
- **Composition:** Chairperson + 2 whole-time members + two part-time members (All appointed by the Central Government).
- **Telecommunications Dispute Settlement and Appellate Tribunal (TDSAT)** to adjudicate disputes between service providers, consumers and licensors. Introduced by the amendment to TRAI Act.
- TRAI is **not a completely independent telecom regulator**. Under section 25 of the Act, **Central govt. has the power to issue directions** which are **binding on TRAI**.

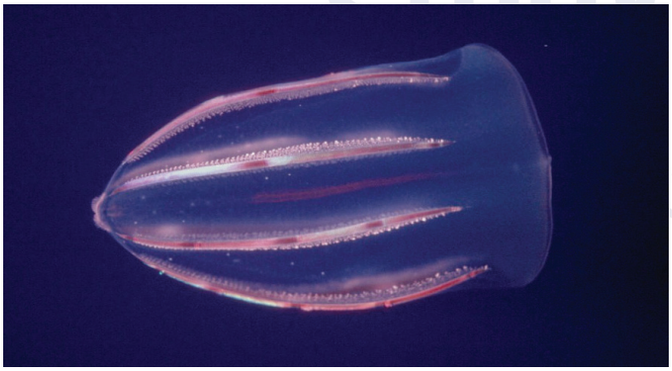
Comb Jellies

Syllabus Mapping: Biology & Biotechnology

Context

According to a recent study Comb jellies possess the remarkable ability to reverse ageing and transform itself into a younger form.

About Comb Jellies



- Comb jellies are transparent, gelatinous marine invertebrates drifting in oceans worldwide.
- They are among the oldest multicellular organisms, existing for over **500 million years**.
- **Unique Locomotion:** Comb jellies are named for their eight rows of comb-like plates made from fused cilia (tiny hair-like structures), which propel them through water. **They are the largest animals known to move using cilia.**
- **Feeding Mechanism:** They have two long, branching tentacles that resemble a net of sticky filaments, trapping prey and drawing it towards their bodies.
- **Bioluminescence:** Many comb jellies are bioluminescent, capable of emitting a soft blue or green glow when touched.

India's First Indigenous Antibiotic - Nafithromycin

Syllabus Mapping: Biology & Biotechnology, Health

Context

The Union Minister for S&T has launched India's first indigenous antibiotic "Nafithromycin" for resistant infections. It is **awaiting final approval** from the **Central Drugs Standard Control Organization (CDSCO)** for manufacturing and public use.

About Nafithromycin

- It is **India's first indigenous antibiotic** aimed at tackling antimicrobial resistance (AMR).
- **Developed by:** Wockhardt with support from the Biotechnology Industry Research Assistance Council (BIRAC)
- Nafithromycin addresses **Community-Acquired Bacterial Pneumonia (CABP),** caused by drug-resistant bacteria that disproportionately affect children, the elderly, and immune-compromised individuals.
- **Efficacy:**
  - **10x More Effective:** Nafithromycin is 10 times more effective than current treatments like azithromycin.
  - **Shorter Treatment Regimen:** It offers a three-day treatment regimen as opposed to traditional antibiotics, which require longer durations.
  - **Superior Safety Profile:** It has **minimal gastrointestinal side effects** and lack of significant drug interactions, making it a safer and more tolerable option for patients.

New infectious diseases among bees threaten world's economies

Syllabus Mapping: Biology & Biotechnology

Context

A recent study has found the presence of **deformed wing virus and black queen virus** in 19 wild bee and hoverfly species across different landscapes in Switzerland.

Honey Bees in India

- India hosts more than **700 bee species**, including **4 indigenous honey bees:** Asiatic honey bee, giant rock bee, dwarf honey bee and the stingless bee.
  - In 1991-1992, a **Thai sacbrood virus outbreak** devastated around **90% of Asiatic honey bee colonies** in South India. It again reemerged in 2021 in Telangana.

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- **Western honey bees** were introduced in India in 1983 to increase the country's honey yield. Western honey bees are viral reservoirs and can infect wild species when they share habitats.
- **Habitat loss** forces pollinators to share smaller spaces, increasing disease transmission risks between managed and wild species.
- **Pathogen spillover** refers to the transfer of pathogens from managed honey bees to wild pollinators. Studies have found that pathogen loads among wild pollinators sharing habitats with honey bees were up to 10 times higher.
- **Pathogen spillback** occurs when viruses transmitted to wild pollinators mutate into more virulent forms, returning to infect honey bees and causing more severe harm.
- **Control mechanism**: Diverse pollinator-friendly habitats with more floral resources lower the chance of pathogen spillover & spillback between wild pollinators and managed western honey bees.

Importance of Pollinators

- **Role in Agriculture:** Over 75% of food crops, fruits, and flowering plants globally depend on insect pollinators like **bees, wasps, beetles, flies, moths and butterflies** for successful harvests.
- **Economic Impact:** Threats to pollinators, such as pesticides, pollution, climate change and diseases, jeopardise global food security and the economies of countries.

Diamonds

Syllabus Mapping: Materials

Context

Central Consumer Protection Authority (CCPA) will soon release comprehensive guidelines related to labeling, certification, specifying origin and production method of all diamonds.

Difference between Natural diamonds & Lab Grown Diamonds

Feature	Natural Diamonds	Lab Grown Diamonds
Formation Process	Formed naturally over millions of years deep within the Earth under **high pressure and temperature.**	Created in controlled laboratory environments using methods like **High Pressure High Temperature (HPHT) or Chemical Vapor Deposition (CVD).**
Time to Form	Takes millions to billions of years to form.	Can be created in a matter of weeks to months.
Chemical Composition	Composed of carbon atoms arranged in a crystal structure (Cubic).	Identical chemical composition (carbon) and crystal structure to natural diamonds.
Physical Properties	Same physical properties as lab-grown diamonds, including hardness (10 on the Mohs scale).	Same hardness, brilliance and durability as natural diamonds.
Cost	More expensive due to rarity and mining costs.	Less expensive, often 20-40% cheaper than natural diamonds.

About Different forms of Carbon

- Carbon exists in various forms **due to its ability to bond in multiple configurations**. These forms are broadly categorised into **allotropes and nanotropes.**
- **Allotropes of Carbon:** Allotropes are different physical forms in which an element can exist due to variations in atomic bonding or arrangement.
  - **Crystalline Allotropes:** Diamond, Graphite, Fullerenes, Graphene etc.
  - **Amorphous Allotropes:** Coal, Charcoal etc.
- **Nanotropes of Carbon:** Nanotropes are nanoscale forms of carbon with unique properties due to their reduced size and high surface area.
  - **Nanotropes:** Carbon Nanotubes (CNTs), Carbon Nanohorns, Carbon Quantum Dots, Nano Diamonds etc.

Differences Between Diamond and Graphite

- **Composition:**
  - Both diamond and graphite are made of carbon atoms.
  - The difference lies in their atomic arrangement and bonding:
    - **Diamond:** Carbon atoms form a 3D, pyramid-like lattice, making it transparent, extremely hard and tightly bound.
    - **Graphite:** Carbon atoms form flat sheets arranged in layers, which can slide off easily.
- **Physical Properties:**
  - **Diamond:** Shiny, transparent, hardest known natural material.
  - **Graphite:** Black, shiny, soft and slippery.
- **Mechanics of Writing with a Pencil**
  - **Sliding Layers:**
    - When a pencil slides across paper, the weakly bonded graphene layers in graphite slough off onto the surface.
    - These layers appear black and shiny to the human eye, forming visible marks.
  - **Why Not Diamonds?**

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– Diamond atoms are so tightly bound that they resist separation or leaving traces on paper, unlike the layered structure of graphite.

High Altitude Sickness

Syllabus Mapping: Health

Context

Recently a trekker from Idukki, Kerala, died in Uttarakhand while attempting to scale **Garur Peak (Garhwal Himalayas)** due to respiratory failure. Every year, many tourists visiting the Himalayan regions lose their lives due to the effects of high-altitude sickness.

About High Altitude Sickness

- It is caused by the body's exposure to low oxygen levels and reduced air pressure at high altitudes. It is also known as **mountain sickness.**
- As altitude increases, the air pressure and oxygen levels decrease, leading to **hypoxia** (shortage of oxygen in the body's tissues).
- **Early symptoms:** Headache, nausea, fatigue and shortness of breath.
- If left untreated, it can escalate into;
  - **High-Altitude Pulmonary Edema (HAPE)** - A life-threatening condition where fluid accumulates in the lungs.
  - **High-Altitude Cerebral Edema (HACE)** - where fluid collects in the brain.
  - Both conditions require immediate medical intervention, and descent to lower altitudes is often the only way to prevent fatal outcomes.

India's 6Ghz spectrum dilemma is affecting PS5 Pro console launch in India

Syllabus Mapping: ICT

Context

The PlayStation 5 Pro console was launched in major global markets, but **India was excluded** due to regulatory restrictions on the 6GHz wireless band required for WiFi 7.

About WiFi Bands

- WiFi operates on different radio frequency bands, which determine data speed, range, and efficiency. Common WiFi bands are:
  - **2.4GHz Band:** Offers greater coverage, Slower data transmission speeds. More prone to interference (e.g., from Bluetooth devices, microwaves).
  - **5GHz Band:** Faster speeds but shorter range & Less prone to interference than 2.4GHz.
  - **6GHz Band:** Introduced with WiFi 6E in 2021, Allows for high-speed data transfers (up to 9.6Gbps) & Supports reduced latency and congestion in high-density environments.
    - **India's Stance:** Currently allocated to Indian Space Research Organisation (ISRO) satellite use, with future decisions postponed until **2027.**
- **WiFi 6E:** An extension of WiFi 6, it includes the 6GHz spectrum, which enhances speeds and reduces congestion in data-heavy scenarios. Countries like the US, UK and South Korea have de-licensed 6GHz for WiFi, enabling devices to access this advanced feature.
- **WiFi 7 (IEEE 802.11be):** It is the next generation of WiFi technology which offers increased speeds, reduced latency & better efficiency, even without using 6GHz.
  - WiFi 7 **does not strictly require the 6GHz band;** it relies on improved efficiency and simultaneous use of existing bands.
- **De- licensing of Bands:**
  - De-licensing means a frequency band is available for public use without requiring a government licence.
  - In India:
    - 2.4GHz and 5GHz were **de-licensed in 2002.**
    - Presently The 6GHz band remains licensed only for satellite communications.

International Telecommunication Union (ITU)

- It is a **United Nations agency** that coordinates global telecommunications networks and services. (ITU became a specialized agency of the United Nations in 1947).
- ITU was founded in **1865** with the **International Telegraph Convention**. (HQ -Geneva, Switzerland).

World Radiocommunication Conference (WRC)

- It is a **global conference organised by ITU every three to four years** to discuss the use of radio frequencies and satellite orbits.

Environmental impact of Satellite space junk

Syllabus Mapping: Space

Context

The increasing pollution from satellites is negatively impacting the atmosphere and has the potential to harm the ozone layer.

About Satellite Pollution and Its Impact

- Satellite pollution refers to the environmental consequences stemming from the increasing number of satellites in orbit, particularly as they reach the end of their operational life
- **Current Satellite Pollution:**
  - There are currently over **10,000 active satellites** in orbit around Earth.

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  - By the **2030s**, the number of satellites is expected to increase to **100,000**, with a potential rise to **half a million** in the following decades.
- **Sources of Satellite Pollution:**
  - **Burn-up of Satellites:** When satellites reenter the atmosphere, they disintegrate at high altitudes, releasing materials such as **aluminum, nitrogen oxides** etc. into the stratosphere.
  - **Rocket Launch Emissions:** The emissions from rocket launches include pollutants like **black carbon, nitrogen oxides, carbon monoxide and chlorine gases**, which are harmful to both air quality and climate.
    - Aluminum oxide acts as a catalyst in reactions involving ozone and chlorine.
- **Impact on Atmospheric Chemistry**
  - **Ozone Layer Depletion:** Ozone layer absorbs up to 99% of harmful ultraviolet (UV) radiation from the sun. Pollutants like aluminum oxide are known catalysts for ozone depletion. As these materials accumulate in the stratosphere, they can react with chlorine compounds—residuals from past chlorofluorocarbon (CFC) use—to degrade ozone molecules.
  - **Climate Change Implications:** Soot emitted from rocket engines can absorb solar energy, contributing to atmospheric warming. **Copper and other metals** released during spacecraft burn-up could trigger chemical reactions, potentially promoting the formation of **cloud-forming particles** which can alter weather patterns.

News in Brief

One Day One Genome Initiative

- **Launched by:** Department of Biotechnology (DBT) and Biotechnology Research and Innovation Council (BRIC).
- The initiative will highlight the unique bacterial species found in India and emphasise their critical roles in environment, agriculture and human health.

Cardiovascular Kidney Metabolic (CKM) Syndrome

- It is a complex disorder made up of cardiovascular disease, kidney disease, obesity and Type 2 diabetes. It occurs when the heart, kidneys and metabolism don't function properly.
- **Causes:**
  - Abnormal or excess body fat, especially around the waist. This type of fat releases substances that damage and inflame tissues in the heart, kidneys, and arteries.
  - Inflammation caused by excess body fat can make insulin less effective. This leads to hyperglycemia, or high blood sugar.
- **Symptoms:** Chest pain, Shortness of breath, swelling in legs, feet, hands or ankles, Dry skin etc.

AI powered humanoid teacher - NOVA

- Recently an AI powered Humanoid teacher Nova was launched in Kollam, Kerala.
- It utilises OpenAI's latest mode GPT-4o, for creating a customised learning experience and can process inputs via text, audio and video formats.
- It is designed to interact with students to improve their language skills. Currently it can operate in 4 different languages.

India's 1st AI data bank to boost national security

- ISRO will develop **custom algorithms** for analysing data from foreign satellites to generate validated fire products for India to improve the detection of farm fires.
- Currently data from satellites like INSAT-3DR (India), Geo-Kompsat 2-AMI (South Korea), Meteosat-9 (EU), Feng Yun-4A/4B (China) and HIMAWARI-8 (Japan) is used which is not reliable for accurate farm fire counts in regions like Punjab and Haryana.
- Data processing and fire detection algorithms for foreign geostationary satellite data are developed by respective agencies and are not validated over India.

ISRO to develop new algorithms on farm fire data

- Recently the Union Minister for S&T launched India's first AI Data Bank during the 7th Edition of the ASSOCHAM AI Leadership Meet.
- Its aim is to provide high-quality, diverse datasets to researchers, startups and developers for creating scalable AI solutions.

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HISTORY, ART & CULTURE

TOPICS FOR PRELIMS

Rani Channamma

Syllabus Mapping: Modern Indian History, Personalities

Context

On the occasion of the 200th anniversary of Rani Channamma's historic victory over British forces on October 23, 1824, a commemorative postage stamp was issued to honour her remarkable stand against colonial rule.

About Rani Channamma (1778 -1829)

- She was the Queen of Kittur (Situated in present day Karnataka).
- Born in 1778 in Kakati village, Karnataka.She was married to Raja Mallasarja and later assumed power after his death.
- When her adopted son **Shivalingappa**, was denied succession, she openly resisted the British.
- This defiance led to the Kittur Rebellion, making it one of the earliest acts of armed opposition to British colonial rule in India.

About Kittur Revolt (1824)

- It is regarded as the first Indian armed rebellion against the British East India Company. Also, one of the earliest woman-led anti-colonial struggles.
- Though the British lost 1st battle in 1824, Rani Chennamma was later captured & imprisoned at **Bailhongal Fort** (Belagavi, Karnataka), till her **death in 1829.**

Doctrine of Lapse

- It was a British policy introduced by Lord Dalhousie, Governor-General of India (1848–1856), to expand British territorial control.
- Under this doctrine, any princely state or territory **without a direct male heir** would be annexed by the British East India Company. **Adopted heirs were not recognized as legitimate successors.**
- **States Annexed under Doctrine of Lapse:** Satara (1848), Jaitpur (1849), Sambalpur (1849), Bhagat (1850), Udaipur (1852), Jhansi (1853), Nagpur (1854).

National Mission for Manuscript

Syllabus Mapping: Art & Culture, Literature, Schemes

Union Ministry of Culture is planning to "revive and relaunch" the National Mission for Manuscripts (NMM) and is considering establishing an autonomous body dedicated to preserving India's ancient manuscripts and texts. Presently, NMM is a part of the Indira Gandhi National Centre for Arts. The new body, likely to be named the **National Manuscripts Authority**, will be an autonomous entity under the Ministry of Culture and Tourism.

About National Mission for Manuscript (NMM)

- It was established in **2003**, by the **Ministry of Tourism and Culture (GOI).**
- **Objectives of National Mission for Manuscripts:**
  - Locate manuscripts through a national-level survey and post-survey.
  - Document each and every manuscript and manuscript repository, for **a National Electronic Database.**
    - Currently contains information on **4 million** manuscripts making this the largest database on Indian manuscripts in the world.
  - Conserve manuscripts incorporating both modern and indigenous methods of conservation and training a new generation of manuscript conservators.
  - To train the next generation of scholars in various aspects of Manuscript Studies.
- To achieve this mandate, the mission has established more than **100 Manuscripts Resource Centres and Manuscripts Conservation Centres** all over India.

What is a Manuscript?

- It is a handwritten composition on **paper, bark, cloth, metal, palm leaf** or any other material dating back at least **75 years** that has significant scientific, historical or aesthetic value.
- Lithographs and printed volumes are not manuscripts.
- A lithograph is a print made using the **lithography printing process**, which involves drawing an image onto a stone or metal plate and then transferring it to paper.

Raigarh fort

Syllabus Mapping: Art & Culture, Architecture, Medieval India

Context

Raigad Fort, celebrated for its exemplary Maratha architectural style and strategic, defensible position within Maharashtra's rugged Sahyadri range, is one of 12 forts nominated this year for UNESCO World Heritage status.

About Raigarh Fort

- It is located in Maharashtra's **Sahyadri mountain range**.
- Raigad was known as "Rairi" before Chhatrapati Shivaji Maharaj captured it from the **More dynasty in 1656.**
- It became the capital of the Maratha Empire in 1674.
- It served as a military bastion, administrative and cultural centre of the empire.

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- Chhatrapati Shivaji Maharaj was crowned the **first king of the Maratha Empire on June 6, 1674 at Raigad fort.**
- The fort has also earned the title Durgaraj, or "King of Forts," and British historian **Grant Duff** called it the **"Gibraltar of the East"** due to its strategic design and imposing location.

India's nomination for the UNESCO World Heritage List in 2024-25

- India has nominated **Maratha Military Landscapes of India** which developed between the 17th and 19th centuries. It comprises **12 Forts.**
- Salher fort, Shivneri fort, Lohagad, Khanderi fort, Raigad, Rajgad, Pratapgad, Suvarnadurg, Panhala Fort, Vijay durg, Sindhudurg in Maharashtra and Gingee Fort in Tamil Nadu.
- As of September 2024, there are **43 UNESCO World Heritage Sites in India.** Of these, 35 are cultural, 7 are natural, and 1 is of mixed heritage.

Dhanvantri

Syllabus Mapping: Ancient India, Personalities, Art & Culture

Context

The Prime Minister launched various health projects on National Ayurveda Day.

About Dhanvantari

- Lord Dhanvantari is revered in Hindu mythology as the divine physician and the father of Ayurveda, the ancient Indian system of medicine.
- He is considered an incarnation of Lord Vishnu and is associated with health, healing, and longevity.
- The Government of India has been observing Ayurveda Day every year on Dhanawantari Jayanti (Dhanteras) since 2016 to raise awareness about Ayurvedic principles, medicinal herbs and lifestyle practices.
- **Mythological Background:**
  - **Emergence During Samudra Manthan:** Dhanvantari is famously known for his emergence during the Samudra Manthan (churning of the ocean of milk), a significant event in Hindu mythology.
  - This event involved both gods (Devas) and demons (Asuras) working together to churn the ocean to obtain amrita, the nectar of immortality.
  - His emergence is viewed as a divine intervention by Lord Vishnu to ensure the well-being of the universe, blessing the gods with health and immortality.

Tribute to Deshbandhu Chittaranjan Das on his birth anniversary

Syllabus Mapping: Modern Indian History, Personalities

Context

Parliamentarians paid tributes to Chittaranjan Das on his Birth Anniversary.

About Chittaranjan Das (CR Das)

- CR Das popularly known as **Deshbandhu,** was a prominent Indian freedom fighter, political activist and lawyer.
- He was born on November 5, 1870, in Calcutta and passed away on June 16, 1925.
- Das gained prominence as a defence lawyer, defending Sri Aurobindo Ghosh in the Alipore bomb case in 1909.
- He joined the Indian National Congress (INC) in 1906, and was a key figure during the Non-Cooperation Movement (1919-1922).
- He was the **President of the Gaya Session** of the Indian National Congress held in 1922.
- He served as the first mayor of Calcutta & was political guru of Netaji Subhas Chandra Bose.
- He founded **the Swaraj Party in 1923 along with Motilal Nehru.**

Birsa Munda

Syllabus Mapping: Modern Indian History, Personalities

Context

The Union Government has commenced celebrations to mark the **150th** birth anniversary of tribal icon and freedom fighter Birsa Munda.

About Birsa Munda

- He was born in **1875 in Ulihatu, Jharkhand.**
- He was a tribal reformer, religious leader and freedom fighter belonging to the Munda tribe. He is popularly called **"Dharti Aba" (Father of the Earth).**

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- He fought for the rights of tribal communities, land rights and against exploitation by landlords and the British.
- He led the **Ulgulan (Munda Rebellion) against British colonial rule.**
- Birsa Munda founded the faith of **Birsait**, a blend of animism and indigenous beliefs, which emphasised the worship of a **single god.**
- In **2021,** the Union Government declared **November 15, the birth anniversary of Birsa Munda, as 'Janjatiya Gaurav Diwas'.**

First Bodoland Mahotsav

Syllabus Mapping: Art & Culture, Regional Cultures

Context

Recently, the Prime Minister inaugurated the 1st Bodoland Mohotsav at Delhi.

About Bodoland Mahotsav & Bodo people

- The two-day Mahotsav is a mega event on language, literature and culture to sustain peace and build a Vibrant Bodo Society.
- It aims to integrate the indigenous Bodo people residing in Bodoland and other parts of Assam, West Bengal, Nepal and international border areas of the Northeast.

About Bodo people:

- Bodos are an ethnolinguistic group of people who are native to the state of Assam and are also found in other northeastern Indian states and neighbouring countries.
- Bodos are believed to have migrated to Assam from Tibet and China in the **prehistoric era.**
- They are known for their rich culture, which includes dancing, singing, religious practices and their ethnic religion **Bathouism.**
- They speak **Boro.** It is recognized as one of **India's 22 Scheduled languages.**
- **Bodoland -** It is officially the Bodoland Territorial Region (BTC). It is an autonomous region in Assam, Northeast India. It was established in 2003 under the **6th Schedule** of the Indian Constitution.

Exposition of Sacred relics of Saint Francis Xavier

Syllabus Mapping: Medieval India, Art & Culture, Personalities

Context

The decennial exposition of the sacred relics of St. Francis Xavier has started in Goa. Over the next 45 days his mortal remains will be put on public display for veneration and to pay homage to the saint.

About Saint Francis Xavier

- He was a **Spanish Jesuit missionary** and **co-founder of the Society of Jesus**
- In **1542** he arrived in Goa under the orders of **King John III of Portugal.**
- He was sent to revive Christianity among Portuguese settlers and convert locals.
- He died in **1552 on Shangchuan Island, off the coast of China.** Initially buried on the island, his body was later exhumed and brought to Goa in 1554.
- Currently, the relics of **St. Francis Xavier** are kept at the **Basilica of Bom Jesus**, Old Goa in a 400-year-old silver casket.
- He is referred to as **"Goencho Saib" (Lord of Goa)** also he is the patron saint of Goa.
- His work extended beyond Goa to other parts of Asia, including Japan and the Malacca region.

Charaideo Moidam

Syllabus Mapping: Art & Culture, Architecture

Context

Charaideo Moidams in Assam have seen a significant boost in global tourist interest following their recognition as a UNESCO World Heritage Site.

About Ahoms

- The Maidams are linked to the **Tai Ahom rulers** who migrated from Yunnan, China and established their kingdom in Assam.
- They ruled **Assam & Arunachl Pradesh** from the **13th to the 19th century.**
- Ahoms were the **only dynasty to not fall to the Mughal Empire,** defeating them in battle 17 times.
- These burial mounds were constructed as the **final resting places of the royalty and nobility.**
- **Post 18th century** the Ahom rulers adopted the Hindu method of cremation.

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Architectural Features of Charaideo Moidams

- It features a large underground vault with one or more domed chambers.
- The structure is encased in a large earthen mound, giving it a hemispherical external appearance.
- Atop the mound, a small open pavilion called a **chow-chali** is positioned.
- The entire moidam is enclosed by an octagonal dwarf wall.
- The prominent cluster of Maidams is located at **Charaideo**, near the foothills of the **Patkai Range in Assam**.

Facts

- Moidams is the **1st cultural site and the 3rd overall site from the North East to be inscribed on the World Heritage list.** (Other 2 **Kajiranga and Manas** which were inscribed under the Natural Heritage category).
- **World Heritage Sites in India: 43**
  - **Cultural:** 35
  - **Natural:** 7
  - **Mixed:** 1 (Kanchendzonga National Park)

Lachit Borphukan

Syllabus Mapping: Art & Culture, Architecture

Context

Recently, the 402nd birth anniversary of Lachit Borphukan was celebrated on 24th November.

About Lachit Borphukan

- He was born on **November 24, 1622**, in modern-day Assam.
- He belonged to the Ahom kingdom, which ruled Assam from the 13th to the 19th century.
- He was a skilled commander, expert in guerrilla warfare & later became commander-in-chief of the Ahom army (appointed by Prataap Singha)
- He led the Ahom army in the **Battle of Saraighat, 1671.**
- **Recognition:**
  - **Statue of Valour:** It is a 125-foot bronze statue of Lachit Borphukan located in Jorhat district, eastern Assam.
  - **INS Lachit: Indian Navy's guided-missile** destroyer named in honour
  - **Lachit Borphukan Gold Medal:** Introduced in the year 1999. It is awarded to those cadets of the National Defence Academy who perform at their highest level.

Battle of Saraighat, 1671

- It was fought between **Ahoms and Mughals.**
- Mughal Emperor Aurangzeb sent an army under Raja Ram Singh to conquer Assam, expanding Mughal territory.
- Lachit Borphukan led the Ahom forces and used strategic guerrilla warfare, naval tactics, and the natural terrain of the Brahmaputra River to defeat the Mughals despite being outnumbered.

Indian Arrival Monument in Guyana

Syllabus Mapping: Art & Culture, Architecture, Modern India

Context

During his recent visit to Guyana Prime Minister Narendra Modi visited the Indian Arrival monument at Monument Gardens in Georgetown.

About Indian Arrival Monument

- **Indian Arrival Monument** is a replica of the first ship which arrived in Guyana in 1838 bringing indentured migrants from India.
- This monument honours the Indian indentured immigrants who came to British Guyana during 1838-1917.
- First batch of Indians arrived in British Guyana on May 5, 1938 on vessels named **Whitby and Hesperus.** They are also known as Gladstone Coolies, as the sugar merchant Gladstone played a key role in bringing Indian indentured labourers to the Caribbean islands.
- Gifted by India to the people of Guyana in 1991. It is a replica of the **Whitby ship** that transported Indian indentured immigrants to Guyana on May 5, 1938.
- **Bordering countries of Guyana:** Suriname, Brazil & Venezuela. It also borders the **Atlantic Ocean.**

News in Shorts

Kanhirapoil - Megalithic site in Kerala

- Recently **24 pairs** of prehistoric footprints and a human figure carved into rock were unearthed in **Kanhirapoil, Kerala.**
- The footprints are believed to date back to the **Megalithic period (2,000 years old).**
- They are similar to **prehistoric rock art in Udupi (Karnataka)** and sites in north Kerala like **Edakkal Caves**.

Sabarmati Ashram Project

- Recently, on the **94th anniversary of the Dandi March**, the Prime Minister of India laid the foundation for the Sabarmati Ashram Redevelopment Project.
- It was founded in **1917 by Mahatma Gandhi.**

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- It is situated on the **western bank of the Sabarmati River,** near the village of Juna Vadaj in **Ahmedabad**.
- **Dandi March** started from here on March 12, 1930.
- **Sabarmati Ashram is not a UNESCO World Heritage Site.**
- Ashrams/Settlement setup by Gandhi Ji:
  - **Two in South Africa** (Phoenix Settlement and Tolstoy Farm)
  - **Three in India** (Sabarmati, Kochrab Ashram in Ahmedabad & Sevagram Ashram in Wardha)

Haka Dance

- It is a traditional war dance or challenge performed by the **Māori people of New Zealand.**
- Historically, it was used by Māori warriors to prepare for battle, intimidate opponents and celebrate victories.
- Recently it was performed in the New Zealand Parliament by a member from Indigenous community while staging a protest against a contentious bill.

125th Birth Anniversary Celebration of Dr. Harekrushna Mahtab

- He was born in 1899 Odisha's Bhadrak district. He was the first Chief Minister of Odisha and was popularly known as **"Utkal Keshari".**
- He was deeply Influenced by Mahatma Gandhi and participated in the Non-Cooperation Movement (1920).
- He united 26 Odia-speaking princely states into Odisha & founded the newspaper **Prajatantra in 1923.**

Kalariyapattu

- It is a martial art of Kerala.
- Training space for kalaripayattu is called a **'Kalari,'** meaning **threshing floor or battlefield.**
- It involves physical conditioning, weapon training, strikes, kicks, grappling and healing techniques.

State	Martial Art
Thagta ta	Manipur
Silambam	Tamil Nadu
Gatka	Punjab
Pari Khanda	Bihar
Thoda	Himachal Pradesh
Malkhamb	Madhya Pradesh
Squay	Jammu & Kashmir

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ETHICS

TOPICS FOR MAINS

Need to Address India's Workplace Culture

Syllabus Mapping: GS Paper 4, Emotional Intelligence, Attitude

Context

In July, a young chartered accountant reportedly died from work-related stress. This incident highlights the ongoing issues within India's corporate environment, where a toxic work culture is prevalent.

Prevalence of Toxic Work Culture

- Culture within many Indian corporations is characterised by **long hours, high pressure and a lack of respect for employee well-being.**
- Employees often find themselves working under extreme pressure **without adequate support or recognition**.
- Companies frequently **employ fewer staff than necessary**, pushing existing employees to work harder.
- Terms like **"organisational stretch"** and **"variable pay"** are used to **mask the harsh realities** of excessive workloads and inequitable compensation structures.
- **Performance evaluation systems benefit top management disproportionately** from variable pay while lower-level employees face insecurity and unfair treatment.
- Terms like **"stress management workshops" fail to address the root causes** of stress and burnout.

Other reasons:

- **Lack of inclusivity** at the level of gender, race and minorities religious groups. People coming from these backgrounds often feel that they need to do a bit more to deserve the same as the norm is.
- **Lack of clearly defined roles and responsibilities and HR policies,** often emboldens the senior management to harass the employees beyond their capacity to sustain.
- **Lack of job enrichment, upskilling opportunities and income growth** often leads to demotivation and the same work starts to look very demanding.

Public Sector Comparison

- Public sector firms often have a better work culture, providing job security and more equitable pay structures.
- Unions in the public sector act as a check against arbitrary management practices, which is less common in private enterprises.

Comparison to Global Work Cultures

- The U.S. work culture is known for long hours and high pressure, while European standards prioritise work-life balance, exemplified by France's 35-hour work week and an average of 40 hours across Europe.
- Stark contrast in per capita income—$85,000 in the U.S. compared to $2,700 in India—highlights differing standards of living and expectations from employees, making the importation of American work culture to India unrealistic.

Impact of Toxic Work Culture

On Employees	• Increased stress and anxiety, burnout and low morale. • Health issues and higher absenteeism • Decreased job satisfaction and stunted career progression
On team dynamics	• Breakdown of team feeling and team work, Erosion of trust. • Frequent disputes and conflicts, blame culture
On organizational performance	• Lower efficiency, high error rates, decreasing productivity. • High turnover, loss of talent, difficulty in attracting talent, higher costs on recruitment and training. • Damaged brand image, loss of customer trust, loss of competitive edge.

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On Leadership	• Reduced authority, loss of respect, poor decision making. • Burnout among managers, higher demands and pressure due to increasing conflicts and loss of talent.
Long term consequences	• Once normalised toxicity is hard to go leading to perpetuation of harm - cultural inertia • Stagnation as low creativity and collaboration hinders innovation.

Recommendations for Improvement

- **Leadership attitude:** Leadership should accept the challenge that the work culture needs to be positive, empowering and flourishing. They should take charge and show humility and empathy in their personal lives for everybody else to emulate.
- **Focus should be on collective success, mutual respect and mentorship** of the less experienced for ensuring overall growth.
- **Building Emotional intelligence skills** that will help identify triggers, control impulses, build resilience, empathy and trust in the employees.
- **Surface-level change** such as reaffirming "core values", implementing new codes of conduct and core philosophy of the organisation needs to be discussed.
- Board of Directors should take an active role in assessing, indulging in active listening and investing in team building activities. .
- **Some level of regulation may be necessary** to hold boards accountable and ensure they engage meaningfully with lower-level employees.

Why were two Kerala IAS Officers Suspended?

Syllabus Mapping: GS Paper 4, Emotional Intelligence, Attitude

Context

Two Kerala IAS officers have been suspended (N. Prashant and K. Gopalakrishnan) due to violation of service rules.

Reasons For Suspension of IAS Officers

- **N. Prashant**:
  - **Charges**: Allegedly made "derogatory statements" on social media against A. Jayathilak IAS, Additional Chief Secretary.
  - **Violations**: Accused of undermining the public image of the administrative machinery, violating discipline, and conduct unbecoming of an IAS officer.
  - **Defence**: Prashant claimed Jayathilak orchestrated baseless news reports against him and refuted the allegations.
- **K. Gopalakrishnan**:
  - **Charges**: Allegedly created a religion-based WhatsApp group, 'Mallu Hindu Officers', that fostered communal disunity among IAS officers.
  - **Defence**: Claimed the group was created after his phone was hacked.
  - **Inquiry Findings**: Police found no evidence of hacking; the officer had performed a factory reset on the phone before handing it to the police, raising concerns about tampering.

All-India Services (Conduct) Rules, 1968

- **Core Values:** Officers must maintain **high standards of ethics, honesty, integrity, political neutrality, accountability, and transparency**.
  - Upholding **constitutional values** is paramount.
- **Regulations on Public Communication:** Officers may use public media only in the **bona fide discharge of duties**.
  - They must not criticise government policies through public communication.
  - Prior government sanction is required for seeking vindication via court or press.
- **'Unbecoming of a Member of the Service':** A general clause encompassing actions deemed inappropriate for a civil servant.

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Key Issues Identified

- **Lack of Social Media Guidelines:** The rules do not explicitly address acceptable use of social media by officers, leading to ambiguities.
- **Ambiguity in the 'Unbecoming' Clause:** The omnibus clause remains open to misuse or subjective interpretation.
  - Enforcement is often by senior officers and the government, potentially creating power imbalances against junior officers.
- **Evolving Nature of Rules:** The AIS rules have expanded over time, regulating both private and official lives, but lack specificity in areas like digital conduct.

Recommendations for Review

- **Explicit Social Media Rules:** Introduce clear guidelines for:
  - Official content permissible for posting.
  - Rights of officers to defend against defamatory campaigns concerning official work.
- **Clarify the 'Unbecoming' Clause:** Provide an illustrative list of examples based on past precedents to guide appropriate behaviour.
- **Promoting Responsible Anonymity:** Officers should maintain anonymity while disseminating information, avoiding personal publicity while using social media for governmental initiatives.

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