

Current Affairs

Workbook

March 2025



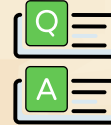
Mains Questions



Ethics Case Studies



Progress Tracking Table



MCQs



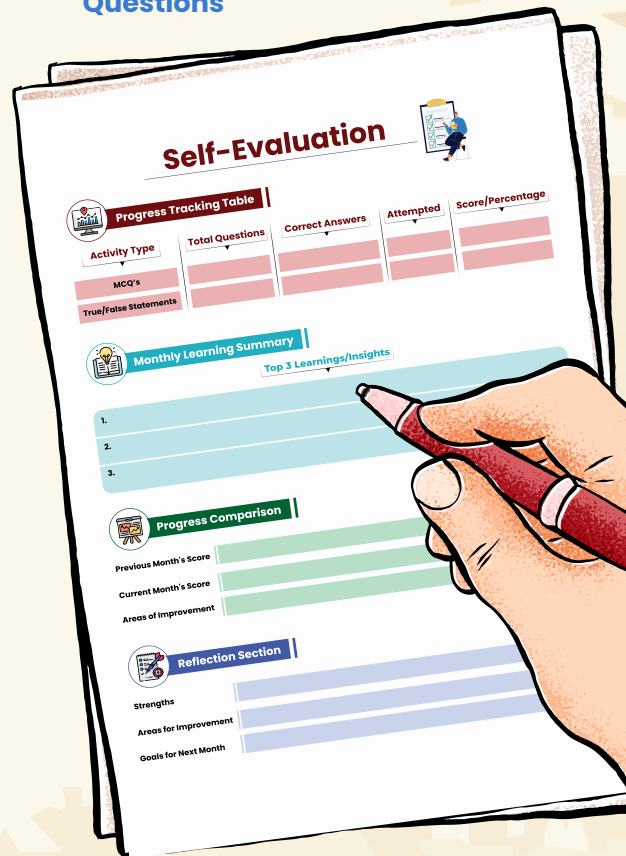
Quick facts



Comprehensive Summary



True/ False



Self-Evaluation

Activity Type	Total Questions	Correct Answers	Attempted	Score/Percentage
MCQ's				
True/False Statements				

Monthly Learning Summary

Top 3 Learnings/Insights

- 1.
- 2.
- 3.

Progress Comparison

Previous Month's Score

Current Month's Score

Areas for Improvement

Reflection Section

Strengths

Areas for Improvement

Goals for Next Month



AHMEDABAD



BENGALURU



BHOPAL



CHANDIGARH



DELHI



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5 JUNE

From the Editor's Desk

Dear Readers,

As we step into the March edition of the Workbook, our mission remains the same—to help you master current affairs through structured learning and analytical rigour. With the Preliminary Examination approaching, this Workbook aims to fine-tune both your knowledge and application skills.

This month's Workbook highlights critical issues shaping India's governance, economy, international relations, and security environment. In **Polity and Governance**, we delve into urgent concerns such as Judicial Accountability and the rising debate on regulating Big Tech, which challenge traditional norms of transparency and state control.

On the global front, India's evolving foreign policy strategy comes alive through developments like the India-Mauritius Strategic Partnership and the revision of the Bilateral Investment Treaty model. The spotlight on **MAHASAGAR, IORA**, and expanding maritime diplomacy reflects India's growing ambition as a leading voice of the Global South.

The **Economy section** captures the pulse of structural transformation—from addressing liquidity stress in the banking system to boosting digital payments, electronics manufacturing, and bio-economy innovation. The evolution of schemes like the **Unified Pension Scheme** and reforms in **Priority Sector Lending** are covered in a way that links financial policy with broader socio-economic development.

The Workbook also covers significant strides in **Security and Technology**, including the strategic implications of quantum computing and India's increasing self-reliance in coal and energy logistics.

How the Workbook is Organized?

1. **Monthly Summary** – A compact recap of key developments.
2. **Quick Facts Block:** Essential facts, figures, and statistics for rapid revision.
3. **Activities Block:**



MCQ's : Test your understanding of key topics.



True/False Statements : Verify critical facts.



Mains practice Questions : Develop structured and analytical responses.



Ethics Case Studies : Apply current affairs to ethical dilemmas for better decision-making.



Answers and Explanation : Immediate feedback for self-assessment.

4. **Progress tracking table :** Monitor your learning and identify areas for improvement.

We encourage you to practice consistently, engage with the material actively, and make this Workbook your trusted companion in UPSC preparation. With the right approach and determination, success is within your reach.

Warm regards,
Team Current Affairs,
VisionIAS



“Success is the sum of small efforts, repeated day in and day out.”
– Robert Collier

POLITY AND GOVERNANCE



1.1. Judicial Accountability

Why in the News?

The discovery of wads of cash at the residence of Delhi High Court judge has raised concerns regarding accountability in India's higher judiciary.

Existing Key Mechanism for Ensuring accountability

- **Impeachment:** Governed by Articles 124, 217, 218 of the constitution and the Judges Inquiry Act, 1968.
- **In-House Mechanism of 1999:** Based on two important charters governing judicial ethics— **the Restatement of Values of Judicial Life 1997 and the Bangalore Principles of Judicial Conduct 2002.**
 - ➔ The CJI **can receive complaints** against the conduct of the Judges of the Supreme Court and the Chief Justice of the High Courts. High Court Chief Justices can handle complaints within their courts.
 - ➔ A **three-member committee** examines the complaint and may recommend removal or criminal action.
 - ◊ For **HC judge**, committee consists of **two Chief Justices of HCs other than the HC to which judge belongs and one HC judge.**
 - ◊ For a **HC Chief Justice**, committee consists of **a SC judge and two Chief Justices of other HCs.**
 - ◊ For a **SC judge**, committee consists of **three SC judges.**
- **Bangalore Principles of Judicial Conduct:** Independence, Integrity, Equality, Impartiality, Propriety, Competence and Diligence.

Concerns Surrounding Judicial Accountability in India

- **Conflict with Judicial Independence**
- **Complex Impeachment Process**
- **No Mandatory Asset Disclosure Norm**
- **Limited checks and balances:** Judiciary self-governs most of its aspects like **appointment of judges, etc.**
- **Other Provisions Hindering Accountability:** Immunity from Criminal Action, Restriction on RTI.

Way Forward to Ensure Judicial Accountability

- **Judicial Standards and Accountability Bill:** Introduced in 15th Lok Sabha but **lapsed due to dissolution of Lok Sabha.**
- **National Judicial Commission (NJC):** Proposed by Law Commission of India reports (80th & 121st) to handle appointments and misconduct investigations. **Judicial member and non-Judicial member in NJC.**
- **Permanent Disciplinary Committee**
- **Judicial Oversight:** A **continuous performance evaluation mechanism** may be devised for judges.



1.2. Regulating Big Tech

Why in the News?

The Ministry of Corporate Affairs (MCA) has invited public feedback on the **Digital Competition Law Committee's Report**.

Background

- The Committee reviewed the **Competition Act, 2002** to address new challenges in the digital economy.
- Rising **global concerns** over Big Tech's anti-competitive practices have called for stronger regulatory measures for Big Techs like Google, Meta, Amazon, Microsoft, and X. e.g. **Meta & WhatsApp vs CCI (India, 2024-25) etc.**

Why Big Tech Needs Regulation?

- **Threat to Sovereignty:** Threat of misusing user data by illegally collecting, transmitting it to servers outside country.
- **Network effect: Big tech grows fast by using network effects i.e., the more users they have, the stronger they get, making it hard for new players to compete.**
- **Revenue loss to exchequer:** India **loses around \$10 billion annually** due to tax abuse by multinational companies.
- **Data Privacy and Cyber Security Risks:** Massive data collection opens doors to misuse, surveillance, and data breaches.
- **Ethical Concerns:** Transparency and Accountability, Public Interest vs. Corporate Profit, Digital Divide and Equity, Ethical Policy Making and Regulation, Environmental Responsibility.

Challenges in Regulating Big Tech

- **Regulatory Vacuum:** The Competition Act, 2002 works on an **EX-POST model (acting AFTER anti-competitive behavior)**.
- **Enforcement Lag:** E.g., Digital Personal Data Protection Act (DPDPA), 2025 is yet to be enforced.
- **Non-Uniform Regulatory Mechanism:** The firms operate globally, but regulatory responses vary across jurisdictions.
- **Techno-nationalism and Protectionism:** These leads to jurisdictions favoring domestic firms.
- **Ambiguity of Law:** X challenged a government order to remove content by invoking **Section 79(3)(b)** instead of **Section 69A** of the IT Act, **Sahyog portal, Supreme Court's Shreya Singhal judgment**.
 - ➔ **Sections 69 A of the IT Act:** Government can block online content if it violates **Article 19(2)**.

Key Legislations for Regulating Big Tech

India

- **Digital Personal Data Protection Act, 2023 (DPDPA):** Provide for the processing of digital personal data.
- **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) or IT Rules, 2021:** Social media platforms with large user bases in India are classified as **Significant Social Media Intermediaries (SSMIs)**.
- **Competition Act, 2002**
- **Consumer Protection Act, 2019:** Penalize companies for misleading advertisements and unfair trade practices.

Global

- **European Union:** Key **ex-ante** measures include the **General Data Protection Regulation (GDPR) 2016, and the Digital Market Act (DMA)**.
- **The UN Set: Multilaterally Agreed Equitable Principles and Rules for the Control of Restrictive Business Practices.**

Way Ahead to effectively regulate Big Tech

Key recommendation of the Committee on Digital Competition Law:

- **Need for ex-ante regulation of digital competition.**
- **Systemically Significant Digital Enterprises (SSDEs):** Designate entities offering core services.
- **Thresholds for classification of SSDEs.**
- **Associate Digital Enterprises (ADEs):** Enterprises should identify all other enterprises within its group.
- **Obligations of SSDEs:** SSDEs must not; Favour their own or related-party products or Block third-party apps etc.
- **Enforcement of provision:** CCI should **improve its technical capacity. Additionally, separate NCLAT bench needed.**
- **Penalties:** For contravention impose fine up to **10% of global turnover** of SSDEs.

1.3. News in Shorts

1.3.1. Immigration And Foreigners Bill, 2025 Introduced In Lok Sabha

The Bill seeks to streamline various services related to immigration and foreigners, including their entry, exit and stay.

- This bill repeals four existing laws **Foreigners Act, 1946**, **Passport (Entry into India) Act (1920)**, **Registration of Foreigners Act (1939)**, and **Immigration (Carriers' Liability) Act (2000)** which governs the services related to immigration and foreigners.

Key provisions of the Bill

- **Grounds for Denying Entry or Stay:** Threat to national security, sovereignty, public health, or foreign relations.
 - ➔ **Immigration Officers** decisions will be final and binding.
- **Tracking of Foreigners:** Institutions such as educational establishments, hospitals, and nursing homes.
- **Other: Stricter Penal Provisions** (E.g. 5 years imprisonment or ₹5 lakh fine for entering India without valid documents)

1.3.2. DEDICATED CELL FOR MERCY PETITIONS

Maharashtra has established a **dedicated cell** under the Additional Secretary (Home) to **expedite processing of mercy petitions** for death row convicts following Supreme Court directive (2024).

Mercy Petition

- **Mercy petition to the President or Governor** is last constitutional resort.
- Mercy pleas and pardons are **discretionary** acts of grace, not legal rights.
- Mercy is exercised through **clemency power**, which is also known as the pardoning power.

Pardoning Power

- **President's Pardoning Power (Article 72)**
 - ➔ **Pardon:** Complete absolution from punishment.
 - ➔ **Respite:** Lesser punishment due to special circumstances like disability or pregnancy.
 - ➔ **Reprieve:** Temporary stay of execution, allowing time for appeal.
 - ➔ **Remit:** Reduces duration of sentence while keeping its nature the same.
 - ➔ **Commute:** Replace the punishment with a lesser form, e.g., death to life imprisonment.
- **President's power extends to court-martial cases**, offenses under Union law, death sentence cases etc.

- **Governor's Pardoning Power (Article 161):** Governor too has pardoning powers, but these do not extend to death sentences and court Martials.
- **President & Governor do not act independently** but on government advice (**Maru Ram case, 1980**).

1.3.3. Sansad Bhashini Initiative

Lok Sabha and Ministry of Electronics and Information Technology (MeitY) agreed to develop **Sansad Bhashini initiative**

About Sansad Bhashini initiative

- **Aim:** To **leverage artificial intelligence (AI)** to enhance **multilingual support (through Bhashini)** and streamline **parliamentary operations**. **Bhashini** is an AI-powered language translation platform by MeitY.
- The initiatives under Sansad Bhashini include AI-based translation, **AI-Powered Chatbot** for the Parliament website.

1.3.4. Standing Committee On Rural Development And Panchayati Raj Report

The committee in its report points out that there is a nominal increase in the Budget Estimates (BE) allocation for 2025-26 compared to 2024-25.

Parameters	Observation	Recommendation
Budget Allocation	Continuous trend of BE lower than Revised Estimates	Ensure that States are able to submit their demand funds on time.
Implementation of Schemes	Lag in implementation. E.g. Revamped Rashtriya Gram Swaraj Abhiyan	Develop concrete action plan
Trained Manpower	Shortage	Introduce Digital governance initiatives.
Type of Grants	Tied grants (60% of allocation) are restricted whereas untied grants (40%).	Merge the concept of tied and untied.
Panchayat Elections	Delay	Timely conduct of elections
Revenue Generation	Heavily reliant on grants.	Empower panchayats to generate own revenues through property taxes etc.

1.3.5. Future of Free Speech Index 2025

A new global survey by The Future of Free Speech ranks India **24th out of 33 countries** for free speech support.

About Future of free speech index 2025

- Future of Free Speech is an independent, non-partisan think tank located at Vanderbilt University.
- The Future of Free Speech Index is a composite measure based on answers to eight questions about the willingness to allow controversial speech, criticism of the government, media freedom, and an open Internet.

Other Key findings

- **Scandinavian countries** (Norway, Denmark, and Sweden) and two democratic backsliders (Hungary and Venezuela) show the highest levels of support for free speech.
- **Declining Support in Some Countries:** Countries like Japan, Israel, and the U.S. have experienced significant drops.
- Traditional media, social media, and AI content generators play pivotal roles in **shaping public discourse**.

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*: Pre-foundation classes are designed to provide a strong foundation in core UPSC CSE subjects, utilizing NCERTs and basic textbooks. They serve as the initial step in the comprehensive preparation journey for the UPSC Civil Services Examination by providing conceptual clarity in core GS subjects such as History, Polity, Geography, Economy, and Environment. Further, Pre-Foundation Classes act as a transition platform toward the VisionIAS Regular Foundation Course Program, 2026.

INTERNATIONAL RELATIONS



2.1 Bilateral Investment Treaty (BIT)

Why in the News?

An announcement was made in the **Union Budget 2025** regarding the revision of the **model Bilateral Investment Treaty (BIT)** text to make it more **investor-friendly**.

About Bilateral Investment Treaties (BITs)

- ➔ **Definition:** Agreements protecting foreign investors while preserving host states' regulatory rights.
- ➔ **Purpose:** Enable investor-state (ISDS) or state-state dispute resolution.
- ➔ **India's Model BIT 2015:** Replaced 1993 version; guides BIT/FTA negotiations (e.g., pacts with Uzbekistan, UAE in 2024).
- ➔ **Recent countries with which BITs were signed:** Uzbekistan (2024), UAE (2024).

Key Features of Model BIT 2015

- ➔ **Enterprise-based investment:** Requires compliance with host state laws.
- ➔ **Non-discrimination and National Treatment:** Equal footing for foreign/domestic investors.
- ➔ **Expropriation safeguards:** Limits state takeover of assets.
- ➔ **Regulatory carve-outs:** Excludes taxation, subsidies, national security.
- ➔ **ISDS mechanism:** Mandates 5-year local remedy exhaustion.

Issues with India's BIT Architecture

- ➔ **Ambiguity:** Vague terms like "investment" spur disputes (37 notices, 8 active cases).
- ➔ **Judicial delays:** 5-year local remedy rule worsens backlog.
- ➔ **Limited ISDS scope:** Bars review of domestic court "merits."
- ➔ **Investor restrictions:** No MFN/FET clauses; tax exclusions; monetary-only awards.
- ➔ **Non-ICSID membership:** Hinders enforcement (India not part of World Bank's ICSID).

Enhancing Bilateral Investment Treaties for Global Economic Harmony



Domestic Arbitration Hub

Strengthening NDIAC and training specialized lawyers to enhance domestic arbitration capabilities.



Clarity in Terms

Explicitly defining treaty violations to ensure clear understanding and enforcement.



Flexible Dispute Resolution

Allowing direct arbitration to streamline and expedite conflict resolution.



Balanced MFN/FET

Adopting qualified MFN and narrow FET to balance investor rights and state sovereignty.



ICSID Accession & Tax Reforms

Permitting ISDS review of discriminatory taxes to protect investor interests.

2.2 Indian Ocean Rim Association (IORA)

Why in the News?

India will assume the chair of IORA in 2025 for the next two years.

About IORA

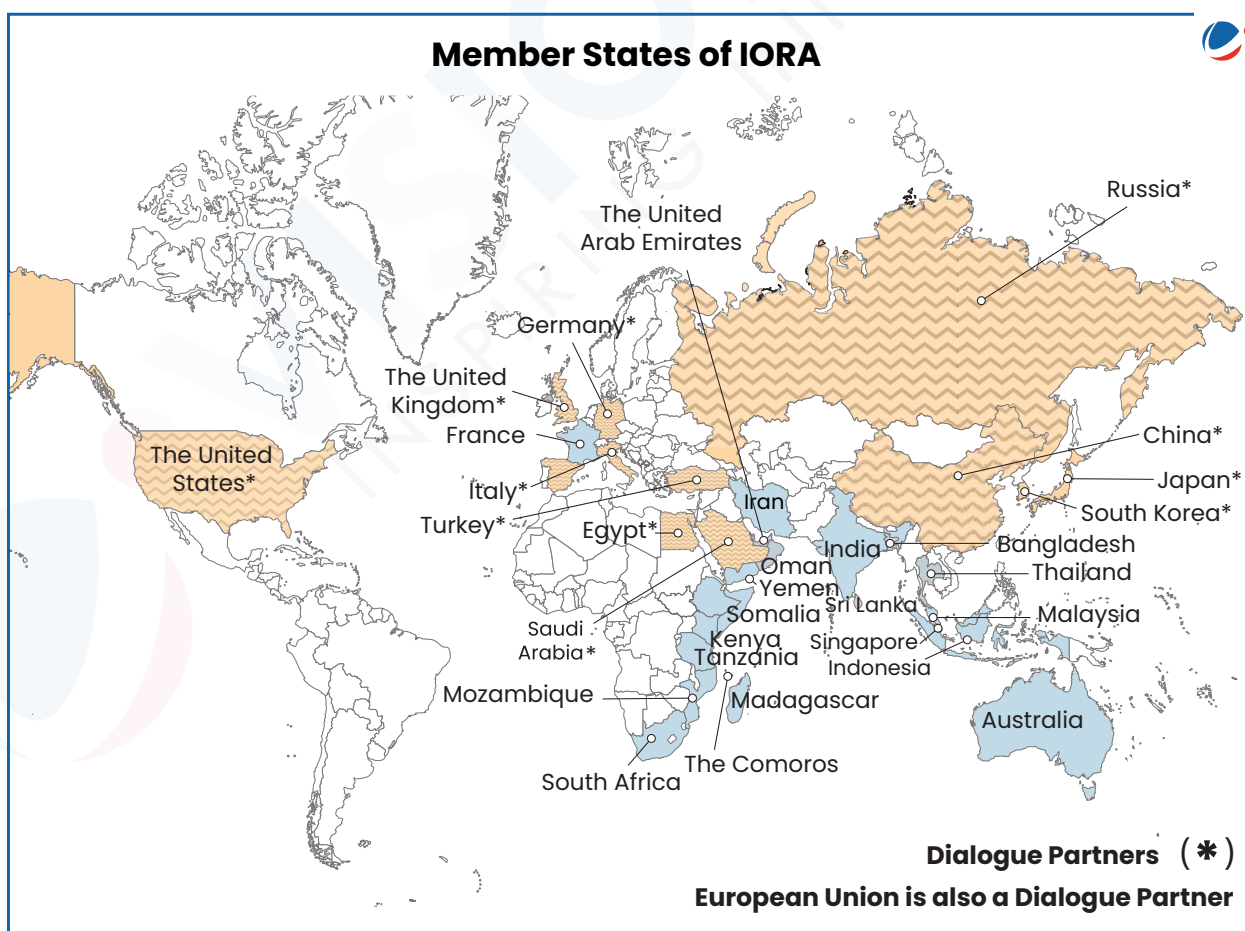
- ➔ **Genesis:** Founded in 1997, inspired by Nelson Mandela's 1995 India visit.
- ➔ **Objective:** Promote regional cooperation and development in Indian Ocean.
- ➔ **Secretariat:** Mauritius.
- ➔ **Members:** 23 members + 12 dialogue partners.

Significance for India

- ➔ **Economic/Geostrategic:** Indian Ocean handles 75% global trade.
- ➔ **Alternative Platform:** Less contentious than SAARC/BIMSTEC; avoids QUAD-like rivalries.
- ➔ **Maritime Security:** Upholds UNCLOS; conducts security workshops.

Challenges

- ➔ **Funding:** Insufficient resources; competes with BIMSTEC/IONS.
- ➔ **Institutional Limits:** Weak Secretariat capacity in Mauritius.
- ➔ **Geopolitics:** India-Pakistan tensions, China's BRI influence.
- ➔ **Other Issues:** Lack of private sector role, maritime threats (piracy, Houthi attacks).



2.3 India–Mauritius Bilateral Relations

Why in News?

India and Mauritius elevated their ties to an 'enhanced strategic partnership' during Indian Prime Minister's visit to the country.

More about news

- ➔ India announced India's **new vision for the Global South**, naming it "**MAHASAGAR** (Mutual and Holistic Advancement for Security and Growth Across Regions)".
- ➔ A navigational chart of St. Brandon Island also handed over.

Significance of Mauritius for India

India established diplomatic relations with Mauritius in 1948, before it achieved independence.

Mauritius (capital is Port Louis)

- Physiographically it is part of the **Mascarene Islands**.
- **Volcanic island** and almost entirely surrounded by coral reefs.
- **Chagos Archipelago** is disputed territory with UK.
 - Recently, US has approved the UK's plan to hand over the Chagos Islands to Mauritius.



Dimensions	Description
Strategic Location	➔ It helps India tackle piracy, terrorism, trafficking, and illegal fishing .
Geopolitical Importance	<ul style="list-style-type: none"> ➔ Known as the "Star and Key of the Indian Ocean," ➔ China has established its base in Djibouti, which has made Mauritius a strategic hotspot.
Security Partner	➔ It is part of the Colombo Security Conclave .
Cooperation	➔ India inaugurated a new airstrip and jetty on the Agalega island of Mauritius.
Gateway to Africa	<ul style="list-style-type: none"> ➔ Part of the African Continental Free Trade Area (AfCFTA). ➔ India–Mauritius Double Taxation Avoidance Agreement (DTAA).
Cultural Ties	<ul style="list-style-type: none"> ➔ Around 70% of Mauritius's population is of Indian origin. ➔ The legacy of the Girmitiyas (Indentured Indian labourers) forms a deep historical bond.

Challenges in India–Mauritius Relations

- ➔ **China's Influence:** Major infrastructure funding (airport, dam, cruise terminal).
- ➔ **Ethnic Balance:** Need to engage diverse communities (Indian-origin, African, European).
- ➔ **Drug Trafficking:** Mauritius as a narcotics hub risks Indian maritime security.
- ➔ **Climate Threats:** Rising seas, cyclones, coastal erosion.

What is MAHASAGAR?

- ➔ **Evolution:** Expands SAGAR (2015) with Global South focus.
- ➔ **Focus Areas:** Trade, security, tech-sharing, financial aid.
- ➔ **New Initiatives:**
 - ➔ **IOS Sagar:** IOR maritime cooperation.
 - ➔ **AIKEYME:** Africa-India naval drills ("unity" in Sanskrit).
- ➔ **Note:**
 - ➔ MAHASAGAR was launched in 2023 by Indian Navy; aligns with SAGAR.
 - ➔ Bi-annual forum with 10 IOR nations (Mauritius, Seychelles, etc.).

2.4 India New Zealand Relations

Why in the News?

Prime Minister of New Zealand visited India on an official five day visit.

Key Outcomes of the Visit:

- ➔ New Zealand joined IPOI and CDRI.
- ➔ FTA negotiations launched.

Contemporary Relevance of Bilateral Relations:

- ➔ **Trade:** 1.75billion (2023-24), India's 1.75billion (2023-24), India's 70M surplus.
 - ➔ **NZ exports:** Wool, iron/steel, fruits, aluminum.
 - ➔ **India exports:** Pharma, machinery, textiles, gems.
- ➔ **Defense:** Joint naval ops in **Combined Task Force-150** (Indian Ocean security).
- ➔ **Multilateral Support:** Mutual UNSC reform advocacy; NZ backs India's permanent seat bid.
- ➔ **Strategic Alignment:**
 - ➔ Nuclear disarmament, rules-based Indo-Pacific.
 - ➔ NZ's 2011 **"OPENING DOORS TO INDIA"** policy prioritizes ties.
- ➔ **Diaspora:** India is NZ's top skilled migrant source, 2nd international student providers.
- ➔ **Green Energy:** NZ joined International Solar Alliance (2024).
- ➔ **Sports:** Cricket/hockey ties; **'SPORTING UNITY'** events in 2026 mark 100 years of athletic links.



Challenges in Bilateral Relations

- ➔ **Long Delayed FTA:** The India-NZ FTA, which had 10 negotiation rounds (2010-2015), stalled due to structural economic differences, especially over dairy exports and agricultural tariffs.
- ➔ **Security Concerns:** India has expressed concerns over anti-India activities in New Zealand, including protests and the Khalistan referendum organized by the 'Sikhs for Justice' group.
- ➔ **Other Concerns:** The low level of bilateral trade highlights untapped potential, while New Zealand's strong trade relationship with China also poses a challenge to deepening India-NZ economic ties.

2.5. News In Shorts

2.5.1 Australia's New Roadmap For Economic Engagement With India

Australia's ambitious roadmap focuses on deepening and diversifying its trade and investment ties with India identifying **four "superhighways of growth"**.

Key highlights of the Roadmap

- ➔ Identifies **nearly 50 specific opportunities** to focus.
- ➔ **Australia-India Trade and Investment Accelerator Fund.**
- ➔ **Australia-India Business Exchange (AIBX)** to accelerate B2B engagement.
- ➔ **Reinvigorated Australia-India CEO Forum.**
- ➔ **Maitri ('friendship') Grants programme.**

Evolving relationship between India and Australia

- ➔ **Trade:** Economic Cooperation and Trade Agreement (ECTA) 2021.
- ➔ **Nuclear cooperation:** Civil Nuclear Cooperation Agreement signed in 2014.
- ➔ **Defense cooperation:** Mutual Logistics Support Arrangement has been signed.
 - ➔ **AUSTRAHIND, AUSINDEX, Pitch Black** are a joint military exercise between two countries.

2.5.2. Five Eyes Intelligence (FVEY) Alliance

Recently, intelligence officials from several countries—including representatives from the Five Eyes (FVEY) alliance—convened in Delhi.

About Five Eyes Intelligence (FVEY) Alliance

- ➔ **Origin:** Established via 1946 **BRUSA Agreement** (UK-US) for signals intelligence (SIGINT).
- ➔ **Members:** USA, UK, Canada (1948), Australia, New Zealand (1956).
- ➔ **Governance:** FIORC (2016) oversees non-political intelligence review/security.

2.5.3. Squad Alliance

Philippines urged India to Join 'Squad' Alliance.

About Squad alliance

- ➔ An informal multilateral alliance involving the US, Japan, Australia, and the Philippines.
- ➔ **Aim:** Address aggression and maintaining stability in the Indo-Pacific Ocean Region, etc.
- ➔ It is different from **Quad** which consists of India, USA, Japan and Australia.

2.5.4. Ottawa Convention

North Atlantic Treaty Organization (NATO) members **Poland, Lithuania, Latvia and Estonia** plan to withdraw from the **Ottawa convention** owing to military threat from **Russia**.

About Ottawa Convention

- ➔ **Official Name:** Convention on the Prohibition of Anti-Personnel Mines (full title retained).
- ➔ **Objective:** Bans use, production, stockpiling, and transfer of anti-personnel mines.
- ➔ **Adoption & Enforcement:** Adopted Oslo 1997, signed Ottawa, enforced 1999.
- ➔ **Signatories:** 133 states (India non-signatory).

2.5.5. Raisina Dialogue 2025

The 10th edition of the **Raisina Dialogue** was recently held in **New Delhi**.

Raisina Dialogue 2025

- ➔ **Hosted by:** Observer Research Foundation with MEA, Government of India.
- ➔ **About:** India's premier annual conference on geopolitics and geo-economics.
- ➔ **Participation:** 125+ countries represented (Ministers, Heads of State, Academics, Youth).
- ➔ **Theme 2025:** "Kālachakra - People, Peace and Planet."

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MAYANK TRIPATHI



3.1. Liquidity Deficit

Why in the News?

RBI conducted liquidity infusion in the banking system to address a 15-year high liquidity deficit.

More on the News

RBI infused liquidity via:

- ➔ **Open Market Operation (OMO):** purchased Government Securities worth ₹1,00,000 crore.
- ➔ **USD/INR Buy/Sell Swap auction** of USD 10 billion for a 36-month tenor.

Aspect of Banking Liquidity	
Definition	Reserves provided by a central bank to the banking system.
Formula	Banking Liquidity = Net borrowing under LAF - Excess reserves maintained by banks
Liquidity Deficit	Banks borrow from RBI (positive system demand).
Liquidity Surplus	Banks lend to RBI (negative system demand).
Relation with Currency in Circulation (CIC)	\downarrow CIC = \uparrow Bank Reserves = \uparrow Banking Liquidity \uparrow CIC = \downarrow Bank Reserves = \downarrow Banking Liquidity
Current Status	Jan 2025: Deficit at ₹3.15 trillion (15-year high).

Factors Leading to Liquidity Deficit

- ➔ **Tax Outflows:** ₹3 trillion in advance taxes (Dec 2024) reduced liquidity.
- ➔ **Just-In-Time SNA-SPARSH Transition:** Limited funds in banking system.
- ➔ **Forex Market:** FI sell-offs and RBI's dollar sales to stabilize rupee.
- ➔ **Festive Withdrawals:** Increased cash demand during Diwali, Christmas, Mahakumbh 2025.

Impact of Liquidity Deficit

- ➔ Higher borrowing costs for banks, delayed monetary policy transmission, reduced credit availability, profit squeeze for banks and market volatility.

Tools available with RBI for Managing Liquidity

- ➔ Liquidity Adjustment Facility (LAF), Open Market Operations (OMOs), Market Stabilisation Scheme (MSS), Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR) and Forex Swaps.

3.2. Incentive Scheme For Promotion Of Low-Value Bhim-Upi Transactions

Why in the News?

Union Cabinet approved an incentive scheme for low-value BHIM-UPI (P2M) transactions.

Key Highlights

- ➔ **Coverage:** UPI Person-2-Merchant (P2M) transactions with ₹1,500 crore outlay (FY 2024-25).
- ➔ **Incentive:** 0.15% per transaction (up to ₹2,000) for small merchants.
- ➔ **Aim:** Promote BHIM-UPI, achieve 20,000 crore transactions, expand UPI in tier 3-6 cities and rural areas to enhance credit access.

About BHIM

- ➔ **UPI-based mobile app by NPCI**, launched in 2016 for cashless payments.
- ➔ **Features:** Instant transfers via mobile, Virtual Payment Address (VPA), QR codes; secure **multi-factor authentication** with multiple payment modes (UPI-ID, Aadhar)

About National Payments Corporation of India (NPCI)

- ➔ An umbrella organization managing retail payments and settlement systems in India.
- ➔ **Initiated by RBI and Indian Banks' Association (IBA)** under the **Payment and Settlement Systems Act, 2007**.
- ➔ Launched RuPay, IMPS, and other payment systems.

3.3. Self-Reliance In Electronics Component Manufacturing

Why in the news?

Ministry of Electronics and Information Technology (MeitY) notified Electronics Components Manufacturing Scheme.

About the Scheme

- ➔ **Electronics Value Chain:** Divided into **4 segments** Design, Components, Assembly, and Original Equipment Manufacturing.
- ➔ **Scheme Focus:** Passive/non-semiconductor Components like resistors and capacitors.
- ➔ **Incentives:** Provides tailored fiscal support for target segment products.

Component Manufacturing Ecosystem Development	
Objectives	Boost India's share in global electronic trade by integrating domestic industry with Global Value Chains (GVCs) .
Key Strategies	Attract global/domestic to increase Domestic Value Addition (DVA).
Fiscal Incentives	Turnover Linked Incentive: 6 years + 1 optional gestation year Capex Incentive: Support for investments within 5 years Hybrid Incentive: Combination of turnover-linked and capex support
Key Information	Base Year: FY 2024-25 Nodal Agency: Project Management Agency
Eligibility	Open to both Greenfield (new) and Brownfield (existing) projects

India's Electronics Sector: Overview

- **Current Status:** Holds **4% of the global electronics market**, focused on assembly.
- **Domestic Production Growth:** Production rose **5x to ₹9.52 lakh crore (FY24)**; 99% of smartphones sold in India are locally made.
- **Growth Drivers:** Large domestic market, skilled low-cost labor, government initiatives (Make in India, Digital India), etc.
- **Dominance:** Heavy reliance on assembly, less on innovation in design and components.

Key Initiatives to Boost Electronics Manufacturing

- **India Semiconductor Mission (ISM):** Builds semiconductor and display ecosystem.
- **Phased Manufacturing Programme:** Promotes indigenous Electric Vehicle manufacturing.
- **National Policy on Electronics 2019:** Aims to make India a global Electronics Systems Design and Manufacturing (ESDM) hub.
- **PLI Scheme 2.0 for IT Hardware:** Localizes components/sub-assemblies for Laptops, Tablets, All-in-One PCs, etc.
- **PLI Scheme for Large Scale Electronics Manufacturing (LSEM):** Boosts mobile phone manufacturing and investments in its value chain.

Why India Needs Self-Reliance in Electronic Components

- **National Security:** Foreign component reliance (56% from China/Hong Kong) risks data breaches
- **High imports** due to underdeveloped local manufacturing
- **Strategic Opportunity (China+1):** offers investment potential.
- **Competitive Advantage:** Low-cost manufacturing (46% of Thailand's minimum wage, 12x larger labor force - PWC).

Challenges for Electronic Component Manufacturers

- **High Logistics Costs:** Longer lead times, higher transport costs (e.g., \$0.80 to ship a smartphone from China vs. \$8 from India - PWC).
- **Global Oligopoly:** Markets dominated by Japan (R&D) and Taiwan (US support).
- **Underdeveloped Supporting Industries:** E.g., Chemical industries lack high-quality raw materials for electronics.
- **Limited Critical Minerals:** Scarce minerals like gallium, germanium (**China-dominated**) increase **supply risks**.
- **Skilled Workforce Shortage:** For systems like Surface-Mount Technology (SMT) lines.

Conclusion

NITI Aayog recommends **incentivizing R&D/design, rationalizing tariffs, enhancing skills, enabling technology transfers, and upgrading infrastructure** to build a self-reliant electronics component manufacturing ecosystem.

3.4. Priority Sector Lending

Why in the news?

RBI has issued new **Priority Sector Lending (PSL) guidelines**, which came into effect on April 1, 2025.

More on the News

- **Guidelines:** Issued under the **Banking Regulation Act, 1949**.
- **Applicability:** Applies to **all Commercial Banks** and **Primary (Urban) Co-operative Bank (UCB)**, except Salary Earners' Bank.

About Priority Sector Lending (PSL)

- **Definition:** Development sectors prioritized by the Government and RBI for receiving credit.
- **Historical Background:**
 - ➔ **1969 – Gadgil Committee:** Proposed Area Approach, leading to Lead Bank Scheme.
 - ➔ **1972 – PSL Formalized:** Ensured credit for creditworthy sectors but lacking access.
 - ➔ **1982 – Ghosh Committee:** Suggested revising and reclassifying priority sector categories.

Categories under Priority Sector



Agriculture



Micro, Small and Medium Enterprises



Export Credit



Education



Housing



Social Infrastructure



Renewable Energy



Others

Revised Guidelines

- ➔ **Enhanced Loan Limits:** Education (up to ₹25 lakh), **Social Infrastructure** (up to ₹8 crore) and others like **Housing and agriculture loans**.
- ➔ **Expanded Renewable Energy Loans:** Up to ₹35 crore for public projects & ₹10 lakh for individual households.
- ➔ **Revised PSL Targets for Primary (Urban) Co-operative Bank (UCBs):**
 - ➔ **Total Priority Sector:** 60% (previously 40%); **Micro Enterprises:** 7.5%; **Weaker Sections:** 12%.
- ➔ **Expanded 'Weaker Sections' Category:** Including Transgender, Small and Marginal Farmers, Self-Help Group (SHG), etc.

Targets/Sub-targets for Priority sector

Categories	Targets/ Sub-targets			
	Domestic Commercial Banks & Foreign Banks with 20 branches and above	Foreign Banks with Less than 20 branches	Regional Rural Banks	Small Finance Banks
Total Priority Sector	40%	40% (up to 32% for Export Credit and at least 8% to any other priority sector)	75%	75%
Agriculture	18%	NA	18%	18%
Micro Enterprises	7.5%	NA	7.5%	7.5%
Weaker Sections	12%	NA	15%	12%

Note: Percentages are based on Adjusted Net Bank Credit (ANBC) or Credit Equivalent of Off-Balance Sheet Exposures (CEOBSE), whichever is higher.

Additional Provisions

- ➔ **Non-Banking Financial Companies (NBFCs) & Housing Finance Companies (HFCs) on-lending** now included under PSL.
- ➔ **Co-lending model (banks + NBFCs) recognized** for PSL eligibility.
- ➔ **Securitisation norms revised**, excluding NBFC gold-backed loans.
- ➔ **Priority Sector Lending Certificates (PSLCs) trading permitted** to meet PSL targets.
- ➔ **Inter-Bank Participation Certificates (IBPCs) & Direct Assignment norms updated** for accurate classification.

Other Recent Reforms

- ➔ **Priority Sector Lending Certificates (PSLCs):** Launched in April 2016 to boost efficiency.
 - ➔ **Banks short of PSL targets** can buy PSLCs from overachievers.
 - ➔ **Types:** PSLC-Agriculture, PSLC-MSME, PSLC-General, PSLC-Weaker Sections.
- ➔ **Co-Lending Model (CLM):** Introduced in 2020 for NBFCs and banks to co-lend in priority sectors.
 - ➔ Recently, RBI proposed a **draft framework for co-lending** across all regulated entities for all loan types.

3.5. 50 Years Of Microfinance

Why in the News?

Self Employed Women's Association (SEWA) Bank, started in Gujarat in 1974 as a cooperative bank, marks the completion of 50 years of microfinance institution (MFI) in India.

What is Microfinance?

- ➔ **Definition:** Microfinance (microcredit) offers loans to **poor rural households and small enterprises**.
- ➔ **Services:** Credit, insurance, financial advice, etc.
- ➔ **Origin:** Nobel Laureate Muhammad Yunus **with Grameen Bank (1976) in Bangladesh**.

Evolution of Microfinance in India	
(1974–1990) Traditional Microfinance	Establishment of SEWA Bank and Regional Rural Banks (RRBs) to provide credit to the poorest.
(1991–1999) Economic Reforms	Introduction of SHG-bank linkage program and support for women and MSMEs.
(2000–2012) Transformation Era	Entry of for-profit Non-Banking Financial Companies (NBFCs) transforming the microfinance landscape.
(Post-2012) Future Embrace	Establishment of Financial Inclusion and Development Department (FIDD) to enhance financial inclusion.

Significance of Microfinance in India

- ➔ **Poverty Alleviation:** E.g., NABARD's **Self Help Group Bank Linkage Programme** empowers 17.8 crore households via 144 lakh SHGs.
- ➔ **Economic Growth & Entrepreneurship:** E.g., 46% of loans support families with monthly income below Rs. 20,000.
- ➔ **Women Empowerment:** E.g., 88% of bank-linked SHGs (like Kerala's Kudumbashree) are women-led.
- ➔ **Financial Inclusion:** MFIs bridge gaps left by traditional banks, serving 140 million families in FY 2024.
- ➔ **Social Impact:** E.g., Ujjivan Small Finance Bank's Chote Kadam initiative renovated Primary Health Centres (PHCs).

Challenges in Microfinance in India:

- ➔ Over-Indebtedness, High interest rates (up to 30%), Multiple regulators (RBI, State Cooperative Societies), Financial viability of MFIs, and External shocks (Natural disasters) increase risk of default.

Government Initiatives for Strengthening Microfinance

- ➔ **SHG-Bank Linkage Program:** Boosts SHG loan volumes, shifting to production-based activities.
- ➔ **Pradhan Mantri MUDRA Yojana:** Offers collateral-free microcredit up to Rs. 20 lakh.
- ➔ **RBI Policy (2014):** Allowed NBFC-MFIs to act as Business Correspondents (BCs) for banks.
- ➔ **RBI Regulatory Framework by RBI (2022):** Clarified microfinance loan definitions and repayment limits.
- ➔ **NABARD Refinance:** Provides Long-Term Refinance to MFIs.

Way Forward

- ➔ **Limit Lenders:** Cap lenders per borrower at three and loans at Rs. 2 lakh via Microfinance Institutions Network self-regulation.
- ➔ **AI & ML Integration:** Machine Learning (ML) models predict defaulters for preemptive action.
- ➔ **Sector Classification:** Categorize MFIs into housing, climate, health, etc., for holistic development.
- ➔ **Financial Literacy:** Enhances inclusion, insurance uptake, and industry growth.
- ➔ **Best Practices:** Emulate Tamil Nadu, Karnataka, and Kerala's robust microfinance networks.

3.6. Remittances to India

Why in the News?

RBI Survey shows **US and UK have surpassed Gulf nations as top sources of inward remittances** for Indians in the last four years.

Key Trends in Remittance Inflows to India

- ➔ **Remittance Inflow:** Doubled to USD 118.7 billion in 2023–24 from 2011.
- ➔ **Top Source Countries (2023–24):** US (27.7%), UAE, UK, Saudi Arabia, Singapore.
 - ➔ Gulf Cooperation Council (GCC) countries (38%) lag behind Advanced Economies (>50%).
- ➔ **Top Recipient States (2023–24):** Maharashtra (20.5%), Kerala, Tamil Nadu.

Shift in Remittance Inflows is due to changes in migration pattern resulting from

- ➔ **Low Cost of Transfer** due to **digitalisation**.
- ➔ **Strong Labor Markets** in US and Europe with **more white-collar jobs**.
 - ➔ GCC countries face decline due to **automation & nationalization** (e.g., Saudi Arabia's Nitaqat & Kafala policies).
- ➔ **Migration for education** in **Canada, UK, and Australia**, supported by policies like **India-UK Migration and Mobility Partnership** (May 2021).
 - ➔ Migration to UK tripled from to 250,000 (2023) in 3 years.

Importance of Remittances for Economy

- ➔ **Balance of Payments (BoP):** E.g., Finances ~50% of India's merchandise trade deficit
- ➔ **Household Level:** Improving living standards. E.g., contributed **36% to Kerala's state domestic product in 2021**.
- ➔ **Macro-Economic Role:** E.g., Contributes **3–3.5% to India's GDP since 2000**.
- ➔ **Debt Sustainability:** Reduces both risk & cost of borrowing.

3.7. Unified Pension Scheme (UPS)

Why in the News?

Pension Fund Regulatory and Development Authority (**Operationalisation of Unified Pension Scheme under National Pension System**) Regulations, 2025 was notified to operationalize the **Unified Pension Scheme (UPS)**.

Key Highlights of Regulations

- ➔ **Applicability of UPS:** Existing Central Government employees, new recruits joining on or after 1st April 2025, voluntarily retired, etc.
- ➔ **Eligibility for Benefits:** Employees superannuating (after 10 years of qualifying service), Employees retired under Central Civil Services (Classification, Control and Appeal) Rules, 1965, etc.
- ➔ **Contributions: Individual Corpus** (10% of basic pay); **Pool Corpus** (Central Government contributes ~8.5% of basic pay).
- ➔ **Fund-Based System:** Relies on regular contributions and investments for assured payouts post-superannuation/retirement.
- ➔ **Permanent Retirement Account Number (PRAN):** Unique number **recording all transactions** via the Central Recordkeeping Agency (CRA) system.
- ➔ **Payouts:**
 - ➔ **Assured Payout:** 50% of the average basic pay of the last 12 months before superannuation/retirement (min. 25 years of service).
 - ➔ **Minimum Guaranteed Payout:** ₹10,000/month with 10 years of service.
 - ➔ **Proportionate Payout:** For 10–25 years of service.
 - ➔ **Admissible Payout:** Reduced if individual corpus is below benchmark or withdrawal exceeds 60% of corpus.

Eligibility Criteria for Assured Payout

- **Minimum 10 years of qualifying service** for payout from superannuation date.
- **Voluntary retirees** (after 25 years) receive payout from their original superannuation age.
- **Family Payout:** 60% of admissible payout to the legally wedded spouse for life upon subscriber's death.
- **Dearness Relief (DR):** as per Central Government declarations.
- **Intermediaries:** NPS architecture (National Pension System Trust, Pension Fund, etc.)

Challenges of UPS

- **Fiscal Burden** on Government; **Delayed Payment** (e.g., voluntary retirees receive pensions only at superannuation age); **Excludes** non-spouse family members; **Political Opposition** (from Old Pension Scheme supporters).

About Pension Fund Regulatory and Development Authority (PFRDA)

- **Genesis:** Established in 2003 via Government of India resolution; statutory body under **PFRDA Act, 2013**.
- **Objective:** Promote old-age income security by regulating pension funds to protect subscribers.
- **Ministry:** Works under Ministry of Finance.
- **HQ:** New Delhi.
- **Composition:** Chairperson and up to six members with expertise in economics, finance, or law, appointed by the Central Government.
- **Functions:** Register and regulate intermediaries (e.g., National Pension System Trust), Resolve disputes between intermediaries and subscribers.
- **Initiatives:** Implements Atal Pension Yojana (APY), National Pension System (NPS), NPS-Vatsalya.

3.8. Equalisation Levy

Why in the News?

As per the new amendments proposed in Finance Act 2016, **Equalization levy or digital tax on online advertisements will not apply on and after April 1, 2025.**

Equalization Levy

- A **direct tax** under **Finance Act, 2016**, taxing **digital transactions** with foreign e-commerce companies, including advertising.
- **Finance Act, 2020**, expanded its scope to **e-commerce supply and services**.

Transaction subjected to Equalisation Levy

- **Online Advertisement Services (6%):** On payments to non-residents for digital ads and related services.
- **E-commerce Supply of Goods or Services (2%):** Levied on revenue received by non-resident e-commerce operators (**Now abolished**)
- **Condition:** Levy **not part of Income Tax Act**; global firms cannot claim tax credit under double taxation avoidance agreements in their home country.

Reasons for Imposition:

- **Fair Competition** between domestic and international companies.
- **Bridging Tax Gaps:** Prevents tax avoidance due to lack of physical presence in India.
- **Taxing Foreign Digital Companies:** Ensures foreign e-commerce giants contribute to India's tax system.
- **Revenue Collection:** Capitalizes on the surge in digital transactions, accelerated by COVID-19.

Associated Concerns

- Trade Friction with the US; Risk of Retaliatory Tariffs; Double Taxation & Compliance Burden.

3.9. Farmer Producer Organisations (FPOs)

Why in the News?

Government has achieved the target of establishing **10,000 Farmer Producer Organisations (FPOs)** under **Formation and Promotion of 10,000 Farmer Producer Organizations (FPOs) Scheme**.

About the Scheme

- ➔ A **Central Sector Scheme launched** in 2020, with ₹6,865 crore budget till 2027-28.
- ➔ **Objective:** Create a supportive ecosystem to form 10,000 new FPOs, promoting sustainable, income-oriented farming.
- ➔ **Implementing Agencies (IAs):** 9 agencies, including Small Farmers Agri-Business Consortium (SFAC), NABARD, NAFED, etc.
- ➔ **Special Focus:** Small, marginal farmers, women Self-Help Groups (SHGs), etc. for marketing, branding, and export.
- ➔ **Key Provisions:**
 - ➔ FPO formation based on **Produce Cluster Area** and specialized commodity approaches.
 - ➔ **Financial assistance:** ₹18 lakh per FPO for management costs (3 years).
 - ➔ **Equity grant:** Up to ₹2,000 per farmer member, max ₹15 lakh per FPO.
 - ➔ **Credit Guarantee:** Up to ₹2 crore project loan per FPO.
- ➔ **Achievements:** ₹254.4 crore in equity grants released to 4,761 FPOs; ₹453 crore credit guarantee issued to 1,900 FPOs.
 - ➔ ~30 lakh farmers connected (~40% women).

About FPOs

- ➔ **Definition:** FPOs are formed by farm producers (e.g., farmers, milk producers) as shareholders.
- ➔ **Aim:** Enhance living standards, income, and profitability.
- ➔ **Registration:** Under Companies Act, 2013 or Co-operative Societies Act, 1912, registered on the FPO Registry Portal with a unique Registration Identity Code (RIC).
- ➔ **Support:** Small Farmers' Agribusiness Consortium (SFAC), under the Department of Agriculture and Cooperation (Ministry of Agriculture), supports State Governments in FPO formation.

Benefit of FPOs	
Economies of Scale	Achieved through aggregation of produce and bulk transport, reducing costs per unit.
Enhanced Value Addition	Increased primary and secondary processing of agricultural produce to improve product value.
Greater Bargaining Power	Farmers gain stronger negotiation capabilities and focus on quality in production and processing.
Market Intelligence	Improved communication facilitates dissemination of information about prices and volumes.
Reduced Post-Harvest Losses	Minimized losses through joint storage and value addition facilities.

Challenges Faced by FPOs

- ➔ **Lack of Professional Management:** Shortage of qualified CEOs to manage FPOs professionally in rural areas.
- ➔ **Post-harvest Losses:** Limited access to modern technologies, storage, and transportation infrastructure.
- ➔ **Investment and Credit Constraints:** Difficulty investing in processing, storage, or accessing collateral-free institutional credit.
- ➔ **Quality Standards and Certification:** Complex and costly process for small FPOs.
- ➔ **Climate Change and Sustainability:** Lack of resources and expertise for climate-resilient practices.
- ➔ **Market Volatility:** Single-crop focus increases risks from crop failures or market fluctuations.

Way Forward

- ➔ **Adopt Technology:** E.g., precision farming, IoT, and farm management software to boost productivity.
- ➔ **Capacity Building:** Train FPO members in modern, sustainable farming and resource management.
- ➔ **Scoring Model:** Develop a standardized scoring model for FPOs to help financial institutions for resource allocation.

3.10. India's Bio-Economy

Why in the News?

Biotechnology Industry Research Assistance Council (BIRAC) released **India Bio-Economy Report 2025 (IBER 2025)** on its 13th anniversary.

More on the News

- ➔ **BioSaarathi Mentorship Initiative**, a global program to support biotech startups, **was also launched**.
- ➔ BIRAC, established by the **Department of Biotechnology in 2012**, is a Not-for-profit Public Sector Enterprise.
 - ➔ It facilitates industry-academia collaboration through funding, technology transfer, and IP management.
 - ➔ **Key Initiatives:** Bio-NEST Scheme, Biotechnology Ignition Grant (BIG), SEED Fund, etc.

About Bio Economy

- ➔ It involves the sustainable production, use, and conservation of biological resources to deliver products, processes, and services across economic sectors.
- ➔ India targets a \$300 billion bioeconomy by 2030.

Key Sectors of Bio Economy	Key Areas	Examples
BioPharma & BioMedical	Cancer Immunotherapy, Gene Editing, Precision Medicine	CAR-T Cell Therapy, CRISPR-Cas9 Technology
BioAgri	Genetically Modified Crops, Precision Agriculture, Bio-based Products	Bt Cotton, Bacillus thuringiensis, Trichoderma
BioIndustrial	Biofuels, Bioplastics, Biogas	Ethanol Blended Petrol Program, Compressed Bio Gas (SATAT Scheme)
BioResearch & BioIT (Bio Services)	Clinical Trials, Biotech Software	Biocon, Infosys Life Sciences

Significance of Bio-economy for India

- ➔ **Economic Growth:** Bioeconomy grew from \$10 billion (2014) to \$165.7 billion (2024), 4.25% of India's GDP.
- ➔ **Entrepreneurship:** Biotech startups increased from 50 to over 10,000 in a decade (IBER 2025).
- ➔ **Global Medicine Hub:** India ranks 3rd in pharmaceutical by volume, 14th by value, and produces 65% of global vaccines.
- ➔ **Food Security:** Agri-productivity via GM crops, precision farming, etc.
- ➔ **Employment:** Expected to generate 35 million jobs.
- ➔ **Energy Security:** E.g., 15% ethanol blending in 2024 (target 20% by 2025), **reduced both crude oil imports and CO₂ emissions**.
- ➔ **Environmental Benefits:** E.g., promotes **circular economy** (ethanol from agricultural residue) and **pollution control** via biofertilizers, biopesticides, and bioremediation (e.g., TERI's Oilzapper).

Policies and Schemes Promoting Bioeconomy

- ➔ **BioE3 (Biotechnology for Economy, Environment and Employment) Policy 2024:** Supports bio-manufacturing, bio-foundry clusters, and bio-AI hubs.
- ➔ **National Biopharma Mission:** Led by Department of Biotechnology and BIRAC, it strengthens vaccine, biosimilar, and medical device development.
- ➔ **Biotechnology Research Innovation and Entrepreneurship Development (Bio-RIDE) Scheme 2024:** Promotes bio-entrepreneurship and industry-academia collaboration.
- ➔ **Genome India Project:** Launched in 2020 to catalog India's genetic diversity.
- ➔ **Biotech-KISAN (Biotech-Krishi Innovation Science Application Network):** Empowers farmers, especially women, through scientific agricultural innovations.
- ➔ **National Policy on Biofuels 2018:** Boosts biofuel use in energy and transport.

Hurdles in India's Bioeconomy Growth

- ➔ **Overlapping regulations** (e.g., Genetic Engineering Appraisal Committee vs Ministry of Science and Technology).
- ➔ **Bio-piracy:** E.g., turmeric patent issue in the US.
- ➔ **Low Research and Development Spending (Economic Survey 2024-25): 0.64% of GDP** (China~2%, US~3%).

- ➔ **Other Challenges:** Safety concerns with GM crops, inadequate funding, etc.

Way Forward

- ➔ **Reform Regulations:** Establish a **National Bio Economy Mission** and single-window regulatory system, etc.
- ➔ **Leverage Treaties:** E.g., use **WIPO's Treaty on Intellectual Property** to address IP issues.
- ➔ **Boost Investment:** Offer tax incentives, outcome-based funding, etc.
- ➔ **Develop Talent:** Create Centers of Excellence and specialized curricula.
- ➔ **Infrastructure:** Build a **National Biological Data Repository** and **global alliance networks**.
- ➔ **Ensure Safety:** Adopt inherently safer designs (301st Parliamentary Report).

3.11. National Technical Textiles Mission (NTTM)

Why in the News?

It has been 5 years since the launch of the **National Technical Textiles Mission**.

Technical textiles are fabrics designed for specific functions, prioritizing performance over aesthetics. E.g., **medical equipment, safety gear, and building materials**.

- ➔ Market segmented into 12 categories (refer box)

National Technical Textiles Mission (NTTM)

- ➔ **Aim:** Position India as a global leader in Technical Textiles with a budget of Rs. 1,480 crores until 2025-26.
- ➔ **Ministry:** Ministry of Textiles.
- ➔ **Four Components:** Research, Innovation, and Development; Promotion and Market Development; Export Promotion; Education, Training, and Skill Development.
- ➔ **Objective:** Build an ecosystem to strengthen India's global leadership in technical textiles.

12 Segments of Technical Textiles	
Indutech	Industrial brushes, computer printer ribbon, etc.
Mobitech	Seat cover, upholstery, tyre cord fabrics, etc.
Sportech	Sports nets, parachute, artificial grass and turfs, etc.
Buildtech	Floor and wall coverings, scaffolding nets, awnings & canopies, etc.
Hometech	Pillows, mattresses, blinds, etc.
Meditech	Contact lenses, baby diapers, etc.
Clohtech	Interlinings, labels, etc.
Agrotech	Bird protection nets, crop covers, etc.
Protech	Bullet-proof protective clothing, high visibility clothing, etc.
Packtech	Wrapping fabric, soft luggage, etc.
Oekotech	Waste management, environmental protection, recycling.
Geotech	Geo-composites, geo-bags, geogrids, geonets.

Significance of Technical Textiles for India

- ➔ **Diversified Applications:** Innovations like Hometech (Antiviral Mattress Protector).
- ➔ **Rising Demand:** Consumers prefer durable, high-strength technical textiles for activewear, medical apparel, and hygienic medical equipment (Meditech) due to population growth and aging.
- ➔ **Industrial Use:** Indutech supports manufacturing with products like conductive textiles and 3D textile solutions.
- ➔ **Environmental Protection:** Geotech and Oekotech aid in floor sealing, water pollution prevention, and erosion control.
- ➔ **Disaster Management:** Geotech barriers, e.g., in Austria, prevent avalanches.
- ➔ **Defense Modernization:** Protech bulletproof jackets and composites under Make in India.

- ➔ **Key Sector Support:** Enhances agriculture, healthcare, transportation, and infrastructure, e.g., geotextiles in railway tracks (National Infrastructure Pipeline) and geomembranes (Jal Jeevan Mission).

Initiatives to Promote Technical Textiles

- ➔ **PLI Scheme:** boosts domestic technical textiles, man-made fabrics, and apparel production.
- ➔ **PM MITRA Scheme:** focusing on man-made fibers (MMF) and technical textiles
- ➔ **SAMARTH Scheme:** provides demand-driven skilling for organized textile jobs.
- ➔ **New HSN Codes:** 30+ Harmonized System of Nomenclature codes added to the 207 identified in 2019.
- ➔ **Mandatory Usage:** 119 technical textile products mandated for use across 10 central ministries.

Challenges in Leveraging Technical Textiles

- ➔ **Lack of Awareness:** Limited marketing and education hinder public knowledge.
- ➔ **Import Dependence:** On China (low-cost) and US/Europe (high-tech).
- ➔ **Skilled Workforce Shortage:** as training focuses on traditional textiles.
- ➔ **Insufficient R&D:** Commodity-focused industry with limited diversification.
- ➔ **Standardization Issues:** Unaligned HSN codes and international standards complicate trade and quality control.

Way Forward

- ➔ **Enhance R&D:** via collaborations with premier institutes.
- ➔ **Boost Export Competitiveness:** Align Indian standards with global norms for better market acceptance.
- ➔ **Promote Sustainability:** Use natural fibers and eco-friendly products like Agrotech nets.
- ➔ **Adopt Global Practices:** E.g., advanced techniques from USA (Sportech), Germany (Geotech), etc.

3.12. National Waterways (Construction of Jetties/Terminals) Regulations, 2025

Why in the news?

The Inland Waterways Authority of India (IWAI) issued the **National Waterways (Construction of Jetties/Terminals) Regulations, 2025**.

About Regulations

- ➔ **Formulated By:** Inland Waterways Authority of India (IWAI) under the Ministry of Ports, Shipping and Waterways (MoPSW).
- ➔ **Aim:** Attract **private investment** and promote efficient use of India's waterways.

Key Provisions of the Regulations

- ➔ **Scope:** Applies to any entity, including private, developing or operating inland waterway terminals on national waterways.
- ➔ **No-objection Certificate (NoC) required:** from IWAI to develop or operate terminals.
- ➔ **Digital Portal:** for efficient, transparent terminal applications.
- ➔ **Responsibilities:** Terminal developers and operators handle technical design and construction.

Inland Water Transport (IWT)

- ➔ **Definition:** IWT involves moving people and goods on navigable rivers, canals, lakes, and inland waters.
- ➔ **Benefits:** Fuel efficient; Cost Effective in developing, transporting & maintenance; Reduced congestion; Eco-friendly.

Status of Inland Waterways in India

- ➔ **Navigable Waterways:** India has ~14,500 km of navigable waterways (rivers, canals, etc.), moving 133.03 Million Metric Tonnes (MMT) of cargo annually via IWT.
- ➔ **Comparison:** Only 3.5% of India's trade uses waterways, vs. 47% in China, 40% in Europe, 35% in Bangladesh.

Initiatives Undertaken

- **Inland Waterways Authority of India (IWAI):** Established 1986, nodal agency under MoPSW, develops and regulates National Waterways (NWs).
 - ➔ **Jal Marg Vikas Project (2014):** by IWAI, with World Bank support, enhances navigability of 1,390 km NWI (Varanasi-Haldia).
- **Sagarmala Programme (2015):** Promotes coastal and inland waterways to reduce road/rail dependency.
- **National Waterways Act, 2016:** Declares 111 waterways (5 existing, 106 new) as NWs.
- **Inland Vessels Act, 2021:** Replaces 1917 Act, addresses vessel registration, classification, pollution prevention.
- **Jalvahak Scheme (2024):** Encourages cost-effective, safe, timely cargo delivery via waterways.

Major Challenges

- **Inadequate Depth:** Most rivers (~2m depth) fall short of 3m needed for heavy loads.
- **Environmental Concerns:** Navigation increases river pollution, disrupts water flow, and harms habitats.
- **Vessel Shortage:** High capital costs and financing difficulties limit vessel construction.
- **Modal Integration:** Lack of multimodal corridors, waterway mapping, and transport hubs.

Conclusion

- Unlocking inland waterways' potential requires **upgrading infrastructure, encouraging private investment**, etc. Streamlined policies and regional collaboration will enhance cargo movement, making waterways a sustainable transport pillar.

3.13. Coal Sector for India's Development

Why in the News?

India achieved a historic milestone by surpassing **one billion tonnes (BT)** of coal production in **March 2025**, in **FY 2024-25**.

Government Initiatives Driving Coal Sector Success

- **Coal Mines (Special Provisions) Act, 2015 (CMSP Act):** Enabled auction of coal mines for commercial mining by private entities, with first auctions launched in 2020.
- **Mines and Minerals (Development and Regulation) Amendment Act, 2021 (MMDR Act):** Allowed captive mine owners to sell up to 50% of annual mineral production, including coal, in the open market.
- **Coal Logistics Plan & Policy, 2024:** to create a cost-effective and resilient coal evacuation system.
- **Transparent Auction Mechanism:** via two-stage online bidding through the **National Coal Mine Safety Report Portal** and **Mine Closure Portal**.
- **Coal Gasification Scheme, 2024:** Targets 100 million tonnes of coal gasification by 2030.
- **Mission Coking Coal:** to boost supply for the steel sector.
- **Other Measures:** National Coal Index (NCI); Single Window Clearance Portal; 100% FDI.

Significance of Coal in India's Development

- **Primary Energy Source:** E.g., Coal accounts for 46.88% of India's power generation capacity (November 2024).
- **Reduced Import Dependency:** E.g., imports dropped 8.4% in April-December 2024 compared to FY 2023-24, saving foreign exchange.
- **Rising Energy Demand:** projected to triple by 2050 (International Energy Agency, IEA)
- **Regional Development:** The coal sector contributes over ₹70,000 crore annually via GST, District Mineral Foundation (DMF) funds, etc.
- **Job Creation:** Employs around 5 lakh workers across 350+ coal mines.
- **Other Contributions:** Half of railways' **freight revenue (49% in FY 2022-23)**, enhanced **capital expenditure & CSR contribution**.

Key Information About India's Coal Sector

- India has the **5th largest coal reserves** globally and is the **2nd largest coal consumer**.
- **Total coal reserves:** 361.41 billion tonnes (2022).
- **Top coal reserve states:** Odisha, Jharkhand, Chhattisgarh (~69% of reserves).
- **Coal Mines (Nationalization) Act, 1973:** Governs coal mining eligibility. Auctions introduced in 2014 allowed private captive mining, with commercial mining opened to private players in 2020.
 - ➔ **Types of Coal:** **Anthracite** (Highest grade), **Bituminous** (widely used for power generation), **Subbituminous & Lignite** (Lowest grade, least carbon content).

Major Challenges for India's Coal Sector	
In Mining and Coal Production Industry	<ul style="list-style-type: none"> • Technological obsolescence in mining techniques • Un-seasonal and extended rainfall in coal-bearing areas • Non-payment of commensurate coal value and huge outstanding dues by power sector consumers • Frequent labour/industrial relation (IR) issues in coal fields • Land acquisition issues • High ash content of Indian coal
Environmental concerns from coal-powered thermal power plants	<ul style="list-style-type: none"> • Harmful gases: sulphur dioxide (SO₂), nitrogen oxides (NO_x), carbon dioxide (CO₂), particulate matter (PM) • Pollutants: fly-ash, lead (Pb), arsenic (As), cadmium (Cd), mercury (Hg)

3.14. National Programme for Dairy Development (NPDD)

Why in the News?

Union Cabinet approved the Revised National Program for Dairy Development (NPDD) with an enhanced outlay for the period of 15th Finance Commission cycle (**2021-22 to 2025-26**).

Objectives of Revised National Programme for Dairy Development (NPDD)

- Establish 5,000 new Dairy Cooperative Societies.
- Enhance milk procurement and processing in the North Eastern Region (NER).
- Form 2 Milk Producer Company with dedicated grants alongside ongoing NPDD projects.
- Create 3.2 lakh direct and indirect jobs, prioritizing women (70% of dairy workforce).

About National Programme for Dairy Development (NPDD)

- A **Central Sector Scheme** launched in 2014, restructured in 2021.
- **Implementing Agency:** Department of Animal Husbandry & Dairying (DAHD), Ministry of Fisheries, Animal Husbandry & Dairying.
- **Objectives:** Develop infrastructure for milk production, processing, and cold chain; Create training facilities for dairy farmers, etc.
- **Key Components:**
 - ➔ **Component A:** Support Dairy Cooperative Societies (DCS) with infrastructure like chilling plants and testing labs.
 - ➔ **Component B:** Dairying through Cooperatives (DTC), a **Japan International Cooperation Agency (JICA)**-assisted program for sustainable dairy cooperatives in 9 states.



Dairy Sector in India

- ➔ **Global Milk Production Share:** 24.76% (**Global Ranking:** #1)
- ➔ **Contribution to National Economy:** 5%
- ➔ **Agricultural Significance:** Single largest agricultural commodity
- ➔ **Growth Rate:** 5.62% CAGR in milk production (2014-24)
- ➔ **Employment:** Directly employs 8+ crore farmers (majority women)
- ➔ **Milk Availability:** 471 grams/day/capita (World average: 329 grams/day)
- ➔ **Major Dairy Production States:** Uttar Pradesh, Maharashtra, Himachal Pradesh, etc.

Role of Cooperatives in Dairy Sector

- ➔ **Collective Empowerment (Sahkar Se Shakti):** provide institutional support and bargaining power for small farmers.
- ➔ **Economic Empowerment (Sahkar Se Samridhi):** Ensure equitable wealth distribution, e.g., Amul, Nandini.
- ➔ **Cooperation among Cooperatives (Sahkar Se Sahyog):** Facilitates synergies, e.g., Primary Dairy Cooperative Societies (PDCS) transactions via Cooperative Banks.

Challenges in Dairy Sector

- ➔ **Low Productivity:** Due to ineffective breeding, limited extension services, and low-quality feed.
- ➔ **Informal Sector:** Preference for informal milk supply reduces demand for packaged milk.
- ➔ **Quality Issues:** Adulteration, e.g., milk dilution, urea use.
- ➔ **Animal Health:** Limited veterinary services and vaccination awareness, e.g., Foot and Mouth Disease.
- ➔ **Governance:** State interventions hinder cooperative democracy.
- ➔ **Infrastructure:** Lack of processing, storage, and marketing facilities impacts profitability.

Other Initiatives	
Rashtriya Gokul Mission	Enhances milk output and productivity through genetic improvements.
White Revolution 2.0	Launched in 2024 by Ministry of Cooperation to promote sustainability, circularity, women empowerment, etc.
Dairy Entrepreneurship Development Scheme (DEDS)	NABARD programme to create self-employment in dairy by offering capital subsidies for bankable projects.
Livestock Health & Disease Control Programme (LHDCP)	Improves animal health through prophylactic vaccination programmes.
Animal Husbandry Infrastructure Development Fund (AHIDF)	Incentivizes investments by entrepreneurs/private companies to establish dairy processing.

Way Forward

- ➔ **Infrastructure:** Expand milk production, processing, and storage facilities, e.g., cold chains, testing labs.
- ➔ **Technology:** Promote scientific animal husbandry, e.g., artificial insemination, embryo transfer.
- ➔ **Cooperatives:** Increase awareness and adoption in remote areas.
- ➔ **Processing & Marketing:** Develop milk products like A2 Ghee, paneer, and promote exports.

Related News: Revised Rashtriya Gokul Mission (RGM)

- ➔ **Enhanced Outlay:** ₹1,000 crore added, totaling ₹3,400 crore for 2021-26.
- ➔ **Key Additions:**
 - ➔ **Heifer (Young cows) Rearing Centres:** 35% capital cost assistance for 30 facilities housing 15,000 heifers.
 - ➔ **Support for High Genetic Merit (HGM) Heifers:** 3% loan interest subvention for HGM IVF heifer purchases.
- ➔ **Ongoing Activities:**
 - ➔ **Nationwide Artificial Insemination Programme (NAIP)** for semen station and AI network strengthening.
 - ➔ **Bull production and breed improvement** via sex-sorted semen.
 - ◇ **Skill development**, farmer awareness, and Centres of Excellence.

3.15. News in Shorts

3.15.1. PAC Calls for Review of GST

Parliamentary Committee on Public Accounts sought comprehensive review of GST Framework.

Goods and Services Tax (GST)

- ➔ Launched in July 2017 (101st Constitutional Amendment Act, 2016).
- ➔ Comprehensive **Destination-Based Indirect Tax**
 - ➔ Imposed at every level of the supply chain.
 - ➔ Eliminates Cascading Tax Effect (Tax on Tax).

Central Taxes Subsumed

- ➔ Service Tax
- ➔ Central Excise Duty
- ➔ Additional Duties of Excise (Goods of Special Importance)
- ➔ Excise Duty under Medicinal & Toilet Preparation (Excise Duties) Act, 1995
- ➔ Additional Duties of Customs (CVD)
- ➔ Special Additional Duty of Customs (SAD)
- ➔ Surcharges & Cesses

State Taxes Subsumed

- ➔ Central Sales Tax
- ➔ Purchase Tax
- ➔ Entertainment and Amusement Tax (other than those levied by local bodies)
- ➔ Luxury Tax
- ➔ Octroi and Entry Tax (All forms)
- ➔ Taxes on lotteries, betting & gambling
- ➔ Taxes on advertisements
- ➔ State Cesses and Surcharges

Key Issues in GST Framework

- ➔ **For MSMEs:** compliance challenges due to the complex Inverted Duty Structure and administrative burden.
- ➔ **For Exporters:** delays in Input Tax Credit (ITC) refunds, leading to cash flow issues.
- ➔ **For Steel Rolling Mills:** dual taxes as scrap dealers evade GST, hindering ITC claims
- ➔ **For Online Gaming Sector:** Tax evasion persists due to diverse business models.
 - ➔ From October 1, 2023, online gaming is **taxed at 28% GST**.
 - ➔ They must register under the **Simplified Registration Scheme** of the **Integrated Goods and Services Tax (IGST) Act**.
 - ➔ The Directorate General of GST Intelligence (DGGI) can block unregistered offshore gaming platforms violating the IGST Act.

Way Ahead

- ➔ **Simplified GST compliance framework** tailored for MSMEs.
- ➔ Dedicated **fast-track refund system** for exporters to streamline ITC claims.

- ➔ Independent study to **analyze revenue models of gaming platforms** and develop **comprehensive guidelines**.

3.15.2. Making CSR, IBC & ESG Effective

10th report on 'Demands for Grants (2025-26)' of Ministry of Corporate Affairs (MCA) highlights various issues and gives recommendations thereof for making **Corporate Social Responsibility (CSR)**, **Insolvency and Bankruptcy Code (IBC)** & **Environmental, Social and Governance (ESG)** Regulations effective:

Areas	Issues	Recommendations
Corporate Social Responsibility (CSR)	<ul style="list-style-type: none"> • Gaps in enforcement and monitoring of CSR framework • Limited analysis of CSR spending effectiveness • Unspent CSR Account Mechanism lacks transparency 	<ul style="list-style-type: none"> • Develop comprehensive reporting and monitoring framework, e.g., publish detailed CSR project impact reports • Enforce timely penalties for non-compliance
Insolvency and Bankruptcy Code (IBC)	<ul style="list-style-type: none"> • Conflicts of interest and inconsistent provision interpretation delay resolutions • Weak framework for complaints against Resolution Professionals (RPs) 	<ul style="list-style-type: none"> • Introduce direct submission system for resolution plans via central online portal • Set rigorous certification and independent performance reviews for RPs • Review Committee of Creditors (CoC) structure for better operational creditor representation



Environmental, Social and Governance (ESG) Regulations	<ul style="list-style-type: none"> • Ongoing greenwashing risks • Small businesses struggle with ESG adoption 	<ul style="list-style-type: none"> • Form dedicated ESG oversight body within ministry to enforce compliance and penalize greenwashing • Amend Companies Act, 2013 to include ESG as directors' fiduciary duties • Create independent ESG committees akin to audit committees
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3.15.3. Parliamentary Standing Committee on Agriculture Submits Report on Fisheries Sector

The report **evaluates the government's response to recommendations** aimed at improving the fisheries sector, enhancing employment opportunities, and increasing revenue generation.

- ➔ India is **3rd largest fish-producing country (8% of global production)** with share in **agricultural GVA ~ 6.72%**.

Key Highlights

Issues Highlighted	Recommendation
Lack of a Dedicated Research Body: E.g., lacks sector-specific focus.	Establish the Indian Council for Fishery and Aquaculture Research (ICFAR) .
Lack of Regulation of Juvenile Fish Harvesting: Harmful practices like bull trawling deplete fish stocks.	Enforce Minimum Legal Mesh Size (MLS) regulations uniformly and ban destructive fishing methods.
Lack of Interest-Free Loans for Fishers: Only a few states offer 4% additional interest subvention under KCC.	Expand interest-free KCC loans nationwide.
Post-Harvest Losses & Infrastructure: 20-25% losses due to poor storage and processing facilities.	Strengthen cold storage, processing, and transport under PMMSY.
Lack of Self-Sufficiency in Shrimp Broodstock: Heavy reliance on imported L. Vannamei shrimp broodstock.	Fast-track domestic broodstock development via ICAR.
Fish stock washed away due to dam gate openings and heavy rainfall.	Introduce insurance for dam fishers , similar to PMFBY.

Sanitary and Phytosanitary (SPS) barriers and lack of proper certification and traceability hinder exports.	Enhance export competitiveness: Improve SPS compliance, certification, etc.
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3.15.4. Scheme For Cooperative Sugar Mills

Recently, Union Government has notified a scheme for Cooperative Sugar Mills under **modified Ethanol Interest Subvention Scheme**.

About Scheme

- ➔ **Ministry:** Ministry of Consumer Affairs, Department of Food & Public Distribution
- ➔ **Aim:** Convert sugarcane-based ethanol plants into multi-feedstock plants using grains like Maize and Damaged Food Grains (DFG).
- ➔ Interest subvention @ 6% per annum or 50% of the interest rate charged by banks/financial institutions, whichever is lower.

3.15.5. Tobacco

India's tobacco exports have doubled over the last 4 years.

Tobacco

- ➔ **India's Status:** Second largest producer (after China) and exporter (after Brazil).
- ➔ **Major Producing States:** Gujarat (45% cultivated area, 30% production), Andhra Pradesh, Karnataka, Uttar Pradesh (UP), and Bihar.
- ➔ **Favourable Conditions:**
 - ➔ **Temperature** (20°–27°C); **Rainfall** (~500 mm to 1200 mm); **Soil** (sandy or sandy loam)
 - ◊ Cigarette-tobacco in Andhra Pradesh grown on **heavy black soil**.

3.15.6. 'Becoming A High-Income Economy In A Generation' Report Released By World Bank

The report states India must grow by 7.8% annually for 22 years to become a High-Income Country (HIC) by 2047. India became a Low Middle-Income Country (LMIC) in 2007-08 and will be an Upper Middle-Income Country (UMIC) by 2032.

Key Challenges to HIC by 2047

- ➔ **Slow Structural Shift:** Agriculture employs 45% (2023-24), low-productivity services and construction 30%, manufacturing and modern services only 11% and 7%.
- ➔ **Falling Investment:** Private investment's GDP share

India's Economic Growth Over 2 Decades

4x	3x	2x
Economy Expansion	rise in GDP Per Capita	rise in Global Economy Share
5x Largest Economy Globally in nominal terms	Significant Decline in Extreme Poverty & Better Infrastructure	6.7% Annual Growth Pre-Pandemic

Global Economy Share: 1.6% (2000) to 3.4% (2023)

To achieve **High-Income Status** by **2047**, **GNI per capita** must **grow 8x**

has declined since 2008.

- ➔ **Wasted Demographic Dividend:** Working-age population up 37.4% (2000-19), employment only 15.7%, labor participation down from 58% to 49%.

Key Strategies for Growth

- ➔ **Increase Investment:** Raise investment from 33.5% to 40% of GDP by 2035 via better regulations, MSME credit, and FDI policies.
- ➔ **Generate Jobs:** Boost private investment in agro-processing, manufacturing, and care economy.
- ➔ **Regional Balance:** Less developed states prioritize health, education, infrastructure; developed states focus on advanced reforms.

3.15.7. UNCTAD Released 'A World of Debt Report 2024'

Public debt can drive development by funding critical expenditures, but excessive debt growth poses challenges, especially for developing nations.

- ➔ **United Nations Conference on Trade and Development (UNCTAD)**'s 2024 report warns of rising debt risks, urging immediate global action to ensure stability.

Key Findings of the Report

- ➔ **Global Debt Surge:** Public debt hit \$97 trillion in 2023 (India~\$2.9 trillion).
- ➔ **Debt Servicing Strains:** 54 developing nations allocate more to interest payments than social sector spending.
- ➔ **Unequal Financial System:** Developing nations face 2-12 times higher interest rates.

Challenges Posed by Rising Global Public Debt

- ➔ **Debt Overhang:** stifles growth by reducing investment and consumption.
- ➔ **Liquidity Challenge:** Private creditors withdrew ~\$50 billion from developing countries, tightening liquidity.
- ➔ **West-dominated creditor institutions** (private, multilateral, bilateral) make debt restructuring costly.

Recommendations

- ➔ Better debt restructuring mechanisms, increase in contingency financing (to avert debt crises) and boosting developing countries' participation in global financial governance.

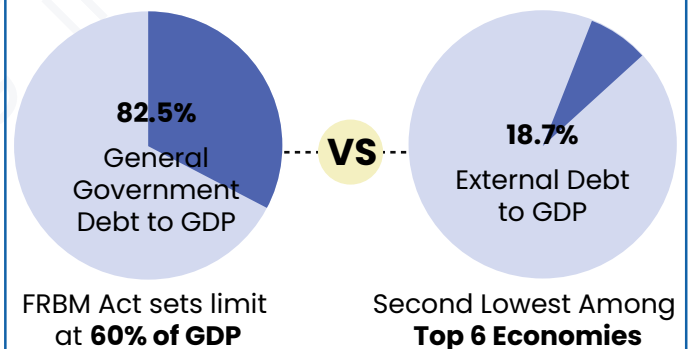
Public Debt



What is Public Debt?

Public debt, also referred to as **sovereign debt**, is the total **financial obligation accumulated** by a government through borrowing from domestic or external sources to fund expenditures that exceed its revenue.

India's Public Debt Overview



3.15.8. Bilateral Swap Agreement (BSA)

India and Japan have renewed the \$75 billion bilateral currencies swap agreement.

About Bilateral Swap Agreement (BSA)

- ➔ BSA is an agreement between two central banks to exchange cash flows in different currencies based on set terms.
- ➔ **Purpose of India-Japan BSA:** Enables both nations to swap local currencies for US dollars as needed.
- ➔ **Significance:** Aids in managing exchange rate fluctuations and ensures liquidity during financial crises.

3.15.9. Largest INVIT Monetization In Roads Sector

National Highways Infra Trust (NHIT) completed largest INVIT monetization in roads sector.

- ➔ NHIT is the **Infrastructure Investment Trust (InvIT)** set up by **National Highways Authority of India (NHAI)** in 2020 to support **India's Monetization programme**.

About InvIT

- ➔ **Definition:** An investment vehicle, similar to mutual funds or Real Estate Investment Trusts (REITs).
- ➔ InvITs **allow direct investment from individual/institutional investors** in infrastructure projects, either directly or via Special Purpose Vehicle (SPV)/Holding Company.
- ➔ **Income:** Generated through tolls, rents, interest, or dividends; taxable for unit-holders.
- ➔ **Regulation:** Governed by SEBI (Infrastructure Investment Trusts) Regulations, 2014.
 - ➔ **SEBI mandates 90% income distribution to investors.**
 - ➔ **Recognized as borrowers** under the **Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002.**
- ➔ **Types:** Public InvITs, Private listed InvITs, Private unlisted InvITs.
- ➔ **Advantages:** Enables retail investment in large projects, low entry cost, and liquidity via stock exchange listing.

Structural Overview of InvIT	
Sponsor	Infrastructure Company or Private Equity Firm Key Actions: Establish InvIT; Transfer infrastructure assets to InvIT Trust
InvIT Trust	Manages infrastructure assets Primary Functions: Hold infrastructure assets; Issue investment units
Investors	Receive units representing ownership stake in the InvIT

Asset Monetization (AM)

- ➔ **Definition:** Unlocking economic value of underutilized public assets to create new revenue streams for the government.
- ➔ **India's Monetization Programme:**
 - ➔ **National Monetisation Pipeline (NMP):** Developed by NITI Aayog, targets Rs. 6 lakh crore from 2022-2025.
 - ➔ **2nd Asset Monetization Plan (2025-2030):** Announced in Budget 2025, aims for Rs. 10 lakh crore.
 - ➔ **Others:** Includes National Land Monetization Corporation.

3.15.10. Digital Footprint-Based Lending For MSMEs

Ministry of Finance launched a new credit assessment model using MSMEs' digital footprints to streamline credit appraisal and disbursement.

About New Credit Assessment Model

- ➔ It will use digital ecosystem data to **automate MSME loan appraisals.**
- ➔ It seeks to **enhance financial inclusion**, reduce reliance on traditional credit scores, and ease MSMEs' access to formal credit.
- ➔ **Public Sector Banks** will build in-house MSME credit assessment capabilities, minimizing external evaluations.

3.15.11. Venture Capital

India's Venture Capital (VC) funding surges **43% to \$13.7 billion in 2024.**

About VC

- ➔ Form of **private equity financing** for startups and small businesses with growth potential.
- ➔ Involves **equity shares or convertible debt**, giving the firm ownership.
- ➔ Offers **financing, tech expertise, or managerial support.**



3.15.12. Reinsurance

Valueattics Re has become the **first private firm** to receive IRDAI's nod to **commence reinsurance business in India**.

- ➔ Currently, public sector **General Insurance Corporation (GIC Re)** is the **only** reinsurance company operating in India.

About Reinsurance

- ➔ A risk management practice where **insurance companies transfer a portion of their risk to another insurance company (reinsurer)**.
- ➔ **Regulator:** Insurance Regulatory and Development Authority of India (IRDAI).
- ➔ **Laws:** Insurance Act, 1938 and IRDAI (Re-Insurance) Regulations, 2018.

3.15.13. Samarth

Centre for Development of Telematics launches 'Samarth' a cutting edge **Incubation Program** for **telecommunications** and **IT sectors**.

About Samarth

- ➔ **Aim:** Promote **sustainable and scalable business models**, offer access to **cutting-edge resources**, etc.
- ➔ **Implementation Partner:** Software Technology Parks of India (STPI), premier S&T organization under Ministry of Electronics and Information Technology (MeitY).

3.15.14. Uplink Initiative

Uplink initiative under **World Economic Forum's (WEF)** **cut carbon emissions** by 142,400 tonnes in 2023-2024.

About UpLink Initiative

- ➔ Focused on **impactful early-stage innovation**.
- ➔ Founded in **2020** by WEF in collaboration with **Deloitte** and **Salesforce**.
- ➔ Builds **ecosystems** that enable **purpose-driven, early-stage entrepreneurs** to scale their businesses for a **net-zero, nature-positive and equitable future**.
- ➔ **Objectives:** Accelerate impact of early-stage innovators, Enable Innovation Ecosystems and Influence perception.

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4



SHAH MARGI CHIRAG

AIR
5



AAKASH GARG

AIR
6



KOMAL PUNIA

AIR
7



AAYUSHI BANSAL

AIR
8



Raj Krishna Jha

AIR
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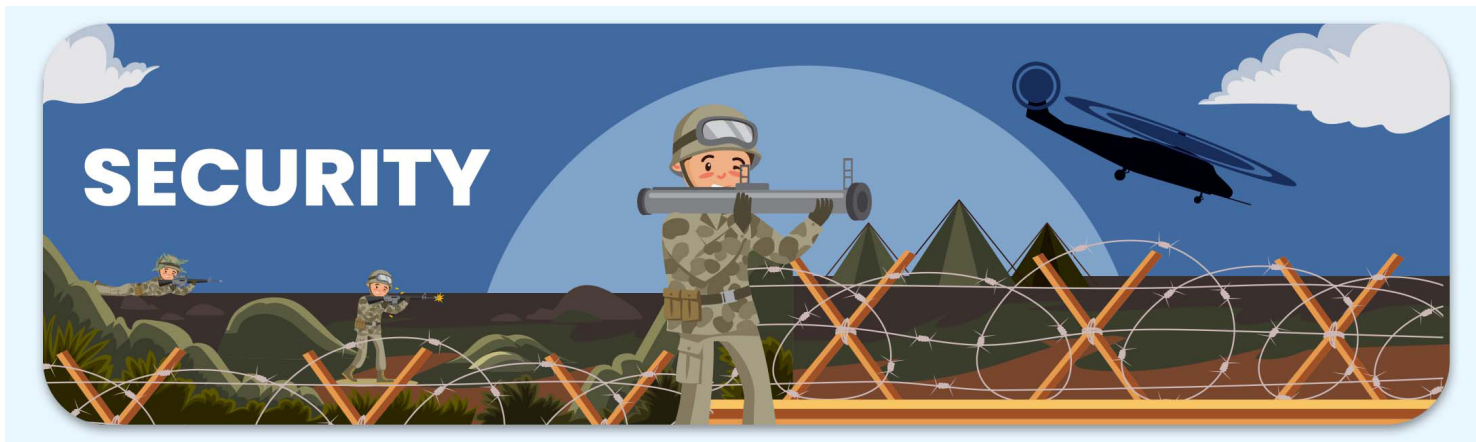


**ADITYA VIKRAM
 AGARWAL**

AIR
10



MAYANK TRIPATHI



4.1. Role of Quantum Computing In National Security

Why in the news?

NITI Aayog's Frontier Tech Hub (NITI-FTH) recently released a strategic paper on "Quantum Computing: National Security Implications & Strategic Preparedness". For further details, refer to Article 8.1 "Quantum Science and Technology" in June 2024 Monthly Current Affairs.

How Quantum Computing is Reshaping the National Security Paradigm

- **Cryptography and Cybersecurity:** Quantum computers could break current encryption algorithms, leading to the adoption of Post-Quantum Cryptography (PQC) to protect data.
 - ➔ E.g., USA's National Quantum Initiative Act (2018) emphasizes PQC for cybersecurity.
- **Enhanced Intelligence Gathering:** Quantum computing can process complex datasets for better intelligence analysis and intercept communications.
 - ➔ E.g., NATO's 2024 strategy includes quantum technologies for defense applications.
- **Secure Communications: Quantum Key Distribution (QKD)** enables secure transmission of encryption keys.
 - ➔ E.g., China's 2,000 km QKD network between Beijing and Shanghai.
- **Military Hardware:** Quantum breakthroughs will enhance materials science and autonomous military systems.
 - ➔ E.g., Quantum AI will power drones and robotic systems.
- **Economic Warfare:** Quantum computing's ability to break encryption may destabilize financial systems.
 - ➔ E.g., The USA's National Quantum Initiative Act addresses economic security via quantum innovation.
- **Geopolitical Power:** Early breakthroughs in quantum technology will establish global leadership.
 - ➔ E.g., China's Micius satellite (2016) enabled quantum-secured communication.

Key Challenges in Leveraging Quantum Computing for National Security

- **Workforce Shortage:** One qualified quantum candidate for every three quantum job openings (McKinsey, 2022).
- **Geopolitical Competition:** Strategic gaps due to uneven quantum R&D investments. China (\$15B), U.S. (\$5B), India (\$0.75B).
- **Resource Disparities:** Lag in secure quantum communication for low-investment nations.
- **Technological Immaturity:** Early-stage quantum computers still struggling with stability. E.g., IBM's 433-qubit Osprey processor has high error rates.
- **Data Risk:** Threat of future decryption by hackers.

India's Quantum Technology Initiatives



National Quantum Mission

Promotes quantum R&D and innovation



QUEST Program

Supports quantum labs and infrastructure



Academic Research Hubs

Focus on quantum research in institutions



Private Sector Contributions

Develops quantum safe networks



Other Initiatives

Includes quantum communication lab and QKD solutions

Key Recommendations

- **Continuous Monitoring:** Set up a quantum task force to track global progress.
- **Cryptographic Intelligence:** Conduct audits to identify quantum-related vulnerabilities.
- **PQC Transition Plan:** Develop a roadmap for adopting PQC and ensure cross-sector collaboration.
 - ➔ E.g., Google Chrome's trial of PQC algorithms like Kyber.
- **Strengthening the Quantum Workforce:** Launch education programs and reform immigration for global talent.
- **Building a Quantum Ecosystem:** Create a vibrant quantum industry through consortia like the **US Quantum Economic Development Consortium (QED-C)**.
- **International Collaboration:** Partner with like-minded nations for quantum technology development, e.g., India's cooperation with the EU on HPC, weather extremes, and quantum technologies.
- **Other:** Early warning systems for breakthroughs; **Crypto agility frameworks** to adapt to encryption changes; Flexible R&D funding.

Conclusion

Quantum computing is crucial for India's strategic resilience and aligns with the vision of Viksit Bharat @2047.

4.2. News in Shorts

4.2.1. Trends in International Arms Transfers, 2024

SIPRI's new data reveals shifts in global arms transfers.

- **India:** Now the second-largest arms importer, overtaken by Ukraine. Arms imports fell 9.3% due to domestic production. Russia remains a key supplier, but India is diversifying with France, Israel, and the U.S.
- **U.S.:** Increased global arms export share to 43%.
- **Russia:** Arms exports dropped 64%, falling behind France.

4.2.2. Smuggling of Gold in India

An actor was arrested for gold smuggling.

- Gold smuggling depletes foreign exchange reserves and fuels organized crime.
- A significant portion of illicit gold enters India from Gulf states, including UAE and Saudi Arabia.
- **Laws:** The Customs Act, 1962 and Bhartiya Nyaya Samhita, 2023, impose penalties, and the UAPA treats smuggling as a "terrorist act" if it harms India's monetary stability.

4.2.3. C-Dot Trinetra

A new AI-powered cybersecurity platform, TRINETRA, was launched for Kerala Police.

- **C-DOT:** An autonomous R&D body under DoT, it aims to enhance cybersecurity in critical sectors by monitoring endpoints, network traffic, and detecting anomalies.

4.2.4. Missile 'Gandiva'

DRDO's new air-to-air missile, "Gandiva" (Astra MK-3), has been officially designated.

- **Features:** Powered by Solid Fuel Ducted Ramjet propulsion, it can sustain supersonic speeds up to Mach 4.5 over 300-350 km.

4.2.5. Ashwini

India's Ministry of Defence has acquired Low Level Transportable Radar (LLTR) 'Ashwini' for the Air Force.

- **Features:** Indigenously developed with a 200 km range, it can track various aerial targets, including UAVs and helicopters.

4.2.6. Sonic Weapon

Serbia denied using a banned 'sonic weapon' on protesters.

- **About Sonic Weapons:** These devices use concentrated sound over long distances, causing effects like tinnitus and hearing loss.

4.2.7. Golden Dome

The U.S. proposed the Golden Dome missile defense system.

- **About Golden Dome:** A missile defense program to protect against ballistic, hypersonic, and cruise missiles, inspired by Israel's Iron Dome system.

4.2.8. Convention on Cluster Munitions

Lithuania withdrew from the Convention on Cluster Munitions due to security concerns over Russia.

- **About CCM:** A treaty that bans the use, stockpiling, production, and transfer of cluster munitions, effective since 2010. India, Russia, China, and the U.S. are not signatories.

4.2.9. Exercises in News

Exercise INDRA 2025	<ul style="list-style-type: none"> 14th Edition held in Chennai from March 28 to April 02, 2025. Bilateral exercise between India and Russia since 2003.
Exercise Prachand Prahar	<ul style="list-style-type: none"> Tri-service integrated exercise by Indian Armed Forces in Arunachal Pradesh.
Varuna Exercise 2025	<ul style="list-style-type: none"> Bilateral naval exercise between India and France in the Arabian Sea.
Bongosagar 2025	<ul style="list-style-type: none"> India-Bangladesh Naval Exercise in Bay of Bengal. Related: Exercise Sampriti – annual military drill on counterterrorism & disaster response.
Exercise Khanjar 2025	<ul style="list-style-type: none"> India-Kyrgyzstan Special Forces Exercise, held annually in both countries. Aim: Counter Terrorism & Special Forces cooperation.
TROPEX 2025	<ul style="list-style-type: none"> Indian Navy's flagship war exercise. Focus: Operational preparedness with Army, Air Force, and Coast Guard.
Exercise Desert Hunt 2025	<ul style="list-style-type: none"> Tri-Service Special Forces drill with Para SF, MARCOS, and Garud units. Aim: Interoperability, synergy, rapid response.
INIOCHOS-25	<ul style="list-style-type: none"> Multinational air exercise hosted by Greece's Hellenic Air Force. Indian Air Force participated to enhance tactical skills and military cooperation.



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ENVIRONMENT



5.1 Biofuels

Why in the News?

India has emerged as the world's **third-largest biofuel producer**.

About Biofuels

- ➔ **Biofuels are fuels produced from renewable resources** used in place of or blended with fossil fuels.
- ➔ **Types:** Categorized into four generations.
- ➔ **Key Players:** The USA is the largest producer followed by Brazil.
- ➔ Includes ethanol, biodiesel, Compressed Biogas (CBG), and Sustainable Aviation Fuels (SAF).

Significance of Biofuels

- ➔ **Environmental Benefits:** Can reduce emissions by up to 80% compared to fossil fuels and address stubble burning.
- ➔ **Energy Security:** Ethanol blending has saved over Rs. 1,13,007 crore in foreign exchange and helps mitigate oil sector volatilities.
- ➔ **Circular Economy:** Employs waste for wealth creation and delivers socioeconomic benefits.
- ➔ **Fostering Rural Economy:** Provides additional income to farmers.
- ➔ **Downstream Applications:** Produces renewable methanol and byproducts with industrial applications.

Evolution Of Biofuels

- ➔ **First Generation:** Fuels from food crops.
- ➔ **Second Generation:** Organic waste derived fuels.
- ➔ **Third generation:** Algae based.
- ➔ **Fourth Generation:** Genetically modified microorganisms.

Existing Challenges with Biofuel

- ➔ **Feedstock challenges:** Competition with other commercial applications, seasonal availability, and resistance to breakdown.
- ➔ **Infrastructure Constraint:** Lack of decentralized storage facilities.
- ➔ **Food Security vs. Fuel Dilemma:** Using food crops impacts food security.
- ➔ **Funding Requirement:** Requires USD 100–270 billion investment by 2030 to meet targets.
- ➔ **Competition from Conventional Fuel:** SAF is 2–10 times more expensive than conventional jet fuel.
- ➔ **Low Energy Efficiency:** Lower energy density than fossil fuels.

Key Initiatives/Steps which Promoted Production of Biofuels

- ➔ **Policy and Roadmap Initiatives:** National Policy on Biofuels (2018, amended 2022): Expanded feedstock base and introduced incentives.
- ➔ **Ethanol Blended Petrol Program:** Achieved 19.6% blending as of January 2025.
- ➔ **Infrastructure & Production Support:** Pradhan Mantri JI-VAN Yojana (2019): Promotes advancements in 2G ethanol.
- ➔ **GOBAR-Dhan Scheme:** Promotes biogas from agricultural waste and animal dung.

- ➔ **SATAT Initiative (2018):** Extracts value from bio-mass waste.
- ➔ **International Collaborations:** Global Biofuels Alliance (2023): India-led initiative for biofuel promotion.
 - ➔ **Bilateral Mechanism:** India-Brazil Center of Excellence on Ethanol.
- ➔ **Other:** GST rate reduction for biodiesel from 12% to 5%, Roll out of **E20 fuels and ETHANOL 100**.

5.2 National Board for Wildlife (NBWL)

Why in the News?

The Prime Minister of India chaired the **7th National Board for Wildlife** meeting at **Gir National Park in Gujarat**.

More on the News

- ➔ The recent meeting of NBWL **took place after over 10 years** (last full-body meeting was in 2012).
- ➔ **Announced the 16th cycle of lion estimation** to be conducted in 2025.

About the National Board for Wildlife

- ➔ **Statutory body** established in 2003 after amendment of the Wildlife (Protection) Act, 1972.
- ➔ **Genesis:** Evolved from Indian Board for Wildlife (IBWL) constituted in 1952.
- ➔ **Members:**
 - ➔ **Chairperson:** Prime Minister of India
 - ➔ **Vice-Chairperson:** Union Minister of Environment & Forests and Climate Change
 - ➔ **Includes NGO representatives** and eminent conservationists
- ➔ Standing Committee **chaired by the Minister of Environment and Forests and Climate Change**.
- ➔ Functions include promoting **wildlife conservation, framing policies, making recommendations on protected areas, and assessing impact of projects on wildlife**.

Concerns related to NBWL

- ➔ Approval of projects in protected **areas despite environmental concerns**.
- ➔ **Threats to endangered species** from approved projects.
- ➔ Reduced role of independent **members in decision-making**.
- ➔ **Neglect of local communities'** opinions in project clearances.
- ➔ Insufficient monitoring of **compliance after project approvals**.

Way forward

- ➔ Need for expertise through qualified **wildlife scientists and conservation NGOs**.
- ➔ **Better monitoring of compliance** through annual certificates.
- ➔ **Institutionalize local community** participation through Free, Prior, and Informed Consent.
- ➔ Balance development and environment by **encouraging eco-sensitive alternatives**.
- ➔ Leverage **scientific and technological tools** for better impact assessment.

5.3 Project Lion and IUCN Green Status of Species

Why in the News?

Union Government approved funds for the **Project Lion** to enhance conservation efforts.

More on the News

- ➔ Government approved establishment of **National Referral Centre for Wildlife (NRC-W)** in Gujarat's Junagadh district to **track wildlife diseases**.
- ➔ **IUCN released First Green Status Assessment for the Lion**, placing them under "**Largely depleted**" category.
- ➔ **Assessment showed human impacts prevent lions from being fully ecologically functional** across their range.

IUCN Green Status of Species

- Provides **global standard for measuring species recovery** and assessing conservation impact.
- **Key features include coverage of all species except microorganisms**, eight Green Status Categories, and complementing the Red List.
- A species is fully **recovered if it is present in all parts of its historical range**, is viable across its range, and **performs ecological functions in all parts of its range**.

About Project Lion (2020)

- **Objective:** Securing future of Asiatic lions through **comprehensive conservation efforts**.
- **Key Focus Areas:** Landscape ecology-based conservation, habitat restoration, community participation, and disease management.
- 10-year implementation by **Gujarat State Government and other stakeholders**.

About Asiatic Lion (Indian Lion)

- **Habitat:** Grasslands, savannas, dense scrub, and open woodlands.
- **Distribution:** Currently found only in Gir landscape in Gujarat.
- **Key Characteristics:** Sexual dimorphism with larger males, 16–18 year lifespan, Live in prides, Nocturnal with 100–119 day gestation, Males patrol territories
- **Ecological Role:** Apex predators controlling herbivore populations and preventing disease spread.
- **Population:** 674 in 2020 (increased from 523 in 2015).
- **Conservation Status:** Vulnerable (IUCN), Schedule I (Wildlife Protection Act), Appendix I (CITES).
- **Subspecies:** Northern lion (*Panthera leo leo*): North, Central, and West Africa, includes Asiatic lion, Southern lion (*Panthera leo melanochaita*): East and South Africa

Several other Initiatives have further consolidated the conservation of Asiatic lions

- International Big Cats Alliance (2023)
- **Asiatic Lion Conservation Project**
- **Greater Gir Concept** to develop additional suitable habitats
- Strengthened **Protection Mechanisms including Wildlife Crime Cell**
- **Other initiatives include CSS-DWH support**, habitat improvement measures, and World Lion Day observance.

Gir landscape

- Largest compact tract of **dry deciduous forests in semi-arid western India**
- Features rugged **ridges, hills, plateaus and valleys**
- **Home to various rivers, flora, fauna**, and Maldhari tribal community

5.4 River Dolphins

Why in the News?

The **first-ever comprehensive survey** of river dolphins has revealed a population estimate of 6,327 dolphins mainly in the **Ganga, Brahmaputra and Indus River basins**.

More on news

- Survey conducted by **Wildlife Institute of India under Project Dolphin 2020**.
- Findings published in '**Population Status of River Dolphins in India- 2024**' Report.

Key findings of 'Population Status of River Dolphins in India – 2024' Report

- **Decline from 4,000–5,000** Ganges River dolphins at end of 20th century to about **1,800 individuals**.
- **Current total river dolphin population:** 6,327 (6,324 Gangetic and 3 Indus River Dolphins).
- Uttar Pradesh has highest population, **followed by Bihar, West Bengal, Assam, Jharkhand, Madhya Pradesh and Rajasthan**.
- Indus River Dolphin population **critically low, requiring urgent conservation**.
- **Dolphins act as umbrella species** for habitat and biodiversity conservation.

Wildlife Institute of India

- **Genesis:** 1982, WII was accorded autonomy in **April 1986**.
- **HQ:** Dehradun
- **Ministry:** Ministry of Environment Forest and Climate Change.
- **Governance:** Wildlife Institute of India's governance is **run under the Society, chaired by the Union Minister of Environment & Forests**.
- **Mission:** To nurture the development of **wildlife science and promote its application in conservation, in consonants with our cultural and socio-economic milieu**.
- **Functions:** Training program, academic courses and **advisory in wildlife and biodiversity research and management**.
- **Important cells:** Environmental Impact Assessment cell, **National Wildlife Database, Centre on Environment Information System (ENVIS)**.

Facts about Gangetic River dolphins

- Found mainly in **Ganges, Brahmaputra, Meghna and Sangu Karnaphuli River systems**.
- India hosts **90% of world's Ganges river dolphins**.
- **National aquatic animal of India**, locally known as **"susu."**
- **Apex predator** ("tiger of the ganges") and indicator species.
- Protected under CITES Appendix I, **Wildlife Protection Act Schedule I, IUCN Endangered**.
- Usually solitary, blind, **using echolocation to navigate**.

Key facts about Indus River dolphin

- Punjab's **state aquatic animal since 2019**.
- Brown/grey, blind, **navigating through echolocation**.
- Found in Indus River system in **Pakistan and Beas River in Punjab**.
- Locally known as **"Bhulan."**
- Recognized as distinct species from Gangetic dolphins in **Wild Life Protection Amendment Act, 2022**.

Threats to Gangetic river dolphins

- **Fisheries-related mortality, bycatch**, and intentional killing.
- Water infrastructure **disrupting habitat connectivity**.
- **Water pollution from mining**, agriculture, and industrial activities.
- Human disturbance from **boat traffic and noise pollution**.
- **Climate change** increasing saltwater intrusion into habitats.

Indian Initiatives to protect River Dolphins

- **Comprehensive Action Plan (2022-2047)** for protection and habitat improvement.
- Financial assistance through Development of **Wildlife habitats scheme**.
- **Establishment of protected areas** like Vikramshila Dolphin Sanctuary.
- Chambal River **Conservation Zone designation**.
- **National Dolphin Day** (October 5th) for awareness.
- **National Dolphin Research Centre** in Patna.
- First satellite-tagging of **Ganges River Dolphin in 2024**.



5.5. Jumping Spiders

Why in the news?

A collaborative research has reported the discovery of **two new species of jumping spiders** from the **Shendurney Wildlife Sanctuary (Kerala) in Western Ghats**.

About New Species

- Two new species belong to the **genus Epidelaxia**.
- This marks the **first time the genus has been recorded from India**, earlier considered endemic to Sri Lanka.

About Jumping Spiders

- **Family:** Belongs to the largest family of spiders.
- **Habitat:** Common in the tropics.
- **Characteristics:**
 - ➔ Can jump a distance thirty times the length of their body.
 - ➔ **Larger front legs helping them grasp and hold their prey** while their **back legs are used for jumping**.
- Most spiders have **eight or six eyes but poor vision**.
 - ➔ **Jumping spiders with 8 eyes arranged in pairs are an exception** which can see more colours than humans.
 - ➔ The **day-hunting jumping spider can see in the red spectrum, green spectrum, and in UV light**.
- **Behaviour:**
 - ➔ Jumping spiders are **active predators** eating insects and other spiders.
 - ➔ A **jumping spider's silk is also used to build "pup tents"**.

Spiders vs. Insects

- **Classification:**
 - ➔ **Spiders:** Class Arachnida.
 - ➔ **Insects:** Class Insecta.
- **Body Structure**
 - ➔ **Spiders:** 2 segments (cephalothorax & abdomen), 8 legs.
 - ➔ **Insects:** 3 segments (head, thorax, abdomen), 6 legs.
- **Key Features**
 - ➔ **Spiders:** No antennae, no wings, no metamorphosis.
 - ➔ **Insects:** Have antennae, often have wings, undergo metamorphosis.
- **Similarities**
 - ➔ Both belong to **Phylum Arthropoda**.
 - ➔ Both have **exoskeletons and jointed legs**.

About Shendurney Wildlife Sanctuary

- **Name:** Comes from a local "**Chenkurinji**" endemic tree.
- **Location:** Kollam District, Kerala. **Part of Agasthyamala Biosphere Reserve**.
- **Vegetation:** Tropical evergreen, semi-evergreen, and moist deciduous forests.
- **Fauna:** Elephants, Tigers, Leopards, Gaurs (Indian Bison), Sambar Deer, etc.
- **Unique Ecosystem:** **Myristica Swamps** (unique freshwater swamp ecosystems dominated by Myristica species—a genus of primitive, evergreen trees— found in Southern Western Ghats) are found in the sanctuary.
- **International Recognition:** Important Bird Area by BirdLife International.

5.6 Marine Heatwaves

Why in the News?

As per a study published in Nature Climate Change the world experienced a **240 per cent increase in the average number of marine heatwave (MHW) days in the summers of 2023–24.**

Key Finding of the study

- The past two years (2023–2024) have been the warmest on record across both land and ocean.
- Marine heatwaves observed globally, with **8.8% of the ocean experiencing highest-ever sea surface temperatures.**
- Record-breaking events particularly evident in the **North Atlantic, southwest Pacific, eastern Pacific and western Indian Oceans.**

What is a marine heatwave?

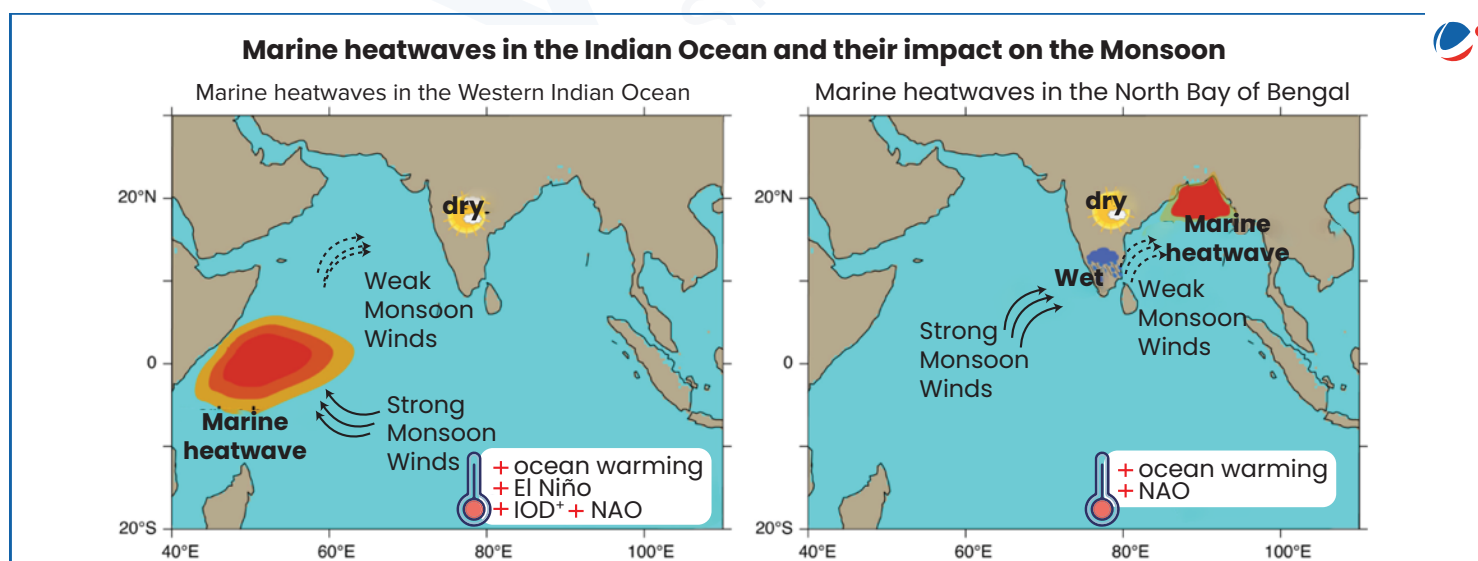
- Anomalously warm and **sustained sea surface temperature extremes (3–4°C above average for at least five days).**
- No fixed temperature defines a **marine heatwave as ocean temperatures naturally vary**, most commonly detected when the water is warmer than it was.
- **Can last for days, weeks, months or even years.**
- The number of marine heatwave events has **doubled since 1982.**

Causes of marine heat wave

- **Combination of atmospheric and oceanic processes** including high pressure systems.
- Surface heat flux when atmospheric high-pressure systems **remain over water regions.**
- **Advection:** movement of warmer waters by ocean currents.
- **Human-induced global warming, with oceans absorbing 90% of additional heat** from greenhouse gases.

Impacts of the marine heat wave

- Biological impacts including coral bleaching, **loss of ecosystems like kelp forests and coral reefs.**
- Influenced weather patterns **creating record storms and rainfall.**
- Deoxygenating of **seawater, especially in shallow areas.**
- **Affects monsoon rainfall** patterns in regions like India.
- Accelerates **ocean acidification.**
- **Damages livelihoods** through impacts on aquaculture, tourism and fishing.
- Contributes to sea-level rise **through thermal expansion of water.**



Strategies to tackle marine heatwaves

- **Proactive interventions like relocating** corals to deeper, cooler waters.
- Reactive interventions including fisheries **closures and changing fishing practices.**
- **Ex-situ conservation** methods for endangered species.

- ➔ Geoengineering interventions **such as marine cloud brightening**.
- ➔ **Implementation of climate change** initiatives under the Paris Agreement.
- ➔ Development of marine **heatwave forecasts to enable preparation and response planning**.

5.7 Geological Survey of India

Why in the news?

The Geological Survey of India (GSI), is **celebrating its 175th Foundation Day**.

About Geological Survey of India (GSI)

- ➔ Conceived by **John McClelland with David Hiraw Williams** appointed as first Geological Surveyor in 1846.
- ➔ **Thomas Oldham's appointment in 1851** marked the beginning of GSI's functioning.
- ➔ Second oldest survey body in **India after Survey of India (1767)**.
- ➔ Initially established to locate coal deposits for Railways, **now a premier geoscience institution**.
- ➔ Headquarters in Kolkata **with six regional offices**.
- ➔ **Attached to Ministry of Mines**.

Functions of GSI

- ➔ Core functions include **updating national geoscientific information and mineral resource assessment**.
- ➔ Operates **under five Missions covering surveys, resource assessments**, information dissemination, research, and capacity building.

Achievements of GSI

- ➔ **Published India's first geological map in 1877** and initiated National Geoscience Data Repository.
- ➔ Currently undertakes 448 mineral exploration projects including **critical minerals like Rare Earth Elements and Lithium**.
- ➔ Operates GNSS stations and developed **Bhukosh geospatial portal**.
- ➔ **Advanced earthquake understanding through Richard Dixon** Oldham's work identifying three types of seismic waves.
- ➔ Functions as **Nodal Agency for landslide investigations** and developed prototype Early Warning System.
- ➔ Conducts Antarctic studies and declares **geo-heritage sites and national geological monuments**.
 - ➔ **Recently participated in the Future Mineral Forum 2024** (Saudi Arabia) and the 37th International Geological Congress (Korea).

5.8 News in Shorts

5.8.1 IUCN Green List

Four new sites have been added to **the IUCN Green List**.

About IUCN Green List

- ➔ It includes **Sharaan Nature Reserve and King Abdulaziz Royal Nature Reserve of Saudi Arabia, Aqaba Marine Reserve of Jordan and Sir Bu Nair Protected Area from UAE**.
- ➔ **Global certification programme** aiming for effective, equitable, and successful protected areas.
- ➔ Focus on **highlighting best practices and setting benchmarks** for conservation management.
- ➔ Objectives include increasing well-managed protected areas and **delivering conservation outcomes that contribute to SDG 15 and Aichi Target 11 of CBD**.

5.8.2 58th Tiger Reserve (TR)

Madhav National Park in Madhya Pradesh (M.P) **became India's 58th Tiger Reserve**.

- ➔ It becomes **ninth tiger reserve from M.P**. Other TRs from M.P includes Ratapani, Veerangana Durgavati, Sanjay Dhubri, Satpura, Panna, Bandhavgarh, Pench etc.

About Madhav National Park

- ➔ **Location:** Shivpuri district in Chambal region on northern fringe of Central Highlands of India (**part of Upper Vindhyan Hills**).
- ➔ Notified as a **National Park in 1958**.
- ➔ **Lakes:** Sakhya Sagar and Madhav Sagar in southern part.

- ➔ **Fauna:** Nilgai, Chinkara, Chital, Marsh Crocodile, Leopard.
- ➔ **Flora:** Northern Tropical dry deciduous mixed forest with Kardhai as dominant tree species.

Process of declaring tiger reserve in India

- ➔ Tiger Reserves are notified by **State Governments under Section 38V of Wildlife Protection Act (WPA), 1972.**
- ➔ Proposal obtained **from State.**
- ➔ **NTCA gives in-principle approval** and recommends after due diligence.
- ➔ State Government makes **final notification.**

Tiger (*Panthera tigris*)

- ➔ **Habitat:** Tropical forests, grasslands, mangrove swamps.
- ➔ **Characteristics:** Largest Asian big cats, rely on sight/sound for hunting, solitary, nocturnal ambush predators, good swimmers.
- ➔ **Conservation status:** Endangered (IUCN); Appendix I (CITES); Schedule I (WPA, 1972).

India's and Global Efforts to Protect Tigers

- ➔ **Project Tiger:** Centrally Sponsored Scheme of MoEFCC in provide assistance to tiger states.
- ➔ **Conservation Assured Tiger Standards (CA/TS):** accreditation of TRS 23 TRa in india have received CA/TS accreditation.
- ➔ **International Big Cat Alliance:** Launched by India to secure future of big cars and their landscapes.
- ➔ **Global Tiger Recovery Program:** Evolved in 2010 under aegis of **Global Tiger Initiative**, launched by World Bank to enhance tiger habitats.
- ➔ **Tigers Alive Initiative** WWF's effort to double number of tigers in wild.

5.8.3 Biodiversity Heritage Sites (BHS)

Kasampatty Sacred Grove is declared as **Tamil Nadu (TN)**'s second BHS, located near the **Alagarmalai Reserve Forest** in Dindigul district.

About Biodiversity Heritage Site

- ➔ **BHS are unique, ecologically fragile ecosystems** with rich biodiversity characterized by: Species richness, High endemism, Presence of rare, endemic and threatened species, **Keystone species.**
- ➔ **Notified under Section 37(1)** of the Biological Diversity Act, 2002.
- ➔ State Governments, in consultation with local bodies, **can notify areas of biodiversity importance as BHS through official gazette publication.**

5.8.4 United Nations World Water Development Report

The report published by **UNESCO** highlights the **vital role of mountains and alpine glaciers (water towers)** in sustainability.

Mountain Ecosystem

- ➔ **Ecosystem:** Forests cover ~40% of global mountain areas, with grasslands and alpine tundra at higher elevations.
- ➔ **Water Regulation:** About two-thirds of global irrigated agriculture depends on mountain runoff.
- ➔ **Carbon Storage:** Mountain permafrost soils contain ~66 Pg of organic carbon (4.5% of global pool).
- ➔ **Biodiversity:** Mountains host 25 of 34 global biodiversity hotspots with high endemic species diversity.

Vulnerabilities of Mountain Ecosystem

- ➔ **Glacier Loss:** Rapid melting in the Andes (30-50% since 1980s) and Hindu Kush Himalayas (50% projected by 2100) threatens water security.
- ➔ **Watermelon snow effect:** Red algae blooms reduce surface albedo, accelerating snow melt.
- ➔ **Urbanization:** Disrupts hydrological cycles, leads to resource overexploitation, and amplifies disasters.
- ➔ **Atmospheric Pollution:** Long-range transport has increased black carbon in ice cores and lake sediments.

Hindu Kush Himalayas (HKH)

- ➔ It is the largest and highest alpine ecosystem globally, **averaging 4,000 m above sea level covering 5 million km².**
- ➔ **Contains 100,000 km² of glaciers, the largest ice storage** outside polar regions, feeding 12,000+ lakes and 10+ major river systems.
- ➔ HKH, Tibetan Plateau, Pamir, Hengduan, Tien Shan, and Qilian mountains collectively form the **Third Pole or Water Tower of Asia.**

5.8.5 Global Energy Review

International Energy Agency published its **Global Energy Review 2025 report.**

Key Highlights of the Report

- ➔ Global energy demand increased by 2.2% in 2024, with **Emerging and Developing Economies accounting for over 80% of this growth.**
- ➔ **Renewable sources and nuclear provided 80% of the increase** in global electricity generation in 2024, together contributing 40% of total generation for the first time.
- ➔ Solar PV, wind, nuclear, electric cars and heat pumps deployed since 2019 now prevent **2.6 billion tonnes of CO₂ annually, equivalent to 7% of global emissions.**

5.8.6 World Air Quality Report, 2024

7th annual **World Air Quality Report 2024** released by IQAir evaluating the global state of **air quality for the year 2024**.

Key findings of the report

- **Seven countries met the WHO annual average PM_{2.5} guideline of 5 µg/m³:** Australia, Bahamas, Barbados, Estonia, Grenada, Iceland, and New Zealand.
- **The five most polluted countries in 2024 were:** Chad > Bangladesh > Pakistan > Democratic Republic of Congo > India.
 - ➔ Delhi remains the most polluted capital city.
- **Byrnihat (Assam), India was the most polluted metropolitan area of 2024.**
- **Oceania** is the world's cleanest region.

5.8.7 Budget for Climate Action

Ahmedabad Municipal Corporation (AMC) becomes 1st Urban Local **Body to include separate Climate c AMC becomes first Urban Local Body to include a dedicated Climate chapter in its Budget.**

- AMC allocated one-third of its 2025-26 budget for **Climate Action, implementing Net-zero Climate Resilient City Action Plan aligned with India's 2070 target.**
- Unlike AMC's approach, BMC previously allocated **33% capital expenditure for climate-related projects.**

About Climate Budgeting

- Governance system mainstreaming climate commitments into decision-making on policies, actions and budget.
- Integrates climate targets from city's **Climate Action Plan into budgeting process with assigned implementation responsibility.**

Importance of Climate Budgeting for Cities

- Fosters climate-resilient **development while helping achieve climate targets.**
- **Helps identify climate finance gaps** and promotes innovative financial models.

Mechanisms for Local Government Climate Finance

- Green and Sustainability-linked Bonds (e.g., **Vadodara Green Muni Bond**).
- Performance-based fiscal transfers to Local Governments (e.g., **UNCDF and LOCAL**).
- Pollution and congestion charges (e.g., **London Congestion Charge and Low-Emission Zones**).

5.8.8 2030 Global Forest Vision

2030 Global Forest Vision (GFV): Priority Actions for Governments in 2025 released by Forest Declaration Assessment.

- Forest Declaration Assessment (FDA), **established as New York Declaration on Forests (NYDF) Progress Assessment in 2015**, is a civil society-led effort to assess progress towards NYDF goals.
- **NYDF was adopted in 2014 by an alliance of governments**, companies, indigenous peoples and NGOs, and was endorsed at the 2014 Climate Summit.
- **NYDF is voluntary in nature**, has ten goals and has not been endorsed by India yet.

2030 GFV: 8 Key Actions

- **Ambition:** Embed Forest goals in climate/biodiversity plans & COP30 outcomes.
- **Trade:** Promote legal, deforestation-free, and sustainable trade.
- **Finance:** Expand Forest finance via results-based payments & carbon credits.
- **Rights:** Secure land rights of Indigenous Peoples & Local Communities.
- **Supervision:** Financial institutions to assess & manage forest-related risks.
- **Subsidies:** Shift harmful subsidies to support sustainable land use.
- **Governance:** Strengthen land-use governance aligned with global goals.
- **Debt:** Include forests' natural capital in national debt strategies.

5.8.9 Antarctic Circumpolar Current (ACC)

Scientists have warned that ACC **might slow down by around 20 per cent by 2050.**

What is ACC?

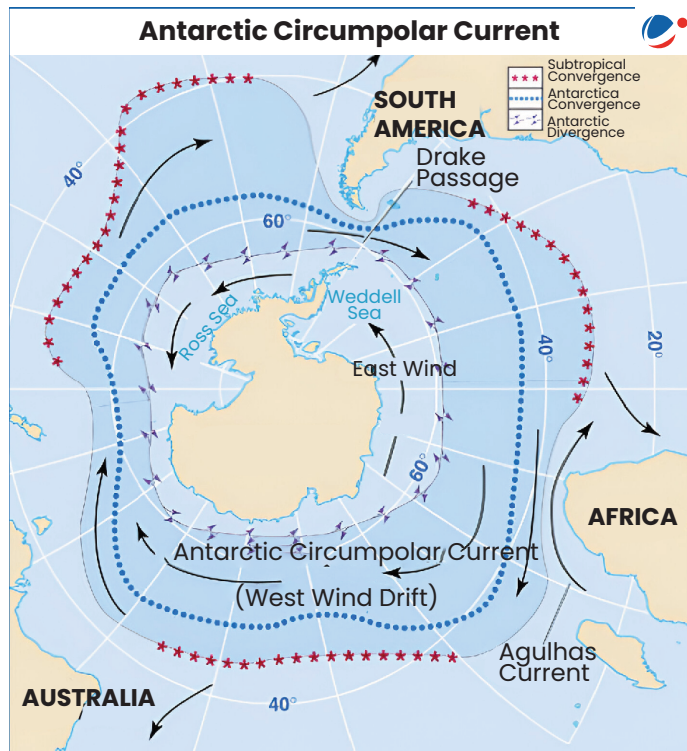
- The strongest wind-driven current **on Earth, flowing clockwise around Antarctica.**
- The only current circling the entire planet, connecting Atlantic, Pacific, **and Indian Oceans.**
- Acts as a barrier preventing warm waters from reaching **Antarctica and influences heat/CO₂ uptake.**

Reasons for weakening of ACC

- **Ocean Salinity Changes:** Ice shelf melting weakens Antarctic Bottom Water (AABW).
- **Wind Pattern Changes:** Climate change alters Southern Hemisphere westerly winds.
- **Positive Feedback:** Reduced sea ice creates warming cycle further weakening ACC.

Potential Impacts

- ➔ Increased climate **variability with regional extremes.**
- ➔ Accelerated **global warming as ocean carbon sink capacity decreases.**
- ➔ **Food web disruption** from invasive species reaching Antarctica.
- ➔ Global ocean current **disruption from AABW weakening.**



5.8.10 Deep-Sea Ecosystems Discovered in Antarctica

Thriving deep-sea ecosystems discovered in Antarctica after iceberg detaches from **George VI Ice Shelf.**

- ➔ The discovery came from Challenger 150 initiative, **endorsed by UNESCO/Intergovernmental Oceanographic Commission (IOC) as part of the Ocean Decade Action (2021-2030).**

Key Findings

- ➔ **Flourishing Ecosystems:** At depths up to 1,300 meters (Mesopelagic Zone), ecosystems with large corals and sponges supporting **diverse animals like icefish & giant sea spiders were found.**
 - ➔ These ecosystems were **isolated under 150-meter-thick ice for centuries**, cut off from surface nutrients.
- ➔ **New Species Discovered:** Giant sea spiders, octopi, giant phantom jellyfish (up to 1 meter wide), and vase-shaped sponges (possibly centuries old).

About Deep Sea Ecosystem

- ➔ **Definition:** Sea and seabed below 200 m, the **aphotic zone makes up 90%** of Earth's marine environment; the planet's largest biome.
- ➔ **Unique Deep-Sea Habitat and Biodiversity:**
 - ➔ **Abysal Plains:** Dark seafloor where species rely on marine snow. Example: Sea cucumbers.
 - ➔ **Hydrothermal Vents:** Mineral-rich towers with species relying on chemosynthetic bacteria. Examples: Tubeworms, Yeti crabs.
 - ➔ **Whale Falls:** Sinking whale carcasses create temporary ecosystems for scavengers like haghfish.

An overview of Deep sea Ecosystem

Biodiversity's Adaptation

- ➔ **Bioluminescence:** Species produce light to attract prey, mates, or confuse predators.
- ➔ **Vertical Migrations:** Zooplankton and fish migrate daily, feeding at the surface and returns to deeper levels.
- ➔ **Slow Metabolism:** In food-scarce areas, animals survive with minimal energy.

Significance

- ➔ **Climate Regulation:** Regulates Earth's temperature through thermohaline circulation (mixing warm and cold waters) which influences climate patterns.
- ➔ **Carbon Storage:** Abyssal plains, with carbon-rich sediments up to 5km thick, play a key role in carbon sequestration.

5.8.11 Okjökull Glacier

It is believed to be the **first glacier to be officially declared dead due to climate change.**

- ➔ In 2014, the Okjökull a dome shaped glacier in Iceland **was declared dead after it became so thin that it stopped moving.**
- ➔ **Other glaciers that disappeared** include Anderson Glacier, Clark Glacier and Glisan Glacier (USA), Baumann Glacier (New Zealand), Calderone Glacier (Italy), etc.

About Glaciers

- ➔ A glacier is a perennial accumulation of **snow and ice that flows over land due to its weight and gravity.**
- ➔ Glaciers form **where mean annual temperatures approach freezing with significant winter snow accumulation.**

Importance of Glaciers

- ➔ **Water Reservoirs:** Store about three-quarters of Earth's freshwater.
- ➔ **Food Systems:** Source of irrigation and fertility for agricultural lands.
- ➔ **Biodiversity:** Deliver nutrients to aquatic ecosystems, supporting phytoplankton and food chains.

Impact of Melting of Glaciers due to Climate Change

- ➔ **Disrupted Water Cycles:** Threaten freshwater, ecosystems, and agriculture.
- ➔ **Natural Disasters:** Increases risks of Glacial Lake Outburst Floods and Avalanches.
- ➔ **Sea Level Rise:** Causing coastal erosion, habitat loss, biodiversity loss etc.
- ➔ **Climate Feedback Loop:** Lower Earth's reflectivity, accelerating global warming.

Initiatives to Protect Glaciers

- ➔ **Global:** Designation of 2025 as the International Year of Glaciers' Preservation by UN, UNESCO Intergovernmental Hydrological Programme etc.
- ➔ **India:** Network Programme on the Himalayan Cryosphere, Centre for Cryosphere & Climate Change Studies, HIMANSH research station etc.

5.8.12 Narwhal

Narwhals have been studied for the first time for their tusking behaviour.

About Narwhals

- ➔ Known for their **long tusk, which is actually a tooth.**
- ➔ **Typically, males have a tusk, though** some females may have a small one, some males lack one, and some narwhals may have two tusks.

- ➔ **Uses of Tusks:** Sensing salinity, water temperature, hunting, and adapting to environmental changes.
- ➔ **Scientific Name:** Monodon monoceros (meaning: whale with one tooth and one horn).
- ➔ **Location:** Found in Arctic waters of Canada, Greenland, Norway, and Russia.
- ➔ **IUCN Status:** Least Concern.
- ➔ **Lifespan:** Females: ~100 years; Males: ~84 years.
- ➔ **Reproduction:** Gestation period: ~13 to 16 months.

5.8.13 Blue Flag

Rushikonda Beach in Visakhapatnam regained its Blue Flag tag, **previously withdrawn due to poor maintenance.**

- ➔ **It's the only Blue Flag beach** in Andhra Pradesh and one of 13 in India.

About Blue Flag tag

- ➔ **Conferred upon:** Beaches, marinas, and sustainable tourism boats, with specific criteria for each.
- ➔ **Conferred by:** Foundation for Environment Education (FEE), based in Denmark.
- ➔ **Criteria:** Must meet stringent environmental, educational, safety, and accessibility standards at the time of the award.



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Performance and Progress Analysis

SOCIAL ISSUES



6.1. Cinema and Society

Why in the News?

The Kerala High Court emphasized violent content having significant social impact, but any measures taken must uphold the fundamental right to free speech.

About Cinema

- ➔ Cinema, a **popular form of mass media** is regarded as the “**seventh art**”.
- Painting, Sculpture, Architecture, Literature, Theatre and Music are the remaining 6 forms of art.
- ➔ By blending diverse artistic and cultural elements, Indian cinema **reflects both individual and societal narratives**.

Evolution of Indian Cinema (1950s–2025)

- ➔ 1950s–60s: Nationalism, Social realism
- ➔ 1970s: Social Injustice, Parallel Cinema and social satire
- ➔ 1990s: Globalization, Materialism and Identity, Patriarchy and Reform, Relationships and Individuality
- ➔ Early 2000s: Realism, Globalization and Identity, Social issues
- ➔ Post 2020: OTT Cinema and Regional cinema

How does the Cinema Shape the Society?

Positive Impact of Cinema on Indian Society

- ➔ **Global Recognition of Indian Culture**
- ➔ **Reflection of Cultural Diversity:** Films like **Dedh Ishqiya** highlight Lucknow’s Nawabi culture.
- ➔ **Reflection of Evolving Family values:**
- ➔ **Women Empowerment:** Films like **Durga Sohay**
- ➔ **Awareness on Educations**
- ➔ **Strong Tool For Societal Change:** Raising Awareness, Changing Social Attitudes, Shaping Nationalistic Views

Negative Impact of Cinema on Indian Society

- ➔ **Gender Stereotypes and Toxic Masculinity:**
- ➔ **Promoting Unrealistic Body Standards:** It also **encourages body shaming**.
- ➔ **Questioning Institution of Family:** Cinema frequently depicts love marriages and live-in relationships.
- ➔ **Shift in Cultural Preferences:** Cinema’s growing focus on Western dance styles in place of classical.
- ➔ **Poor Representation of the Vulnerable Community**
- ➔ **Glorification of Substance Use**
- ➔ **Deepening Divide:** Propaganda-driven movies are increasingly promoting specific political ideologies.

Regulation of Content in Cinema

- ➔ **Bharatiya Nyaya Sanhita (BNS), 2023:** Criminalizes obscene acts, with penalties including fines and imprisonment.
- ➔ **Indecent Representation of Women (Prohibition) Act, 1986:** Prohibits the indecent portrayal of women.
- ➔ **Cable Television Networks (Regulation) Act, 1995:** Ensures telecasted programmes meet societal decency standards.

- ➔ **Cinematograph Act, 1952:** Mandates certification of films by the Central Board of Film Certification (CBFC).
- ➔ **Advertising Standards Council of India (ASCI):** ASCI (self-regulatory body) aims to regulate advertisements.

6.2. Social Media and Adolescents

Why in the News?

A recently released **web series named 'Adolescence'** has sparked debates worldwide on **online radicalization and digital safety of adolescents**- the issues faced by children due to unregulated exposure to internet and related social influences.

More on the News

- ➔ The **UK** is planning to stream the **series in schools** accompanied by discussion guides for teachers and parents.
- ➔ In **2024, Australia** banned social media use for children less than **16 years of age**.

Harmful Impact of Online Spaces/Social Media on Adolescents

- ➔ **Negative Social Conditioning:** E.g. **Pornography, misogynistic hate content** encourages **anger and hatred**; **beauty standards** related content may **induce self-doubt** etc.
- ➔ **Online radicalization:** For example, **forums and chat rooms** promoting idea of '**manosphere**'-justifying **misogyny and toxic masculinity** as a counter to **feminist ideology**.
- ➔ **Social Media Addiction and Alienation:** Prolonged use of online spaces **disconnect** children from **real-world**.
- ➔ **Mental health issues:** **Anxiety, depression, and body image insecurity**.
- ➔ **Lack of empathy & Cyber-Bullying:** E.g. "**Bois Locker Room**" incident in **Delhi (2020)**: obscene images were shared on a schoolboys' group.

How various Stakeholders shape Personality Formation of Adolescents?

- ➔ **Peers:** Values, Behaviour
- ➔ **Social:** Family, Society
- ➔ **Institutional:** Internet, Social Media, Schools, Governments

What are the Challenges in curbing negative impacts of social media on Adolescents?

- ➔ **Outdated policy approach:** Rapid pace of changes in digital realm outpaces **policy changes**.
- ➔ **Lack of Digital Literacy**
- ➔ **Content moderation versus free speech:** **Regulation** of social media platforms has been **contentious** due to the argument **against regulation** due to the **democratic principle of free speech**.
- ➔ **Loopholes in content moderation:** **Age-based content restriction** is bypassed by access to **dark web, piracy** etc.
- ➔ **Intergenerational Digital Divide:** Adolescents adopt new technologies quickly, while older may resist or misunderstand.
- ➔ **Lack of awareness**

Way Forward

- ➔ **Promoting Digital Citizenship among adolescents:** When you use internet in a **legal, safe, respectful way**.
- ➔ **Digital Ethics of Care:** **Digital responsibility, digital empathy, digital care and kindness, and digital respect**.
- ➔ **Promoting Digital Literacy**
- ➔ **Parental Oversight**
- ➔ **Reforms in School system:** E.g. including **Relationship, Sex and Health Education (RSHE)** curriculum, as in the UK.
- ➔ **Policy Reforms:** Adopting a **multi-faceted approach**, **Education policies, juvenile justice laws**.
- ➔ **Accountability for Tech Companies**



6.3. Changing Institution of Family

Why in the News?

Recently, Supreme Court remarked that **family values are eroding**, with parents and children litigating against each other over property and maintenance, resulting in a **“One Person, One Family” model**, in contrast to the ‘**Vasudhaiv Kutumbakam**’.

Changing Institution of Family in India

Aspect	Traditional Family	New Trends
Structure	Joint family system with multiple generations including grandparents, uncles, aunts, nieces, and nephews living together in the same household.	Predominantly nuclear families , often consisting of parents and non-adult children only.
Decision-Making	Patriarchal hierarchy with decisions made collectively by elders .	Increasingly more egalitarian approach with shared decision-making between men and women.
Patriarchal hierarchy with decisions made collectively by elders.	Arranged marriages often negotiated by elders; emphasis on lineage and family unity.	Increased acceptance of love marriages, live-in relationships , and non-traditional unions like same-sex partnerships .
Values	Collectivism emphasizing family loyalty, unity, and interdependence over individualism.	Growing individualism with focus on privacy, independence, and personal aspirations .

Factors behind the changes in Indian family institution

- ➔ **Economic factors:** Urbanization, expanding labour market demand etc.
- ➔ **Changing gender role:** Improved women’s access to education and formal employment.
- ➔ **Westernization:** Emphasis on values like **individualism**.
- ➔ **Globalization:** E.g., **Multi Nation Corporations’ (MNCs) work cultures** often favour smaller and flexible family units.
- ➔ **Role of Technology:** Enhanced communication through modern tools (e.g., **Skype, WhatsApp**) affecting the depth of relationships and emotional bonding.

Impact of Changing Family Institution

Positive Impacts

- ➔ **Active parenting:** Fathers are increasingly involved in their children’s upbringing.
- ➔ **Strong parent child bond**
- ➔ **Reduced familial conflict**
- ➔ **Greater autonomy:** Individuals, especially women, can lead independent lives.

Negative Impacts

- ➔ **Inter-Generational conflicts**
- ➔ **Loss of traditional values**
- ➔ **Loneliness:** In Children, parents
- ➔ **Pressure on social infrastructure:** Greater demand for institutional elder care, child care, and public health support.

Way Forward

- ➔ **Strengthen community-based support systems:** Build robust **neighbourhood-based elder care**, crèche, and mental wellness centers. Example: **Kerala’s Kudumbashree network** integrates community and care economy.
- ➔ **Education and social awareness**
- ➔ **Promote intergenerational living through urban planning**
- ➔ **Redefining the concept of family:** States policies and governance framework need to move beyond traditional definition.
- ➔ **Policy Interventions:** Effective implementation of **Maintenance and Welfare of Parents and Senior Citizens Act, 2007**. Also, **free legal aid for elderly**.

6.4. Women-Led Development

Why in the News?

Recently, on the 30th anniversary of the **Beijing Declaration and Platform for Action**, governments adopted a **declaration on the empowerment of women and girls** reaffirms the principle of **Women-Led Development**.

Beijing Declaration and Platform for Action (BPfA)

- ➔ It was originally adopted in **1995** at the **Fourth World Conference on Women**, stressing on upholding all **human rights and fundamental freedoms** for every woman and girl, without exception.
- ➔ On its 30th anniversary, **Beijing + 30 Action Agenda**, with **6 priority actions** were released.
 - ➔ **Digital Revolution:** Access to new skills, bridging Digital Gender Gap, etc.
 - ➔ **Freedom from Poverty: Social protection and high-quality public services** for health, education and care.
 - ➔ **Zero Violence: Comprehensive national action plans** involving **community-led** organizations.
 - ➔ **Full and Equal Decision-making Power:** In both private and public domains.
 - ➔ **Peace and Security:** Gender-responsive humanitarian actions
 - ➔ **Climate Justice:** Prioritising rights of women from **Indigenous communities, promoting green jobs**, etc.

Women's Development vs. Women-led Development

Women's Development	Women-led Development
<ul style="list-style-type: none"> ➔ Involves programmes designed to help women, without necessarily involving them. ➔ Under this women are seen as passive recipients. ➔ Top-down approach. 	<ul style="list-style-type: none"> ➔ Women are seen not just as beneficiaries, but as leaders, decision-makers, and innovators. ➔ Recognizes that women often have unique insights. ➔ Bottoms-up approach.

Why Women-Led development is important for Society?

- ➔ **Women as Agents of Empowerment.**
- ➔ **Gender Equality:** Global Gender Gap Index 2024: India ranked 129th out of 146 countries.
- ➔ **Economic Empowerment:** Bridging gender gap in employment could lead to a 30% increase in the country's GDP.
- ➔ **Rural Development and Poverty Alleviation:** **Deendayal Antyodaya Yojana - National Rural Livelihood Mission (NRLM)** mobilization of women result in household incomes increase by 22%.
- ➔ **Inclusive growth and Sustainability:** The Deccan Development Society collaborates with nearly 5,000 Dalit and Indigenous women small farmers.

Obstacles on the Path to Women-Led Development

- ➔ **Patriarchal Social Norms:** NFHS-5 (2019-21) states only 3% of women make decisions independently.
- ➔ **Education:** Average female literacy rate throughout world is 79.9%, while India lags behind at 62.3%
- ➔ **Workplace Discrimination:** Women earn 20% less than men for equal work (WEF Gender gap report, 2023).
- ➔ **Gender digital divide:** Only 15% of women in India have access to internet (Mobile Gender Gap 2021 Report).
- ➔ **Early Marriage and Motherhood Penalty:** NFHS-5 states 23% of women aged 20-24 were married before 18.
- ➔ **Women safety:** NCRB (2022) reported 4.5 lakh crimes against women.

Government Initiatives: From Women Empowerment to Women-Led Development

- ➔ **Gender Budgeting:** Budget increases to 8.86% in FY 2025-26 from 6.8% in 2024-25.
- ➔ **Asset Ownership:** 72% women ownership under PM Awas Yojana Gramin.
- ➔ **Political Empowerment:** Nari Shakti Adhiniyam passed giving 33% reservation to women.
- ➔ **Education and STEM:** 43% Science, Technology, Engineering and Mathematics graduates are women.
- ➔ **Entrepreneurship and Skill Development:** Start up and Stand up India.
- ➔ **Economic Empowerment:** Mudra yojna, Lakhpati Didi.

6.5. News in Shorts

6.5.1. New SDG Indicator On Minimum Dietary Diversity (MDD) Adopted By UN Statistical Commission

FAO and UNICEF jointly manage this new indicator, addressing absence of an SDG measure for healthy diets.

- ➔ This indicator captures a crucial aspect previously lacking in tracking progress toward ending malnutrition and **achieving SDG 2 (Zero Hunger)** and broader 2030 Agenda.

About MDD

- ➔ According to WHO, MDD is achieved when a diet includes **five or more of following eight food groups**: breast milk, grains, legumes, dairy products, flesh foods, eggs, fruits, and vegetables.

Significance of MDD Indicator

- ➔ **Improved Nutritional Assessment**: specifically women (MDD-W) and children (MDD-C).
- ➔ **Tracking Global Health Targets**: Supports SDG 2, aimed at eliminating hunger and improving nutrition.
- ➔ **Policy Tool**: Aids policymakers in developing strategies
- ➔ **Evaluating Program Impact**: Helps evaluate nutrition programs.

Status of MDDF (minimum dietary diversity failure) in India (For Year 2019-21):

- ➔ **Regional Disparities**: Uttar Pradesh, Rajasthan, Gujarat, Maharashtra, and Madhya Pradesh, has over 80% of children with MDDF.
- ➔ **Age Impact on MDDF**: 77% children in India aged 6-23 months lacking minimum dietary diversity.
- ➔ **Vulnerable Sections**: Children from Other Backward Classes have the highest MDDF (79%), followed by Scheduled Castes (77.2%) and Scheduled Tribes (76%).

6.5.2. World Happiness Report

World Happiness Report 2025 was published by **Wellbeing Research Centre** at the University of Oxford, in partnership with **Gallup**, the **UN Sustainable Development Solutions Network** and an independent editorial board.

About the Report

- ➔ Global Happiness Ranking is based on single question derived from the **Cantril Self-Anchoring Striving Scale (Cantril Ladder)**.
 - ➔ Top of the ladder represents best possible life while at the bottom represents worst possible life.

- ➔ **Parameters**: GDP per capita, social support, healthy life expectancy at birth, freedom to make life choices, etc.
- ➔ Finland ranks first, followed by Denmark and Iceland while **India is ranked 118th** out of 147 countries.

6.5.3. Swavalambini

Ministry of Skill Development and Entrepreneurship in collaboration with **NITI Aayog** have launched Swavalambini— Women Entrepreneurship Programme.

About Swavalambini— Women Entrepreneurship Programme

- ➔ It is a movement towards **women-led multi-staged entrepreneurship**.
- ➔ **Objective**: Empower female students in **Higher Education Institutions** with entrepreneurial skills, resources, and mentorship.
- ➔ **Structure**: Includes **Entrepreneurship Awareness Programme**, Women Entrepreneurship Development Programme, mentorship, and faculty training.
- ➔ **Implementation**: By **National Institute for Entrepreneurship and Small Business Development**.
- ➔ **Impact**: Aims for minimum **10% of trained participants to establish enterprises**, fostering women-led growth.

6.5.4. PM-Yuva 3.0

Ministry Of Education Launches PM Scheme For Mentoring Young Authors (PM-YUVA 3.0).

About PM-YUVA 3.0

- ➔ **Aim**: Aims to train young authors below 30 years of age to promote reading, writing, and book culture.
- ➔ **Selection and Training Process**: 50 authors will be selected through an All India Contest.
- ➔ **Implementation**: National Book Trust, India is an implementing agency ensuring structured mentorship.
- ➔ **Significance**: Strengthens Ek Bharat Shreshtha Bharat by promoting cultural and literary exchange.



6.5.5. International Olympic Committee (IOC)

Zimbabwean former swimmer **Kirsty Coventry** becomes the first female president of the IOC.

➔ IOC is a **not-for-profit independent** body **overseeing the Olympic movement**.

About IOC

- ➔ **Headquarters:** Lausanne (the Olympic Capital), Switzerland.
- ➔ **Genesis:** Founded at the first Olympic Congress in Paris (1894).
- ➔ **Vision:** To Build a Better World through Sport
- ➔ **Funding:** Entirely **privately funded** and **distributes 90% of its revenues** for the development of sports and athletes.
- ➔ **Function:**
 - ➔ **Decides Olympic sport inclusions** and **host city** selections.
 - ➔ Facilitates **collaboration** among Olympic stakeholders, including athletes, National Olympic Committees (NOCs), and sports federations.
 - ◊ **Indian Olympic Association (IOA)** serves as India's NOC.



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SCIENCE AND TECHNOLOGY



7.1. Human Enhancement

Why in the News?

The human enhancement industry was worth **\$125 billion in 2024** and is projected to grow to **\$348.5 billion by 2033** (IMARC Report).

What is Human Enhancement?

- ➔ Refers to **natural, artificial, or technological alterations** aimed at improving **cognitive and physical functions**.
- ➔ Methods include **drugs, hormones, implants, genetic engineering, dietary supplements, and cosmetic surgeries**.
 - ➔ Unlike medicine which cures illness, enhancement seeks to **go beyond normal human limits**.
 - ➔ For example, technologies offer **resistance to diseases** like **malaria, TB, and Lyme**.
- ➔ **Key Views**
 - ➔ **Transhumanists**: Support tech to **radically enhance abilities and extend life**.
 - ➔ **Bioconservatives**: Emphasize **preserving the natural human state**, fearing harm to human essence.

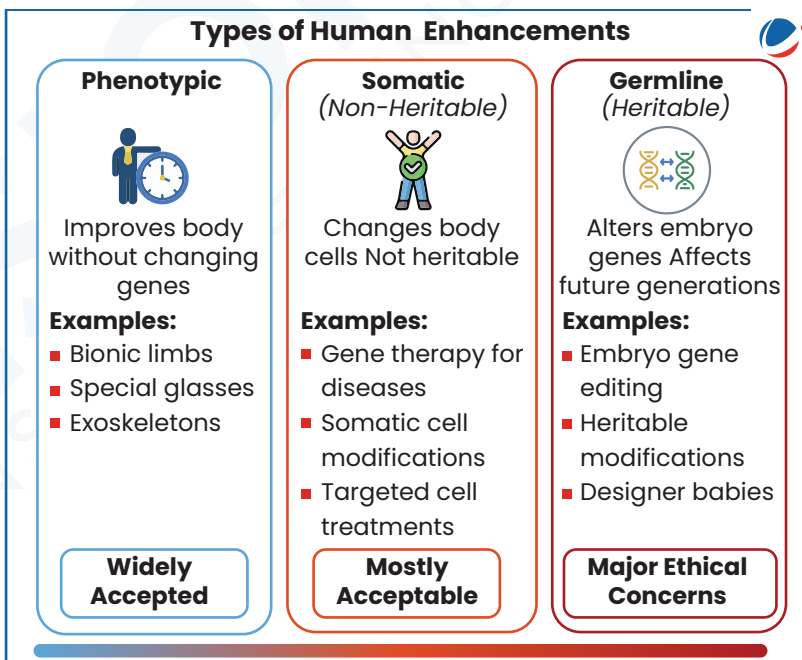
Concerns Associated with Human Enhancement

- ➔ **Equity**: Limited access may **widen social inequality**.
- ➔ **Identity**: Altering core traits may **threaten human identity**.
- ➔ **Consent**: **Non-consensual use** undermines individual freedom.
- ➔ **Social Pressure**: May lead to **discrimination against unenhanced individuals**.
- ➔ **Health Risks**: **Long-term effects** of enhancements remain uncertain.
- ➔ **Environment**: **Extended lifespans** may stress resources and ecosystems.
- ➔ **Genetic Diversity**: Engineering may **reduce diversity**, increasing disease risk.
- ➔ **Regulation**: Requires **strong oversight** for safety, fairness, and ethics.

Conclusion

While human enhancement can extend life and boost abilities, it must be guided by **ethical regulation, equity, and awareness of long-term impacts** to safeguard human values.

Types of Human Enhancements



7.2. Strategic Crypto Reserve

Why in the News?

The U.S. President signed an executive order to establish a **Strategic Bitcoin Reserve (SBR)** and a **U.S. Digital Asset Stockpile** as part of a **Strategic Crypto Reserve (SCR)**.

More on the News

→ This move seeks to address the **crypto management gap** and position the U.S. as a **global leader in digital asset strategy**.

What is Cryptocurrency?

- A **digital or virtual currency** using **cryptography for security**, based on **decentralized blockchain technology**.
- Unlike traditional fiat currencies, not controlled by governments or central banks.
- **Examples:** Bitcoin (BTC), Ethereum (ETH), Ripple (XRP), Tether (USDT).
- **Key Features of Cryptocurrencies**
 - **Decentralization:** Uses a **distributed ledger**, reducing dependence on intermediaries.
 - **Limited Supply:** Many, like **Bitcoin (max 21 million)**, have a **fixed supply**.
 - **Transparency:** **Blockchain** makes transactions **open and verifiable**.
 - **Security:** **Cryptographic encryption** protects against **fraud and counterfeiting**.
 - **Borderless Transactions:** Allows **fast, low-cost global transfers** without borders.

About Strategic Crypto Reserve (SCR)

- **Definition:** SCR is a **government-held crypto stockpile** included in national reserves to boost **economic resilience**, **financial sovereignty**, and hedge against uncertainty.
- Acts as a **digital counterpart to forex and gold reserves**.
- Operational framework is still evolving.
 - Similar in concept to the **Strategic Petroleum Reserve**, meant to cushion against external disruptions.

Should India Have an SCR?

Arguments in Favour	Arguments Against
<ul style="list-style-type: none"> → Diversification: Low correlation with gold, bonds, equities—reduces risk. → Hedging Tool: Shields against USD volatility and geopolitical risks (e.g., sanctions, trade wars). → Remittance Efficiency: Could cut fees from 6.4% to <1%, saving billions. → Tech Leadership: Taps into India's blockchain and DeFi (Decentralized Finance) innovation potential. → High Returns: Cryptos offer asymmetric gains; e.g., Bitcoin grew 200X, outperforming NVIDIA (50X) and Apple (10X). → Financial Sovereignty: Reduces dependence on external systems like SWIFT. 	<ul style="list-style-type: none"> → Volatility: High price swings (e.g., Bitcoin's 80% drop in 2022) pose risks to reserve stability. → RBI's Stance: RBI warns of financial instability; prefers Central Bank Digital Currency (CBDC) over decentralized crypto. → Regulatory Issues: Crypto conflicts with existing financial laws and faces uncertain regulation. → Security Threats: Prone to cyberattacks → Environmental Concerns: Energy-intensive mining (e.g., Bitcoin) → Adoption Barriers: Public scepticism, lack of institutional trust, and liquidity issues.

Way Forward

- **Start Small:** Allocate **1–2% of forex reserves (\$6–12B)** for pilot deployment.
- **Regulatory Framework:** Follow **Singapore and Japan's models** for balanced regulation and innovation.
- **Tech Expertise:** Use India's talent to build **secure custody** and **blockchain infrastructure**.
- **Utility-Driven Approach:** Focus on **use cases** like **remittances and DeFi**.
- **Global Alignment:** Monitor and align with **global standards** (e.g., **US Bitcoin ETFs**).

7.3. Light Supersolid

Why in the News?

For the first time, scientists from Italy's National Research Council have created a supersolid state from light.

About Supersolid

- ➔ **Definition:** A rare state of matter that shows both **solid-like structure** and **frictionless flow**.
- ➔ **Initial Research:** First predicted in the **1960s**; demonstrated in **2017** using **ultracold Bose–Einstein Condensates (BECs)**.
 - ➔ Requires **extremely low temperatures** near **absolute zero (0 K or -273.15°C)** where **quantum effects** become visible.
 - ➔ At this point, atoms have minimal energy, forming the **fifth state of matter (BECs)**.
- ➔ **Current Research:** Uses a new mechanism based on **polariton systems**.
 - ➔ **Polaritons** are formed by coupling **light with quasiparticles** like **excitons** via strong electromagnetic interaction.
 - ➔ **Quasiparticles** are mathematical constructs representing **excitations** in solids (e.g., spin waves), not made of real matter.

What is the Significance of Converting Light into Supersolid?

- ➔ **Quantum Computing:** Supersolid light could help build **more stable qubits**.
- ➔ **Optical & Photonic Devices:** Enables breakthroughs in **optical devices, photonic circuits, and quantum mechanics research**.
- ➔ **Material Science & Energy:** Allows deeper exploration in **material science** and may lead to innovations in **energy use and understanding**.

About Light

- ➔ Light is the **fastest physical entity**, traveling at **299,792.458 km/s**.
- ➔ It exhibits **wave-particle duality**—acting as both a **localized particle** and a **spread-out wave**.
- ➔ According to **quantum mechanics**, light can behave **simultaneously as a wave and a particle**.

7.4. Anti-Retroviral Therapy (ART) drugs

Why in the News?

The Supreme Court directed all States to respond on **systemic issues in Anti-Retroviral Therapy (ART) drug supply for People Living with HIV/AIDS (PLHIV)**.

About Anti-Retroviral Therapy (ART) drugs

- ➔ ART treats **HIV infection** using **anti-HIV drugs**, aiming to lower **viral load** to undetectable levels—“**Undetectable = Untransmittable (U=U)**”.
- ➔ Involves a **combination of 2–4 drugs**, called **Highly Active Antiretroviral Therapy (HAART)**.
- ➔ ART is **not a cure**, but helps HIV patients live **long, healthy lives**.
- ➔ In India, ART is managed by **National AIDS Control Organisation (NACO)** under the **National AIDS Control Programme (NACP)**.

About HIV/AIDS

- ➔ **HIV (Human Immunodeficiency Virus):** Attacks the **immune system**, specifically **CD4 (T) cells**, weakening the body's ability to fight infections.
- ➔ **AIDS (Acquired Immunodeficiency Syndrome):** The **final stage of HIV** when the immune system becomes too weak to resist **life-threatening infections**.
 - ➔ With proper treatment, **not all HIV cases progress to AIDS**.
- ➔ **Transmission:** Spreads through **unprotected sex, blood-to-blood contact, and mother-to-child transmission**.
- ➔ **Status in India:** Over **2.5 million** people living with HIV (India HIV Estimations 2023).

Measures Taken

→ Global Efforts

- **UNAIDS 95-95-95 Goal (by 2030)**, aims for 95% of people with HIV to know their status, 95% of those diagnosed to receive ART, and 95% of those on ART to achieve viral suppression.
- **The Global Fund to Fight AIDS, Tuberculosis and Malaria**

→ India

- **National AIDS Control Programme (NACP)**: Launched in 1992, now in **Phase V (2021-2026)**.
- **Free ART Access**: Provided at **700+ ART centres** nationwide.
- **Legal Protection**: **HIV/AIDS Act, 2017** mandates **free ART** for all HIV-positive individuals.

7.5. News in Shorts

7.5.1. Obesity

Recently PM highlighted that in 2022, 1 in 8 people globally lived with obesity; cases in children (5-19 yrs) have quadrupled.

- He called for a **10% reduction in edible oil consumption** to combat obesity.

About Obesity

- Defined by **WHO** as **excessive fat accumulation** posing health risks.
- **BMI** is the measure:
 - **BMI \geq 25**: Overweight
 - **BMI \geq 30**: Obese
- **Health Risks**: Includes **cardiovascular diseases, diabetes, cancers, neurological and respiratory disorders**.

Status in India (NFHS-5, 2019-21)

- **24% women and 23% men** are overweight/obese.
- **Child (under 5)** overweight rates rose from **2.1% to 3.4% between 2015-16 and 2019-21**.

India's Strategic Framework for Obesity Prevention



POSHAN Abhiyaan

Improve nutritional outcomes for children, adolescent girls, pregnant woman, and lactating mothers



Fit India Movement

Promotes active lifestyles and encourages individuals to incorporate fitness into daily routines



National Programme for Prevention and Control of NCDs

Promote health through behaviour change by engaging communities, civil society and media



Eat Right India

Ensuring safe, healthy, and sustainable food for all



RUCO (Repurpose Used Cooking Oil) Initiative
 Safely repurposes used cooking oil

Factors Driving Obesity in India

- **High-Calorie, Low-Nutrient Diets**: Rising intake of **refined carbs, saturated fats, and processed foods**.
- **Sedentary Lifestyles**: Prolonged **sitting, screen time, and low physical activity**.
- **Genetically Modified Crops**: Changes in **food composition** affecting **metabolism and weight gain**.

7.5.2. National Gene Bank

India to set up a **second National Gene Bank (NGB)** to conserve **10 lakh crop germplasm** for **future food and nutritional security**.

About Gene Banks

- Gene banks are **biorepositories** that store **genetic material** of **plants, animals, and microbes** to preserve **biodiversity** and ensure **food security**.
- **Types**:
 - **Seed Banks** (e.g., Svalbard Vault, Norway)
 - **Field Gene Banks** (live plant conservation)
 - **Cryo-preservation Banks** (tissues, embryos)
 - **Pollen and DNA Banks**
- **Other Gene Banks in India**
 - **Animal Gene Bank**: ICAR-NBAGR, Haryana
 - **Microbial Gene Bank**: ICAR-NBAIM, Uttar Pradesh



7.5.3. Transgenic Organism

Transgenic mice is in spotlight following the US President misstatement on 'transgender mice' funding.

About Transgenic Organisms

- ➔ **Concept:** Express **new traits or proteins** not native to the species; 'trans' means **from one to another**, and 'genetic' refers to **genes**.
- ➔ **Transgenic Mouse:** Used to study **biological processes** due to **genomic and physiological similarity** with humans.
- ➔ **Purpose & Applications**
 - ➔ **Understanding Normal Physiological Processes:** E.g., Transgenic mice for studying **metabolism and blood cell production**.
 - ➔ **Modeling Human Diseases:** E.g., Transgenic pigs for **Alzheimer's research**.
 - ➔ **Developing New Treatments:** E.g., Transgenic zebrafish for **drug testing**.
 - ➔ **Production of Therapeutic Proteins:** E.g., Transgenic goats producing **human antithrombin**.
 - ➔ **Disease Resistance Crops:** E.g., **Bt Cotton** modified for **bollworm resistance**.
- ➔ **Challenges**
 - ➔ **Ethical Concerns:** Issues around **animal welfare and unintended consequences**.
 - ➔ **Environmental Risks:** Potential for disrupting **ecosystems**.
- ➔ **Regulation in India**
 - ➔ Governed by '**Rules, 1989**' under the **Environment (Protection) Act, 1986**; regulated by the **Genetic Engineering Appraisal Committee (GEAC)**.

7.5.4. Meity Launched Multiple Initiatives To Boost The AI Ecosystem

The initiatives have been launched under the IndiaAI Mission during its anniversary celebration.

Key Initiatives Launched

- ➔ **AIKosha:** Secured platform for **datasets, AI models, and sandbox testing**.
- ➔ **IndiaAI Compute Portal:** Offers **subsidized compute, storage, network with 10,000+ GPUs** access.
- ➔ **AI Competency Framework:** Trains **public sector officials** in AI skillsets.
- ➔ **iGOT-AI:** Personalized **AI learning** on iGOT Karmayogi platform.
- ➔ **Other Initiatives:**
 - ➔ **IndiaAI Startups Global Acceleration Program**
 - ➔ **IndiaAI Innovation Challenge**
 - ➔ **IndiaAI FutureSkills Fellowship**

About IndiaAI Mission (2024)

- ➔ **Aim:** Promote AI innovation via **PPP model** and

advanced **AI infrastructure**.

- ➔ **Focus:** **Democratized compute, startup capital, ethical & impactful AI**.
- ➔ **Ministry:** Ministry of Electronics and Information Technology (MeitY)
- ➔ **Implementing Agency:** 'IndiaAI' Division under **Digital India Corporation**

India's Key AI Models & Language Technologies



BharatGen: First gov't-funded multimodal LLM.



Digital India BHASHINI: AI-powered language translation platform.



Sarvam-1 AI Model: Designed for applications such as language translation, text summarisation, and content generation



Chitrallekha: Enables users to generate and edit audio transcripts in various Indic languages.



Hanooman's Everest 1.0: Multilingual AI system which supports 35 Indian languages

7.5.5. AI Washing

Venture capitalists are concerned about AI washing by startups to attract funding.

About AI Washing

- ➔ AI washing refers to **misrepresenting or exaggerating AI usage** in products, services, or strategies.
- ➔ The term is inspired by **greenwashing**—making false environmental claims.
- ➔ E.g. Calling **automation tools AI**

7.5.6. National Innovation Challenge For Drone Application And Research (NIDAR)

The **Ministry of Electronics and Information Technology (MeitY)**, in partnership with **Drone Federation of India (DFI)**, launched **NIDAR** under the **SwaYaan** initiative.

- ➔ **NIDAR aims** to engage **students and researchers** in developing **collaborative autonomous drones** for **Disaster Management and Precision Agriculture**.

About SwaYaan

- ➔ Approved by **MeitY in 2022**
- ➔ It focuses on **capacity building** in **Unmanned Aircraft Systems (UAS)** including **drones and related technologies**.

7.5.7. North India's First Nuclear Power Project

North India's first nuclear power project will be set up in **Gorakhpur, Haryana**.

- ➔ The project includes **two twin units with Pressurized Heavy Water Reactors (PHWRs)**, totaling **2800 MW** capacity.

About PHWR

- ➔ Uses **Heavy Water (D₂O)** as **coolant and moderator**, and **natural uranium** as fuel.
 - ➔ Heavy water contains **deuterium**, which **slows neutrons** and has **low neutron absorption**.
- ➔ **India's PHWR Development**
 - ➔ Originated via **Indo-Canadian collaboration** in the 1960s.
 - ➔ First **220 MW PHWR at Rajasthan Atomic Power Station (RAPS-1)**.
 - ➔ Post **Pokhran-1 (1974)**, Canada withdrew; India **indigenously developed and standardized** PHWR technology.

Recent Developments in Nuclear Energy in India

- ➔ **Nuclear Energy Mission** targets **100 GWe** by **2047**; current capacity: **8.1 GW**.
- ➔ New **uranium deposit** discovered in **Jaduguda Mines, Jharkhand**.
- ➔ **Kakrapar Units 3 & 4 (700 MWe PHWR)**, Gujarat began commercial operation in **FY 2023-24**.
- ➔ **Country's first Prototype Fast Breeder Reactor (PFBR 500 Mwe)** achieved key milestones in 2024.
- ➔ **ASHVINI JV (NPCIL & NTPC)** to build **Mahi-Banswara 4x700 MWe PHWR** in Rajasthan.

7.5.8. NASA's Astronauts Return To Earth After Being Stuck In Space For 286 Days

NASA astronauts, Sunita Williams and Butch Wilmore, had travelled to the **International Space Station (ISS)** on **Boeing's CST-100 Starliner**.

Opportunities from Extended Stay

- ➔ **Medical Research:** Studies effects of **long-term space exposure**.
- ➔ **Technology Testing:** Evaluates systems under **extended mission conditions**.
- ➔ **Deep-Space Prep:** Informs future **Mars and Moon missions**.

Health Challenges in Space

- ➔ **Radiation:** Raises **cancer risk**.
- ➔ **Microgravity:** Causes **muscle and bone loss**; affects **balance** post-return.
 - ➔ **Bone loss** is about **1-1.5%** per month.
- ➔ **Isolation:** Affects **mental health** and **team cohesion**.

International Space Station (ISS)



It is a **habitable artificial satellite**, in low Earth orbit (at an altitude of between **370-460 km**).



Key partners: European countries (represented by European Space Agency), United States (National Aeronautics and Space Administration), Japan (Japan Aerospace Exploration Agency), Canada (Canadian Space Agency) and Russia (Roscosmos).



Objectives: Scientific research, technology testing, and deep-space exploration preparation.

7.5.9. Starlink Satellite Internet

Indian telecom companies Airtel and Reliance Jio have signed agreements with **SpaceX** to bring **Starlink's satellite internet** services to India.

- ➔ **Starlink** is the **world's first and largest LEO satellite constellation** delivering **high-speed, low-latency broadband internet**.

Satellite Internet

- ➔ Wireless internet via **communication satellites**, offering **location-independent global coverage**.
- ➔ Satellites use **lasers for intercommunication**, reducing reliance on ground stations.

Significance of Satellite Internet

- ➔ **Improving Access:** Ideal for **remote and poorly connected areas**.
- ➔ **Connectivity during Disasters:** Enabled **emergency internet** in **Tonga** post volcanic eruption and tsunamis.
- ➔ **Military Applications:** Supports **communication for military bases, aircraft, ships, and drones**.

Concerns

- ➔ **Astronomical Interference:** **Bright satellites** disrupt **night sky observations**.
- ➔ **Atmospheric Changes:** **Deorbiting satellites** may affect **atmospheric chemistry**.
- ➔ **Technical Limitations:** Prone to **weather disruptions and geomagnetic storms**.



7.5.10. Meteorite

Scientists confirm a meteorite fall in a village in Beed, Maharashtra.

- ➔ A meteorite is a meteoroid that survives atmospheric entry and reaches the ground.

Difference between Meteoroid, Meteor and Meteorite		
In space	In atmosphere	On earth
<p>Meteoroid</p> <ul style="list-style-type: none"> ⊕ They are space rocks, usually, pieces of other, larger bodies that have been broken or blasted off. E.g. Planets, asteroids, comets. ⊕ They are both rocky and/or metallic. 	<p>Meteor</p> <ul style="list-style-type: none"> ⊕ They are formed when meteoroids enter the Earth's or a planet's atmosphere. ⊕ They are called 'shooting stars' as they enter with high speed and burn up due to atmospheric pressure. 	<p>Meteorite</p> <ul style="list-style-type: none"> ⊕ When a meteoroid survives the trip through the atmosphere and hits the ground, it is called a Meteorite. ⊕ They can create 'Impact Craters' on impact with the surface. E.g. Lonar Lake (Maharashtra)

Significance of Studying Meteorites

- ➔ **Understanding Solar System:** Preserve early solar system records.
- ➔ **Geological Composition:** Offer clues to planetary geochemistry and minerals.
- ➔ **Planetary Evolution:** Aid in studying terrestrial planet evolution and origins of life.

7.5.11. Global Astrometric Interferometer For Astrophysics (GAIA)

European Space Agency (ESA) has shut down its GAIA space observatory mission.

About GAIA

- ➔ Aimed to create a 3D map of the Milky Way Galaxy.
- ➔ Located at **Lagrange Point 2 (L2)**, about 1.5 million km from Earth, opposite the Sun.
 - ➔ **Lagrangian Points** are positions where **gravitational forces and orbital motion** are balanced.
- ➔ **Objective:** Conduct **astrometry**—precise tracking of stellar positions and movements.

7.5.12. Abel Prize

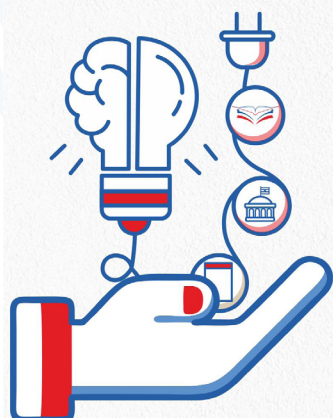
Japanese mathematician Masaki Kashiwara (78) won the **Abel Prize**, often dubbed the "Nobel of Mathematics", for contributions to **algebraic analysis, representation theory, D-modules, and crystal bases**.

About the Abel Prize

- ➔ Annual award for **outstanding mathematicians**, named after **Niels Henrik Abel (1802–29)**.
 - ➔ Abel proved the **quintic equation** cannot be solved using radicals and contributed to **elliptic (Abelian) functions**.
- ➔ Established in **2002** by the **Norwegian Government**, administered by the **Norwegian Academy of Science and Letters**.

Note: The **International Mathematical Union**, with **UNESCO**, declared 2000 as **World Mathematical Year**.

OPTIONAL SUBJECT CLASSES 2026



- » Geography » Sociology
- » Political Science and International Relations

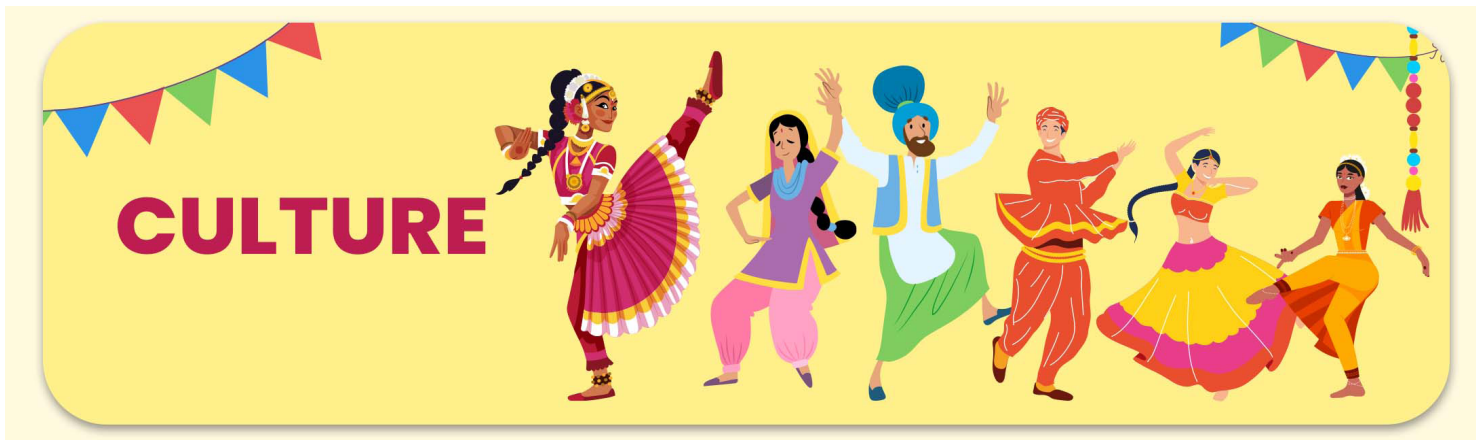
20 JUNE, 2 PM

- » Physics

15 JULY

- » Public Administration
- » Anthropology » Hindi Literature

STARTING SOON



8.1 UNESCO World Heritage Sites

Why in the News?

Six sites were added to India's UNESCO Tentative List in 2025, marking potential World Heritage Sites.

More on the News

- ➔ A Tentative List inventories property a country deems worthy of World Heritage status.
- ➔ **Process: Post-inclusion, a nomination document is prepared for UNESCO World Heritage Committee review**, involving the Indian National Commission for Co-operation with UNESCO (INCCU) and Archaeological Survey of India (ASI).
- ➔ India has **62 sites on the Tentative List**.
- ➔ **The 6 new sites:** Mudumal Menhirs (Telangana), Kanger Valley National Park (Chhattisgarh), Ashokan Edict Sites (multiple states), Chausath Yogini Temples (Madhya Pradesh, Odisha), Gupta Temples (multiple states), Palace-Fortresses of the Bundelas (Madhya Pradesh, Uttar Pradesh).

What are UNESCO World Heritage Sites (WHS)?

- ➔ **WHS are locations recognized** by UNESCO for their "outstanding universal value" under the World Heritage Convention.
- ➔ **Categories:** Cultural, Natural, and Mixed heritage.

Criteria for selection

- ➔ **Sites must meet at least one criterion**, such as representing human creative genius, **cultural/historical significance, architectural/ecological importance, or exceptional natural beauty/biodiversity**.
- ➔ **Other factors:** Protection, management, authenticity, and integrity.
- ➔ World Heritage Convention (Adopted in 1972 by General Conference of UNESCO)
 - ➔ Effective since 1975, **it defines criteria for World Heritage List inscription**.
 - ➔ **Established the World Heritage Committee**, List of World Heritage in Danger, and World Heritage Fund.
 - ➔ India ratified the **Convention in 1977**.

Key Developments under World Heritage Convention

- ➔ **Budapest Declaration on World Heritage (2002):** Highlighted Strategic Objectives- "4 Cs" namely, Credibility, Conservation, Capacity-building and Communication.
 - ➔ This was modified to "5 Cs" by adding **Community to Strategic Objectives**.
- ➔ **Warsaw Recommendation on Recovery and Reconstruction of Cultural Heritage (2018):** Provide universal guidelines to recover and reconstruct WHSs following armed conflicts, disasters and natural hazards.
- ➔ **The World Heritage Partners Initiative (PACT) (1992):** To encourage public-private partnerships (PPP) and develop a framework for inclusion of various institutions and individuals in conservation of WHSs.

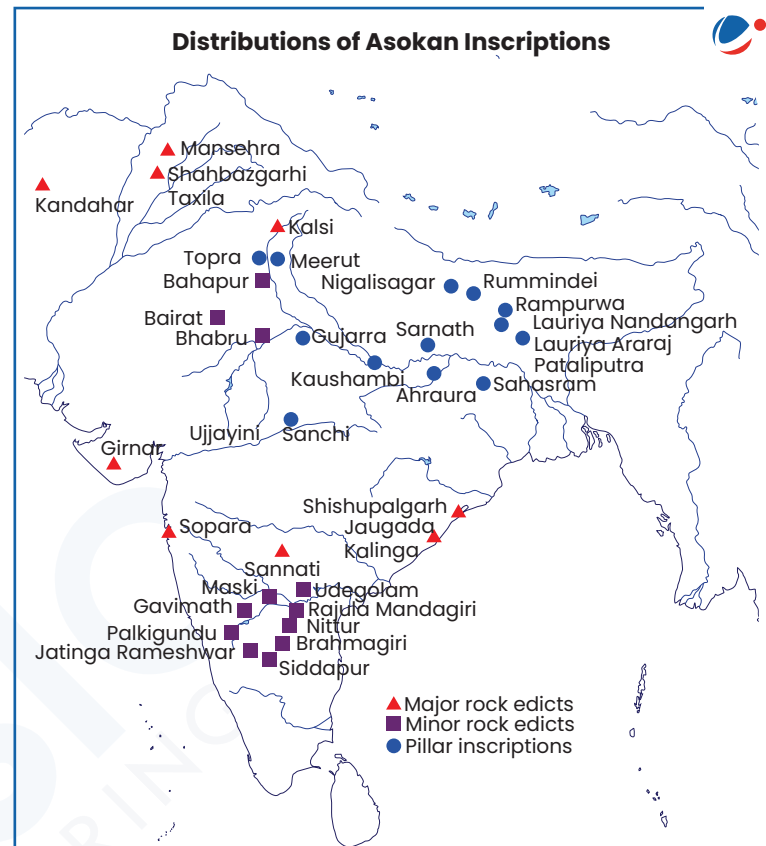
UNESCO World Heritage Committee (Intergovernmental Committee for Protection of the Cultural and Natural Heritage of Outstanding Universal Value)

- ➔ **Comprises members from 196 States Parties, including India, with a 6-year term (often voluntarily 4 years)**.
- ➔ **Functions:** Annual meetings to manage WHS list, audits, listing threatened sites as World Heritage in Danger, or removing sites with lost value.

- ➔ India hosted the 46th meeting in July 2024 in New Delhi, organized by ASI, where 'Moidams' (Ahom Dynasty burial system) became India's 43rd WHS.
- ➔ World Heritage Fund, established in 1977, supports conservation via contributions from States Parties and voluntary donations.

8.1.1 Ashokan Edict Sites

- ➔ **Period:** Collection of over 30 inscriptions on rocks, pillars, boulders, and cave walls, made by Emperor Ashoka of Mauryan Empire during his reign (268–232 BCE).
 - ➔ These are the first written inscriptions in India after the decline of Harappan civilization, comprising **14 Major Rock Edicts, seven Pillar Edicts and some Minor Rock Inscriptions.**
- ➔ **Purpose:** Royal decrees, mostly in his own words, addressing social, cultural and administrative matters to nobility, officials or general populace.
- ➔ **Language:** Primarily Prakrit, with Aramaic and Greek in northwestern region.
- ➔ **Script:** Brahmi (Main Script), Kharoshti (Gandharan Region), Greek and Aramaic.
- ➔ **Materials:** Pillars made from buff-colored hard sandstone from Chunar and spotted red and white sandstone from Mathura.
- ➔ **Other Features of edicts:**
 - ➔ **Locations of his edicts (Dhamma-lipis)**, mainly inscribed to advertise his policy of Dhamma, indicate the vast territorial spread of his empire.
 - ➔ Ashoka uses his name "Devanampiya" (**Beloved of the Gods**) in four places: **Maski, Brahmagiri (Karnataka), Gujjara (MP), and Nettur (AP).**
 - ➔ Kanganahalli Inscription found on a stupa in Karnataka identifies Ashoka as "Ranyo Asoka" (King Ashoka).



Major Edict	Key Idea
I	Bans animal slaughter & festive killings; Ashoka stops hunting.
II	Medical care for all; mentions Chola, Pandya, Keralaputra, Satyaputra, and Antiochus II.
III	12 years post-coronation; promotes generosity & instructs officers to spread Dhamma.
IV	Prefers Dhammaghosha (peace) over Bherighosa (war); promotes ethical governance.
V	"Every human is my child"; appoints Dhamma Mahamatras; addresses slavery.
VI	Focus on welfare, communication with people.
VII	Promotes religious tolerance and respect.
VIII	Records first Dhamma Yatra to Bodh Gaya.
IX	Opposes extravagant rituals; favors simplicity.
X	Critiques glory & fame; values Dhamma.
XI	Declares Dhamma as state policy; stresses ethics, kindness to slaves.
XII	Encourages religious harmony; Kandahar edict highlights Greek contacts.
XIII	Longest edict; remorse over Kalinga War; diplomacy with Greek & South Indian rulers.
XIV	Notes widespread dissemination of inscriptions.

8.1.2 Gupta Temples

- ➔ Gupta Empire (c. 320–550 CE) is considered the “Golden Age” of classical India, marking a transformative era in temple architecture.
- ➔ **Architectural Style:** Both Nagara (North Indian) and Dravida (South Indian) > transitioning from **modest flat-roofed shrines to structured complexes with garbhagrihas, mandapas, mukhmandapa, and śikharas.**
- ➔ **Patronage:** **Royal patronage for temples dedicated to Vishnu, Shiva, and Shakti** came from Gupta rulers like Chandragupta I, Samudragupta, and Chandragupta II.
- ➔ **Key Features of Gupta Temples**
 - ➔ Early developmental stage **influenced by both Buddhist and Hindu traditions.**
 - ➔ **Structural Permanence: Shift from perishable materials to stone** while continuing to use brick.
 - ➔ **Five key temple typologies emerged:** flat-roofed, covered ambulatory, barrel-vaulted, curvilinear śikhara, and circular/octagonal temples.
 - ➔ **Pillars featured “vase capital” or “purnakalsa”** replacing Mauryan inverted lotus or bell capitals.
 - ➔ **Other Features:** Terraced platforms, **intricate decorations, and religious symbolism.**
- ➔ **Socio-economic Significance:** Temples functioned as economic hubs through **land grants (Devadana), agrarian management, and trade networks that attracted merchants along routes like uttarāpatha,** fostering urbanization and specialized labor guilds.

Gupta Temples

- ➔ **Dashavatara Temple, Deogarh (UP):** Early 6th century temple on Betwa River, dedicated to Vishnu’s 10 avatars. First to feature **Shikhara** symbolizing Mt. Meru. Follows **Panchayatana** style with central shrine and 4 corners.
- ➔ **Bhitargaon Temple, Kanpur (UP):** 5th century east-facing **brick temple**, known for sacred geometric design and structures like ardhmandapa, antarala, and garbhagriha.
- ➔ **Nachna Temple, Panna (MP):** 5th–6th century **Shiva/Parvati** temple combining **Nagara & Dravida** styles.
- ➔ **Mahabodhi Temple, Bodhgaya (Bihar):** Originally by Ashoka (3rd BCE); current 5th–6th century brick temple is among the **oldest standing Buddhist brick structures** in India.

Other Notable Gupta Temples

- ➔ **Madhya Pradesh:** Vamana (Deori), Udayagiri Cave 1, Temple 17 (Sanchi), Gupta Temple (Sanchi)
- ➔ **Bihar:** Terraced temple (Lauriya-Nandangarh), Nalanda Mahavihara temples, Mundeshwari (Ramgarh) with **octagonal plan**
- ➔ **Uttar Pradesh:** Bhitari temple
- ➔ **Rajasthan:** Bhim-ki-chauri (Dara)









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8.1.3 Mudumal Menhirs of Telangana

One of India's most expansive and well-preserved megalithic astronomical observatory sites, approximately 3500–4000 years old, located near the Krishna River in Telangana.

Key Features

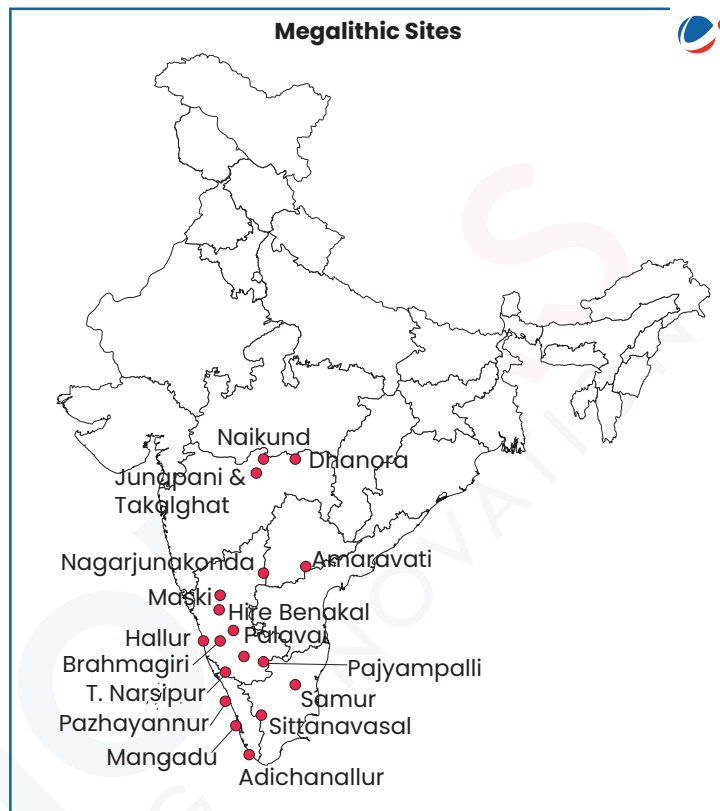
- **Largest megalithic burial site** in South India
- **Depiction of Night Sky:** Only South Asian site featuring tangible representations of Ursa Major, Leo constellations, etc.
- **Ancient Observatory:** Menhirs (upright stones) aligned with celestial events like solstices and equinoxes
- **Cultural Significance:** Menhirs considered sacred locally as "Niluralla Thimmappa" (Thimmappa of the Standing Stones), with one menhir worshipped as Goddess Yellamma.

What are Megaliths sites?

- Large stone structures used as burial sites or commemorative memorials (e.g., Menhirs, Dolmen) dating from Neolithic through Iron Age.

Megalithic Culture in India (~1000 BC to ~1st century AD)

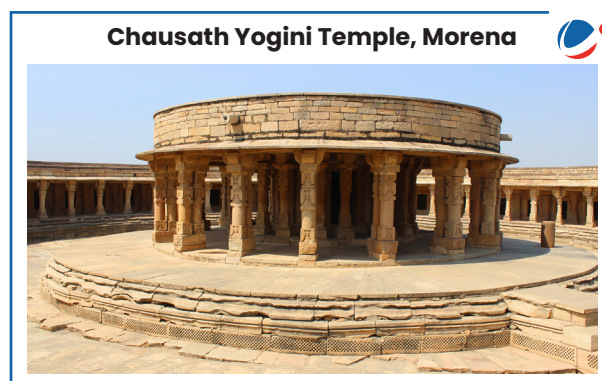
- **Full-fledged Iron Age** culture in South India.
- Associated with **burial sites and Black and Red ware (BRW) pottery.**
- Earliest megalithic burials with iron objects found at **Piklihal and Hallur at Brahmagiri in Karnataka.**
- **Types:** Polylithic (Dolmen, Cairn, Cromlek, Cist) and **Monolithic (Menhir).**
- **Distribution:** Maharashtra, Karnataka, Tamil Nadu, Kerala, Andhra Pradesh, and Telangana, with over **1400 sites in Indian subcontinent (1116 in Peninsular India).**
- **Subsistence:** Early Iron Age communities combined agriculture, hunting, and fishing, suggesting sedentary living.
- **Pottery Types:** Black and Red Ware (BRW), Red Ware, and **Burnished Black Ware.**



8.1.4 Chausath Yogini Temples in Madhya Pradesh and Odisha

Yogini Temples are temples featuring 64 images of Yoginis in chambers lining the circumference.

- "Yogini" refers to female yoga practitioners, and "**chausath**" means **64 in Hindi.**
- They have open central courtyards with shrines dedicated to Shiva/Shakti visible from each chamber, **likely used for dance performances.**
- **Key Features**
 - Typically, circular, **built on elevated ground/pedestals, and open to sky.**
 - Exceptions in Khajuraho, **Badoh and Rikhiyan are rectangular.**
 - Circular plans symbolize time cycle, **cosmic order and energy flow.**
 - Simple stone load-bearing structures with **modest architectural carvings but intricate sculptures.**
 - Associated with **tantric and yogic practices celebrating feminine power, sensuality and fertility.**
- **Chausath Yogini Temples in India**
 - **Madhya Pradesh:** Khajuraho, Mitaoli (Morena), Dudhai, Jabalpur, Badoh, Hinglajgarh, Shahdol, Naresar
 - **Uttar Pradesh:** Lakheri, Rikhiyan
 - **Tamil Nadu:** Kanchipuram
 - **Odisha:** Hirapur, Ranipur



- **Chausath Yogini Temple, Morena (Ekattarso Mahadeva Temple):** Circular temple built by Maharaja Devapala (Kachchhapaghata dynasty) in 1323 AD using local sandstone.
 - ➔ Its circular design allegedly inspired the old Indian Parliament and represents **Sri Yantra, symbolizing cosmos and Shakti.**
- **Chausath Yogini Temple, Khajuraho:** Built in 9th century under Chandela dynasty, most primitive of all Yogini temples with **unique rectangular form, constructed entirely of local coarse granite unlike other Khajuraho sandstone temples.**
- **Chausath Yogini Temple, Badoh (Gadarmal Temple):** Features rectangular shrine with massive shikhara and small front porch. The roof was added later; originally it **was likely hypaethral (roofless) like other Yogini shrines.**

8.1.5 Palace-Fortresses of the Bundelas in Madhya Pradesh and Uttar Pradesh

Palace-Fortresses of the Bundelas consists of significant components in the Bundelkhand Region.

- **Garhkundar Fort:** Located in Garhkundar, **early capital of Bundela Rajputs.**
- **Raja Mahal (Orchha):** Commissioned during Madhukar Shah's reign. **Capital shifted to Orchha in 16th century.**
- **Jahangir Mahal (Orchha):** Commissioned during Madhukar Shah's reign with major construction during **Bir Singh Deo's rule.**
- **Datia Palace:** Known as Bir Singh Deo Palace, **a five-storied structure built in 1620.**
- **Jhansi Fort:** **Built by Bir Singh Deo in early 17th century.**
- **Dhubela Palace:** Built by Maharaja Chhatrasal in 17th century near Dhubela Lake.

Garhkundar Fort



Raja Mahal Orchha



Key Features of Bundela Palace-Fortresses

- **Synthesis of Bundela Rajput and Mughal style:** Incorporating Mughal elements while retaining traditional Rajput features.
- **Local reinterpretation of Mughal motifs, murals:** Inspired by Mughal and symbolic **themes like ragamala and rasliila.**
- **Integration of Defence and aesthetics:** Combines fortification strategies with **decorative elements.**
- **Architecture:** Mandala form of symmetrical planning with central, **open-to-sky courtyard.**

About Bundelas

- Belonged to Gaharwar tribe of Rajputs.
- Raja Pancham founded Bundela **Kingdom (last quarter of 12th century A.D).**
- Made Garhkundar their capital **during the decline of Chandela power.**

8.1.6 Kanger Valley National Park (NP) (Bastar, Chhattisgarh)

- **Location:** Part of Deccan peninsula - Eastern Highlands
- **Established:** Designated as NP in 1982 under Wildlife Protection Act, 1972
- **Key Features**
 - ➔ **Major River:** Kanger River.
 - ➔ **Located on:** Banks of Kholaba River (Godavari tributary).
 - ➔ **Diverse topography:** Flatlands, slopes, plateaus, **gorges, valleys, and streams.**
 - ➔ **Vegetation:** Supports Tropical Moist Deciduous, Dry Deciduous and Semi-Evergreen Forests
 - ◊ Natural transition zone (ecotone) **between Sal and teak forests in Peninsular India.**
 - ➔ **Geomorphological features:** Karst Topography with underground limestone **caves and Speleothems.**
 - ➔ **Three exceptional caves:** Kutumbasar, Kailash and Dandak **with Stalactites and stalagmites.**
 - ➔ **Other attractions:** Tirathgarh waterfall, Kanger Dhara waterfall (formed by tectonic event)
 - ➔ **Major fauna:** Panthers, hyenas, Dholes, Eastern Hill Myna (State Bird of Chhattisgarh), giant squirrel.
 - ◊ High endemism with 5 **unique spider species found only in this park's limestone caves.**

8.2 News in Shorts

8.2.1 Vikramshila University

After Rajgir, work is on to revive another ancient centre of learning in Bihar i.e. Vikramshila.

About Vikramshila University

- ➔ **Founded:** By Pala king Dharmapala (8th-9th Century AD), thrived alongside Nalanda.
 - ➔ He also founded Somapur Mahavihara in modern Bangladesh.
- ➔ **Known for Vajrayana/Tantrayana Buddhism**, occult studies, and theological disciplines.
- ➔ Scholars from Tibet studied here, with manuscripts written in **Sanskrit and translated into Tibetan**.
- ➔ Atisha Dipankar (980-1054), a **Buddhist in the Pala kingdom**, was an adhyaksha (head of the university).
- ➔ **Destroyed in late 12th century by Bakhtiyar Khalji**, a military commander of Qutubuddin Aibak.

8.2.3 Jnanpith Award

Vinod Kumar Shukla is selected for 59th Jnanpith Award, the highest literary award in India.

About Jnanpith Award

- ➔ Presented annually by Bharatiya Jnanpith since **1965 for outstanding contributions to Indian literature**.
- ➔ Established in 1944, is one of the **premier literary organizations**.
- ➔ Considered the highest literary award in India, given for the best creative literary output in any of the **22 languages recognized by the Constitution of India**.
- ➔ From 2013, works in **English language were also considered**.
- ➔ Eligibility restricted to **Indian citizens**.

8.2.2 Geet Gawai

The Indian Prime Minister was welcomed with a traditional Bihari cultural performance **Geet Gawai**.

About Geet Gawai

- ➔ A **pre-wedding ceremony** combining rituals, prayer, songs, music and dance.
- ➔ Inscribed on UNESCO's Representative List of the Intangible Cultural Heritage of Humanity (2016)
- ➔ Performed mainly by **Bhojpuri-speaking communities of Indian descent in Mauritius**.
 - ➔ **Participants: Female family members and neighbors.**
- ➔ **Main Musical Instrument:** Dholak (a two-headed drum).
- ➔ Now extends to **public performances with men also participating**.

8.2.4 India's Traditional New Year Festivals

Traditional New Year festivals celebrated across India.

- ➔ **Chaitra:** Marks the beginning of the Hindu New Year, based on the lunar calendar.
- ➔ **Sukladi:** The Vikram Samvat calendar used in North India also begins from Chaitra Sukladi.
- ➔ **Ugadi:** Celebrated in Andhra Pradesh, Telangana, and Karnataka as the Telugu New Year.
 - ➔ **The word "Yugadi" comes from "Yug" (age) and "Adi" (beginning).**
- ➔ **Gudi Padwa:** Primarily observed in Maharashtra, Goa etc.
- ➔ **Cheti Chand:** Marks the beginning of the New Year for Sindhi community, It is also known as **Jhulelal Jayanti, is a religious festival celebrated by Sindhi**.
- ➔ **Sajibu Cheiraoba:** Sajibu Nongma Panba Cheiraoba marks the Meitei New Year, celebrated in Manipur.
 - ➔ **Falling on the first lunar day of march/ April.**



ETHICS

9.1. Persuasion

Introduction

With the rise of social media, AI, and smartphone penetration, societies face a disinformation crisis. **Persuasion offers a proactive tool** to influence beliefs, attitudes, and behavior to counter false narratives.

About Persuasion




→ It is a **deliberate effort** to influence others using **argument, emotion, or trust**, distinct from **coercion or manipulation**.

→ **Features:** Intentional, often explicit and verbal, relying on perceived similarity and shared interests.

Factors Affecting Persuasion






- **Source:** Credibility and authority of speaker. E.g., Dr. Randeep Guleria on COVID-19 communication
- **Message Content:** Clarity, relevance, and simplicity. E.g., Swachh Bharat Abhiyan's messaging on health and dignity
- **Audience Characteristics:** Beliefs, background, demographics. E.g., Financial literacy tailored to rural vs. urban groups
- **Reciprocity:** Providing value before asking. E.g., 'Give It Up' LPG campaign followed by PM Ujjwala Yojana
- **Social Proof:** Highlighting adoption by others. E.g., Aadarsh Gram Yojana model villages
- **Timing and Context:** Delivery environment and current issues. E.g., 'Vocal for Local' during pandemic-led economic concerns

Modes of Persuasion

 Ethos (Appeal to credibility) E.g., Researchers citing their qualifications and previous work before presenting new findings.	 Pathos (Appeal to emotions) E.g., Use of national symbols or historical events to stir pride and unity.	 Logos (Appeal to logic) E.g., Showing lung cancer rates to discourage smoking in anti-tobacco campaigns.
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How Persuasion Can Work Against Disinformation?

- **Building Trust and Reducing Resistance:** Uses credible messengers, shared values, and empathy to make audiences more receptive to correction.
- **Use of Narratives to Counter Narratives:** Relies on stories, visuals, and emotional appeals instead of just data.
- **Promotes Critical Thinking Without Confrontation:** Encourages reflection through dialogue, not debate, using Socratic questioning and alternative explanations.
 - E.g. Deradicalization through open-ended questioning of extremist beliefs.
- **Sustained Engagement over Time:** Long-term **respectful messaging** builds **trust**, eroding false beliefs more effectively than one-time fact-checks.

Risk of Disinformation				
 Conflict Potential for violence and unrest due to false information.	 Political Manipulation Use of disinformation to influence political outcomes.	 Environmental Non-Action Inaction on environmental issues fueled by misinformation.	 Economic Mismanagement Poor economic decisions based on false data.	 Social Harmony Erosion of trust and community cohesion due to lies



9.2. Happiness

Introduction

"Happiness is a choice that requires effort at times" – Aeschylus. The quote gains relevance as **India ranks 118th out of 147** in the **World Happiness Report 2025**, behind neighbours like **Nepal and Pakistan**.

Happiness

→ Defined as the **subjective enjoyment of life**, reflecting how favourably an individual views their life.

Two Paths to Happiness	
 <p>Hedonic Happiness (Jeremy Bentham)</p> <p>Key Characteristics</p> <ul style="list-style-type: none"> ⊕ Focuses on maximizing pleasure ⊕ Seeks sensory and emotional satisfaction ⊕ Utilitarian calculation of pleasure vs. pain 	 <p>Eudaimonic Happiness (Aristotle)</p> <p>Key Characteristics</p> <ul style="list-style-type: none"> ⊕ Utilizes individual strengths, abilities, and values ⊕ Known as Psychological Well-Being (PWB) ⊕ Focused on meaning, purpose, and personal growth

The Pursuit of Happiness: A Philosophical Quest through Eastern and Western Wisdom

Indian Perspectives	Western Perspective
Cārvāka Ethics: Kāma is the highest aim; artha is the means.	Epicureanism (Moderate Hedonism): Seeks freedom from pain and anxiety through moderate pleasures .
Bhagavad Gita (Nishkama Karma): Perform duty without expecting results.	Kant (Deontology): Moral duty is the path to true happiness.
Buddhism (Middle Path): Happiness lies in living mindfully , not in arrival.	John Locke: Pursuit of happiness drives moral and civil progress .
Bhakti Tradition: Happiness through devotion , offerings, and divine love .	Utilitarianism: Maximize pleasure for the greatest number . J.S. Mill called for qualitative distinction between higher (intellectual, moral) pleasures and lower (sensory, bodily) pleasures , unlike Bentham.
Guru Nanak (Santokh): Contentment is eternal happiness.	Stoicism: Focus only on what's within your control .
Transcendental Perspective: True bliss (Ananda) arises from transcending worldly ties.	Christian Theology (St. Augustine): True happiness is union with God via faith and grace .

Obstacles to Happiness in Contemporary Life

→ External Factors

- **Negative Social Comparisons:** Unrealistic standards (e.g. body, beauty) reduce **self-worth**.
- **Lack of Social Support:** **19% of young adults** report having **no support** (2023).
- **Financial Stress:** Poverty acts as a cognitive tax.
- **Harmful Substances:** **Drug abuse** impacts **mental health**.

→ Internal Factors

- **Self-Doubt & Low Self-Esteem:** Leads to **anxiety, depression, lack of gratitude**.
- **Not Living in the Present:** **Pessimism, overthinking, and unresolved trauma**.
- **Excessive Screen Time:** Reducing **free play**, causing an "**Anxious Generation**" (Economic Survey 2023–24).

How Civil Servants Can Promote Happiness Among Citizens

- **People-Centric Governance:** Efficient delivery via **Gram Panchayat Development Plans**.
- **Transparency & Accountability:** Through **e-governance, RTI, and social audits**.
- **Mental & Emotional Well-Being:** Support via **Tele-MANAS**, flexible work hours.
- **Social Harmony:** Encourage **interfaith dialogues** to reduce tensions.
- **Policy Integration:** Include happiness in governance—e.g., **Gross National Happiness (Bhutan)**, **Happiness Minister**.

Conclusion

Though happiness may seem elusive, it can be nurtured through **intentional practices** aligned with **hedonic and eudaimonic well-being**, both at **personal and policy levels**.

9.3. Philanthropy: A Moral Imperative for Social Good

Introduction

Service to others is the rent you pay for your room here on earth. – Muhammad Ali. This quote is reflected in India's growing **philanthropic landscape**, with rising contributions from **corporate social responsibility (CSR)**, **ultra-high-net-worth individuals (UHNIs)**, and **middle-class donors** (India Philanthropy Report 2025). Philanthropy has spanned cultures—from ancient to modern times.

Philanthropy in Modern Context

- Literally means 'love of mankind'; involves voluntary donations to institutions for social welfare, education, science, etc.
- Unlike **charity's short-term relief**, philanthropy focuses on **long-term, large-scale social transformation**.

Philosophical Basis of Philanthropy

- **Indian Perspective**
 - **Chanakya's Arthashastra**: 1/6th of revenue for **public welfare**
 - **Vivekananda**: Serving the poor is **servicing God**
 - **Gandhiji's Trusteeship**: Wealth should be **used for society's good**
 - **Religious Traditions**: **Hinduism** (Daana and Dakshina), **Islam** (Zakaat and Sadaqaat), **Buddhism** (Bhiksha) and **Sikhism** (Langar)
- **Western Perspective**
 - **Consequentialist View (Virtue ethics)**: Philanthropy reflects **generosity and compassion**
 - **Kantian Ethics (Moral Obligation)**: **Moral duty** to benefit others
 - **Rawl's Theory (Justice as fairness)**: **Justice** for the most disadvantaged
 - **Utilitarianism**: Maximize **overall well-being**
 - **Libertarianism**: Philanthropy preferred over **state welfare**

Significance of Philanthropy as a Development Tool

- **Bridging Funding Gaps**: Supplements **government budgets** in critical sectors.
- **Addressing Development Gaps**: Tackles **poverty, education, and healthcare**. E.g., Azim Premji Foundation's rural education work.
- **Catalyzing Innovation**: Drives **tech-based solutions** in development. E.g., Gates Foundation's sanitation innovations align with Swachh Bharat.

Ethical Challenges in Philanthropy

- **Elite Capture**: Large donors may **influence policy** and use philanthropy for **tax evasion or laundering**.
- **Corporate Dilemma**: Seen as diverting from **profit goals** and shareholder interests.
- **Welfare Replacement**: Risks **shifting responsibility** from government to private actors.
- **Regional and Geographical Inequality**: **Urban-centric donations** (Maharashtra & Karnataka get maximum CSR funds, whereas Bihar & Odisha lag far behind)
- **Cultural/Religious Bias**: Donations may align with **personal beliefs**, ignoring broader needs.
- **Transparency Deficit**: Few NGOs file returns; **FCRA restrictions** spark debate on **sovereignty vs. development**.

Conclusion

Philanthropy must be rooted in **ethics, equity, and justice**, reaching areas where **state and markets fail**. The future lies in **conviction-led giving, broad-based participation**, and using philanthropy to drive **systemic reform and effective altruism**, not just **temporary relief**.

GOVERNMENT SCHEMES



10.1 Rashtriya Gokul Mission

Why in the news?

The Union Cabinet, has approved the Revised Rashtriya Gokul Mission (RGM) to boost growth in livestock sector, with an additional outlay of Rs.1000 crore during 15th Finance Commission cycle from 2021-22 to 2025-26.

About RGM

- ➔ **Launched:** 2014 under National Bovine Breeding Programme.
- ➔ **Ministry:** Fisheries, Animal Husbandry & Dairying.
- ➔ **Implementation:** Dept. of Animal Husbandry & Dairying.
- ➔ **Funding:** 100% central grant (with few exceptions).
- ➔ **Objectives:** **Productivity & Milk Yield, Genetic Improvement**, Strengthen network for doorstep artificial insemination, Conserve native cattle via scientific methods.

New Components

- ➔ **Heifer Rearing Centers:** 35% subsidy for 30 facilities (15,000 heifers capacity).
- ➔ **IVF Support:** 3% interest subvention for high-genetic-merit heifers.

Existing Components

- ➔ **Genetic Improvement:** Progeny testing, IVF tech, AI network expansion (MAITRIs).
- ➔ **Indigenous Breeds:** Support to Gaushalas, Gokul Grams, National Kamdhenu Centres.
- ➔ **Digital Integration:** e-Pashu Haat portal, National Digital Livestock Mission.
- ➔ **Capacity Building:** Farmer training, Gopal/Kamdhenu awards.

Impact

- ➔ **Milk Production:** Increase of 63.55% (2014-24); per capita availability increased from 307g to 471g/day
- ➔ **Productivity:** Increased 26.34% in decade.





Judicial Accountability	Existing Key Mechanism for Ensuring Accountability <ul style="list-style-type: none"> ➔ Impeachment: Governed by Articles 124, 217, 218 of the Constitution and the Judges Inquiry Act, 1968. ➔ In-House Mechanism (1999): Based on Restatement of Values of Judicial Life (1997) and Bangalore Principles of Judicial Conduct (2002). <ul style="list-style-type: none"> ➔ The CJI handles complaints against SC judges and HC Chief Justices; HC Chief Justices handle complaints within their courts. ➔ A three-member committee reviews complaints and may recommend removal or criminal action (e.g., Justice Soumitra Sen). <ul style="list-style-type: none"> ◇ Against HC judge: 2 HC Chief Justices (from other HCs) + 1 HC judge ◇ Against HC Chief Justice: 1 SC judge + 2 HC Chief Justices (from other HCs) ◇ Against SC judge: 3 SC judges
Regulating Big Tech	Key Legislations for Regulating Big Tech <ul style="list-style-type: none"> ➔ Digital Personal Data Protection Act, 2023 (DPDPA) ➔ Information Technology (Intermediary Guidelines and Digital Media Ethics Code) or IT Rules, 2021 ➔ Competition Act, 2002 ➔ Consumer Protection Act, 2019 ➔ Section 69A of the Information Technology Act, 2000
Immigration And Foreigners Bill, 2025	Key provisions <ul style="list-style-type: none"> ➔ Grounds for Denying Entry or Stay: Threat to national security, sovereignty, public health, or foreign relations. ➔ Tracking of Foreigners: Institutions such as educational establishments, hospitals, and nursing homes.
Future of Free Speech Index 2025	This ranks India 24th out of 33 countries for free speech support.
Bilateral Investment Treaty (BIT)	About Bilateral Investment Treaties (BITs) <ul style="list-style-type: none"> ➔ Also referred to as International Investment Agreements (IIAs), they are a tool for providing assurance to foreign investors against measures that may adversely impact their investments while assuring state's sovereign right to regulate. ➔ Concept: They provide rights to investors (through the investor-state dispute settlement) or to home states like investing state like US (through state-state dispute settlement), to bring a claim against a host state (receiving foreign investment, e.g., India).
Indian Ocean Rim Association (IORA)	About IORA <ul style="list-style-type: none"> ➔ Genesis: An inter-governmental organization established in 1997 with its vision originating during a visit by Nelson Mandela to India in 1995. ➔ Objective: Encourage regional cooperation and sustainable development within the Indian Ocean region. ➔ Secretariat: Mauritius ➔ Members: 23 Members and 12 dialogue partners.

India–Mauritius Bilateral Relations	About MAHASAGAR <ul style="list-style-type: none"> ➔ MAHASAGAR (Mutual and Holistic Advancement for Security and Growth Across Regions) is an expanded version of India’s 2015 maritime policy, SAGAR (Security and Growth for All in the Region). ➔ While SAGAR focused on India’s immediate neighborhood, MAHASAGAR has a wider reach, especially in the Global South.
India New Zealand Relations	Recent developments <ul style="list-style-type: none"> ➔ New Zealand (NZ) joined the Indo-Pacific Oceans’ Initiative (IPOI) and becomes member of Coalition for Disaster Resilient Infrastructure (CDRI). ➔ Launch of negotiations on Free Trade Agreement (FTA) and for an arrangement facilitating the mobility of professionals and skilled workers.
Squad Alliance	About Squad alliance <ul style="list-style-type: none"> ➔ An informal minilateral alliance involving the US, Japan, Australia, and the Philippines. ➔ Aim: Address aggression and maintaining stability in the Indo-Pacific Ocean Region, etc. ➔ It is different from Quad which consists of India, USA, Japan and Australia.
Liquidity Deficit	<ul style="list-style-type: none"> ➔ There is inverse relationship between Currency in Circulation and Banking Liquidity. ➔ RBI’s tools for managing liquidity: Cash Reserve Ratio (CRR), Statutory Liquidity Ratio, Open Market Operation, etc.
Incentive Scheme For Promotion of Low-Value BHIM-UPI Transactions	<ul style="list-style-type: none"> ➔ Incentive: 0.15% per transaction (Max ₹2000) for small merchants. ➔ Statutory Provisions: Payment and Settlement Systems Act, 2007
Self-Reliance in Electronics Component Manufacturing	<ul style="list-style-type: none"> ➔ Current Status: India holds 4% of the global electronics market. ➔ 99% of smartphones sold in India are now made domestically.
Priority Sector Lending (PSL)	<ul style="list-style-type: none"> ➔ Statutory Provisions: Banking Regulation Act, 1949 ➔ Committees on PSL: Gadgil Committee (1969), Ghosh Committee (1982) ➔ PSL targets <ul style="list-style-type: none"> ➔ Small Finance Banks & Regional Rural Banks: 75% ➔ Primary (Urban) Co-operative Bank (UCBs): 60% (Earlier 40%) ➔ Domestic Commercial Banks and Foreign Banks: 40%
50 years of Microfinance	<ul style="list-style-type: none"> ➔ First Microfinance Institution in India: SEWA Bank (1974) ➔ 88% of SHGs linked to banks are women-led. ➔ Initiatives taken: SHG-Bank Linkage Program, Pradhan Mantri MUDRA Yojana, etc.
Remittances To India	<ul style="list-style-type: none"> ➔ Top 5 source countries for India: US (27.7%), UAE, the UK, Saudi Arabia, and Singapore. ➔ Top 3 recipient states in India: Maharashtra (20.5%), Kerala and Tamil Nadu.
Unified Pension Scheme (UPS)	<ul style="list-style-type: none"> ➔ Statutory Provisions: Pension Fund Regulatory and Development Authority Act, 2013 ➔ Contributions: Subscriber (10% of Basic Pay), Government (8.5% of Basic Pay)
Equalisation Levy	<ul style="list-style-type: none"> ➔ Statutory Provisions: Finance Act, 2016 & Finance Act 2020
Farmer Producer Organisations (FPOs)	<ul style="list-style-type: none"> ➔ Formation and Promotion of 10,000 Farmer Producer Organizations (FPOs) Scheme: Launched in 2020 ➔ 30 lakh farmers connected to FPOs (40% are women)
India’s Bio-Economy	<ul style="list-style-type: none"> ➔ Initiatives: BioSaarthi Mentorship Initiative, Bio-NEST Scheme, Biotechnology Ignition Grant (BIG), SEED Fund, etc. ➔ India’s target: \$300 billion bioeconomy by 2030. <ul style="list-style-type: none"> ➔ Current Status: \$165.7 billion (2024), contributing 4.25% to GDP. ➔ Policies and Schemes: <ul style="list-style-type: none"> ➔ BioE3 (Biotechnology for Economy, Environment and Employment) Policy 2024, ➔ National Biopharma Mission ➔ National Policy on Biofuels 2018, etc.

National Technical Textiles Mission (NTTM)	<ul style="list-style-type: none"> ➔ Textiles Market: 12 segments (e.g., Sportech) ➔ Other Steps taken to Promote Technical Textiles: PLI Scheme for Textiles, PM MITRA Scheme, SAMARTH Scheme, etc.
National Waterways (Construction of Jetties/Terminals) Regulations, 2025	<ul style="list-style-type: none"> ➔ Total Length of National Waterways: 4,503 Km (Longest is NW-1 on Ganga at 1,620 Km) ➔ In India, only 3.5% of trade happens through waterways (China~47%) ➔ Initiatives: Inland Waterways Authority of India (IWAI) 1986, Jal Marg Vikas Project (2014), National Waterways Act 2016, etc.
Coal Sector for India's Development	<ul style="list-style-type: none"> ➔ India holds 5th largest coal reserves globally and is 2nd largest consumer of coal. ➔ Coal's contribution to India's installed power capacity: 46.88% (as of November 2024) ➔ Coal is the largest contributor to Indian railway freight revenue (49% in 2022-23). ➔ Top three states: Odisha, Jharkhand, Chhattisgarh
National Programme for Dairy Development (NPDD)	<ul style="list-style-type: none"> ➔ NPDD: A Central Sector Scheme ➔ Milk Production in India: Highest in World (~24.76%) ➔ Direct Employment: 8 Crore Farmers (Majority being women)
Role of Quantum Computing in National Security	<p>Steps Taken by India in Quantum Technology</p> <ul style="list-style-type: none"> ➔ National Quantum Mission (NQM) (2023): With aim to seed, nurture and scale up scientific and industrial R&D and create a vibrant & innovative ecosystem in Quantum Technology (QT). ➔ Quantum-Enabled Science and Technology (QuEST) program (2018): Initiated by DST, aimed at R&D activities via funding national quantum labs and developed infrastructure required to progress with developments in Quantum Technologies.
Convention On Cluster Munitions	<p>About Convention on Cluster Munitions (CCM)</p> <ul style="list-style-type: none"> ➔ The CCM is an international treaty that prohibits all use, stockpiling, production, and transfer of cluster munitions. <ul style="list-style-type: none"> ➔ CCM was the outcome of Oslo Declaration on Cluster Munitions (2007). ➔ Adopted in 2008 and entered into force in 2010. ➔ Legal Status: Legally binding international instrument arrangement. ➔ India's Status: India is NOT a signatory to the CCM.
Golden Dome	<p>About Golden Dome</p> <ul style="list-style-type: none"> ➔ A missile defence programme of the USA aimed to protect it from the threat of attack by ballistic, hypersonic, and cruise missiles, and other advanced aerial attacks. ➔ Inspired from Israel's 'Iron Dome' missile defence system. <ul style="list-style-type: none"> ➔ Iron Dome is a multi-layered missile defence system developed to protect against short-range threats.
Biofuels	<ul style="list-style-type: none"> ➔ India has emerged as the world's third-largest biofuel producer. ➔ Biofuels are fuels produced from renewable resources used in place of or blended with fossil fuels. ➔ Key Players: The USA is the largest producer followed by Brazil. ➔ Includes ethanol, biodiesel, Compressed Biogas (CBG), and Sustainable Aviation Fuels (SAF).
Biodiversity Heritage Sites (BHS)	<ul style="list-style-type: none"> ➔ Kasampatty Sacred Grove is declared as Tamil Nadu (TN)'s second BHS, located near the Alagarmalai Reserve Forest in Dindigul district. ➔ Arittapatti in Madurai being the first in TN. ➔ State Governments, in consultation with local bodies, can notify areas of biodiversity importance as BHS through official gazette publication. ➔ Notified under Section 37(1) of the Biological Diversity Act, 2002.

Wildlife Institute of India	<ul style="list-style-type: none"> ➔ Genesis: 1982, WII was accorded autonomy in April 1986. ➔ HQ: Dehradun ➔ Ministry: Ministry of Environment Forest and Climate Change. ➔ Governance: Wildlife Institute of India's governance is run under the Society, chaired by the Union Minister of Environment & Forests.
Okjökull Glacier	<ul style="list-style-type: none"> ➔ It is believed to be the first glacier to be officially declared dead due to climate change in 2014. ➔ Other glaciers that disappeared include Anderson Glacier, Clark Glacier and Glisan Glacier (USA), Baumann Glacier (New Zealand), Calderone Glacier (Italy), Martial Sur Glacier (Argentina), Pico Humboldt Glacier (Venezuela), Pizol Glacier (Switzerland), Sarenne Glacier (France), and Schneeferner Glacier (Germany).
Blue Flag	<ul style="list-style-type: none"> ➔ Rushikonda Beach in Visakhapatnam regained its Blue Flag tag, previously withdrawn due to poor maintenance. ➔ It's the only Blue Flag beach in Andhra Pradesh and one of 13 in India. ➔ Conferred upon: Beaches, marinas, and sustainable tourism boats, with specific criteria for each. ➔ Conferred by: Foundation for Environment Education (FEE), based in Denmark.
Cinema and Society	<p>Regulation of Content in Cinema</p> <ul style="list-style-type: none"> ➔ Bharatiya Nyaya Sanhita (BNS), 2023: Criminalizes obscene acts, with penalties including fines and imprisonment. ➔ Indecent Representation of Women (Prohibition) Act, 1986 ➔ Cinematograph Act, 1952: Mandates certification of films by the Central Board of Film Certification (CBFC) before their public exhibition. ➔ Advertising Standards Council of India (ASCI) (Self-regulation)
World Happiness Report	<ul style="list-style-type: none"> ➔ Parameters: GDP per capita, social support, healthy life expectancy at birth, freedom to make life choices, etc. ➔ Finland ranks first, followed by Denmark and Iceland while India is ranked 118th out of 147 countries.
International Olympic Committee (IOC)	<p>About IOC</p> <ul style="list-style-type: none"> ➔ IOC is not-for-profit independent body overseeing the Olympic movement ➔ Headquarters: Lausanne (the Olympic Capital), Switzerland. ➔ Genesis: Founded at the first Olympic Congress in Paris (1894). ➔ Vision: To Build a Better World through Sport
Human Enhancement	<ul style="list-style-type: none"> ➔ Definition: Natural, artificial, or technological alterations to improve cognitive and physical functions beyond normal limits. ➔ Key Methods/Ways: Use of drugs, hormones, implants, genetic engineering, supplements, and cosmetic surgeries.
Strategic Crypto Reserve (SCR)	<ul style="list-style-type: none"> ➔ Cryptocurrency: A digital currency using cryptography and decentralized blockchain; not controlled by governments or central banks. <ul style="list-style-type: none"> ➔ Examples: Bitcoin (BTC), Ethereum (ETH), Ripple (XRP), Tether (USDT). ➔ About SCR: A crypto stockpile in national reserves to enhance economic resilience, financial sovereignty, and act like a digital counterpart to forex/gold reserves.
Light Supersolid	<ul style="list-style-type: none"> ➔ Definition: A rare state of matter combining solid-like structure with frictionless (zero-viscosity) flow. ➔ Quantum Behavior: Particles condense into a crystalline solid but flow like a liquid due to quantum effects. ➔ Temperature Conditions: Requires temperatures near absolute zero (0 K or -273.15°C) to form BECs, the fifth state of matter.
Anti-Retroviral Therapy (ART) Drugs	<ul style="list-style-type: none"> ➔ Definition: ART uses anti-HIV drugs to reduce viral load to undetectable levels—"Undetectable = Untransmittable (U=U)". ➔ Treatment: Combines 2-4 drugs under Highly Active Antiretroviral Therapy (HAART); <ul style="list-style-type: none"> ➔ Example: TLD (Tenofovir, Lamivudine, Dolutegravir).

National Gene Bank	<ul style="list-style-type: none"> ➔ Gene Banks: Biorepositories that store genetic material of plants, animals, and microbes to preserve biodiversity and ensure food security. ➔ Types of Gene Banks: <ul style="list-style-type: none"> ➔ Seed Banks: e.g., Svalbard Vault, Norway ➔ Field Gene Banks: Live plant conservation ➔ Cryo-preservation Banks: Tissues and embryos ➔ Pollen and DNA Banks
Transgenic Organism	<ul style="list-style-type: none"> ➔ Definition: Organism or cell with a genome altered by introducing foreign DNA from another species. ➔ Regulation in India: <ul style="list-style-type: none"> ➔ Under 'Rules, 1989' of Environment (Protection) Act, 1986. ➔ Regulated by Genetic Engineering Appraisal Committee (GEAC).
Meteorite	<ul style="list-style-type: none"> ➔ A meteoroid that survives atmospheric entry and reaches the Earth's surface is called a meteorite. ➔ Meteor are formed when meteoroids enter the Earth's or a planet's atmosphere. ➔ When a meteoroid survives the trip through the atmosphere and hits the ground, it is called a Meteorite.
Global Astrometric Interferometer For Astrophysics (GAIA)	<ul style="list-style-type: none"> ➔ About GAIA: Designed to create a 3D map of the Milky Way Galaxy with high precision. ➔ Objective: Perform astrometry—accurate measurement of stellar positions, distances, and motions.
UNESCO World Heritage Sites	<ul style="list-style-type: none"> ➔ Six sites were added to India's UNESCO Tentative List in 2025 ➔ The 6 new sites: Mudumal Menhirs (Telangana), Kanger Valley National Park (Chhattisgarh), Ashokan Edict Sites (multiple states), Chausath Yogini Temples (Madhya Pradesh, Odisha), Gupta Temples (multiple states), Palace-Fortresses of the Bundelas (Madhya Pradesh, Uttar Pradesh).
Ashokan Edict Sites	<ul style="list-style-type: none"> ➔ It is Collection of over 30 inscriptions on rocks, pillars, boulders, and cave walls, made by Emperor Ashoka of Mauryan Empire during his reign (268-232 BCE). ➔ These are the first written inscriptions comprising 14 Major Rock Edicts, seven Pillar Edicts and some Minor Rock Inscriptions. ➔ Purpose: Royal decrees, mostly in his own words, addressing social, cultural and administrative matters to nobility, officials or general populace.
Kanger Valley National Park (NP) (Bastar, Chhattisgarh)	<ul style="list-style-type: none"> ➔ Location: Part of Deccan peninsula - Eastern Highlands ➔ Established: Designated as NP in 1982 under Wildlife Protection Act, 1972 ➔ Major River: Kanger River. ➔ Located on: Banks of Kholaba River (Godavari tributary).
Jnanpith Award	<ul style="list-style-type: none"> ➔ Vinod Kumar Shukla is selected for 59th Jnanpith Award, the highest literary award in India. ➔ Presented annually by Bharatiya Jnanpith since 1965. ➔ Given for the best creative literary output in any of the 22 languages recognized by the Constitution of India.
Rashtriya Gokul Mission	<p>About RGM</p> <ul style="list-style-type: none"> ➔ Launched in 2014 under the National Programme for Bovine Breeding and Dairy Development. ➔ Ministry: Ministry of Fisheries, Animal Husbandry and Dairying. ➔ Implementation: Department of Animal Husbandry and Dairying. ➔ Funding: 100% grant by Central Government, with few exceptions.

ACTIVITIES



12.1. MCQs

1. Consider the following statements regarding the pardoning powers in India:

1. The President can grant pardon in cases of court-martial, but the Governor cannot.
2. Both the President and the Governor can pardon death sentences.
3. The mercy petition to the President is a constitutional right of the convict.

How many of the statements given above is/are correct?

- (a) Only One
- (b) Only two
- (c) All three
- (d) None

2. With reference to the Sansad Bhashini initiative, consider the following statements:

1. It aims to use Artificial Intelligence (AI) to enable real-time multilingual translation for parliamentary operations.
2. The initiative is implemented by the Ministry of Parliamentary Affairs.
3. Bhashini, an AI-powered language translation platform, supports Sansad Bhashini.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

3. Consider the following statements about the Five Eyes Intelligence (FVEY) Alliance:

1. U.S.A., U.K. Canada, Australia and New Zealand are the members of alliance.
2. Five Eyes Intelligence Oversight and Review Council created in 2016 as the "non-political intelligence oversight, review, and security entities" of the member countries.

Which of the above statements is/are true?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) None of the above

4. Consider the following statements about the Ottawa convention:

1. North Atlantic Treaty Organization (NATO) has withdrawn from the Ottawa convention owing to military threat from Russia.
2. Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction is called Ottawa convention.
3. Convention puts obligations on State parties to not use, develop, and stockpile anti-personnel mines under any circumstances.
4. India is a signatory to the convention.

Which of the above statements is/are true?

- (a) Only statement 1 is true.
- (b) Statements 2 and 3 are true.
- (c) Statements 1, 2, and 4 are true.
- (d) All statements are true.

5. India – Australia relations has been important for Indo-Pacific stability, in this regard which of the following statements is NOT true about India – Australia relations?

- (a) India – Australia signed Economic Cooperation and Trade Agreement (ECTA) in 2023.
- (b) India – Australia signed Civil Nuclear Cooperation Agreement signed in 2014.
- (c) Pitch Black is a joint military exercise between two countries.
- (d) India – Australia signed Mutual Logistics Support Arrangement and Defense Science and Technology Implementing Arrangement.

6. Consider the following statements regarding remittances to India:

1. In 2023-24, the United Arab Emirates was the largest source of inward remittances to India
2. The share of Gulf countries in India's remittance inflows has decreased over the past four years.
3. Remittances accounted for over 35% of Kerala's state domestic product in 2021.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

7. Consider the following statements with respect to India's Bioeconomy performance as per the India Bio-Economy Report 2025:

1. Bioeconomy contributes over 4% to India's GDP.
2. Ethanol blending in India reached 15% in 2024.
3. India contributes less than 10% of global vaccine production.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

8. With reference to the role of Quantum Computing in national security, consider the following statements:

1. Quantum Key Distribution (QKD) enables the secure transmission of encryption keys.
2. Quantum computing has the potential to enhance autonomous military systems.
3. Post-Quantum Cryptography (PQC) is designed to be resistant to attacks by classical computers.
4. China's Micius satellite was the first to demonstrate quantum-secured communication.

Which of the statements given above are correct?

- (a) 1 and 3 only
- (b) 1, 2 and 4 only
- (c) 2, 3 and 4 only
- (d) 1, 2 and 4 only

9. With reference to the 'Population Status of River Dolphins in India – 2024' Report, consider the following statements:

1. The survey was conducted by the Wildlife Institute of India under Project Dolphin 2020.
2. Uttar Pradesh has the highest population of Gangetic River dolphins, followed by Bihar.
3. The Indus River dolphin population is critically low, requiring urgent conservation measures.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2, and 3

10. With reference to the conservation of Asiatic lions in India, consider the following statements:

1. The IUCN Green Status Assessment classifies Asiatic lions as "Largely depleted" due to their limited ecological functionality across their historical range.
2. The National Referral Centre for Wildlife (NRC-W), approved under Project Lion, is established in Gujarat to monitor wildlife diseases and enhance conservation efforts.
3. The Gir landscape, the only current habitat of Asiatic

lions, is characterized by tropical rainforests and hosts the Maldhari tribal community.

4. The Northern lion subspecies (*Panthera leo leo*), which includes the Asiatic lion, is also found in North and Central Africa.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 1, 2, and 4 only
- (c) 2 and 3 only
- (d) 1 and 4 only

11. With reference to the 2030 Global Forest Vision (GFV) released by the Forest Declaration Assessment, consider the following statements:

1. The Forest Declaration Assessment was originally established as the New York Declaration on Forests (NYDF) Progress Assessment in 2015.
2. The NYDF is a legally binding agreement endorsed by India at the 2014 Climate Summit.
3. One of the priority actions of the 2030 GFV includes securing land rights of Indigenous Peoples and Local Communities.

How many of the above statements is/are correct?

- (a) only One
- (b) only Two
- (c) only Three
- (d) None

12. Which of the following is NOT a focus area under the Beijing + 30 Action Agenda for the empowerment of women and girls?

- (a) Digital Revolution and bridging the Digital Gender Gap
- (b) Freedom from Poverty through enhanced social protection
- (c) Zero Violence through community-led national action plans
- (d) Increasing military spending to support women's security

13. With reference to recent government initiatives, consider the following statements:

1. **Swavalambini** programme aims to promote women entrepreneurship through mentorship, skill development, and enterprise creation among female students.
2. **PM-YUVA 3.0** is implemented by the Ministry of Skill Development and Entrepreneurship to promote literary culture among young authors below 30 years of age.
3. **National Institute for Entrepreneurship and Small Business Development (NIESBUD)** is responsible for implementing the PM-YUVA 3.0 programme.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

14. The term AI Washing, often used in the tech industry, refers to which of the following?

- The process of refining AI algorithms through supervised training
- Replacing non-digital systems with fully autonomous AI frameworks?
- Ethical auditing of AI systems to ensure fairness and transparency
- Misleading claims about AI usage to create a false sense of innovation

15. Consider the following statements regarding cryptocurrencies:

- Cryptocurrencies are centrally issued digital tokens managed by national banks.
- Cryptocurrencies like Bitcoin use blockchain technology and offer decentralized, borderless transactions.

Which of the statements given above is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

16. In the context of space science, what best describes Lagrangian Points?

- Regions near the Sun where high-energy solar flares originate
- Locations in Earth's orbit with the strongest magnetic interference
- Points where gravity and orbital motion balance for stable positioning
- Zones ideal for launching interplanetary missions due to high velocity

17. Consider the following statements regarding HIV and AIDS:

- HIV can be transmitted through sharing of needles and unprotected sexual contact.
- Antiretroviral therapy (ART) helps in managing HIV infection and delaying its progression to AIDS.

Which of the statements given above is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

18. With reference to megalithic sites in India, consider the following statements:

- Mudumal megalithic site is known for astronomical alignments and depictions of constellations like Ursa Major.
- The earliest megalithic burials with iron objects were found in Telangana.
- Black and Red Ware (BRW) pottery is commonly associated with megalithic cultures in India.
- Megalithic structures like menhirs were exclusively used for burial purposes.

Which of the statements given above are correct?

- 1 and 3 only
- 2 and 4 only
- 1, 2 and 3 only
- 1, 3 and 4 only

19. With reference to the Jnanpith Award, consider the following statements:

- It was first presented in 1965 though the Bharatiya Jnanpith organization was established in 1944.
- The award recognizes outstanding contributions to literature only in languages listed in the Eighth Schedule of the Constitution of India.
- Work in English language became eligible for consideration from 2013.
- Only Indian citizens are eligible to receive this award.

Which of the statements given above are correct?

- 1, 2 and 4 only
- 1, 3 and 4 only
- 2 and 3 only
- 1, 2, 3 and 4

20. Which is implementing ministry for the Rashtriya Gokul Mission?

- Ministry of Fisheries, Animal Husbandry and Dairying.
- Ministry of Agriculture and Farmers Welfare.
- Ministry of Rural Development.
- Ministry of Environment, Forest and Climate Change.

12.2. True/False Statements

- Bangalore Principles are the important principles for Executive conduct in India. (T/F)
- General Data Protection Regulation (GDPR) is key ex-ante measure of U.S.A. to regulate Big Tech. (T/F)
- Squad alliance is an informal multilateral alliance involving the US, Japan, Australia, and the New Zealand. (T/F)
- Indian Ocean Rim Association is an inter-governmental organization established in 1997 with its vision originating

- during a visit by Nelson Mandela to India in 1995. (T/F)
- Uzbekistan (2024), UAE (2024) are the countries with which India signed Bilateral Investment Treaties.
- India is the largest recipient of remittances globally, with inflows exceeding \$100 billion annually as of 2024. (T/F)
- The Coal Sector in India contributes significantly to the country's energy mix, with over 50% of India's installed capacity is coal-based. (T/F)

8. 'Uplink initiative' to cut carbon emissions was founded in 2020 by World Economic Forum in collaboration with Deloitte and Salesforce. (T/F)
9. India is now third-largest arms importer, overtaken by Ukraine and Russia. (T/F)
10. C-DOT is an autonomous Telecom R&D centre of the Department of Telecommunications (DoT), Ministry of Communications. (T/F)
11. Ashwini is active electronically scanned phased array radar based on state-of-the-art solid state technology developed by DRDO. (T/F)
12. Tiger Reserves are notified by Central Governments under Section 38V of Wildlife Protection Act (WPA), 1972. (T/F)
13. World Air Quality Report 2024 released by IQAir evaluating the global state of air quality for the year 2024. (T/F)
14. Antarctic Circumpolar Current (ACC) is the strongest wind-driven current on Earth, moving anticlockwise around Antarctica. (T/F)
15. A supersolid is a rare state of matter that exhibits both solid-like structure and frictionless, zero-viscosity flow. (T/F)
16. Satellite internet cannot provide coverage in remote or location-independent areas due to infrastructure limitations. (T/F)
17. Gene banks are biorepositories that store genetic material of plants, animals, and microbes to preserve biodiversity and ensure food security. (T/F)
18. Vikramshila University was Founded by Pala king Dharmapala. (T/F)
19. Cheti Chand Marks the beginning of the New Year for Jain community, It Iso known as Jhulelal Jayanti. (T/F)
20. Geet Gawai is Inscribed on UNESCO's Representative List of the Intangible Cultural Heritage of Humanity. (T/F)

12.3. Mains Practice Questions

1. Discuss the existing mechanisms to ensure judicial accountability in india. Highlight the concerns associated with them and suggest a balanced framework to uphold both accountability and judicial independence. (150 words, 10 marks)
2. What is a Bilateral Investment Treaty (BIT)? How does it balance investor protection and state sovereignty? (150 words, 10 marks)
3. What are the key flagship initiatives of IORA? How do they contribute to regional cooperation? (150 words, 10 marks)
4. What is MAHASAGAR? How does it expand the scope of India's original SAGAR vision? (150 words, 10 marks)
5. Analyze the challenges and opportunities in achieving self-reliance in electronics component manufacturing in India. (150 words, 10 marks)
6. Assess the role of Farmer Producer Organisations (FPOs) in enhancing agricultural productivity and farmers' income. (150 words, 10 marks)
7. Examine the causes and impacts of the recent surge in marine heatwaves. Discuss the strategies that can be adopted to mitigate their adverse effects on marine ecosystems, livelihoods, and regional climate patterns like the Indian monsoon. (150 words, 10 marks)
8. Cinema is both a mirror and a moulder of society. Critically examine the impact of cinema on Indian society. Also, discuss the role of regulatory mechanisms in addressing the challenges posed by cinema. (150 words, 10 marks)
9. Discuss the potential of satellite internet in enhancing digital connectivity in India. What are the key concerns associated with its widespread deployment? (150 words, 10 marks)
10. "UNESCO's World Heritage Sites represent humanity's shared cultural and natural heritage. Examine India's engagement with the UNESCO World Heritage Convention and discuss the significance of the recent additions to India's Tentative List for the preservation of India's diverse cultural and natural heritage. (150 words, 10 marks)
11. Discuss the need for regulating big tech companies in India. What challenges do regulators face in this regard? Highlight key recommendations made by the committee on digital competition law to address these challenges. (250 words, 15 marks)
12. Critically examine the effectiveness of Priority Sector Lending (PSL) in promoting inclusive growth in India. (250 words, 15 marks)
13. Discuss the transformative role of quantum computing in shaping national security strategies. Highlight the key challenges India faces in leveraging quantum technology and suggest a roadmap for strategic preparedness. (250 words, 15 marks)
14. Discuss the significance of India's emergence as the world's third-largest biofuel producer in the context of energy security, environmental sustainability, and rural economic development. Highlight the key challenges in scaling up biofuel production and evaluate the effectiveness of government initiatives in addressing these challenges. (250 words, 15 marks)
15. Evaluate the role of the Geological Survey of India (GSI) in advancing geoscientific research and mineral resource assessment in India, with reference to its contributions over 175 years. Discuss how GSI's initiatives in disaster management and critical mineral exploration align with national development goals. (250 words, 15 marks)
16. The unregulated exposure of adolescents to social media spaces poses serious risks to their psychological and social well-being. Discuss the challenges and suggest a comprehensive approach to ensure digital safety for adolescents. (250 words, 15 marks)
17. The changing institution of family in India has profound social and economic implications. Discuss the factors driving

these changes and their impact on society. Also, suggest measures to address the challenges posed by these changes. (250 words, 15 marks)

18. Discuss the emerging concerns associated with human enhancement. How should India approach its regulation to ensure ethical, inclusive, and sustainable outcomes? (250 Words, 15 marks)
19. The concept of a Strategic Crypto Reserve (SCR) is being explored as a tool for digital financial resilience. Critically analyse the opportunities and challenges of adopting a Strategic Crypto Reserve in India. (250 Words, 15 marks)
20. Ashokan Edicts represent one of the earliest and most significant epigraphical sources in Indian history. Critically examine their geographical distribution, linguistic diversity, and content to assess their importance as primary sources for understanding the political ideology, administrative vision, and cultural ethos of the Mauryan Empire. (250 words, 15 marks).

12.4. Ethics Case Studies

1. You are a District Magistrate in a rural district of India where a false WhatsApp rumor has recently surfaced, claiming that a particular community is poisoning the local water supply to harm others. This disinformation has led to rising tensions, with some villagers refusing to drink water and others threatening violence against the accused community. The situation is escalating rapidly, and there is a risk of communal violence.

Based on the above case study, answer the following questions:

- (a) Identify the ethical and administrative challenges you face in this situation. How would you prioritize your actions to address the crisis?
 - (b) Using the principles of persuasion (ethos, pathos, and logos), design a strategy to counter the disinformation and restore trust among the villagers.
 - (c) What long-term measures would you propose to prevent such incidents in your district, keeping in mind the role of education and community engagement?
2. XYZ District has witnessed rapid economic transformation over the last decade, marked by substantial investments in industries, technological advancements, and urbanization. The per capita income has increased significantly, and the region has become a hub for business and trade. Government initiatives have led to improved healthcare, education, and digital connectivity. However, despite these positive trends, studies indicate an alarming increase in stress, anxiety disorders, depression, social isolation, and other mental health issues among residents, particularly among youth. The pressure to meet societal expectations, fear of failure, and a lack of emotional resilience are contributing to a growing mental health crisis.

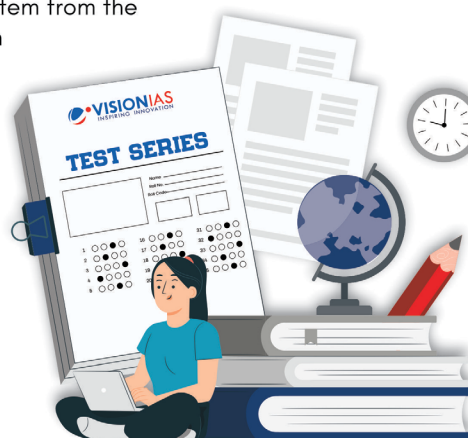
Based on the above case study, answer the following questions:

- (a) As a District Magistrate, what policy interventions can be undertaken to address rising unhappiness despite economic growth? Discuss with reference to governance, public policy, and community development.
- (b) Happiness is an essential component of human development. Critically analyse the role of government in fostering happiness as a policy goal. Should happiness be given equal importance as economic growth in policy frameworks?

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ANSWERS AND EXPLANATION



13.1. MCQs Answer and Explanation

1. Answer: A

Explanation:

- ➔ **Statement 1:** Correct, Under Article 72, the President's pardoning power extends to court-martial cases, but the Governor's powers (Article 161) do not cover court-martial offenses.
- ➔ **Statement 2:** Incorrect, Only the President can grant a pardon in cases involving death sentences.
- ➔ **Statement 3:** Incorrect, Mercy petitions and pardons are discretionary acts of grace, not enforceable legal rights.

2. Answer: B

Explanation:

- ➔ **Statement 1:** The Sansad Bhashini initiative aims to leverage AI for enhancing multilingual support in Parliament through real-time language translation and streamlining operations.
- ➔ **Statement 2:** Incorrect, The initiative is being developed jointly by Lok Sabha and the Ministry of Electronics and Information Technology (MeitY), not the Ministry of Parliamentary Affairs.
- ➔ **Statement 3:** Correct, Bhashini is an AI-based language translation platform developed under MeitY and is a key technological.

3. Answer: C

Explanation:

- ➔ **Statement 1 is correct:** U.S.A., U.K. Canada, Australia and New Zealand are the members of alliance.
- ➔ **Statement 2 is correct:** Five Eyes Intelligence Oversight and Review Council created in 2016 as the "non-political intelligence oversight, review, and security entities" of the member countries.

4. Answer: B

Explanation:

- ➔ **Statement 1 is incorrect:** North Atlantic Treaty Organization (NATO) has not withdrawn from the Ottawa convention owing to military threat from Russia only few members are considering.
- ➔ **Statement 2 is correct:** Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction is called Ottawa convention.

- ➔ **Statement 3 is correct:** Convention puts obligations on State parties to not use, develop, and stockpile anti-personnel mines under any circumstances.

- ➔ **Statement 4 is incorrect:** India not signatory to the convention.

5. Answer: A

Explanation:

- ➔ **Statement 1 is incorrect:** India – Australia signed Economic Cooperation and Trade Agreement (ECTA) in 2021.
- ➔ **Statement 2 is correct:** India – Australia signed Civil Nuclear Cooperation Agreement signed in 2014.
- ➔ **Statement 3 is correct:** Pitch Black is a joint military exercise between two countries.
- ➔ **Statement 4 is correct:** India – Australia signed Mutual Logistics Support Arrangement and Defense Science and Technology Implementing Arrangement.

6. Answer: B

Explanation:

- ➔ **Statement 1 is incorrect:** The US, not the UAE, was the top source in 2023–24 (27.7%).
- ➔ **Statement 2 is correct:** The GCC share has declined to 38%, while advanced economies now contribute over 50%.
- ➔ **Statement 3 is correct:** In 2021, remittances constituted over 36% of Kerala's state domestic product.

7. Answer: A.

Explanation:

- ➔ India contributes around **65% of the world's vaccine production**, not less than 10%. Statements 1 and 2 are factually correct as per the report.

8. Answer: D.

Explanation:

- ➔ **Statement 1:** Correct. QKD allows secure transmission of encryption keys using quantum properties.
- ➔ **Statement 2:** Correct. Quantum AI can enhance autonomous systems like drones and robotics.
- ➔ **Statement 3:** Incorrect. PQC is designed to resist quantum computer attacks, not classical ones.

- ➔ **Statement 4:** Correct. China's Micius satellite (2016) enabled the first quantum-secured communication. Hence, **Statements 1, 2, and 4** are correct.
9. **Answer: D**
Explanation:
- ➔ The survey was conducted by the Wildlife Institute of India under Project Dolphin 2020, as stated in the news section.
 - ➔ Uttar Pradesh has the highest population of Gangetic River dolphins, followed by Bihar, as per the key findings of the 'Population Status of River Dolphins in India – 2024' Report.
 - ➔ The report highlights that the Indus River dolphin population is critically low, requiring urgent conservation, which is also correct.
10. **Answer: A**
Explanation:
- ➔ **Correct:** The IUCN Green Status Assessment places Asiatic lions in the "Largely depleted" category due to human impacts limiting their ecological functionality, as mentioned in the news.
 - ➔ **Correct:** The National Referral Centre for Wildlife (NRC-W) is approved for Junagadh, Gujarat, under Project Lion to track wildlife diseases, as per the news.
 - ➔ **Incorrect:** The Gir landscape consists of dry deciduous forests, not tropical rainforests, as stated in the Gir landscape section. It does host the Maldhari tribal community, but the habitat description is incorrect.
 - ➔ **Incorrect:** While the Northern lion subspecies (*Panthera leo leo*) includes the Asiatic lion, it is not currently found in North and Central Africa; Asiatic lions are restricted to the Gir landscape in Gujarat, as per the distribution details.
11. **Answer: B**
Explanation:
- ➔ **Correct:** The Forest Declaration Assessment was established as the New York Declaration on Forests (NYDF) Progress Assessment in 2015, as stated in the provided information.
 - ➔ **Incorrect:** The NYDF is voluntary in nature and has not been endorsed by India, as mentioned in the information.
 - ➔ **Correct:** Securing land rights of Indigenous Peoples and Local Communities is one of the eight priority actions listed in the 2030 Global Forest Vision.
12. **Answer: D**
Explanation: The **Beijing + 30 Action Agenda** highlights several priority actions, including the **Digital Revolution, Freedom from Poverty, Zero Violence, Full and Equal Decision-making Power, Peace and Security, and Climate Justice.**
13. **Answer: A**
Explanation:
- ➔ **Statement 1 is correct:** Swavalambini is a programme by the Ministry of Skill Development and Entrepreneurship along with NITI Aayog aimed at empowering **female students** in Higher Education Institutions with entrepreneurship skills, mentorship, and resources. It is implemented by **NIESBUD.**
 - ➔ **Statement 2 is incorrect: PM-YUVA 3.0 is launched by the Ministry of Education** to mentor young authors and promote a reading and literary culture.
 - ➔ **Statement 3 is incorrect: The implementing agency for PM-YUVA 3.0 is the National Book Trust, India.**
14. **Answer: D**
Explanation: AI Washing involves exaggerating or misrepresenting AI integration—for example, calling basic automation tools "AI-driven"—to mislead users or investors, similar to greenwashing in the environmental sector.
15. **Answer: B**
Explanation:
- ➔ **Statement 1:** Incorrect: Cryptocurrencies are not centrally issued or managed by national banks. They are decentralized digital assets. Central banks issue CBDCs (Central Bank Digital Currencies), which are different from cryptocurrencies.
 - ➔ **Statement 2:** Correct: Cryptocurrencies like Bitcoin operate on blockchain technology, which is decentralized. They enable borderless, peer-to-peer transactions without intermediaries.
16. **Answer: C**
Explanation: Lagrangian Points are where gravitational forces and orbital motion are balanced, allowing stable placement of satellites relative to two celestial bodies.
17. **Answer: C**
Explanation:
- ➔ **Statement 1: Correct:** HIV is transmitted through unprotected sex, sharing contaminated needles, infected blood transfusions, and mother-to-child transmission during childbirth or breastfeeding.
 - ➔ **Statement 2: Correct:** Antiretroviral therapy (ART) is the standard treatment for HIV. It doesn't cure the infection but helps suppress the virus, maintain immune function, and delay or prevent the onset of AIDS.
18. **Answer: A**
Explanation:
- ➔ **Statement 1 is correct:** Mudumal Menhirs in Telangana feature astronomical alignments and uniquely depict constellations like Ursa Major and Leo.
 - ➔ **Statement 2 is incorrect:** The earliest megalithic burials with iron objects were found at Piklihal and Hallur at Brahmagiri in Karnataka, not Telangana.
 - ➔ **Statement 3 is correct:** Black and Red Ware (BRW) pottery is a characteristic feature associated with megalithic cultures in India.
 - ➔ **Statement 4 is incorrect:** Megalithic structures served various purposes - while some were burial sites, others like menhirs were used as commemorative memorials or astronomical markers.
19. **Answer: B**
Explanation:
- ➔ **Statement 1 is correct:** The Jnanpith Award was indeed first presented in 1965, while the Bharatiya Jnanpith organization was established in 1944.
 - ➔ **Statement 2 is incorrect:** The award recognizes

literary contributions in any of the 22 languages recognized by the Constitution of India, not just those in the Eighth Schedule.

- ➔ **Statement 3 is correct:** Works in English language became eligible for the Jnanpith Award from 2013.
- ➔ **Statement 4 is correct:** Eligibility for the Jnanpith Award is restricted to Indian citizens only.

20. Answer: A

Explanation:

- ➔ **Option 1 is correct:** Rashtriya Gokul Mission was launched in 2014 under the National Programme for Bovine Breeding and Dairy Development.
- ➔ **Ministry:** Ministry of Fisheries, Animal Husbandry and Dairying.
- ➔ **Implementation:** Department of **Animal Husbandry and Dairying**.

13.2. True/False Answers

Answers

1. F	2. F	3. F	4. T	5. T	6. T
7. F	8. T	9. F	10. T	11. T	12. F
13. T	14. F	15. T	16. F	17. T	18. T
19. F	20. T				

13.3. Approach to the Mains Practice Questions

1. Approach

Introduction: Define in brief about the Judicial Accountability.

Main Body: Mention the existing mechanisms, concerns and the measures to strengthen the accountability.

Conclusion: Briefly highlight how judicial accountability is essential to maintain public trust and the legitimacy of the judiciary.

2. Approach

Introduction: Briefly define the Bilateral Investment Treaty (BIT) with some examples.

Body: Discuss the Bilateral Investment Treaty (BIT) and its need to balance investor protection and state sovereignty.

Conclusion: Mention the importance and reforms in Bilateral Investment Treaty (BIT).

3. Approach

Introduction: Write what you understand by the term IORA and its background.

Body:

- Elaborate key flagship initiatives of IORA and its impact on the regional cooperation around India.
- Give suggestion to improve influence by the IORA and other measures.

Conclusion: Conclude with IORA and its alignment with India's SAGAR.

4. Approach

Introduction: Write what initiatives of Indian maritime Cooperation and its evolution.

Body: Mention about MAHASAGAR and SAGAR and extended role of MAHASAGAR over the SAGAR.

Conclusion: Mention the importance of both the initiatives in diplomacy.

5. Approach

Introduction: Write importance of self-reliance in electronics manufacturing for India.

Body: Covering challenges, also mention the opportunities available, and measures to achieve it.

Conclusion: Emphasize upon the need for a long-term strategy.

6. Approach:

Introduction: Briefly define FPOs.

Body: Highlight FPOs' role in agriculture, their impact on farmers, and challenges faced.

Conclusion: Conclude with highlighting FPOs' potential and the need for government support.

7. Approach

Introduction: Start by giving the context of recent surge in marine heatwaves, also define the term.

Body: Discuss the strategies that can be adopted to tackle with the issue.

Conclusion: Mention the codes in place to tackle with it, also suggest what can be improved and how.

8. Approach

Introduction: Define what is Cinema.

Main Body: Discuss the positive and negative impact of Cinema. Also mention the regulatory mechanisms to address the changes.

Conclusion: Briefly highlight about the significance of Cinema and its evolving role.

9. Approach

Introduction: Define satellite internet as wireless internet delivered via communication satellites, offering location-independent global coverage—crucial for bridging the digital divide in remote and underserved regions.

Body:

- ➔ Highlight opportunities such as Enhancing connectivity in rural and remote areas lacking fiber or cellular networks, etc.
- ➔ Then cover concerns such as astronomical interference affecting scientific observations and stargazing, etc.

Conclusion: A balanced approach is essential—leveraging satellite internet to promote inclusive digital growth, while addressing technical, regulatory, and environmental concerns to ensure long-term

sustainability.

10. Approach:

Introduction: Start by mentioning what is UNESCO's world heritage sites, and what is India's status under it.

Body: Mention the recent additions from India, and what is its significance.

Conclusion: Critically evaluate the preservation efforts and mention what more can be done.

11. Approach

Introduction: Define in brief about the Big Tech and cases of recent times.

Main Body: Discuss about the need for regulating Big Tech companies. Also discuss the challenges faced by regulators.

Conclusion: Briefly highlight the key recommendations of Committee on Digital Competition Law.

12. Approach

Introduction: Briefly define PSL along with its objective for inclusive growth.

Body: Highlighting PSL's effectiveness, also mention its challenges, and suggest reforms.

Conclusion: Conclude with mentioning PSL's importance for inclusive growth and the need for reforms to enhance its impact.

13. Approach

Introduction: Briefly define quantum computing and its relevance to national security.

Body

- ➔ Key areas of impact (e.g., cryptography, intelligence, defense systems)
- ➔ Major challenges (e.g., workforce, investment gaps, tech immaturity)
- ➔ Recommendations (e.g., PQC adoption, task forces, global collaboration)

Conclusion: Emphasize the strategic importance of quantum tech for India's future security and development goals.

14. Approach

Introduction: Provide the context of India's Biofuel energy production.

Body: Mention its significance, and highlight the challenges associated with it.

Conclusion: Mentioning the associated government initiatives, evaluate its effectiveness and mention the way ahead.

15. Approach

Introduction: Start by mentioning what is Geological Survey of India (GSI), what are its objectives.

Body: Evaluate its role in research assessment in India, and how it is important in disaster management and critical mineral exploration.

Conclusion: Mention the challenges lying ahead of it and how can it be overcome.

16. Approach

Introduction: Briefly introduce the increasing use of social media among adolescents.

Main Body: Discuss the impact of social media on

adolescents. Also discuss the challenges and way forward.

Conclusion: Briefly highlight the strategies in brief to help adolescents balance social media.

17. Approach

Introduction: Define in brief about traditional and new trends in institution of family.

Main Body: Discuss the impact of change in family Institution. Also discuss the factors behind this change.

Conclusion: Briefly highlight about the significance of Cinema and its evolving role.

18. Approach

Introduction: Human enhancement involves tech-driven improvements beyond natural limits; industry projected at \$348.5B by 2033.

Body:

- ➔ **Concerns:** Equity gaps, identity risks, non-consensual use, health effects, environmental stress, and reduced genetic diversity.
- ➔ **Regulatory Need:** Ethical oversight, legal clarity, inclusive access, and global alignment are essential.

Conclusion: A balanced regulatory path can safeguard human values while enabling responsible innovation.

19. Approach

Introduction: Define SCR as a state-held crypto stockpile aimed at financial resilience and digital sovereignty; recently initiated by the U.S.

Body:

- ➔ **Opportunities:** Highlight diversification, remittance efficiency, tech leadership, and reduced dependence on global systems.
- ➔ **Challenges:** Emphasize volatility, RBI's opposition, legal gaps, cyber risks, and public trust issues.
- ➔ **Way Forward:** Suggest pilot allocation, clear regulation, secure custody infrastructure, and alignment with global practices.

Conclusion: Emphasize the need for a cautious, utility-driven approach to balance innovation with financial stability.

20. Approach:

Introduction: Start by giving an idea about the Ashokan edicts and their location.

Body: Analyze them to understand political ideology, administrative vision, and cultural ethos of the Mauryan Empire.

Conclusion: Mention what are learnings for governance in today's era.

13.4. Approach to Case Studies

1. Approach

- ➔ **Introduction:** Define the situation as a case of communal unrest driven by fake news, raising ethical concerns of public safety, justice, and responsible governance.
- ➔ **Body:**
 - ➔ **Challenges:** Harm to social harmony, protection of innocent communities, balancing free speech and misinformation control.
 - ➔ **Immediate Action:** Clarify facts, ensure security, engage local leaders, and test water to reassure public.
 - ➔ **Persuasion Strategy:**
 - ◆ **Ethos:** Use trusted officials and doctors.
 - ◆ **Pathos:** Appeal to unity and shared suffering.
 - ◆ **Logos:** Share verified test reports and facts.
- ➔ **Long-Term Measures:** Promote digital literacy, community awareness drives, and early rumor detection mechanisms.
- ➔ **Conclusion:** Emphasize proactive governance and community engagement to prevent disinformation-fueled unrest.

2. Approach

- ➔ **Intro:** Explain the case where economic growth in XYZ District is accompanied by rising mental health issues, especially among youth.
- ➔ **Body:**
 - ➔ Mention the dilemma between material progress and emotional well-being; highlight the government's role in ensuring holistic development.
 - ➔ Suggest interventions like counselling services, mental health awareness, and inclusive community spaces.
 - ➔ Critically analyse the need to treat happiness as a core policy goal alongside economic growth.
- ➔ **Conclusion:** Suggest integrating well-being indicators in governance and promoting people-centric, empathetic public policy.



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14. Self-Evaluation



Progress Tracking Table

Activity Type	Total Questions	Correct Answers	Attempted	Score/Percentage
MCQ's				
True/False Statements				



Monthly Learning Summary

Top 3 Learnings/Insights

1.

2.

3.



Progress Comparison

Previous Month's Score

Current Month's Score

Areas of Improvement



Reflection Section

Strengths

Areas for Improvement

Goals for Next Month









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Please Call:
+91 8468022022,
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enquiry@visionias.in /c/VisionIASdelhi /visionias.upsc /vision_ias VisionIAS_UPSC

