CURRENT AFFAIRS WEEKLY

WEEK 2
JUNE, 2025

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The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

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SECTION -A

MAINS ISSUES

RARE EARTH ELEMENTS

CONTEXT

China imposed export restrictions on seven critical rare earth elements (REEs), impacting global supply chains. This has raised serious concerns for India's automotive and defence sectors, both of which depend heavily on rare earth magnets sourced from China.

What are Rare Earth Elements (REEs)?

- Rare Earth Elements are a group of **17 chemically similar elements** used in **electronics, automotive, defence**, medical, and renewable energy sectors.
- The term "rare" refers to the **complexity of extraction and refining**, not scarcity.
- REEs are critical for **missile systems, radars, satellites**, and **energy-efficient technologies**.
- **China's Dominance:** China holds:
  - 70% of global mining output
  - 90% of global refining and magnet production capacity
  - **Export Controls:** Export restrictions now apply to **seven REEs**, including **dysprosium and terbium**, crucial for manufacturing **high-performance magnets**.
  - **Affected Sectors: Electric vehicles (EVs)**, internal combustion components, sensors, and military-grade electronics all rely on REEs. These curbs are expected to disrupt **manufacturing and innovation** cycles.

Impact on India

- **Short-Term Effects:** Indian automotive production is facing potential delays due to dwindling stocks of rare earth magnets. EV production lines and critical vehicle components are **under pressure** as supply chains tighten.
- **Long-Term Strategic Concerns:** India holds **fifth-largest global reserves** of REEs but lacks industrial-scale **processing and refining capacity**. Current domestic production is monopolized by a **single public sector entity**, limiting scalability and diversification.

National and Industry-Level Responses

- **Immediate Measures**
  - **Diplomatic engagements** to secure exemptions or expedite Chinese export licenses.
  - **Interim alternatives**: using **ferrite magnets**, importing from **alternative Tier 2/3 global suppliers**, and **recycling** from retired devices and vehicles.
- **Strategic Direction Required**
  - Building **domestic refining and magnet manufacturing infrastructure**.
  - Facilitating **R&D in substitution and material recycling**.
  - Encouraging **foreign collaboration** with REE-rich countries like **Australia and Africa**.

Way Forward

- **There is need to scale up domestic REE exploration and refining**, with **private sector participation** and technology transfer.
- Launch a **National Rare Earth Mission** to coordinate extraction, processing, magnet production, and R&D.
- Government must promote **rare earth recycling initiatives** from end-of-life electronics and vehicles.

- There is need to develop **strategic partnerships** with REE-rich countries to **diversify sources**.
- Include REEs under **Production Linked Incentive (PLI)** schemes to boost domestic capabilities.

India's Efforts to Secure Critical Minerals

- **KABIL:** It is a joint venture of three state-owned companies aimed at securing overseas mineral assets.
- **Strategic Partnerships:** India has joined initiatives like the Minerals Security Partnership and the Critical Raw Materials Club to diversify supply sources and strengthen global relationships.
- **Research and Development:** India is investing in research through organizations like the Geological Survey of India and the Council for Scientific and Industrial Research (CSIR). The focus is on enhancing mineral exploration, improving processing technologies, and reducing dependency on virgin minerals through recycling and circular economy practices.
- **Incentive Programs**: The government is also offering production-linked incentives for the extraction and recycling of critical minerals to boost domestic capabilities.

MANIPUR CONFLICT REIGNITES

CONTEXT

Fresh violence broke out in Manipur following the arrest of a senior member of the Meitei group Arambai Tenggol, prompting the reimposition of curfews and internet shutdowns across multiple districts. This development has escalated ethnic tensions between Meitei and Kuki-Zomi communities that have persisted since May 2023.

About Manipur's Ethnic Conflict

- **Ethnic Composition of Manipur**: Manipur is home to multiple ethnic groups:
  - **Meiteis**: Mostly reside in the **Imphal Valley**, form a majority (~53% of the population), and are predominantly Hindu.
  - **Kuki-Zo and Naga Tribals**: Mostly live in the **hill districts**, are Christian by faith, and have **Scheduled Tribe (ST) status**.
- **Triggering Incident (ST Demand by Meiteis)**
  - The conflict began when the Meitei community demanded **Scheduled Tribe status**, citing historical disadvantages.
  - This was **opposed by tribal communities**, who feared that Meiteis — with political dominance and access to the Valley — would gain land rights in the hills, threatening tribal autonomy and land security.
  - A tribal solidarity march organized on May 3, 2023, in protest against this demand led to clashes that soon spiraled into widespread violence, arson, killings, and forced displacements.
- **Territorial Division:** Since the outbreak of violence, Meitei and Kuki-Zo populations have remained physically separated. The **ITLF's term "total separation"** reflects this de facto partition, where:
  - Meiteis avoid hill areas.
  - Kukis avoid the Valley.
- The idea of 'Separation Day' reflects a symbolic hardening of this division.

Implications of Manipur Violence:

- **Human Suffering**: The violence leads to widespread loss of life and mass displacement, severely impacting the affected communities.
- **Gendered Violence**: Women often bear a disproportionate burden, facing targeted violence that affects social cohesion and community trust.
- **Economic Disruption**: Conflict destabilizes local economies, halts development projects, and creates cycles of poverty and unrest.
- **Social Fragmentation**: Ethnic conflicts deepen mistrust and division between communities, undermining social harmony.
- **Militancy and Instability**: Prolonged unrest provides fertile ground for extremist groups to grow, threatening long-term peace.
- **Cross-Border and Regional Security Concerns**: Internal violence can strain relations with neighboring countries and complicate border management.
- **Policy and Strategic Challenges**: Unrest hampers broader regional integration efforts and economic initiatives.

Steps to Normalize the Situation:

- **Victim Rehabilitation**: Effective recovery and rehabilitation require inclusive approaches involving affected communities and stakeholders.
- **Disarmament**: Reducing the availability of weapons among civilians is critical to preventing further violence.
- **Combating Misinformation**: Transparent and responsible communication helps prevent escalation caused by rumors and biased reporting.
- **Inclusive Dialogue and Negotiation** Meaningful engagement with all ethnic groups fosters understanding and addresses grievances.
- **Ensuring Justice and Transparency**: Fair and accountable governance builds trust in institutions and reduces alienation.
- **Reevaluating Community Classifications**: Periodic reassessment of group identities and entitlements can address longstanding inequalities.
- **Border Security Enhancement**: Strengthening surveillance and control prevents external destabilizing influences.
- **Security Force Reforms**: Streamlining law enforcement responsibilities improves coordination and accountability.

- **Human Rights Focus**: Balancing security with rights protections is essential for sustainable peace and trust-building.

INDIA'S POPULATION DYNAMICS

CONTEXT

According to the United Nations Population Fund (UNFPA) State of the World Population 2025 Report, India's population is estimated at 146.39 crore, with its Total Fertility Rate (TFR) declining to 1.9, below the replacement level of 2.1. The report projects India's population to peak at 170 crore in the next 40 years, after which it is expected to decline.

India's Population (Key Statistics)

- **Current Population (2025, UNFPA):** 146.39 crore (India), 141.61 crore (China)
- **Fertility Rate (TFR):** 1.9 (Below replacement level of 2.1)
- **Peak Projection:** Population expected to reach **170 crore** before declining in 40 years
- **Working-age Population (15-64 years):** 68% of total
  - **Youth Demographics (2025):**
    - Age 0–14: 24%
    - Age 10–19: 17%
    - Age 10–24: 26%
  - **Elderly Population (65+):** 7%, projected to rise due to improved life expectancy
  - **Life Expectancy (2025):**
    - Men: 71 years
    - Women: 74 years

Fertility Trends and the "Real" Fertility Crisis

- **TFR at 1.9** reflects a shift towards smaller families and delayed childbirth.
- **Replacement Level TFR** is required to keep population size stable over generations (2.1).
- The UNFPA report calls attention to **unmet fertility desires**, labelling the mismatch between desired and actual childbearing as the **"real fertility crisis."**
- Advocates **reproductive agency**: free and informed choices about sex, contraception, and parenthood.

Implications of Falling Fertility Rates

- **Demographic Dividend:** With 68% of population in the working-age group, India is positioned to leverage this for economic growth.
- **Ageing Population:** The elderly population is projected to increase, demanding investment in **geriatric care, pensions, and healthcare infrastructure**.
- **Urbanization & Migration:** Urban areas may face **increased pressure** due to continued population growth in certain pockets, despite national fertility decline.
- **Labour Force Dynamics:** Lower fertility may eventually lead to a **shrinking labour force**, especially in states like Kerala, Tamil Nadu, and Delhi, which already have TFRs below 1.8.

Challenges with Delayed Census (2021–2027)

- The **Census 2021**, postponed to **March 2027**, results in a **data vacuum**.
- Accurate demographic policy formulation, welfare targeting, and health service delivery become **difficult without decennial census data**.
- Increased reliance on **surveys and projections** (like SRS, NFHS), which, although reliable, are **no substitute** for comprehensive enumeration.

Way Forward

- **Strengthen Data Collection Mechanisms**: Interim surveys like **SRS**, **NFHS**, and leveraging **Aadhaar-linked**

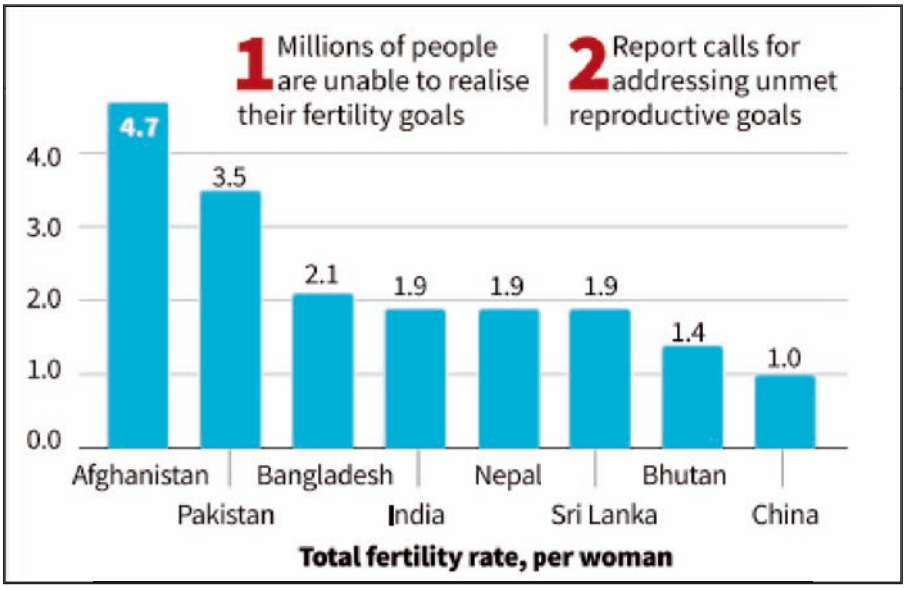

Figure No. 01

service data can bridge the information gap until the next Census.

- **Policy Shift from Population Control to Population Management**: Focus should now be on **healthy ageing, skilling of youth, gender equality**, and **urban infrastructure development**.
- **Support Reproductive Choices**: Ensure access to **quality contraception, maternal health**, and **comprehensive sexuality education**.
- **Promote Balanced Regional Development**: Address regional disparities in fertility through targeted schemes like **Mission Parivar Vikas** in high TFR states.

Key Terms:

Total Fertility Rate (TFR)

- Definition: Average number of children born to a woman during her reproductive years.
- Replacement level = 2.1 (accounts for child mortality and gender ratio).
- TFR < 2.1 leads to **population decline** in the long term unless offset by immigration.
- Demographic Dividend
- The economic benefit that can arise from a significant proportion of working-age population.
- India's window is open till around **2040–2045**.
- Requires **investment in education, skilling, and employment generation**.
- Reproductive Agency
- Defined by UNFPA as the **ability to make free, informed decisions about reproductive health and family planning**.
  - Linked to **SDG-5 (Gender Equality)** and **SDG-3 (Health & Wellbeing)**.

INDIA-EU FREE TRADE AGREEMENT (FTA)

CONTEXT

Union Minister of Commerce and Industry Piyush Goyal expressed optimism about the India-European Union Free Trade Agreement (FTA) and said the deal may be concluded soon.

India-EU Free Trade Agreement (FTA):

Background

- Negotiations started in **2007**, suspended in **2013**, and resumed in **2022**.
- Targeted for conclusion by **end of 2025**.
- Aims to cover **goods, services, investment protection**, and **geographical indications (GI)**.
- Expected to be **India's largest FTA** till date.
- **Key Areas Under Negotiation**
  - **Market Access in Goods:** Tariff reductions in apparel, auto, agriculture.
  - **Services Trade:** Liberalization of IT services and **mobility of professionals**.
  - **Investment Protection Agreement:** To ensure secure and transparent business environments.
  - **Geographical Indications (GI):** Mutual recognition of unique regional products.
  - **Intellectual Property Rights (IPR):** EU pushing for **TRIPS-plus standards**.

India-EU Trade

- EU is India's largest merchandise trading partner, with bilateral trade reaching **USD 135 billion** in fiscal year 2024.
- The EU is India's **second-largest export destination** after the United States. Indian exports to the EU totalled **USD 76 billion**, while imports amounted to **USD 59 billion**.
  - Additionally, trade in services between India and the EU reached a record **USD 53 billion** in 2023, with India exporting **USD 30 billion** in services.

Economic Significance of FTA

- EU is among India's top 3 trading partners and one of the largest FDI contributors to India.
- Free Trade Agreement have the potential to counter trade barriers like **rising US tariffs**.
- It will enable **supply chain diversification** and reduces dependency on China.
- Furthermore, it aligns with India's **strategic autonomy** and EU's **Indo-Pacific vision**.
- It also supports India–EU cooperation in **IMEEC**, **6G**, **semiconductors**, **AI**, and **green hydrogen**.

For India	For EU
Tariff elimination will benefit Indian textiles, agri-exports, and processed foods.	**Access to India's large consumer market** (1.4 billion population).
Generic pharma to get faster regulatory approvals in EU.	Improved **investment security** through investment protection mechanisms.
IT services to gain better access and ease of mobility.	Entry into **India's digital economy**—AI, fintech, and telecom.
Boost to FDI in renewable energy, EVs, and infrastructure.	Greater role in **green energy sector**—solar, wind, hydrogen.

For India	For EU
◦ **Job creation** in MSMEs, manufacturing, and services. ◦ **Tech transfer and innovation** due to stronger IPR framework.	◦ **Supply chain diversification** in line with **China +1** strategy. ◦ Scope for **strategic cooperation** in defence, space, and cybersecurity.

Challenges in Finalising the FTA

- **Agriculture:** India wary of EU demands to open market amidst EU subsidies.
- **Data regulations:** EU's GDPR vs India's evolving data protection laws.
- **Carbon Border Adjustment Mechanism (CBAM):** Affects Indian steel and aluminium exports.
- **IPR concerns:** EU demands stronger IPR protections; India cautious due to generic pharma interests.

Way Forward

- Balance trade liberalization with **protection of domestic sectors**.
- Negotiate **flexible digital trade and data sharing norms**.
- Address EU's CBAM concerns through **green technology cooperation**.
- Use the FTA as a platform to **deepen strategic partnerships** across sectors.

SRI LANKA–CHINA ECONOMIC ENGAGEMENT

CONTEXT

China and Sri Lanka signed two MoUs during the 8th China–Sri Lanka Joint Trade and Economic Commission to deepen bilateral cooperation in trade facilitation and supply chain development, advancing China's Belt and Road Initiative (BRI) in the region.

How are China–Sri Lanka Ties?

- Alongside its role as a prominent trading partner and a major source of imports, China has been Sri Lanka's major lender and source of foreign direct investment for the last 15 years.
  - China invested over **USD 12 billion** in Sri Lanka during this period.
  - **Major projects:**
    - Hambantota Port (leased to China for 99 years in 2017)
    - Colombo Port City Project
- **Equity formula**: China is now moving toward **equity-based interactions** with Sri Lanka as opposed to debt finance.
- **Strategic Interests in Indian Ocean: Indian Ocean Region (IOR)** is key to China's **Maritime Silk Road**. China seeks to counter **US–India naval presence** and secure **sea lines of communication (SLOCs)**.

India's Concerns

- **Opposition to SAGAR Initiative:** China's **"Forum for Indian Ocean Island Countries"** runs counter to India's **SAGAR Doctrine**. It undermines India's vision of **inclusive and cooperative maritime governance**.
- **Strategic Encirclement – Strings of Pearls Strategy:** Network of Chinese-funded ports and bases around India (Gwadar, Hambantota, Kyaukpyu) aims to project Chinese naval power and encircle India geopolitically.
- **Dual-Use Ports: Security Concerns: Hambantota Port** and **Colombo Port City** may support Chinese **military docking, surveillance**, and **intelligence gathering**. There is potential for a **permanent Chinese naval presence** in the IOR.
- **Influence in India's Neighbourhood: Nepal, Bangladesh, Maldives** increasingly engaging China for:
  - Infrastructure funding.
  - Connectivity (railways, roads, bridges).
  - Digital and power sector projects.
- It raises the need for India to counterbalance via **Neighbourhood First Policy** and **Project Mausam/ SAGAR**.

India's redoubled efforts to ramp up its engagement

- India provided financial assistance totalling USD 4.5 billion in 2022 and 2023 to it during its post-pandemic economic meltdown. This played a vital role in helping Sri Lanka obtain an IMF bailout.
- India's outreach to the Dissanayake Government has also seen it convert USD 20.66 million given as lines of credit into grant assistance to reduce Sri Lanka's debt burden.
- India has coined the new term 'Mahasagar' (Mutual and Holistic Advancement for Security and Growth Across Regions) replacing the earlier coinage of 'Sagar' (Security and Growth for All) for countries in the IOR, containing China's influence remains a challenge

INDIA–CENTRAL ASIA CONNECTIVITY

CONTEXT

India's External Affairs Minister Dr. S. Jaishankar emphasized the need to invest more efforts and resources into improving connectivity with Central Asia. The remarks were made during the India–Central Asia Business Council meeting ahead of the 4th India–Central Asia Dialogue (2025). Key focus areas included Chabahar Port, the International North-South Transport Corridor (INSTC), and the use of national currencies for trade settlement.

Why is India engaging with Central Asia again?

- India's engagement with Central Asia is not new. It is rooted in:
  - **Civilisational ties** (Silk Route, Buddhism, cultural exchange),
  - **Strategic concerns** (Afghanistan, Pakistan, China),
  - **Energy security**
  - The **new Great Game** involving powers like Russia, China, USA.
- But recently, India has **shifted its approach from geopolitics to development cooperation**, especially after the **Taliban's return in Afghanistan**, **Iran joining SCO and BRICS**, and **China's growing economic and security presence in Central Asia through BRI**.
- **Strategic Importance of Central Asia to India**
  - **Geopolitical Relevance**: Central Asia lies at the intersection of Russia, China, Iran, and South Asia—vital for regional balance and energy security.
  - **Energy and Resources**: Rich in hydrocarbons, uranium, and minerals; key to India's energy diversification strategy.

India–Central Asia Dialogue

- It is a **foreign ministers' level dialogue**, started in **2019**.
- It brings together India and the **five Central Asian Republics (CARs)**: **Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan**.

  - **Connectivity Corridor**: Acts as a bridge between **South Asia and Eurasia** via Iran (Chabahar) and Afghanistan.

Why This Shift Now? (Key Drivers)

- **Post-US Afghanistan vacuum** opened space for regional powers.
- **China's BRI projects** are reshaping infrastructure and trade.
- **Russia's focus on Ukraine war** and Western sanctions weaken its dominance.
- **Iran's rise** in SCO and BRICS reshapes regional alignments.
- **India's Digital and Development Diplomacy** is gaining global acceptance (Global South outreach).

India's Connectivity Initiatives

- **Chabahar Port:** It is gateway to **Afghanistan and Central Asia** bypassing Pakistan.
  - India is developing the **Shahid Beheshti terminal**.
  - Forms a key link to the **International North-South Transport Corridor (INSTC)**.
- **International North-South Transport Corridor (INSTC):** It is a 7,200 km multi-modal network linking **Mumbai–Chabahar–Iran–Caspian Sea–Russia–Europe**. T aims to reduce freight time and cost compared to traditional Suez route.

Challenges:

- Lack of **direct land access** to Central Asia due to **Pakistan's obstruction**.
- Slow progress on **multimodal corridors** like INSTC.
- **Geopolitical instability** in Afghanistan post-2021.
- Competition from **China's Belt and Road Initiative (BRI)**.
- Inadequate **logistics, banking, and regulatory harmonization**.

UPSC PYQ

Q: Examine the strategic significance of the Chabahar port for India. How does it affect India's relations with Iran and Afghanistan? (2017)

REINSTATEMENT OF U.S. TRAVEL BAN

CONTEXT

The U.S. President Donald Trump announced a sweeping travel ban affecting 12 countries, citing national security concerns following a domestic terror incident. The move has attracted widespread international condemnation over concerns of discrimination and human rights violations.

The new Policy

- The travel ban bars entry for citizens of 12 countries including **Afghanistan, Iran, and Libya**, while imposing heightened restrictions on 7 others.
- **Legal Exceptions:** Lawful permanent residents, individuals with existing visas, and certain visa categories such as Afghan Special Immigrant Visas are exempt.
- **Policy Rationale:** The ban is framed as a response to security threats, with scope for periodic revision based on country-specific reforms or emergent threats.

Rationale Behind the Policy

- **Domestic Trigger Event:** The move is linked to the recent Colorado terror incident involving an Egyptian national, though Egypt is not part of the banned list.
- **Broader Justification:** The U.S. administration claims these nations failed to meet minimum security and information-sharing standards necessary for immigration screening.

Global and Legal Repercussions

- **Condemnation by Civil Rights Bodies:** Amnesty International and others have criticized the ban as ***xenophobic*** and discriminatory.

- **Diplomatic Fallout:** Relations with the banned countries and global institutions may suffer, potentially affecting trade, aid, and defense cooperation.
- **Legal Precedents:** Builds on the 2017 Trump-era "Muslim Ban," which was partially upheld by the U.S. Supreme Court but widely contested on constitutional grounds.

TÜRKIYE'S STRATEGIC RECALIBRATION

CONTEXT

Türkiye has been expanding its strategic presence across **West Asia, North Africa, and the Caucasus**. The rise of Islamist regimes and Türkiye's calibrated role in conflicts like Syria and Azerbaijan-Armenia, combined with its NATO membership, signal an evolving geopolitical stance with implications for regional stability and global power alignments.

Türkiye's Dual Role (Islamic Revivalism within a NATO Framework)

Historical Evolution of Turkish Foreign Policy

- **Kemalist Legacy and Western Orientation:** Founded in **1923**, the **Republic of Turkey** under **Mustafa Kemal Ataturk** pursued **secularism**, **republicanism**, and a **"peace at home, peace in the world"** foreign policy.
  - Türkiye joined **NATO in 1952**, marking a clear West-aligned geopolitical orientation.
- **Post-Cold War Realignment:** Following political instability in the 1990s, the **Justice and Development Party (AKP)** led by **Erdogan** gained power in **2002**.
  - Initial years focused on **economic revival** and **EU integration**.

Shift to Neo-Ottomanism and Islamist Foreign Policy

- **Doctrinal Underpinning: Ittihad-i Islam:** Rooted in **Sultan Abdul Hamid II's doctrine** of Muslim unity. Erdogan's foreign policy reflects this legacy — **Islamist revivalism combined with pragmatism**.
- **Arab Spring as a Strategic Opportunity:** Support for Muslim Brotherhood in Egypt, anti-Assad rebels in Syria, and Islamist factions in Libya. Positioning Türkiye as a natural leader of **Sunni Islamic states**, akin to its Ottoman legacy.

Key Regional Engagements

Syria Conflict

- Backed **Free Syrian Army**, later **HTS (Hayat Tahrir al-Sham)** in **Idlib**.
- Carved out **buffer zones** to contain Kurdish influence near its border.
- Maintains uneasy cooperation with **Russia** through **Astana process** and ceasefire pacts.

Azerbaijan-Armenia War (2023)

- Supported **Azerbaijan**, deployed **Bayraktar drones**, and countered **Russian influence** in the Caucasus.
- Instrumental in altering power balance in the **Nagorno-Karabakh region**.

Gulf Engagements

- Maintains military base in **Qatar**.
- Normalized ties with **Saudi Arabia** and **UAE** post-2021, though **distrust remains**.

South Asia Posturing

- Sided with **Pakistan** during India-Pakistan tensions.
- Limited leverage in the **South Asian geopolitical equation**, despite ideological overtures.

Impact on India

Türkiye's Support for Pakistan:

- Repeatedly vocal on Kashmir at UN platforms.
- Backed Pakistan during India-Pakistan military standoffs (e.g., post-Balakot).
- Strategic axis forming among Türkiye-Pakistan-Azerbaijan could challenge Indian interests, especially in Central Asia.

Opposition to India's Global Aspirations:

- Opposed India's candidature at key multilateral fora (e.g., NSG, UNSC).
- Aligns with China and Pakistan on certain geopolitical issues.

Defence and Strategic Competition:

- Türkiye's drone diplomacy (e.g., Bayraktar UAVs) gaining popularity in conflict zones, including areas of Indian interest like Central Asia and the Middle East.
- Türkiye's growing influence in the Organisation of Islamic Cooperation (OIC) can be leveraged to counter India's regional diplomacy.

Polity and Governance (GS-II)

RTE-NEP STANDOFF

CONTEXT

The Madras High Court passed an important judgment regarding funds for implementing the Right to Education (RTE) Act, 2009 in Tamil Nadu. It held that the Union Government's obligation to provide funds for the RTE Act cannot be linked to the state's acceptance or rejection of the National Education Policy (NEP) 2020. This came in the backdrop of Tamil Nadu's refusal to implement NEP 2020 and its complaints about withheld central funds.

Background (RTE Act and Funding Provisions)

- **Right to Education (RTE) Act, 2009** ensures **free and compulsory education to children aged 6–14 years** under **Article 21A of the Constitution**.
- **Section 7 of the Act** provides that:
  - The **Centre and State** have **joint financial responsibility**.
  - **Section 7(3)**: The **Centre shall provide grant-in-aid** to the State as determined **in consultation** with State governments.
  - **Section 7(5)**: The **State is primarily responsible** for implementation, but central support is mandatory.

Issue in Tamil Nadu (NEP 2020 vs RTE Implementation)

- Tamil Nadu opposes NEP 2020 on grounds like:
  - **3-language formula**
  - **Centralization of education policy**
- The **Centre allegedly withheld funds** under **Samagra Shiksha Scheme (SSS)** because of TN's non-implementation of NEP.
- TN argued it couldn't reimburse private schools under **Section 12(1)(c)** of RTE (which mandates 25% quota for disadvantaged students in private unaided schools) because the Centre hadn't released funds.

Broader Significance and Implications

- Strengthening Cooperative Federalism: The judgment reiterates that education is a concurrent subject, and both Centre and States must coordinate. It prevents policy coercion using financial leverage (like forcing NEP through RTE funds).
- Legal Supremacy of RTE Act: NEP 2020 is not binding; but RTE is a statutory obligation. The courts affirm that legal duties cannot be bypassed due to policy disagreements.
- Protection of Children's Educational Rights: It ensures that underprivileged children in private schools are not affected by state–Centre disputes.
- Important Case for Federal Jurisprudence: It adds to the list of cases where ***courts draw a line between Centre's policy preferences and State autonomy*** (example: GST compensation cases, farm laws protests, etc.)

Way Forward:

- **Separate Fund Allocation for RTE:** Union Ministry of Education should establish a **dedicated and protected mechanism** for RTE reimbursements.
- **Reinforcing Cooperative Federalism:** Dialogue-based resolution rather than financial coercion should guide **Centre-State education funding relations**.
- **Early Judicial Resolution:** Supreme Court must expedite hearing on Tamil Nadu's civil suit to avoid prolonged uncertainty in **education service delivery**.
- **Strengthening Monitoring Mechanisms:** Independent audits and disaggregated fund flow tracking under Samagra Shiksha to **ensure RTE mandates are not compromised**.

Samagra Shiksha Scheme (SSS)

- **Launched in 2018**, the Samagra Shiksha Scheme is an integrated scheme for school education, unifying **SSA, RMSA, and Teacher Education** to cover all stages from **pre-primary to Class 12**.
- It aims to ensure **equity and inclusive quality education**, in line with Sustainable Development Goal (SDG)-4 on Education.
- The scheme promotes **ICT integration**, digital classrooms, **DIKSHA portal**, and **foundational literacy and numeracy (FLN)** initiatives such as **NIPUN Bharat**.
- **Financial sharing pattern**: 60:40 between Centre and most States; 90:10 for NE and Himalayan States and UTs with legislature.
- It provides support for **infrastructure development**, **teacher recruitment and training**, **gender-sensitive education**, and **education for CWSN (Children with Special Needs)**.
- The 2023-24 budgetary allocation for Samagra Shiksha was over ₹37,000 crore, reflecting its central role in school education reform.
- **Right of Children to Free and Compulsory Education (RTE) Act, 2009**
- Enacted under **Article 21A of the Constitution**, it mandates **free and compulsory education for children aged 6 to 14 years** as a fundamental right.
- **Section 12(1)(c)** requires **private unaided schools** to reserve **25% of seats** at the entry level for **economically weaker sections (EWS)** and **disadvantaged groups**, with reimbursement from State governments.
- The Act mandates the establishment of **neighbourhood schools**, **pupil-teacher ratio**, **no detention policy**, and **school development plans**.
  - **Section 7** outlines that the **financial burden is to be shared between Centre and States** in an appropriate ratio, reinforcing concurrent responsibility.
  - RTE prohibits **capitation fees**, **screening procedures**, and **corporal punishment**, ensuring child-friendly schooling.
  - The RTE Act remains one of the most significant legislations towards achieving **universal elementary education** in India.

National Education Policy (NEP) 2020

- Approved in July 2020, NEP 2020 is a **comprehensive policy framework** aimed at overhauling India's education system from **preschool to higher education**.

- Replaces the 10+2 structure with a **5+3+3+4 curricular structure**, corresponding to **foundational, preparatory, middle, and secondary stages**.
- Emphasizes **mother tongue/regional language** as medium of instruction till Grade 5 and promotes **multilingualism**.
- Focuses on **early childhood care and education (ECCE)**, **vocational education**, **experiential learning**, and **integration of technology** (e.g., National Digital Education Architecture - NDEAR).
- Advocates for **light but tight regulation**, a **National Assessment Centre (PARAKH)**, and **autonomy to higher education institutions**.
- Although a **non-binding policy**, its implementation depends on **State governments' adoption**, making federal cooperation vital.

CENSUS 2027

CONTEXT

The Union Ministry of Home Affairs as announced that the next Census of India will be conducted in two phases, with March 1, 2027 as the reference date. This Census holds exceptional significance due to its potential linkage with caste enumeration, delimitation, and women's reservation.

Historical Evolution of Census in India

- **Ancient Records**: References to population counts exist in *Kautilya's Arthashastra* and *Ain-i-Akbari* (during Akbar's reign).
- **Modern Census**: Initiated in **1881 under British rule**, with **W.C. Plowden** as the first Census Commissioner.

Legal and Administrative Framework

- **Constitutional Status**: Census is listed under **Union List Entry 69** in the Seventh Schedule.
- **Legislation**: Governed by the **Census Act, 1948**.
- **Functionaries**: Conducted by the **Registrar General and Census Commissioner of India**; field operations managed by **state-appointed officers**, with manpower primarily drawn from the **teaching community**.

- **Synchronous Census**: India has continued with the decennial synchronous census model post-Independence, collecting uniform data nationwide.
- **Caste Enumeration History**: The last full caste enumeration was conducted in **1931** (for Hindus).

Census Process: Methodology and Phases

Phase I – House Listing Operations:

- Collects data on households: drinking water, sanitation, fuel use, availability of kitchen, TV, phone, vehicle ownership, etc.
- Last conducted in **2010** with **35 questions**.

Phase II – Population Enumeration:

- Includes: **Name, age, gender, religion, caste (SC/ ST), literacy, mother tongue, occupation**, etc.
- Usually held in **February**, with **March 1** as the reference date.

Output:

- Provisional figures released within weeks; *final detailed reports* take up to two years.

Significance of Census 2027

Caste Enumeration for All Hindus:

- First time since 1931 that detailed **caste data for all Hindus** may be captured.
- Fulfils long-standing demands of **civil society and political parties**.

Basis for Delimitation (Post-2026 Freeze Lifted):

- Article 82 mandates **reallocation of Lok Sabha seats** post-2026 using census data.
- Risk of **political marginalisation** for southern and smaller northern states.

Women's Reservation Implementation:

- Women's Reservation Act (106th Constitutional Amendment Act, 2023) mandates **1/3rd reservation in Lok Sabha and State Assemblies**.
- **2027 Census data** to be used for operationalising this from **2029 general elections**.

Challenges and Criticism

- **Postponement**: Originally due in 2021 but delayed due to **COVID-19** and now due to **administrative complexity** of caste enumeration.
- **Delimitation Fears**: Southern and NE states fear **loss of political representation** due to population-based seat reallocation.
- **Data Accuracy & Confidentiality**: Need for **robust digital infrastructure** and **data protection mechanisms** for caste-related data.
- **Resource & Capacity Issues**: Concerns over **staff training**, especially in areas with **low digital literacy** and **logistical difficulties**.

INSOLVENCY AND BANKRUPTCY CODE (IBC)

CONTEXT

As of early 2025, more than eight years since the implementation of the IBC (2016), India has seen a total recovery of Rs 3.89 lakh crore with a recovery rate of 32.8% under the framework. However, recent judicial interventions like in the Bhushan Power and Steel case and rising concerns over delays and implementation challenges have renewed debates on the efficacy and predictability of the Code.

Why was the IBC Introduced?

- Before 2016, India lacked a coherent insolvency resolution framework. Multiple laws governed different aspects of insolvency and debt recovery, such as:
  - **SICA (Sick Industrial Companies Act)**
  - **SARFAESI Act**
  - **Debt Recovery Tribunals (DRTs)**
  - **Companies Act provisions on winding-up**
- These laws led to:
  - **Delays in resolution**
  - **Low recovery for creditors**
  - **Weak enforcement of contracts**
  - **Loss of business value and employment**
- To address these issues, the government enacted the **Insolvency and Bankruptcy Code in 2016** as a consolidated, time-bound mechanism for the resolution of distressed assets, applicable to companies, LLPs, individuals, and partnership firms.

Objectives of the IBC

- Establish a **single, unified framework** for insolvency resolution.
- Provide **time-bound resolution** (180–270 days).
- Maximise the value of distressed assets.
- Ensure **credit discipline** and reduce willful defaults.
- Improve **India's Ease of Doing Business ranking**.
- Encourage a **market-driven, creditor-in-control approach**.

Key Challenges Facing the IBC

- Delays Beyond Mandated Timelines: The law provides for resolution within 180 days (extendable to 330). However, many cases stretch well beyond this, some lasting over 600–800 days.
  - Reasons include **judicial delays**, **appeals**, and **lack of capacity in NCLTs**.
- Low Recovery Rates in Several Cases: While high-profile recoveries make headlines, many cases result in haircuts exceeding 70–80%.
  - **Example**: In the **Videocon case**, creditors recovered only **4.15%** of their claims.
- High Rate of Liquidation: About 65% of resolved cases have ended in liquidation rather than revival. It indicates a failure to attract serious bidders or late admission into the process.
- Weak Position of Operational Creditors: Financial creditors dominate the Committee of Creditors (CoC). Operational creditors (e.g., suppliers, employees) often receive minimal or no dues during resolution.
- Judicial Interference and Frequent Litigation: Courts sometimes intervene in commercial decisions made by the CoC. This leads to delays and undermines the creditor-led model envisioned by the Code.

Required Measures

- IBC must balance **judicial scrutiny** with **commercial pragmatism**.
- There is an urgent need to build **legal certainty** around resolution outcomes to sustain investor trust.
- Establishing **time-bound appeals mechanism**, incentivizing **early distress reporting**, and integrating **alternate dispute resolution tools** can ensure long-term resilience.
- As India eyes a USD 5 trillion economy, a predictable insolvency framework is crucial to uphold financial stability and attract capital.

UPSC PYQ

Q: "Insolvency and Bankruptcy Code (IBC) has strengthened the creditor rights and has improved the credit culture in India." Analyse. (2021)

Q: "The emergence of the Insolvency and Bankruptcy Code (IBC) is a landmark reform to address the problem of Non-Performing Assets (NPAs) in the banking sector." Evaluate its performance and highlight the challenges ahead. (2020)

AI-BASED MODEL GARBHINI-GA2

CONTEXT

Researchers from IIT-Madras and THSTI Faridabad have developed an AI-based model called Garbhini-GA2 to improve foetal age estimation using ultrasound scans. Trained on data from Indian women, it significantly outperforms the conventional **Hadlock's formula**, which is based on Caucasian data and often misestimates foetal age in Indian populations.

What is Garbhini-GA2?

- **Garbhini-GA2** is developed collaboratively by IIT-Madras and THSTI.
- It uses **machine learning** to estimate foetal age from ultrasonography data.

- Trained on labelled data from ~3,500 pregnant women in India.
- The model is trained using **annotated ultrasound scans**: size, weight, and body parts of the foetus.

Testing conducted on:

- 1,500 scans from Gurugram Civil Hospital (not included in training).
- 1,000 scans from Christian Medical College, Vellore.

- **Why it matters**: Accurate gestational age is critical to managing **high-risk pregnancies (HRPs)**. AI can personalize care for Indian women by using **India-specific datasets**.

Comparative Accuracy with Global Benchmarks

- Garbhini-GA2 average error: 0.5 days.
- Hadlock's formula error margin in India**:** up to 7 days.
- Hadlock's inaccuracy stems from its reliance on data from **Western populations**, not accounting for **Indian anthropometric variations**.

Significance of AI in Healthcare

- **Revolutionizing Diagnostics:** AI reads medical images (X-rays, MRIs) with expert-level accuracy, reducing diagnostic errors and aiding early detection in fields like radiology and dermatology.
- **Personalized Medicine:** AI combines genomics, lifestyle, and history to design customized treatments, improving outcomes and reducing side effects; used by platforms like IBM Watson Oncology.
- **Accelerating Drug Discovery:** AI speeds up drug design by predicting interactions and structures, cutting costs and timelines—as seen in Insilico's 46-day fibrosis drug discovery.
- **Optimizing Clinical Workflows:** AI tools help doctors with record-keeping, scheduling, and patient flow, reducing burnout and improving hospital efficiency.
- **Remote Monitoring & Telemedicine:** Wearables and AI apps track vitals and assist in early intervention, boosting access in rural areas through chatbots like Babylon Health.
- **Enhancing Medical Training:** AI-powered VR/AR simulations offer hands-on surgical training and adaptive learning, improving skill retention and education quality.

Challenges of AI in Indian Healthcare

- **Poor Rural Infrastructure:** Many health centres lack electricity, internet, or digital tools—hindering AI deployment in rural areas.
- **Fragmented Health Data:** Lack of standardised EHRs and poor interoperability make it hard to train and apply AI models effectively.
- **Digital Divide:** With 45% of Indians offline, especially in rural areas, access to AI-based care remains unequal.
- **Weak Regulatory Framework:** No specific AI law exists; the DISHA Bill is pending, causing uncertainty around liability, safety, and data use.
- **Ethical & Cultural Concerns:** Foreign-trained AI may misdiagnose in Indian settings due to linguistic, cultural, and data mismatches.
- **High Costs:** AI systems are expensive to set up, making adoption hard for small clinics under low public health budgets.
- **Language Barriers:** AI tools struggle with India's diverse languages and dialects, limiting effective communication and reach.

AI in Healthcare

- **AI Chatbots in High-Risk Pregnancy Management**: NGO ARMMAN, with UNICEF and state governments, trains auxiliary nurse midwives (ANMs) to manage HRPs. To support them, it deployed an AI chatbot in 2024 that answers clinical queries in text and voice, offering clinically validated guidance.
- **Virtual Autopsies (Virtopsies):** A virtopsy uses CT/MRI imaging and AI models to examine bodies without dissection. These AI tools, based on convolutional neural networks (CNNs), can detect **causes of death such as** drowning or brain hemorrhage **with up to** 92% accuracy**.**

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SECTION -B

QUICK BYTES

PANDYA-ERA TEMPLE UNEARTHED

CONTEXT

An ancient Shiva temple dating back to 1217–1218 CE, from the later Pandya period, has been discovered in **Udampatti village** of **Melur taluk, Madurai district, Tamil Nadu**, revealing significant inscriptions and socio-economic details. The foundation and inscriptions, attributed to the reign of **Maravarman Sundara Pandya**, shed light on the temple's financial autonomy and the historic geography of the region.

Key Findings

- **Site & Era**: The temple is located in **Udampatti** (ancient name: **Attur**). It belongs to the **13th century CE**, during the reign of **Maravarman Sundara Pandya**.
- **Temple Name**: It is identified as **Thennavanisvaram**, likely named after a Pandya royal title, indicating possible **royal patronage**.

Inscriptions:

- Document **sale deeds** involving the **sale of a waterbody (Nagankudi)** and adjoining lands for **64 kasu** (ancient coins).
- The proceeds were earmarked for the **daily expenses of the temple deity**, showcasing **temple financial autonomy**.
- The **boundaries** of the land and waterbody are clearly described, a rare level of detail in inscriptional records.

Key Figures in Inscriptions:

- **Seller**: Alagaperumal, a chieftain of **Kalavalinadu**.
- **Buyer**: Nambi Perambala Kuthan alias **Kangeyan**.

Cultural Insights:

- The findings indicate **institutionalized temple management** and **land-based revenue systems**.
- It reveals **socio-economic roles** of temples beyond religion—such as managing water resources and local administration.

Pandya Empire

- The Pandya dynasty was an ancient Tamil state in South India that developed during the Sangam Age.
- The Pandyas established their dynastic rule in southern Tamil Nadu by the end of the sixth century CE after kalabhras.
- Capital: Pandya kings preferred Madurai as their capital.
- Time-period: The Pandya dynasty time-period was from 12th to 14th century CE.
- Notable Rulers: Maravarman Sundara Pandya I (1216–1238 CE) – under whose reign this temple was built. Followed by rulers like Jatavarman Sundara Pandya I, who expanded the empire.
- Cultural Contributions: The Pandyas were great patrons of Shaivism and Tamil temple architecture. Temples under their reign often enjoyed land grants, independent revenue, and religious-political status.
- The kingdom co-existed with other dynasties like the Cholas, Cheras, Pallavas, etc., in the Southern Indian regions.

- Decline: Internal succession struggles and invasions by the Delhi Sultanate (Malik Kafur, 1310 CE) led to the eventual fall of the dynasty.

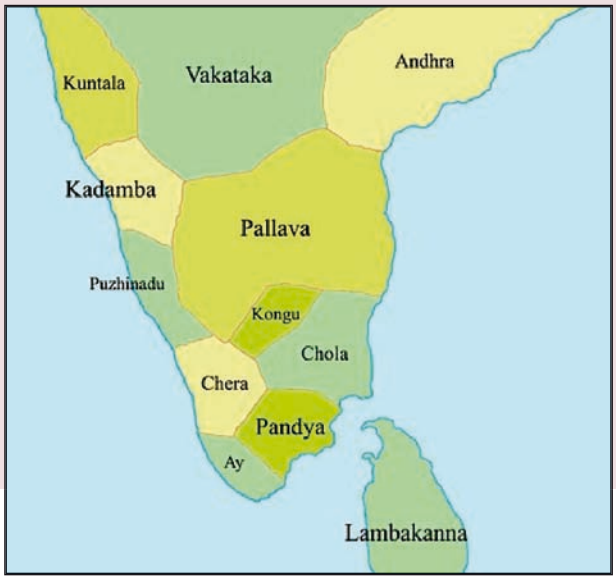

Figure No. 01

BORDER TOURISM OPENS AT SHIPKI-LA PASS

CONTEXT

Himachal Pradesh Government, in coordination with the Union Ministry of Defence, officially launched border tourism activities at Shipki-La Pass (3,930 m) in Kinnaur district. For the first time, this strategic India-China border region has been opened to domestic tourists.

About

- Shipki La pass is a **motorable mountain pass** at an altitude of 3,930 metres in the **tribal Kinnaur district, Himachal Pradesh.**
- It connects India with the **Tibet Autonomous Region (China)** and has been historically used as a traditional **Indo-Tibetan trade route.**
- The strategic pass near the **Line of Actual Control (LAC)** may also work as a new route for the sacred **Kailash Manasarovar Yatra.**
- **Historical trade route:** Shipki La, through which the **Sutlej River** (known as **Langqen Zangbo in Tibet)** enters India, has long served as a vital trade corridor between India and Tibet.
  - Historically, it facilitated the exchange of 37 export items from India—such as agricultural implements, copper products, clothes, tea, and spices—and 20 import items from China, such as **wool, raw silk, yak tails, and herbal medicines.**
- Trade through the pass resumed in 1992 after a hiatus following the **1962 India-China war** but faced setbacks in recent years due to geopolitical tensions, notably the **Doklam standoff**, and was completely halted in 2020 amid the COVID-19 pandemic.

UKRAINE'S DNIPROPETROVSK REGION

Context:

In June 2025, Russia announced that its forces had reached the border of **Ukraine's Dnipropetrovsk region** for the first time since the conflict began. This marks a significant territorial escalation beyond the five Ukrainian regions Russia formally claims. The move threatens Ukraine's industrial and mining hub, posing risks to Kyiv's military resilience and economy amid stalled peace negotiations.

Dnipropetrovsk Region

- The Dnipropetrovsk region is situated in **Dnipropetrovsk Oblast**, eastern Ukraine.
- It lies along both banks of the **Dnieper River,** near its confluence with the **Samara River.**
  - **Right Bank**: Part of Dnieper Upland
  - **Left Bank**: Part of Dnieper Lowland
- It is a major industrial hub of Ukraine. **Key sectors:** Aerospace (launch vehicles), metalwork, machinery, chemical production, and agricultural equipment.

Dnieper River

- Dnieper river (1,368 miles (2,200 km)) is the 4th longest river in Europe after the **Volga, Danube, and Ural**.
- **Origin:** Valday Hills, west of Moscow (Russia).
- It flows through Russia, Belarus, and Ukraine, drains into the **Black Sea.**
- **Major Tributaries:** Desna, Sozh, Prypiat, Berezina, Trubizh, Bilozerka, Drut

Figure No. 02 on next page

MILITARY EXERCISE 'NOMADIC ELEPHANT 2025'

CONTEXT

The 17th edition of the bilateral military exercise **'Nomadic Elephant 2025'** between India and Mongolia has commenced at the Special Forces Training Centre in Ulaanbaatar. This edition emphasizes UN peacekeeping simulation, counter-terror operations, and interoperability in semi-urban and mountainous terrains.

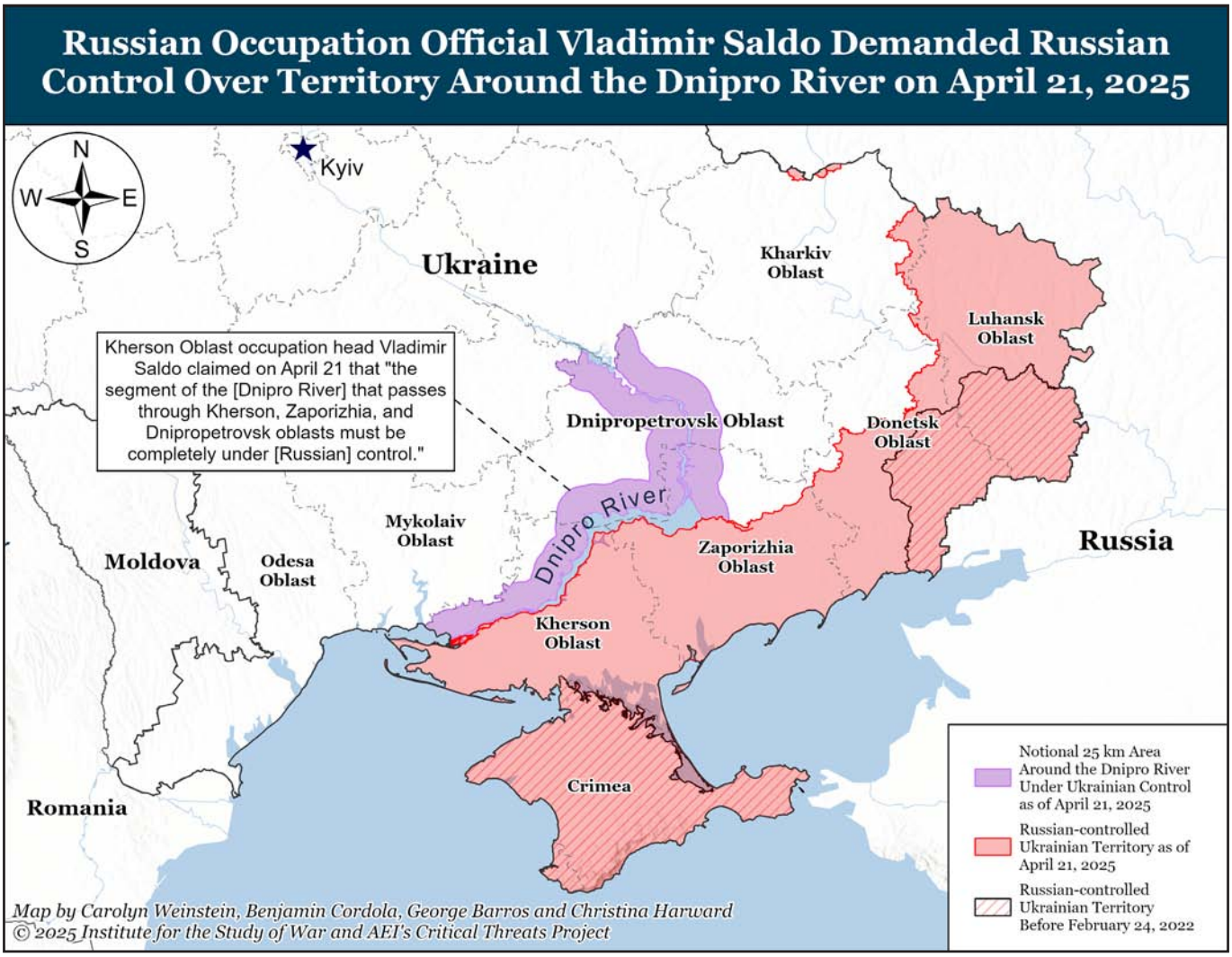

Figure No. 02

About Nomadic Elephant Exercise

- It is a **joint military exercise** between India and Mongolia.

Other Military Exercises:

- **Yudh Abhyas – India & United States**
- **Indra – India & Russia**
- **Mitra Shakti – India & Sri Lanka**
- **Shakti – India & France**
- **Surya Kiran – India & Nepal**
- **Garuda Shakti – India & Indonesia**

- The training focuses on conducting non-conventional operations in semi-urban and mountainous terrain under a United Nations mandate.
- The objective is to enhance the operational capabilities of both forces.
- This **annual exercise** is conducted alternately in India and Mongolia since 2006.

HIGH SEAS TREATY (BBNJ AGREEMENT)

CONTEXT

At the United Nations Oceans Conference (UNOC) in Nice, France, Union MoS Dr. Jitendra Singh announced that India is in the process of ratifying the "Biodiversity Beyond National Jurisdiction (BBNJ)" Agreement, reaffirming the country's commitment to **Sustainable Development Goal-14 (Life Below Water).**

What is the BBNJ / High Seas Treaty?

- The **BBNJ Agreement** is a legally binding instrument under the **United Nations Convention on the Law of the Sea (UNCLOS)**.
- It focuses on the **conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction (ABNJ)**—i.e., **the high seas**, which make up nearly **two-thirds of the world's oceans**.

Key Provisions of the Treaty:

- Establishment of **marine protected areas (MPAs)**.
- Guidelines for **environmental impact assessments (EIA)** for ocean activities in ABNJ.

- Equitable **sharing of benefits from marine genetic resources (MGRs)**.
- **Capacity building** and **marine technology transfer**, especially for developing countries.

India's Position and Initiatives:

- India has **signed** the BBNJ Agreement and is currently moving toward **ratification**.
- India supports the **Nice Ocean Action Panels**, especially **Panel-4**, which targets **reduction of land-based marine pollution**.
- India has proposed a **Six-Point Strategy** for clean oceans, aligning with SDG-14:
  - Prevention of marine litter and land-based pollution.
  - Conservation of coastal and marine ecosystems.
  - Reduction of carbon emissions from maritime activities.
  - Capacity building and partnerships for blue economy.
  - R&D in marine biodiversity and deep sea mining.
  - Financing mechanisms for ocean health initiatives.

G7 SUMMIT PARTICIPATION

CONTEXT

Prime Minister Narendra Modi confirmed his upcoming participation in the **G7 Summit in Kananaskis, Canada**, following an invitation from Canadian counterpart Mark Carney.

About the G7

- The **Group of Seven (G7)** is an intergovernmental forum consisting of:
  - **Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States**.
  - It is an informal bloc of industrialized democracies that meets annually to discuss global economic governance, security, energy, and climate change.
  - The **European Union (EU)** also participates in G7 meetings.
- G7 summits are **rotationally hosted** by member countries.

India and the G7

- **India is not a G7 member** but has often been invited as an **Outreach Partner** or guest country.
- India's inclusion reflects the **G7's expanding engagement with emerging powers**, especially amid shifting global power dynamics.
- It provides India with a platform to:
  - Advocate for **multilateral reforms**
  - Discuss **global technology governance**
  - Push for **climate equity** and **energy transition financing**
  - Showcase initiatives like **Lifestyle for Environment (LiFE)** and **Digital Public Goods**

BRICS PARLIAMENTARY FORUM

CONTEXT

India has assumed the chairmanship of the **12th BRICS Parliamentary Forum**, following the conclusion of the 11th forum in Brasilia, Brazil. The member nations unanimously condemned the recent terrorist attack in Pahalgam and agreed on a zero-tolerance policy toward terrorism. The forum emphasized enhanced cooperation on counter-terrorism, technology, trade, and global peace.

BRICS Parliamentary Forum:

- It is a platform for parliamentary dialogue among BRICS nations**: Brazil, Russia, India, China, and South Africa**, now expanded to include **Iran, UAE, Egypt, Ethiopia, and Indonesia.**
- The forum facilitates discussions on cooperation in areas like security, economic development, and technology.

Counter-Terrorism Consensus:

- The forum's declaration strongly condemns terrorism, highlighting the Pahalgam attack.
- Calls for enhanced intelligence sharing, financial crackdown on terror groups, and curbing misuse of emerging technologies.
- Reflects India's proactive approach in global anti-terrorism diplomacy.

BRICS

- The acronym "BRIC" was coined in 2001 by British economist Jim O'Neill for Brazil, Russia, India, and China.
- Formal grouping began in 2006 during the G8 Outreach Summit.
- First BRIC Summit held in Russia in 2009.
- South Africa joined in 2010, making it BRICS.
- **Member Countries**
  - **Core BRICS members**: Brazil, Russia, India, China, South Africa.
  - **Expanded BRICS+ members**: Egypt, Ethiopia, Iran, Saudi Arabia, UAE.
  - Represents about 45% of the world population and 37.3% of global GDP.

MALTA'S GOLDEN PASSPORT SCHEME

CONTEXT

The **European Court of Justice** has ruled Malta's citizenship-by-investment scheme illegal, stating that granting citizenship in return for payments violates EU principles. This decision also affects similar programmes in Cyprus and Bulgaria and shifts attention toward legal residency-by-investment routes.

What Was the Malta Golden Passport Scheme?

- In 2020, Malta launched a **Citizenship by Investment (CBI)** scheme. Under this, wealthy foreign nationals could **buy Maltese citizenship** by making a **large financial investment** in Malta. This practice is commonly referred to as issuing *"golden passports."*
- Since Malta is a member of the **European Union (EU)**, getting Maltese citizenship also means gaining **EU citizenship**, which comes with significant benefits:
  - The right to live and work anywhere in the EU (freedom of movement),
  - The right to vote in EU/local elections,
  - Access to EU financial and social systems

Why Did the European Union Object?

- While **EU countries have the right to decide who gets their nationality**, there are some shared rules under **EU law**, especially since EU citizenship is **automatic for all citizens of EU member countries**.
- The **European Commission** (the EU's executive body) argued that:
  - Malta was **commercializing EU citizenship** by selling it, not granting it based on real ties like residence or cultural integration.
  - The scheme **undermined EU values** like fairness, sincere cooperation, and trust between member states.
  - People were not seeking Maltese nationality for national identity or long-term integration, but simply for EU benefits like **visa-free travel**, tax advantages, or business mobility.
  - There were **security risks**: CBI schemes globally have been criticized for allowing **money laundering, corruption, and criminal infiltration** into the host country.

What Are CBI and RBI?

- **CBI (Citizenship by Investment):** Buying citizenship through direct investment.
- **RBI (Residency by Investment):** Also known as *golden visas*, these allow residency and eventually citizenship through investment.

ECINET TURNOUT UPDATE

CONTEXT

The Election Commission of India (ECI) has announced the integration of a new **automated voter turnout reporting feature** in its unified mobile application **ECINET**, to be launched before the **Bihar Assembly Elections in November 2025**. This move follows criticism regarding **delayed and inconsistent voter turnout data** during the **2024 Lok Sabha Elections**, raising concerns over transparency and electoral integrity.

Background Context:

- During the **2024 General Elections**, the ECI faced political and public criticism over the **delay and subsequent revision** in voter turnout figures released for the first and second phases.
- Turnout data released 11 days post-polling showed discrepancies of **5–6 percentage points** over initial data, which led to allegations of opacity.

Current Process of Voter Turnout Collection:

- At present, **Presiding Officers** report turnout manually to **Sector Officers** and **Returning Officers (ROs)** via phone/text.
- Data is then compiled and uploaded to the **Voter Turnout App** manually every two hours.

Reform Announced:

- **ECINET**, a **unified application** consolidating 40+ existing ECI apps (e.g., electoral rolls, affidavits, turnout), will enable **direct digital entry** of turnout data by each **Presiding Officer** every 2 hours.
- Turnout figures will be **automatically aggregated and made publicly viewable**, ensuring real-time transparency and minimizing delay.

Legal Framework:

- **Form 17C** under the **Conduct of Election Rules, 1961** mandates booth-wise voter turnout disclosure to candidates' polling agents.
- Statutory completion of polling formalities takes precedence over real-time updates, especially in **remote constituencies**, according to the ECI's clarification.

AYUSH NIVESH SAARTHI' PORTAL

CONTEXT

The Government of India launched the 'Ayush Nivesh Saarthi' portal during the Ayush Stakeholder/Industry Interaction Meet held at Vanijya Bhawan, New Delhi. Developed by the Ministry of Ayush in collaboration with Invest India, the portal aims to attract domestic and foreign direct investment (FDI) in the traditional medicine sector, aligning with India's goal to become a global hub for holistic healthcare and wellness.

About the Portal:

- The **'Ayush Nivesh Saarthi'** is an **investor-centric digital platform**.
- It integrates:
  - **Policy frameworks**
  - **Incentive structures**
  - **Investment-ready projects**
  - **Real-time facilitation** for domestic and global investors.
- Developed by **Ministry of Ayush + Invest India**.
- **FDI in Ayush Sector: 100% FDI** is permitted through the **automatic route** in the Ayush sector. The platform is intended to facilitate smooth and transparent investor engagement.

Economic Significance:

- The **Ayush sector** contributes significantly to India's **USD 13 billion Medical Value Travel (MVT)** industry.
- The sector saw a **17% annual growth rate (2014–2020)**.
- India hosts over **8,000 species of medicinal plants**, giving it a natural advantage in the global wellness market.

UMEED PORTAL

CONTEXT

The government launched the **UMEED Central Portal**, a unified digital platform designed for real-time uploading, verification, and monitoring of Waqf properties across India. The initiative aims to enhance transparency, accountability, and public participation in the administration of Waqf assets, ensuring they serve the intended beneficiary communities effectively.

Need for UMEED Portal:

- Waqf is a religious endowment under Islamic law, where property is dedicated in perpetuity for charitable, religious, or social welfare purposes, often benefiting the Muslim community.
- Historically, Waqf properties suffered from poor management, encroachments, lack of transparency, and misuse, impacting the socio-economic upliftment of intended beneficiaries.

Key Features of UMEED Portal:

- Creation of a digital inventory of all Waqf properties with geo-tagging for precise identification.
- Real-time uploading and verification of property data to prevent loss or encroachment.
- Online grievance redressal mechanism enhancing responsiveness and citizen participation.
- Transparent leasing and usage tracking to ensure Waqf assets are used as intended.
- Integration with GIS mapping and e-Governance tools to modernize Waqf management.
- Public access to verified records promoting accountability.

Significance:

- The portal is a major step towards digitizing and reforming Waqf property administration in India.
- It supports the socio-economic development of minority communities by safeguarding and efficiently managing their assets, particularly benefitting underprivileged Muslims, including women and children.

BHARATIYA BHASHA ANUBHAG (BBA)

CONTEXT

The Union Home Minister launched the *Bharatiya Bhasha Anubhag (BBA)* to provide an organized digital platform for advancing the use of Indian languages in official communication. This move is aligned with the government's objective to reduce dependency on foreign languages, particularly English, and strengthen linguistic diversity and inclusivity in governance.

What is Bharatiya Bhasha Anubhag (BBA)?

- It is a newly launched Indian Languages Section under the Ministry of Home Affairs.
- Aims to create a unified platform to promote all Indian languages in official communication and reduce dependence on foreign (English) language.

Linguistic Framework and Constitutional Backing:

- The initiative aligns with **Articles 343 to 351** of the Constitution, which deal with the *Official Language* of the Union and the promotion of Hindi and other Indian languages.
- BBA supports the **Official Languages Rules**, which classify States into Region A, B, and C for the purpose of official language communication.

Significance for Federal Communication:

- Region C States like Tamil Nadu, Kerala, and Karnataka often raise concerns about the dominance of Hindi or English.
- The BBA seeks to empower regional language use in Central communication, reinforcing **linguistic federalism** and **democratic inclusion**.

HASHISH OIL SMUGGLING NETWORK

CONTEXT

The Rachakonda Police and Special Operations Team (SOT) arrested two individuals involved in an interstate narcotics smuggling operation, seizing 20 kg of hashish oil worth Rs 1.2 crore. The consignment was being trafficked from Andhra Pradesh and Odisha via Hyderabad to Bengaluru, which is emerging as a high-demand market for such contraband.

Nature of the Seized Substance:

- Hashish oil is a highly concentrated extract derived from Cannabis resin (marijuana).
- **Estimated conversion:** 35–40 kg of marijuana is required to produce 1 kg of hashish oil.
- It falls under the psychotropic substances category under the **Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985.**

The NDPS Act prohibits:

- Cultivation, production, possession, sale, purchase, transport, warehousing, and use of narcotic drugs and psychotropic substances without appropriate authorization.
- Punishment under Section 20 or 22 (depending on quantity and type of drug) includes rigorous imprisonment and monetary fines.

KALESHWARAM LIFT IRRIGATION PROJECT (KLIP)

CONTEXT

The Kaleshwaram Lift Irrigation Scheme (KLIS) in Telangana is under investigation by the PC Ghose Commission over alleged irregularities in its design, execution, and financial management during the previous BRS regime. Revenue Minister Ponguleti Srinivasa Reddy affirmed that no individual—regardless of status—would be spared if found guilty.

About

- The **Kaleshwaram Lift Irrigation Project** is a **huge irrigation project in Telangana**, built to lift water from the **Godavari River** and send it across the state to help farmers get water for agriculture.
- It is located at **Kaleshwaram**, in **Bhupalpally district**, Telangana. It starts at the **confluence** of two rivers — **Pranhita and Godavari**.
- It covers **13 districts** across Telangana.
- It is the world's largest multi-stage lift irrigation project.
- Normally, water flows by gravity. But here, water is lifted (pumped) to higher areas using massive electric pumps, which is very rare and technically complex.

What is the goal?

- To provide irrigation water to **increase farming area** (called **Culturable Command Area**) by nearly **18 lakh acre-feet**.
- Also to **stabilize** existing irrigation systems that depend on rainfall or uncertain water.

FOREIGN DIRECT INVESTMENT (FDI)

CONTEXT

As per the data released by the Department for Promotion of Industry and Internal Trade (DPIIT), Maharashtra and Karnataka together accounted for 51% of the total Foreign Direct Investment (FDI) inflows into India during the financial year 2024–25. Maharashtra led with USD 19.6 billion (31%), followed by Karnataka with USD 6.62 billion.

Foreign Direct Investment (FDI)

- FDI refers to investment by a person resident outside India:
  - In an unlisted Indian company, **or**
  - 10% or more equity in a listed Indian company (fully diluted basis).
- It is a **long-term**, **non-debt creating** capital flow.

Routes of FDI

- **Automatic Route:** No prior government approval required. Post-investment notification to RBI is mandatory.
- **Government Approval Route:** Prior approval needed from the relevant Ministry/Department. Typically applies to sensitive sectors (e.g., defence, telecom).

Regulatory Framework

- Governed by **FDI Policy, 2020**.
- Regulated under **FEMA (Non-Debt Instrument) Rules, 2019**.
- **DPIIT**: Drafts and oversees policy on FDI.
- **RBI**: Administers operational aspects and compliance of FDI.

INDIGENOUS CULTIVATION OF HEENG (*ASAFOETIDA*)

CONTEXT

Scientists at CSIR-IHBT, Palampur reported the first flowering and seed setting of **heeng (Ferula assa-foetida)** in India, confirming successful acclimatisation and reproductive cycle completion, marking a historic milestone in the indigenous cultivation of heeng after decades of import dependence.

About Heeng (Asafoetida)

- Raw asafoetida (*Hing*) comes from the sap of the roots and stem of the ***Ferula assa-foetida L* plant**, a member of the **Apiaceae family,** which also includes **carrots, celery, and parsley.**
- **Type**: Perennial herb, native to **Iran, Afghanistan, Central Asia**.
- **Climate Suitability** The plant can grow up to six feet tall and has large, fleshy roots. The plant requires a cold climate, arid but sunny.
- **Regions Identified for Cultivation:** It is found mostly in the desert-like higher regions of Afghanistan, Kazakhstan, Uzbekistan, and Iran. It is very finicky and grows stubbornly on its own.

India:

- **High-altitude regions: Lahaul-Spiti, Kinnaur, Kullu, Chamba.**
- **Mid-hill areas: Mandi (e.g., Janjheli).**

- India is the **world's largest consumer** of Heeng. But India **did not grow** Heeng at all. **100% of Heeng was imported** from countries like Iran, Afghanistan, and Uzbekistan.
- **Challenges in Cultivation: Heeng plants:**
  - **Need** cold, dry climates**.**
  - **Grow in** sandy, well-drained soil**.**
  - **Take** 5 years to mature **and flower.**
- **Seeds had** low germination **and long** dormancy periods**.**
- **Indian scientists developed** special techniques **for Indian conditions.**

Where is Heeng being cultivated in India?

- Mainly in **Himachal Pradesh**, including:
  - **High-altitude cold deserts**: Lahaul-Spiti
  - **Mid-hills**: Mandi, Kinnaur, Chamba, Kullu
- Early adopter villages include:
  - **Lahaul & Spiti**: Kwaring, Salgran, Keylong
  - **Mandi**: Janjehli, Majhakhal
  - **Kinnaur, Kullu, Chamba** districts

RAJASTHAN WATER CONSERVATION MODEL

CONTEXT

A sustainable and climate-resilient rural water conservation project has been launched to tackle **groundwater crisis** in Rajasthan. **50 climate-resilient farm ponds** built to **store 10 crore litres of rainwater**.

About the Model

- The model involves the construction of **climate-resilient farm ponds** to conserve rainwater and support sustainable agriculture.

Key Features of the Model

- Farm Ponds: Each pond is 10 feet deep, plastic-lined, and built on 5% of a farmer's land. Secure fencing protects the pond area.
- Implemented in: Dausa (earlier success) – 250 ponds helped perennial farming. It is now extended to Kukas village, Jaipur.
- Impact & Future Plan: Already 50 ponds built, with 25 more planned. Further, it aims to benefit 50,000 villagers.

Groundwater Crisis in Rajasthan

- Rajasthan (2023) extracted 149% of its annual groundwater recharge (2nd highest in India after Punjab). For every 1 litre recharged, 1.49 litres were used.
- Jaisalmer is India's Worst-hit. It extracted 3.56 litres for every 1 litre of recharge. Threat to ancient aquifers.

Water Conservation Methods in India:

Rajasthan and Gujarat

Talab/Bandhi:

- Man-made reservoirs for storing drinking water and domestic use.
- Found in water-scarce areas of Rajasthan.

Jhalaras:

- Rectangular step-wells, often near temples or forts.
- Designed to collect seepage from lakes or upstream reservoirs.

Baoli:

- Decorative stepwells with arches and artistic motifs.
- Socially inclusive; open to all communities.

Kund:

- Saucer-shaped catchments leading to a central well.
- Common in arid regions of Gujarat and Rajasthan.

Bawari:

- Stepwells that divert runoff into artificial tanks using canals on slopes.
- Especially designed for hill terrains.

Taanka:

- Cylindrical underground pits, lined with lime or stone.
- Harvests rainwater from rooftops and prepared catchments in the Thar Desert.

Nadi:

- Village ponds to collect surface runoff.
- Acts as a community water source during dry periods.

Himalayan & Northeastern Regions

- Bamboo Drip Irrigation (NE India):
- Indigenous technique using bamboo channels to transport water.
  - Sustainable method using gravity flow from perennial springs.

Zings (Ladakh):

- Small, mud-lined tanks to store glacier meltwater.
- Supports irrigation in high-altitude areas.

Kuhls (Himachal Pradesh):

- Surface water channels drawing water from rivers/ glaciers.
- Community-managed; supports irrigation in terraced fields.

Other Regions

Jackwells (Great Nicobar):

- Bamboo-lined pits that collect rainwater.
- Built using local wood and natural materials.

- Ramtek Water Harvesting System (Maharashtra):
  - Ancient network of tanks, both surface and underground.
  - Connected via canals ensuring water flows from foothills to plains.

CHINA'S STRATEGIC PUSH FOR DEEP-SEA MINING

CONTEXT

A Canadian company, The Metals Company, has initiated deep-sea mining operations in international waters by leveraging a 1980 U.S. law. This move, bypassing international consensus, has reignited global attention toward seabed mining. Meanwhile, China, despite lagging technologically, is actively securing strategic contracts and developing its capabilities for deep-sea mining, indicating long-term geopolitical ambitions.

What is deep-sea mining?

- Deep-sea mining involves extracting mineral deposits from seabeds deeper than 200 meters below the ocean surface.
- These areas cover about 65% of the Earth's surface and host diverse ecosystems and geological features, including mountains, canyons, and hydrothermal vents like those in the **Mariana Trench.**
- **Targeted Commodity:** Miners target critical minerals such as nickel, copper, cobalt, and manganese.
- **Coastal state rights:** Countries have the rights to explore and exploit the natural resources of the seabed and subsoil within their **territorial sea and exclusive economic zone (EEZ),** which normally extends **200 nautical miles beyond a nation's territorial sea.**
- Nations can claim rights over even more seabed on the continental shelf under **certain circumstances.**
  - **Norway and the Cook Islands** are among the nations actively pursuing mining in the waters under their control.

How might deep-sea mining affect the ocean?

- Mining could harm deep-sea habitats and species like octopuses and sponges by destroying their homes.
- Removing hydrothermal vents and crusts on seamounts would disrupt thriving animal communities.
- Sediment plumes from mining might be toxic and could smother downstream ecosystems, while noise and light pollution could disturb deep-sea creatures adapted to extreme conditions.

What is the International Seabed Authority?

- The **International Seabed Authority (ISA),** based in **Jamaica,** regulates mineral exploitation in international waters under the **UN Convention on the Law of the Sea.**
- It has issued exploration contracts for areas like the **Clarion-Clipperton Zone** in the Pacific Ocean but is still developing regulations for deep-sea mining.
- Pressure is mounting to finalize these rules amid debates over environmental impacts and the equitable use of ocean resources.

FACT BOX

Territorial Sea:

- The territorial sea extends outward from a coastal state's baseline (usually the low-water line along its coast) to a maximum of 12 nautical miles (nm) or approximately 22.2 kilometers.

- **Rights of coastal state:** Within this zone, the coastal state exercises full sovereignty, including the right to regulate and enforce laws regarding customs, immigration, and pollution.

Exclusive Economic Zone (EEZ):

- The EEZ extends beyond the territorial sea to a maximum of **200 nautical miles (370.4 kilometers)** from the baseline, or to the edge of the continental margin where it extends beyond this distance.
- **Rights of coastal state:** Sovereign rights for the purpose of exploring, exploiting, conserving, and managing natural resources, both living (fisheries) and non-living (oil, gas, minerals).

EK PED MAA KE NAAM 2.0'

CONTEXT

The Ministry of Mines organized a plantation drive under the 'Ek Ped Maa Ke Naam 2.0' campaign. The initiative aligns with Prime Minister Narendra Modi's vision of promoting environmental consciousness and emotional resonance by encouraging citizens to plant trees in the name of their mothers.

'Ek Ped Maa Ke Naam 2.0'

- **Ek Ped Maa Ke Naam 2.0** is a **citizen-driven environmental campaign** that combines **afforestation** efforts with **emotional outreach**, launched nationwide by the Government of India.
- The **Ministry of Mines** has actively participated in the second phase of the initiative, showing its commitment to **sustainable development** and **climate responsibility**.
- The campaign promotes the concept of **individual responsibility in environmental conservation**, linking the act of tree plantation to familial and cultural values.
- It reinforces themes of:
  - **Sustainable development goals (SDGs)** – especially SDG 13 (Climate Action) and SDG 15 (Life on Land).
  - **People's participation** in climate initiatives (similar to initiatives like Mission LiFE – Lifestyle for Environment).
  - Strengthening **government-public collaboration** on environmental issues.
- This also complements other ongoing schemes such as:
  - **National Afforestation Programme (NAP)**
  - **CAMPA (Compensatory Afforestation Fund Management and Planning Authority)**
  - **Green India Mission**

FLAMINGO SANCTUARY AT DHANUSHKODI

CONTEXT

The Tamil Nadu government has launched multiple biodiversity and conservation initiatives, including the establishment of the Greater Flamingo Sanctuary at Dhanushkodi on World Environment Day 2025. These efforts aim to protect migratory bird habitats, promote ecotourism, restore native ecosystems, and enhance environmental standards across the state.

Greater Flamingo Sanctuary at Dhanushkodi

- Established by Tamil Nadu government, coinciding with **World Environment Day 2025**.
- **Area: 524.7 hectares**.
- Part of the **Gulf of Mannar Biosphere Reserve**.
- Includes diverse ecosystems: **mangroves**, **mudflats**, supporting marine life and nesting birds.
- Aims to protect **migratory bird habitats** and enhance **regional biodiversity**.

Ecological Importance of Dhanushkodi

- Located on the **Central Asian Flyway**, a major migratory bird route between Eurasia and the Indian subcontinent.
- Recent bird surveys: over **10,700 wetland birds**, representing **128 species**.
- Key species: **Greater Flamingo, Lesser Flamingo, herons, sandpipers**.
- Mangroves serve as:
  - Natural coastal erosion barriers.
  - Breeding grounds for wildlife.

Government Initiatives for Biodiversity Conservation

- Issued a **Government Order (GO)** underscoring the sanctuary's ecological value.
- Launched the **Raptors Research Foundation** to protect birds of prey like **eagles and vultures**.
- The foundation's role:
  - Conservation measures.
  - Community awareness and education.

Greater Flamingo (Phoenicopterus roseus)

Taxonomy and Conservation Status

- **Scientific Name:** *Phoenicopterus roseus*
- **IUCN Red List Status:** Least Concern (LC)
- **CITES Status:** Appendix II (trade controlled to avoid utilization incompatible with survival)
- **State Bird:** Gujarat
- **Habitat and Geographic Distribution**

Global Range:

- Africa (including the Great Rift Valley Lakes)
- Southern Europe (Spain, France, Italy)
- Southwestern and South Asia (including India, Pakistan, Iran)

- **Preferred Habitat:**
  - Saltwater lagoons, estuaries, saline and alkaline lakes, coastal mudflats, and mangrove wetlands.

Presence in India

- Found along the **coastal belts of Gujarat, Maharashtra, Tamil Nadu**, and parts of Andhra Pradesh.
- **Important Flamingo Sites in India:**
  - **Rann of Kutch** and **Bhavnagar** (Gujarat)
  - **Thane Creek Flamingo Sanctuary** (Maharashtra)
  - **Pulicat Lake** (Tamil Nadu–Andhra Pradesh border)
  - **Point Calimere** (Tamil Nadu)
  - **Gulf of Mannar Biosphere Reserve**, including Dhanushkodi

Migration and Breeding

- **Migratory Behavior:**
  - Seasonal migrants within Asia; move from **Gujarat to Mumbai and Tamil Nadu coasts** during winter (November to May).
  - Migration driven by **food availability**, **water level changes**, and **intra-species competition**.
- **Breeding Colonies:**
  - Rann of Kutch is a major breeding ground in India.

Biological and Ecological Characteristics

- **Social Behavior:** Highly social; live and migrate in large flocks.
- **Monogamous Pairs:** Pair-bonded for life; cooperative parenting.
- **Coloration:** Pink coloration due to dietary intake of carotenoids (from brine shrimp and algae).

Ecological Indicator:

- Presence indicates a **healthy wetland and saline ecosystem**.
- Sensitive to pollution, habitat degradation, and hydrological changes.
- **Feeding Habits**
- **Diet:** Omnivorous
  - **Animal Sources:** Brine shrimp, molluscs, crustaceans, insects, crabs, worms, small fishes.
  - **Plant Sources:** Algae, grass, decaying organic matter, shoots.
- **Feeding Mechanism:** Filter feeders; use specialized beaks and tongue movements to trap food particles.

Conservation Concerns

- **Threats:**
  - Habitat loss due to urbanization, industrial projects near wetlands.
  - Pollution and eutrophication of water bodies.
  - Disturbance from unregulated tourism and reclamation activities.
- **Protection Measures in India:**
  - Establishment of **Greater Flamingo Sanctuary (2025)** at **Dhanushkodi**, Tamil Nadu.
  - Flamingo Festivals (e.g., Pulicat Flamingo Festival) to raise awareness.
  - Designation of Flamingo habitats as **protected areas, Ramsar Sites**, and inclusion in **Biosphere Reserves**.

EXPANSION OF KAZIRANGA NATIONAL PARK

CONTEXT

The Assam Cabinet approved the sixth expansion of Kaziranga National Park and Tiger Reserve by adding 47,306.33 hectares to enhance biodiversity conservation and sustainable tourism. The park, a UNESCO World Heritage Site, currently spans 1,302 sq. km. and hosts over 2,600 one-horned rhinos and a high tiger density

Kaziranga National Park & Tiger Reserve:

- Located in Assam, Kaziranga is globally renowned for its population of the **Indian one-horned rhinoceros**, the highest in the world (~2,613 rhinos).
- It also has a **high density of Bengal tigers** — estimated at 32.64 tigers per 100 sq. km, one of the highest tiger densities worldwide.
- The park is a **UNESCO World Heritage Site** due to its rich biodiversity and successful conservation efforts.

Expansion Details:

- Area expanded by **47,306.33 hectares** as the sixth addition.
- Total area post-expansion would increase significantly beyond the existing 1,302 sq. km.
- Expansion aims to strengthen conservation of endangered species and their habitats and boost sustainable ecotourism.

Exclusion of Villages:

- To balance conservation with local interests, **10 villages** (Baligaon, Biswanath Ghat, Gakhirkhaite, Gonaitapu, Gopal Jarani, Hatimura, Jobre, Silghat, Thute Chapori, and Umatamoni) have been excluded from the expansion zone.

- This decision addresses human-wildlife conflict and social impact issues.

INDIA'S FIRST E-WASTE ECO PARK

CONTEXT

The Delhi government is setting up India's first e-waste Eco Park in Holambi Kalan to scientifically manage and recycle electronic waste. Spanning 11.4 acres, the park aims to process 25% of Delhi's e-waste, promote circular economy practices, and create green jobs.

Delhi E-Waste Eco Park:

- **Location:** Holambi Kalan, Delhi
- **Area:** 11.4 acres
- **Annual Capacity:** 51,000 metric tonnes of e-waste
- **Categories Covered:** All 106 notified under E-Waste (Management) Rules, 2022
- **Project Model:** DBFOT (Design, Build, Finance, Operate, Transfer) under Public-Private Partnership (PPP)
- **Timeline:** 18 months for completion
- **Concession Period:** 15 years

Policy & Governance Framework

- **Guided by:** E-Waste (Management) Rules, 2022
- **Managed by:** Delhi State Industrial and Infrastructure Development Corporation (DSIIDC)
- **Technological Partners:** To be selected via global RFQ-cum-RFP
- **Objective:** Circular economy promotion, formalisation of informal sector, resource recovery

Environmental and Socio-Economic Impact

- **India's Global Rank**: 3rd largest e-waste producer (1.6 million MT annually)
- **Delhi's Share:** ~9.5% of India's e-waste
- Recycled E-waste (Global Average): 17.4%
- **Park's Role**: Model facility to inspire replication, empower informal recyclers, generate green jobs, and improve environmental health

E-Waste (Management) Rules, 2022

Extended Producer Responsibility (EPR)

- Producers are **mandated to meet annual recycling targets** through **registered recyclers only**.
- **EPR certificates** are issued to ensure accountability and compliance.
- **Product Coverage Expanded**
- Scope expanded from **21 to 106 categories** of Electrical and Electronic Equipment (EEE).
- Applicable from **FY 2023–24 onwards**.
- **Role of Bulk Consumers**
- Public institutions, offices, and large consumers must dispose of e-waste only through registered refurbishers or recyclers.
- **Authorized Stakeholders**
- Only **registered recyclers and refurbishers** are allowed to manage collection, dismantling, refurbishing, and recycling.

KATRIN EXPERIMENT

CONTEXT

The Karlsruhe Tritium Neutrino Experiment (KATRIN) in Germany has recently announced a new upper limit on the combined mass of all three types of neutrinos, improving the previous limit by a factor of two. The new constraint, based on 259 days of data between March 2019 and June 2021, sets the sum of neutrino masses at less than 0.8 eV or 8.8×10^{-7} times the mass of an electron.

What is KATRIN?

- The **Karlsruhe Tritium Neutrino Experiment (KATRIN)** is a precision experiment designed to measure the mass of neutrinos by examining the beta decay of tritium. It uses a large spectrometer to detect tiny changes in the energy spectrum of emitted electrons.

Why Tritium Decay?

- Tritium (^{3}H) undergoes beta decay into helium-3, releasing an electron and an electron antineutrino. The energy distribution of the emitted electron helps infer the mass of the neutrino.

Why Measuring Neutrino Mass is Hard?

- Neutrinos interact extremely weakly with matter and have an extremely small mass (nearly zero). The Standard Model originally predicted them to be massless, so their mass points toward **new physics beyond the Standard Model**.

Significance of New Limit:

- KATRIN set a new upper limit on the **sum of the three neutrino masses at 0.8 eV**, the most robust limit not dependent on cosmological assumptions or unverified decay processes (like neutrinoless double-beta decay).

Complementary Efforts:

- Cosmological experiments (like Planck) estimate neutrino mass based on galaxy structure, setting even tighter limits (around **0.12 eV**), but those are model-dependent. KATRIN is model-independent.

QRSAM ACQUISITION

CONTEXT

The Indian Army is set to acquire three regiments of the indigenously developed Quick Reaction Surface-to-Air Missile (QRSAM) systems, amounting to an estimated ₹30,000 crore. The Defence Ministry is likely to approve the proposal soon. This development follows the operational success of Indian air defence forces during Operation Sindoor, amidst heightened aerial threats from Pakistan and China.

Quick Reaction Surface-to-Air Missile (QRSAM):

Purpose & Significance

- Developed by **DRDO** for the **Indian Army**.
- Designed to **protect mobile armoured units** against aerial threats like aircraft, helicopters, UAVs, and precision-guided munitions.
- Ensures **quick reaction time** in dynamic battlefield scenarios.

Canister-Based System

Advantages:

- Provides controlled environment for the missile, enhancing shelf life.
- Simplifies transportation and launch readiness.
- Enables cold launch capabilities with faster deployment.

Radar and Tracking Features

Equipped with:

- Active Array Battery Surveillance Radar (AABSR).
- Active Array Battery Multifunction Radar (AABMFR).

Both radars offer:

- 360-degree coverage.
- Search-on-the-move and track-on-the-move functions.
  - Supports **simultaneous detection and tracking** of multiple targets in real-time.

Missile Features

- **Range:** 25–30 km.
- **Propulsion:** Single-stage, **solid-fueled**.
- **Navigation:**
  - Mid-course Inertial Navigation System (INS).
  - Two-way data link for in-flight updates.
  - Terminal active radar seeker for precise end-game targeting.

Mobility & Deployment

- Mounted on **mobile platforms** – ensures protection during movement of troops.
- Enables **shoot-and-scoot** tactics to avoid counter-strikes.
- Entire system is **highly compact**, allowing fast redeployment.

Automation & Command System

- Fully automated Command and Control (C2) system.
- Capable of integration with other air defence systems for layered defence architecture.

Strategic Importance

- Enhances India's **tactical air defence** capability.
- Boosts **indigenization and self-reliance** under the **Atmanirbhar Bharat** initiative.

STARLINK SECURES GMPCS LICENCE

CONTEXT

Starlink, operated by Elon Musk's SpaceX, has officially secured the Global Mobile Personal Communication by Satellite (GMPCS) licence from the Indian government in June 2025. This regulatory clearance enables it to commence commercial satellite-based internet services across India, marking a significant shift in the country's digital communication landscape.

What is Starlink?

- Starlink is a satellite-based internet service provider operated by **SpaceX**, utilizing a constellation of over **7,600 small satellites** in **Low Earth Orbit (LEO)**.
- It offers high-speed, low-latency broadband globally, including **remote and rural areas** with limited access to conventional broadband.

What is GMPCS?

- The Global Mobile Personal Communication by Satellite (GMPCS) licence is issued by India's Department of Telecommunications (DoT).
- It allows satellite companies to offer voice and data services through non-terrestrial networks such as satellites.

Implications for India:

- **Digital Inclusion:** Starlink can bridge the rural-urban digital divide by providing internet access to remote regions where fibre or tower infrastructure is unviable.
- **Competition:** Poses a competitive challenge to domestic players like Bharti Airtel (OneWeb) and Reliance Jio (Jio Satellite).

- **Tech Sovereignty Concerns:** Starlink's entry raises strategic questions about data privacy, licensing norms, and national security.
- **Innovation in Delivery:** Encourages satellite-based internet as an emerging mode of digital infrastructure in India's Digital India mission.

Regulatory Path Ahead:

- Starlink still requires spectrum allocation from India's telecom regulator and must comply with local laws, including data localisation and security protocols.
- Coordination with ISRO and Indian space policy may be required to avoid orbital congestion and signal interference.

UPSC PYQ

Q: With reference to communication technologies, what is/are the difference/differences between LTE (Long-Term Evolution) and VoLTE (Voice over LTE)? (2020)

(1) LTE is commonly marketed as 3G, and VoLTE is commonly marketed as advanced 3G.

(2) LTE is data-only technology and VoLTE is voice-only technology.

Select the correct answer using the code given below:

(a) 1 only (b) 2 only

(c) Both 1 and 2 (d) Neither 1 nor 2