

explore



Monthly

CURRENT AFFAIRS



MUST READ!

- U.S.'S EXIT FROM WHO
- BREAST CANCER
- WHIP SYSTEM
- INDIA'S STONEHENGE
- TREE AADHAAR" MISSION
- DRUG REGULATORY INDEX
- NSTR
- GROK 3
- MASS WHALE STRANDINGS
- COOPING MECHANISM ..
- THE DIGITAL ENERGY GRID (DEG)
- DHIMSA DANCE .
- AVIAN INFLUENZA (H5N1)

SPECIAL COLUMNS

- PLACES IN NEWS
- SPECIES IN NEWS
- ANDHRA PRADESH CURRENT AFFAIRS
- TELANGANA CURRENT AFFAIRS

March 2025

EKAM
IAS ACADEMY

PREFACE

Welcome to our monthly current affairs magazine! We are thrilled to provide you with the latest information and updates on the most important events that happened in our country and around the world in the month of March 2025. Our magazine is designed to help you prepare for competitive examinations like UPSC and other State PSC Exams, and we hope that you will find it informative, engaging, and useful.

In this magazine, you will find a wide range of topics covering current affairs, including politics, economics, sports, science and technology, and many more. Our team of writers and editors work hard to bring you the most accurate and up-to-date information, so you can stay informed and prepared for any competitive exam. We understand that preparing for competitive exams can be a daunting task, but we are here to make it easier for you. Our magazine is designed to be easy to read and understand, with clear and concise articles that will help you stay on top of the latest news and events.

We believe that knowledge is power, and we are committed to helping you achieve your goals. Whether you are preparing for a government job, entrance exam, or any other competitive exam, our magazine will provide you with the information and insights you need to succeed.

Thank you for choosing our magazine, and we hope that you find it helpful and informative.

ACKNOWLEDGMENTS

We extend our heartfelt gratitude and appreciation to the exceptional team of content developers who have played a pivotal role in shaping our UPSC Current Affairs Magazine. Your unwavering dedication, extensive research, and commitment to delivering high-quality content have been instrumental in making this publication a trusted resource for our readers.

Your relentless pursuit of current affairs, profound understanding of complex issues, and the ability to distil them into informative, concise, and engaging articles have set a benchmark in the field of competitive examination preparation.

We are proud to have a team that goes above and beyond, ensuring that our readers are well-informed and well-prepared for the UPSC examinations. Your exceptional contributions are the driving force behind our magazine's success.

Thank you for your hard work, expertise, and passion for delivering top-notch content. Your efforts have not only enriched our magazine but have also played a significant role in the educational journey of countless aspiring civil servants.

We look forward to continuing this remarkable journey of knowledge dissemination with your continued support and excellence.

With deep appreciation,

EKAM IAS ACADEMY

MAINS-BASED ARTICLES

1. Indian & World History, Indian Heritage & Culture	1
India's Stonehenge	1
2. Geography	2
The Western Ghats	2
3. Polity, Governance, Constitution	3
Whip System	3
Devolution of Financial Powers to Autonomous Councils	4
Declining Budget for Justice-Related Schemes	5
Panchayat Governance in India	6
4. Social Justice	8
2024 Annual Status of Education Report (ASER)	8
Breast Cancer: Challenges and Opportunity	9
5. International Relation	11
U.S.'s Exit from WHO	11
Sittwe Port: Opportunities and Challenges	12
Egypt to Host Emergency Arab Summit Amid Rising Tensions	13
Strategic Priorities Reflected in India's MEA Budget 2025-26	14
India to Inaugurate EFTA Desk	15
India and Qatar Strategic Partnership ...	16
Key Takeaways from PM Modi's U.S. Visit	18
6. Indian Economy & Agriculture and Banking	19
Cooping Mechanism	19
Government's Shift from Short-Term to Long-Term Borrowing	20
Committee Under National Manufacturing Mission	21
Role of Investment and Consumption ...	23
The Digital Energy Grid (DEG)	24

7. Science & Technology	26
India's Drone Revolution	26
Sachetising Internet Bandwidth	27
Algorithmic Radicalisation	28
8. Environment, Bio-diversity and Disaster Management	30
"Tree Aadhaar" Mission	30
Resilience of the Sundarbans Mangroves	31
The Era of Plastic-Degrading Bacteria... ..	32
India's Growing Forest Fire Crisis	33
9. Internal Security	34
DDoS Cyberattack Disruption of Kaveri 2.0 Portal	34

PRELIMS-BASED ARTICLES

1. Indian History, Heritage and Culture	36
Dhimsa Dance	36
2. Geography	37
Extreme Weather Transforms Lakes in Western Greenland	37
The Alarming Rise of Global Sea Levels ..	37
3. Polity, Governance, Constitution	38
NITI Aayog's Policy Recommendations for SPUs	38
4. Social Justice	39
Drug Regulatory Index	39
5. International Relation	40
Energy Takes Centre Stage in India-US Talks	40
China's Dam on Yarlung Zangbo and its Implications for India	40
6. Indian Economy & Agriculture and Banking	41
Mutual Credit Guarantee Scheme	41
Fiscal Health Index	42
Digital Payments Index	43
National Monetisation Pipeline	44

Pradhan Mantri Dhan-Dhaanya Krishi Yojana (PMDKY)	44
SEBI's Proposed Reforms for ESG Rating Provides.....	45
High-Powered Committee for Insurance Sector Reforms	46
7. Science & Technology	47
FDA Approves Suzetrigine	47
SANJAY - The Battlefield Surveillance System.....	48
India's New Research Initiatives and Innovations	49
TrailGuard AI.....	49
Grok 3.....	50
AI Tools to Track Antibiotic Resistance ...	51
8. Environment, Bio-diversity and Disaster management.....	52
Impact of Coal Mining Dust on Plants....	52
Mass Whale Strandings.....	53

PLACES IN NEWS

Democratic Republic of the Congo	54
New Zealand	55

SPECIES IN NEWS

Marsh Crocodiles	56
------------------------	----

STATE WISE CA

1. ANDHRA PRADESH CURRENT AFFAIRS	57
COVER STORY: WHITE PAPER ON EXCISE POLICY	57
WhatsApp GOVERNANCE.....	58
REVENUE EXPENDITURE AND CAPITAL EXPENDITURE	59

NSTR.....	60
COMPRESSED BIOGAS	60
AVIAN INFLUENZA (H5N1)	61
MODEL QUESTIONS	62
2. TELANGANA CURRENT AFFAIRS	63
COVER STORY: TELANGANA'S BIODIVERSITY: A HAVEN FOR WILDLIFE AND CONSERVATION	63
WETLANDS	64
SIC	65
TELANGANA CASTE SURVEY	65
MODEL QUESTIONS	66

FUN ZONE

CROSS WORD ABOUT TOURIST PLACES IN INDIA
INCREDIBLE INDIA: A JOURNEY THROUGH TIME & TOURISM..... 67

MAINS BASED ARTICLES

SUBJECT – INDIAN HISTORY, HERITAGE AND CULTURE

INDIA'S STONEHENGE

Sub Topic: Ancient History

Context:

Stonehenge, one of the world's most renowned prehistoric monuments, continues to attract global attention, with over 1.3 million visitors in 2023.

Stone Age

The Stone Age is the prehistoric period during which early humans primarily used stone tools. It is broadly divided into three phases based on technological and cultural advancements:

Paleolithic Age (Old Stone Age): c. 2.5 million BCE – 10,000 BCE

- Early humans were hunter-gatherers, relying on hunting animals and foraging for food.
- Tools were crudely chipped stones used for cutting, scraping, and hunting.
- Early evidence of fire use and cave paintings (e.g., Bhimbetka caves in India).
- **Homo habilis, Homo erectus, and early Homo sapiens** lived during this period.

Mesolithic Age (Middle Stone Age): c. 10,000 BCE – 8,000 BCE

- Transition phase between hunting- gathering and **early domestication of plants & animals**.
- Introduction of microlithic tools (small, sharp stone tools fixed onto wooden or bone handles).
- Humans began to form semi-nomadic settlements near water sources.

Neolithic Age (New Stone Age): c. 8,000 BCE – 2,500 BCE

- Agriculture emerged, leading to permanent settlements.
- Domestication of cattle, sheep, goats, and pigs.
- Use of polished stone tools, pottery, and weaving.

- Early megalithic structures and burial practices began.
- The foundation for civilisations was laid.

The Stone Age gradually gave way to the **Chalcolithic Age** (Copper-Stone Age), marking the beginning of metal use and the rise of early civilisations.

More on News

- However, **megalithic structures are not exclusive to the UK**.
- Dating back to the mid-third millennium BCE, these ancient stone monuments have been found across **Europe, Africa, Asia, and South America**.
- Despite their significance, **India's megalithic sites remain largely overlooked by travellers**, even though they share a rich and diverse history comparable to their Western counterparts.

Legacy of Indian Megaliths

Origins and Discovery: The study of India's megalithic culture began in the 19th century.

- J. Babington first documented megalithic burials in Kannur, Kerala (1823).
- Since then, over 3,000 megalithic sites have been identified across India.

Geographical Distribution: Found across Jammu & Kashmir, Tamil Nadu, Nagaland, and other regions. Highest concentration in Central and Peninsular India.

Types of Megaliths:

- **Menhirs** – Upright standing stones.
- **Cairns** – Stone circles.
- **Dolmens** – Tomb-like structures with stone slabs.
- **Rock-Cut Chambers** – Urns and sarcophagi.
- **Anthropomorphic Monoliths** – Carved human-like figures in South India.

Factors Influencing Megalithic Structures: Regional geology and available raw materials played a crucial role.

Classification by U.S. Moorti (1994):

- **Sepulchral Megaliths** – Used for burials, including:
 - Burial pits and chambers.
 - Legged and un-legged burials.
- **Non-Sepulchral Megaliths** – Commemorative or memorial in nature.

Archaeological Research: Early studies were antiquarian in nature.

- Mortimer Wheeler's 1948 excavation at Brahmagiri (Karnataka) shifted focus to:
 - Cultural significance of megaliths.
 - Chronological classification and their role in ancient societies.

Unveiling the Megalithic People

Megalithic Traditions and Society: Megalithic structures reflect the cultural and societal practices of their builders.

- Excavations at 100+ sites provide insights into architecture, burial customs, and settlements.

Subsistence Economy: Communities relied on pastoralism, with supplementary hunting and fishing. Domesticated animals found at sites include: cattle, buffalo, sheep, goats, pigs, and horses.

- Wild animal remains suggest a mixed subsistence strategy. Archaeobotanical evidence reveals cultivation of: Rice, barley, millet, lentils, and pulses.

Metallurgical Skills: Discovery of copper, bronze, and iron tools & weapons suggests advanced metalworking techniques.

Southern Indian megaliths are closely linked to the Iron Age.

Revisiting Chronology: Traditional timeline places South Indian Iron Age at c. 1200 BCE– 500 BCE. New radiocarbon dating challenges this, suggesting:

- Megalith-building may have begun in the Neolithic (c. 2500 BCE).
- Brahmagiri samples date back to 2100 BCE, hinting at an earlier Iron Age in South India.

While millions flock to Stonehenge each year, sites like Hire Benakal in Karnataka, home to over 400 megalithic structures, remain relatively unknown.

India's megalithic heritage is a testament to its ancient past, one that deserves greater recognition and exploration. In a world increasingly digitised, these silent stone sentinels remind us of a time when memory was etched not in the cloud but in enduring rock.

SUBJECT – GEOGRAPHY

THE WESTERN GHATS

Sub Topic: *Important geographical phenomena*

Context:

The **Western Ghats**, often referred to as the **Sahyadri** or "benevolent mountains," have long been celebrated for their ecological richness and striking landscapes.

Overview of the Western Ghats

Location and Length: The Western Ghats stretch approximately 1,600 km along the western coast of India, covering the states of **Gujarat, Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu**.

UNESCO World Heritage Site: Recognised as a UNESCO World Heritage Site in 2012, the Western Ghats are considered one of the planet's most important biodiversity hotspots.

Unique Ecosystems:

- **Evergreen forests:** Lush, green forests that are vital for ecological balance and wildlife support.
- **Shola grasslands and montane forests:** Characterised by grass patches and stunted forests, adding to the region's unique landscapes.

Biodiversity and Endemism: The region hosts over **30% of India's plant, fish, herpeto-fauna, bird, and mammal species**.

- It includes a high number of **endemic species** such as the Nilgiri tahr and lion-tailed macaque. 50% of India's amphibians and 67% of fish species are endemic to this region.

Rivers and Waterfalls: The source of major rivers like the **Godavari, Krishna, and Kaveri**, which provide water to large parts of India. The rugged terrain also creates stunning waterfalls, such as **Jog Falls** and **Dudhsagar Falls**, famous in India.

Significance

- **Rainfall and Monsoon Influence:** The Western Ghats act as a **monsoon barrier**, capturing moisture-laden winds from the Arabian Sea. This results in heavy rainfall on the windward side, supporting lush vegetation and rich biodiversity.
- **Agro-biodiversity:** Supports a variety of crops, including tea, coffee, and spices. Traditional farming practices are adapted to the local climate, making the region resilient.
- **Hydrological and Watershed Functions:** Play a vital role in water supply for 245 million people in peninsular India, with rivers originating here providing most of their water.

Environmental Threats to the Western Ghats

- **Deforestation** caused by the cultivation of cash crops like coffee, tea, rubber, and palm.
- **Wildlife poaching, overfishing, livestock grazing, and agrochemical overuse** pose significant threats to the forests and ecosystems.
- **Infrastructure development**, such as the construction of **railways, mining areas, and tourist**

spots, disrupts the harmony of the natural environment.

Protection and Management of the Western Ghats

- The Western Ghats, recognised as a UNESCO World Heritage Site, are under strict legal protection due to their immense ecological value. The 39 component parts of this property are protected under several national laws, including:
 - Wildlife (Protection) Act of 1972
 - Indian Forest Act of 1927
 - Forest Conservation Act of 1980
- These laws ensure that the area remains under the control of the **Forestry Department** and the **Chief Wildlife Warden**, providing legal protection to the forests, wildlife, and resources of the region.
- A significant portion (40%) of the area lies outside formally protected areas, primarily in **Reserved Forests**, which are also protected under the **Forest Conservation Act**.

Challenges in Governance

- The management of these 39 components across 4 states poses coordination challenges. To address this, a **3-tier governance mechanism** is in place, operating at **Central, State, and Site levels**.
- A **Western Ghats Natural Heritage Management Committee (WGNHMC)** under the **Ministry of Environment and Forests (MoEF)** coordinates the efforts to protect the region.

Conservation Efforts

Sustainable Livelihoods and Local Participation: The Forest Rights Act (2006) ensures the participation of local communities in the governance of the Western Ghats.

- **Village Ecodevelopment Committees (VECs)** are involved in regulating the livelihoods of local communities and integrating their concerns into conservation efforts.

Eco-Sensitive Area Proposal:

- **Gadgil Committee (2011):** Madhav Gadgil's report initially recommended declaring **75%** of the **129,037 square km** of the Western Ghats as ecologically sensitive due to its dense forests and endemic species.
- **Kasturirangan Committee (2014):** The **Kasturirangan report**, issued three years later, reduced the ESA to 50% of the area, addressing some concerns raised by the states but still drawing opposition, particularly from regions heavily dependent on industries like mining and quarrying.

SUBJECT – SUBJECT – POLITY, GOVERNANCE,

WHIP SYSTEM

Sub Topic: *Parliament, Federalism, State Legislature, Judiciary*

Context:

Vice President Jagdeep Dhankhar recently sparked a debate by questioning the **ethics of party whips in Parliament**.

More on News

- Addressing students on January 23, he argued that **whips restrict MPs' freedom of expression**, compelling them to follow the party line.
- He described the practice as **curtailing individual thought and enforcing servility**.
- This statement has brought the whip system under scrutiny, **raising questions about its role in democratic functioning**.

Origins of the Whip System

- **Origin:** The term "**whip**" originates from **England's hunting traditions**, where a "whipper-in" kept hounds together during hunts.
- **Political Use:** Its political usage traces back to **Anglo-Irish politician Edmund Burke**, who used the term to **describe efforts by the King's ministers to gather supporters for crucial votes** in Parliament.
- **India:** In India, the whip system has been **integral to parliamentary democracy since its inception**.
 - It **ensures party cohesion** during key votes and prevents potential embarrassments caused by dissent or absenteeism among members.

How the Whip System Works?

- A party whip serves as the **critical link between party leadership and MPs**.
- The whip **informs members of the party's stance on important matters**, ensures attendance during voting, and guides their actions in Parliament. There are three types of whips:
 - **One-Line Whip:** Merely informs members about an issue and allows them to abstain from voting.

- **Two-Line Whip:** Requests members to be present but does not direct how they should vote.
- **Three-Line Whip:** The strictest directive, compelling members to attend and vote as per the party line.
- **Violating a three-line whip has serious consequences under the Anti-Defection Law,** which was introduced in 1985.
 - Non-compliance can lead to **disqualification from the House**, as per the recommendation of the party leadership to the Presiding Officer.

Role of the Chief Whip

- The chief whip plays a pivotal role in **enforcing the whip system**.
- **Each political party appoints a chief whip** to maintain discipline among its members.
- In the Lok Sabha, the **government's chief whip is the Minister of Parliamentary Affairs**, while in the Rajya Sabha, this responsibility lies with the **Minister of State for Parliamentary Affairs**.
- Additionally, ruling coalition partners may issue their own whips to ensure alignment with government policies.

Significance of the Whip System

- The whip system is essential for maintaining the **stability of parliamentary democracy**.
- It ensures that **critical measures**, including votes of confidence and significant legislation, **receive the necessary support from party members**.

All-India Whips Conference

- Recognising its importance, the **Ministry of Parliamentary Affairs** has organised the **All-India Whips Conference since 1952**.
- This forum allows whips from various political parties, both ruling and opposition, to share views and discuss ways to improve parliamentary functioning.
- The first conference was held in **Indore in September 1952**, following the constitution of the first Lok Sabha.

The whip system, while sometimes criticized for limiting individual expression, remains a cornerstone of parliamentary democracy. It ensures discipline, unity, and efficient functioning within political parties, preserving the integrity of legislative processes.

DEVOLUTION OF FINANCIAL POWERS TO AUTONOMOUS COUNCILS

Sub Topic: *Constitutional Amendments, Constitutional Bodies*

Context:

The Union Government is considering **The Constitution (125th Amendment) Bill, 2019**. The bill seeks to include **autonomous councils under the ambit of the Finance Commission**. This amendment aims to **strengthen financial autonomy for tribal self-governing bodies** operating under the Sixth Schedule.

Constitutional Framework for Tribal Governance

Fifth Schedule

- Governs scheduled areas and tribes in all states **except Assam, Meghalaya, Tripura, and Mizoram**.
- Provides for **Tribal Advisory Councils (TACs) in states with Scheduled Areas**.
- The **governor** is empowered to oversee administration and recommend modifications in laws.

Sixth Schedule

- Grants autonomy to tribal areas in **Assam, Meghalaya, Tripura, and Mizoram**.
- Provides for the establishment of **Autonomous District Councils (ADCs) and Regional Councils**.
- Councils have **legislative, executive, judicial, and financial powers**.

Tribal Advisory Council (TAC)

- **Mandatory** for states with **Scheduled Areas under the Fifth Schedule**.
- Consists of **20 members, with three-fourths being Scheduled Tribe (ST) legislators**.
- Advises on **tribal welfare, land rights, and governance issues**.
- Plays a crucial role in preserving tribal culture, heritage, and economic well-being.

Need for Amending Article 280 and Devolving Power to Self- Governing Tribal Bodies

- **Finance Commission Power of Devolution:** Article 280 governs the Finance Commission, responsible for distributing tax revenues between the Centre and states.
- **TAC Dependence on State:** **Autonomous tribal councils** currently depend on state allocations rather than direct financial support.

- **Impact of Financial Constraints:** Financial constraints limit the efficiency and autonomy of these councils in governance.
 - Amending Article 280 would **ensure direct devolution of taxes to tribal councils**, strengthening their financial independence.

Impact of Centre's Proposed Amendment:

Financial Empowerment

- Tribal councils would receive a direct share of central tax revenue.
- Reduced dependency on state governments for financial allocations.

Enhanced Governance & Development

- Better funding for tribal welfare schemes, infrastructure, education, and healthcare.
- Improved implementation of developmental projects without bureaucratic delays.

Political and Administrative Strengthening

- Greater autonomy in decision-making and execution of policies.
- Strengthening of local governance, reducing administrative interference from states.

Bodoland Territorial Council (BTC) and Its Demands

- BTC, an autonomous body in Assam, has been advocating for inclusion under Article 280.
- Calls for direct devolution of taxes to sustain governance and development.
- The demand aligns with the broader need for empowering tribal councils across India.

Bodo Peace Accord and Its Significance

- The 2020 Bodo Peace Accord ended decades of insurgency and instability.
- Agreement provided for enhanced financial and administrative powers for BTC.
- The constitutional amendment would fulfill the commitments made under the accord.

Implications for Federalism and Decentralisation

Strengthening the Third Tier of Government

- Ensuring direct financial devolution strengthens local governance structures.
- Aligns with the principles of cooperative federalism and decentralized administration.

Better Representation of Tribal Interests

- More financial power ensures better implementation of policies catering to tribal needs.
- Strengthens India's commitment to inclusive development and social justice.

Challenges in Implementation

- **Resistance from states** fearing loss of control over financial distribution.
- **Lack of Transparency in Fund Utilisation:** Need for transparent and accountable mechanisms for fund utilisation.
- Possible conflicts between existing **state governments and empowered tribal councils**.

Conclusion

- The proposed amendment to Article 280 marks a **significant step in empowering tribal councils**. It aligns with India's **constitutional commitment to tribal welfare and self-governance**.
- Effective implementation will require coordination between the Centre, states, and tribal councils to ensure sustainable development and financial stability.

DECLINING BUDGET FOR JUSTICE-RELATED SCHEMES

Sub Topic: *Indian Constitution, Government Policies & Interventions, Judiciary*

Context:

The **India Justice Report 2025-26** has highlighted a **consistent decline in budget allocations by the Central government for various justice-related schemes since 2019**.

The **India Justice Report (IJR)**, published by Tata Trusts, is a comprehensive quantitative index that assesses the capacity of Indian states to deliver justice. It **ranks states based on indicators across four pillars: police, judiciary, prisons, and legal aid**. In 2022, among larger states (population over 1 crore), **Karnataka was ranked the best and Uttar Pradesh the worst**. Among smaller states (population less than 1 crore), **Sikkim was at the top, and Goa was at the bottom**. The IJR also assesses the **capacity of State Human Rights Commissions**. The **first report was published in November 2019**.

More on News

- Not only have these allocations reduced, but in many cases, **only a small fraction of the budgeted funds has been utilised**, raising concerns about the **effective implementation of these schemes**.

Police Modernisation Fund Sees Sharp Cuts

- The Modernisation Fund for State Police Forces was **introduced to enhance police infrastructure and**

upgrade the Crime and Criminal Tracking Network and Systems (CCTNS).

- However, over the years, there has been a **significant reduction in its budget.**
- **In FY19, the Centre allocated nearly ₹900 crore for the fund, which declined to ₹780 crore in FY21 and further dropped to ₹587.97 crore in FY26.**
- More concerning than these budget reductions are the **drastic downward revisions in Revised Estimates (RE).**
 - For instance, **while ₹780 crore was initially allocated in FY21, it was later revised to just ₹106 crore.**
 - A similar pattern was observed in FY25, where the allocation of ₹520.51 crore was reduced to ₹160 crore the following year.
- Even more troubling is the **low actual expenditure.**
- Despite an **allocation of over ₹600 crore in FY23, only ₹34.7 crore—a mere 6%— was spent on police modernisation.**
- Similarly, in FY21, FY23, and FY24, only 20-25% of the allocated budget was utilised.

Inconsistent Allocations for Forensic and Prison Reforms

- The **Modernisation of Forensic Capacities scheme**, aimed at **strengthening forensic infrastructure and addressing the shortage of forensic scientists**, has also seen fluctuating budgetary support.
- The **Modernisation of Prisons Fund**, introduced over two decades ago **to improve prison conditions and build new cells**, also experienced a funding cut.
 - Although the **fund's allocation peaked at ₹400 crore in FY23, it was reduced to ₹300 crore in the last two years.**
 - Moreover, while the fund was fully utilised until FY23, only 44% of the allocated budget was spent thereafter.

Judiciary-Related Schemes Show Better Utilisation

- The **National Legal Services Authority (NALSA)**, which provides free legal aid, has **seen increased allocations since FY19, generally ranging between ₹150 crore and ₹200 crore.**
 - The exception was FY24, when the revised allocation rose to ₹400 crore.
 - Notably, **NALSA has reported 100% fund utilisation from 2018-19 to 2023-24.**
- Similarly, the **infrastructure development fund for the judiciary**, a centrally sponsored scheme aimed

at enhancing judicial resources in states, has been **efficiently utilised over the past five years.**

- However, its budget has declined from ₹1,123.40 crore in FY25 to ₹998 crore in FY26.

While judiciary-related schemes have maintained stable allocations and high utilisation rates, the decline in funds for police modernisation, forensic development, and prison reforms raises serious concerns about law enforcement and criminal justice infrastructure. To ensure an effective justice system, it is essential that funding allocations across all sectors remain adequate and are efficiently utilised.

PANCHAYAT GOVERNANCE IN INDIA

*Sub Topic: Local Self Governance,
Government Policies & Interventions,
Constitutional Amendments*

Context:

The **popular web series Panchayat**, set in the fictional village of Phulera, humorously portrays the trials of a city-bred protagonist navigating the complexities of rural governance.

More on News

- While the series captures the everyday struggles of running a local government body, real-life panchayats across India face similar challenges, as highlighted in a recent government report.
- A report published this month by the **Union Ministry of Panchayati Raj**, based on a study by the **Indian Institute of Public Administration (IIPA)**, sheds light on the devolution of powers and responsibilities to panchayats across states.

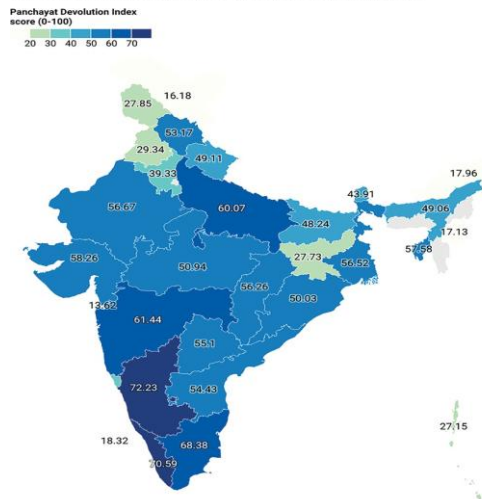
Panchayat Devolution Index (PDI)

The **2024 Panchayat Devolution Index (PDI)** evaluates the performance of panchayati raj institutions on six key parameters: **framework, functions, finances, functionaries, capacity building, and accountability.**

Top-Performing and Lagging States:

- **Karnataka, Kerala, and Tamil Nadu** have emerged as the **top-performing states** in the latest index, while **Uttar Pradesh and Bihar** recorded the most **significant improvements.**

How states fared on the devolution index in 2024



Note: Data not available for grayed out states
Source: Ministry of Panchayati Raj - Map data: © OSM - Created with Datawrapper

- The study examined 172 panchayats across 68 districts, assigning scores on a scale of 0 to 100. Since the last index in 2014, the national **average score has increased from 39.92 to 43.89**.
- A decade ago, Maharashtra, Kerala, Karnataka, Tamil Nadu, and Chhattisgarh led the rankings.
- However, in the latest assessment, Manipur, Arunachal Pradesh, and Jharkhand ranked lowest, with Manipur, Arunachal, and Haryana witnessing the steepest declines.
- Despite Maharashtra securing the fourth position overall, it was the only state in the top 10 to experience a drop in performance.

Representation in Panchayats

Number of Panchayats: India currently has **2.62 lakh panchayats**, up from **2.48 lakh in 2013-14**.

- Uttar Pradesh, Maharashtra, and Madhya Pradesh have the highest number of panchayats**, while **West Bengal, Assam, and Bihar report the most densely populated ones**.

Gender Representation: Regarding gender representation, **21 states and Union Territories meet or exceed their respective women's reservation quotas** in panchayats, while seven states, including Madhya Pradesh, Haryana, Punjab, and Tripura, fall short.

- Odisha leads with the highest proportion of women representatives at 61.51%**, followed by **Himachal Pradesh (57.5%) and Tamil Nadu (57.32%)**.
- Uttar Pradesh, where only one-third of seats are reserved for women, has the lowest proportion at 33.33%**.
- The **national average for women representatives in panchayats stands at 46.44%**, slightly up from **45.9% in 2013-14**.

Communities: While there are no mandated reservations for Scheduled Castes (SCs), Scheduled Tribes (STs), and Other Backward Classes (OBCs) in panchayats, **Punjab has the highest SC representation (36.34%)**, **Chhattisgarh leads in ST representation (41.04%)**, and **Bihar records the highest OBC representation (39.02%)**.

- The national average stands at **18.03% for SCs, 16.22% for STs, and 19.15% for OBCs**.
- These figures have remained **largely consistent over the past decade**.

The six parameters and top performing states

The index score is on a scale of 0 to 100

Parameter	Definition	Top state	Score
Framework	Whether the basic provisions mentioned in the Constitution are adhered to by states	Kerala	84
Functions	How panchayats fulfilled civic responsibilities, from sanitation and waste management to health and education	Tamil Nadu	60
Finances	Efficiency in the devolution of funds to panchayats and the sources of their funding, whether from their own revenues, borrowing, or from state and Central grants	Karnataka	71
Functionaries	Strength and performance of panchayat officials and the infrastructure available to them	Gujarat	91
Capacity Building	How states are expanding the knowledge and skills of panchayat officials to fulfil and take on more responsibilities	Telangana	86
Accountability	The framework in place to audit and monitor the functioning of panchayats	Karnataka	81

Source: Ministry of Panchayati Raj - Created with Datawrapper

Key Challenges Facing Panchayats

Funding: A major challenge for panchayats is **inadequate and inconsistent funding**.

- In 2023-24, state governments allocated Rs 47,018 crore for panchayats, but only Rs 10,761 crore was released as of November 2023.
- The previous year, Rs 46,513 crore was allocated, with Rs 43,233 crore being disbursed.

Infrastructure: Infrastructure deficiencies also hinder panchayat operations.

- While seven states and Union Territories reported that all their panchayat offices were housed in pucca (permanent) buildings, in Arunachal Pradesh, only 5% had such structures, followed by Odisha at 12%.
- Similarly, while **12 states and UTs reported 100% computer availability** in panchayats, **Arunachal Pradesh had none, and Odisha only 13%**.
- Internet access is another challenge**, with 14 states and UTs reporting full connectivity, while in Haryana, no panchayat had internet access, and **only 1% did in Arunachal Pradesh**.

SUBJECT – SOCIAL JUSTICE

2024 ANNUAL STATUS OF EDUCATION REPORT (ASER)

Sub Topic: Issues Related to Children and Education

Context:

The Annual Status of Education Report (Rural) 2024, released by Pratham, provides crucial insights into basic learning levels, school attendance, and digital literacy among rural children in India.

More on News

Covering 6,49,491 children across 17,997 villages in 605 rural districts, the survey highlights notable improvements in early childhood education, foundational literacy, and numeracy skills post- COVID-19 learning losses.

Key Findings on Learning Levels (2024)

Improvement in Reading and Arithmetic Levels:

- Reading and arithmetic skills have improved across all elementary grades (ages 6-14 years).
- Children in Classes 1 to 3 showed significant gains compared to 2022.
- Early childhood education (ages 3-6) saw higher enrollment, with 77.4% of 3-year-olds in rural areas enrolled in pre-primary institutions (LKG/UKG/Anganwadis/ others).

Impact of National Education Policy (NEP) 2020:

- NEP expanded early childhood education (ECCE) and emphasized universal Foundational Literacy and Numeracy (FLN).
- NIPUN Bharat (launched in 2021) aims for universal FLN by Class 3 (age 8) by 2026-27.
- 83% of schools reported receiving government directives to implement FLN activities.
- 78% of schools had at least one teacher trained in FLN, while 75% received learning materials.

Early Childhood Care and Education (ECCE): Need for Focus

Importance of ECCE for School Readiness:

- The NEP recommends Class 1 enrollment at age six, ensuring children are cognitively and socially prepared for formal schooling.

- ECCE helps prepare children and their families for school while strengthening early childhood education structures.

Role of Anganwadis in Early Education:

- More than one-third of children aged 3-5 attend Anganwadis.
- Anganwadi workers are now receiving specialised training in early childhood education.
- In states like Himachal Pradesh and Punjab, there is a shift towards pre-primary classes in schools.
- Rajasthan has seen an increase in 5-year-olds enrolling in both Anganwadis and private LKG/UKG classes.
- Anganwadis also offer direct parent-child engagement, making them crucial for holistic child development.

Impact of NIPUN Bharat

- Launched in 2021, NIPUN Bharat aims to enhance literacy and numeracy in the early grades and has become a driving force behind these positive changes.
- The programme allocates Rs 500 per child for teaching-learning materials (TLM) to support engaging lessons.
- Teachers receive capacity-building workshops with state-specific funding of up to Rs 5,000 per teacher for professional development.
- State-level support includes funding (Rs 10-20 lakh) for comprehensive assessments and tracking learning outcomes, while Project Management Units (Rs 25 lakh to Rs 1 crore) help with implementation.

Improvements in Learning Outcomes:

- UP saw a 10% increase in Grade III students' ability to read Grade II texts (from 24% to 34%) and solve subtraction problems (from 29% to 41%) between 2022 and 2024.
- Odisha's use of contextualized workbooks has led to similar improvements.

Digital Literacy and Older Children (Ages 15-16)

- School Enrollment and Dropout Trends: The percentage of children not enrolled in school has dropped to around 7%.
- Digital Access and Skills: Over 90% of rural adolescents have access to a smartphone. Digital literacy was assessed through tasks like online searches and setting alarms.
 - Gender gaps exist: 80.1% of boys (14-16 years) could browse for information,

compared to **78.6% of girls**. In some southern states, girls performed equally or better than boys in digital literacy.

Future Outlook for ECCE and Learning Reforms

Need for More Comprehensive Data: ASER and UDISE provide useful data, but **continuous data collection is required** for better planning.

Budget and Teacher Recruitment for ECCE: NEP recommends recruiting teachers trained in ECCE pedagogy.

- Education departments must **plan long-term budget allocations** for **teacher training and recruitment**. Anganwadis need **additional resources** to strengthen the **early childhood education component** alongside health and nutrition services.

Call for Extending NIPUN Bharat: To sustain and expand these gains, NIPUN Bharat's timeline should be extended until 2030.

- NIPUN 2.0 should focus on bridging the gap between **Grades III-V**, ensuring that foundational skills are built upon for higher-order learning.
- Include a **stronger focus on Early Childhood Education (ECE)** to set children up for success even before they enter primary school.

ASER Overview

- ASER Centre employs **simple yet rigorous methods** to generate large-scale evidence on the **impact of social sector programmes and policies**, primarily in education.
- Established in **January 2008** as an **independent unit within Pratham**, it builds on Pratham's experience in enhancing **reading and arithmetic skills** among children.
- The Centre not only generates and disseminates evidence but also **strengthens the link between evidence and action by building the capacity of individuals and institutions**.

BREAST CANCER: CHALLENGES AND OPPORTUNITY

Sub Topic: *Issues Related to Health and Women, Government Policies & Interventions*

Context:

Breast cancer is now the most common cancer among Indian women, previously the **fourth most common in the 1990s**. Every four minutes, a woman is

diagnosed with breast cancer in India, highlighting the increasing prevalence.

More on News

- Over the next 10 years, **50,000 additional women per year** are expected to **require treatment**.
- The financial burden is substantial, with an estimated **yearly cost of US\$19.55 billion**.

Contributing and Risk Factors

- **Gender:** 99% of cases occur in women, and 0.5–1% in men. About **50% of women** diagnosed have no identifiable risk factors other than being female and over 40 years old.
- **Other Risk Factors:** Increasing age, obesity, alcohol use, family history, radiation exposure, reproductive history, tobacco use, and postmenopausal hormone therapy.
 - Women in **India are diagnosed at younger ages compared to Western countries**, which makes the disease more aggressive in younger women with higher risks of relapse and metastasis.
- **Genetic Factors:** Mutations in BRCA1, BRCA2, and PALB-2 genes increase the risk significantly. Women with these mutations may opt for preventive measures like mastectomy or chemoprevention.

Statistics in India (2019-2023)

- The number of breast cancer cases increased from 200,218 in 2019 to 221,579 in 2023.
- Deaths from breast cancer increased from 74,481 in 2019 to 82,429 in 2023.
- Mortality rates are rising, suggesting issues with early detection, treatment access, and management.

Challenges in Breast Cancer Management in India

- **Late Diagnosis and Low Awareness:** **60% of cases** are detected at stages III or IV.
- **NFHS (2019-2021) data:** **Only 0.9% of women (30-49 years old)** have undergone screening.
- Lack of awareness about symptoms and the importance of regular screenings. **Cultural taboos and social stigma** discourage early medical intervention.
- **Inadequate Screening Infrastructure:** Limited availability of mammography facilities, particularly in rural areas. High breast density in Indian women affects mammography sensitivity, leading to misdiagnoses. **Shortage of trained healthcare professionals and diagnostic centres**.

- **Financial Barriers to Treatment:** Treatment costs range from **INR 100,000 to INR 1,000,000 or more**. High out-of-pocket expenses and inadequate insurance coverage lead to high dropout rates.
 - **95% of advanced cancer treatment facilities are located in metropolitan areas**, leaving rural populations underserved. India has only **2,000 oncologists for 10 million patients**.
- **Psychological Impact on Patients:** Breast cancer diagnosis triggers **anxiety, depression, fear, and grief**. Disruptions to daily life, financial stress, and family burden further affect mental well-being.
- **Awareness Campaigns and Public Health Initiatives:** Campaigns like **“Pink Month”** help spread awareness and encourage screenings. School and workplace awareness programmes can educate women early. Government and NGO collaborations for community outreach initiatives.
- **Expanding Medical Training and Infrastructure:** **International School of Oncoplasty (ISOS) & University of East Anglia (UEA)** partnership to enhance breast cancer management training in India.
 - Fellowship programmes to improve surgical outcomes and encourage breast conservation.
- **Advancements in AI and Technology:** AI-driven diagnostic tools like **“MammoAssist”** enhance mammography accuracy. AI helps detect patterns in MRI scans, ultrasounds, and mammograms, improving early diagnosis.
- **Grassroots Healthcare Programmes:** **Breast Health Initiative (BHI)** trains community health workers (ASHAs) and auxiliary nurses to conduct clinical breast examinations. Improves early detection, especially in rural and underserved regions.
- **Policy and Healthcare Reforms:** Implementation of **comprehensive national cancer care policies** to ensure equitable access. Increased investment in **screening infrastructure, trained personnel, and advanced treatment technologies**.

WHO Response

- **Global Breast Cancer Initiative (GBCI):** Aim to reduce global breast cancer mortality by 2.5% annually, preventing 2.5 million deaths from 2020-2040. By 2030, the initiative hopes to prevent 25% of breast cancer deaths, and by 2040, 40% among women under 70.

Key Pillars:

- **Health Promotion:** Public education on early detection and awareness of symptoms.
- **Timely Diagnosis:** Encouraging early consultations even without mammographic screening.
- **Comprehensive Management:** Improving access to treatment in resource-limited settings.

What is Breast Cancer?

- Breast cancer occurs when **abnormal breast cells grow uncontrollably, forming tumours**. If untreated, these tumours can spread and become fatal.
- **Types:** Cancer typically **starts in the milk ducts** or milk-producing lobules of the breast. Early-stage (in situ) cancer is not life-threatening, but **invasive cancer can spread to nearby tissues or lymph nodes, leading to metastasis**.

Symptoms: Advanced breast cancer can include:

- Breast lump or thickening
- Change in size, shape, or appearance of the breast
- Skin changes (dimpling, redness, pitting)
- Nipple changes (appearance, fluid discharge)
- Breast cancer can spread to nearby lymph nodes and organs like the lungs, liver, brain, and bones, causing symptoms like bone pain or headaches.

Treatment Options:

- **Surgical Treatment:** Lumpectomy (removal of the cancerous tissue) or mastectomy (removal of the whole breast). Lymph nodes may be removed to check for spread.
- **Radiation Therapy:** To reduce recurrence risk and treat residual cancer cells.
- **Medications:** Hormonal therapies (e.g., tamoxifen, aromatase inhibitors) for hormone receptor-positive cancers.
 - Chemotherapy for hormone receptor-negative cancers and advanced stages.
 - Targeted biological therapies (e.g., trastuzumab) for HER-2 positive cancers.
- **Sentinel Node Biopsy:** Preferred over full axillary dissection to check cancer spread with fewer complications.
- **Effectiveness:** Early and complete treatment is crucial for better outcomes.

SUBJECT – INTERNATIONAL RELATIONS

U.S.'s EXIT FROM WHO

Sub Topic: *Important International Institutions*

Context:

The recent decision by the **United States government to withdraw from the World Health Organisation (WHO)** has sparked concerns about the organisation's future, particularly regarding its funding and operational capacity.

More on News

- President Javier Milei has also ordered Argentina's withdrawal from WHO due to significant differences with the UN agency.
- However, rather than viewing this as a setback, this moment presents **an opportunity to strengthen WHO by reducing its dependence on a single country and fostering greater involvement from nations in Asia and Africa.**

WHO

The World Health Organisation (WHO), a **UN specialised agency for international public health, was established on April 7, 1948**, and operates from its Geneva headquarters with six regional and 150 field offices worldwide. It took over the responsibilities, resources, and staff of the **League of Nations' Health Organisation and the Office International d'Hygiène Publique**. The WHO is **governed by the World Health Assembly (WHA)**, which consists of **194 member states**. The WHA elects an **executive board of 34 health specialists**, appoints the director-general, sets priorities, and approves the budget.

Understanding WHO's Funding Structure

WHO operates through two main funding streams:

Assessed contributions are mandatory payments made by member states, ensuring a steady source of funding for WHO's core operations, including salaries and administrative costs.

- The **U.S. has long argued that its AC obligations are disproportionately high**, citing this as one of the key reasons for its withdrawal.

Voluntary contributions, on the other hand, **come from donor agencies and additional contributions** from member states.

- These funds are **typically allocated for specific programmes**, such as disease eradication and public health initiatives, and are often non-transferable.
- The **U.S.'s departure will not only reduce direct government contributions but may also lead to a decline in funding** from the U.S.-based organisations and donors, potentially affecting critical programmes supported by agencies like USAID.
- This funding uncertainty underscores the need for reforms in WHO's financial model to ensure long-term stability.

Call for Institutional Strengthening

- Critics of WHO often point to its **bureaucratic structure and slow response times** as key issues **requiring reform**.
- While improvements are necessary, WHO remains an **indispensable global institution**, particularly in an era of **emerging health threats such as antimicrobial resistance, climate change, and re-emerging infectious diseases**.
 - The world cannot afford to weaken WHO; instead, it **must be strengthened through collective global efforts**.
- As argued by **Daron Acemoglu and James A. Robinson** in their book *Why Nations Fail*, strong institutions are the foundation of national and global prosperity.
- However, **rising nationalism and the trend of prioritising domestic interests** over international collaboration **have weakened global institutions**.
- WHO's future cannot be left to the influence of a few high-income nations; instead, it must be **reinforced through broader international cooperation**.

Global South's Role in Reshaping Global Health

- The U.S.'s withdrawal creates **an opportunity for countries in Asia and Africa to play a greater role in global health governance**.
- Historically, global health policies and funding priorities have been **disproportionately influenced by high-income nations**, often sidelining the pressing health concerns of low- and middle-income countries (LMICs).
 - The **delayed global response to mPox**, which only gained attention after affecting high-income nations, **serves as a reminder of these disparities**.

To address this imbalance, the global South must take proactive steps:

Filling the Funding Gap: Countries in Asia and Africa should collaborate to supplement WHO's budget.

- **BRICS and other regional alliances can serve as platforms** for coordinated financial contributions.

Building Expertise in Global Health: Nations such as **India, Ethiopia, and Ghana** should invest in training experts not only in public health but also in global health challenges affecting different regions.

- Countries should develop specialised **expertise in diseases prevalent beyond their own borders to foster technical cooperation.**

Establishing Regional Centers for Training: The global south should create premier institutions dedicated to training public health professionals through inter-country collaboration.

- A diverse pool of experts from LMICs would reduce reliance on specialists from high-income nations and strengthen WHO's technical capacity.

Decentralising WHO's Operations: A long- discussed reform involves trimming WHO's headquarters and relocating key divisions to regional offices in Brazzaville, Cairo, Manila, or New Delhi.

- Such a move would reduce operational costs and align WHO's focus with regions most in need of global health interventions.

While the U.S. may eventually rejoin WHO under a future administration, the interim period must be used strategically. The global south should seize this moment to recalibrate the global health agenda, ensuring it is shaped by a diverse range of nations rather than a select few high-income countries.

SITTWE PORT: OPPORTUNITIES AND CHALLENGES

Sub Topic: *Effect of Policies & Politics of Countries on India's Interests, International Treaties & Agreements*

Context:

India's maritime connectivity strategy, particularly in the Bay of Bengal, is central to its regional trade, energy security, and diplomatic engagement.

More on News

- The acquisition of Sittwe Port in Myanmar by India Ports Global Ltd. (IPGL) underscores this focus.
- Sittwe Port, a **key component of the Kaladan Multi-Modal Transit Transport Project (KMMTTP)**, connects **India's Northeast to the Bay of Bengal**, enhancing regional integration and trade.
- However, **challenges like Myanmar's political instability and the port's commercial viability must be addressed to fully realise its potential.**

Significance of Sittwe Port

- Sittwe Port, strategically located in the Bay of Bengal, **strengthens India's role in the Indo- Pacific and sub-regional initiatives like BIMSTEC.**
- It **reduces transportation time** between India and Myanmar, facilitating trade and reducing carbon emissions.
- The port also counters China's influence in Myanmar, exemplified by its Kyaukphyu deep-sea port project.
 - The port's development aligns with India's Act East Policy and broader initiatives like the India-Myanmar-Thailand Trilateral Highway.



- Sittwe's development **could boost bilateral trade, energy imports, and socio-economic stability in Rakhine State**, which has been plagued by ethnic conflicts and the Rohingya crisis.

Commercial Viability and Trade Flows

- Sittwe Port's success **depends on operational ease, technological infrastructure, and trade dynamics.**
- While India-Myanmar trade has grown modestly, it remains concentrated in sectors like edible vegetables and primary goods.
- The port's potential lies in **enhancing value- added trade and integrating into regional value chains, particularly with ASEAN.**
- However, political instability and underdeveloped infrastructure in Rakhine State pose significant hurdles.

Political and Security Challenges

- Myanmar's **ongoing civil war and the Arakan Army's (AA)** control over key areas near Sittwe Port threaten its operational security.
- India has **engaged with Myanmar's military junta and EAOs** to safeguard its projects, but the conflict complicates long-term planning.
- The AA's influence and the junta's airstrikes in Rakhine State further destabilise the region, impacting the port's functionality.

Key Challenges

- **Political Instability:** Myanmar's civil war and the AA's territorial gains disrupt infrastructure projects and deter investment.
- **Economic Viability:** Poor infrastructure, limited trade volumes, and underdeveloped regions hinder the port's economic potential.
- **Local Marginalisation:** Rakhine State's economic neglect risks alienating local populations, undermining the port's long-term success.
- **Connectivity Issues:** Delays in the KMMTTP's road component and unresolved land disputes in India further impede progress.

Way Forward

- **Empower Local Communities:** Engaging border communities and addressing their needs can foster local support for the project.
- **Engage All Stakeholders:** India should maintain dialogue with Myanmar's junta, EAOs, and pro-democracy groups to ensure project security.
- **Enhance Coordination:** Central and provincial agencies in India and Myanmar must collaborate to address bureaucratic and operational challenges.
- **Leverage Regional Initiatives:** Integrating Sittwe Port with BIMSTEC and other regional frameworks can amplify its economic and strategic impact.

EGYPT TO HOST EMERGENCY ARAB SUMMIT AMID RISING TENSIONS OVER PALESTINE

Sub Topic: *Bilateral Groupings & Agreements, Regional Groupings, Groupings & Agreements Involving India and/or Affecting India's Interests*

Context:

Egypt has announced that it will host an **emergency Arab summit** on February 27, 2025, in Cairo to discuss **"serious developments"** concerning the Palestinian issue.

More in News

- The Egyptian Foreign Ministry confirmed this decision, stating that it **follows high-level consultations with Arab nations, including Palestine.**
 - The call for the summit was made in response to controversial remarks by the U.S. President Donald Trump, who suggested a plan to **"take over" the Gaza Strip**, forcibly relocate its Palestinian residents, and transform the area into a **"Riviera of the Middle East."**
- To prepare for the summit, Egypt has engaged in **extensive consultations with Arab allies.** Egypt has been in communication with his counterparts from **Saudi Arabia, the UAE, Kuwait, Oman, Bahrain, Jordan, Iraq, Algeria, Tunisia, Mauritania, and Sudan.**

Counter View: Global Reactions to Trump's Stance

Trump's proposal has been widely criticised by various countries and international organisations.

- **The European Union** has expressed concerns about forced displacement violating international norms.
- **The United Nations** has reiterated its support for a two-state solution, opposing any attempt to alter the demographics of Gaza.
- Additionally, countries like **Russia and China** have condemned the move, seeing it as a destabilising factor in the Middle East.
- Even **within the United States, opposition voices** argue that such a plan would undermine peace efforts and escalate tensions.

Need for This Step

- **Trump's Proposal:** The decision to hold this summit comes in the wake of President Trump's recent announcement during a joint press conference with Israeli Prime Minister Benjamin Netanyahu. Trump proposed that the **United States take control of Gaza and redevelop it**, envisioning a transformed coastal region resembling the Riviera.
- **Palestinian Relocation:** The plan includes **relocating Palestinians to neighboring countries such as Egypt and Jordan.** However, both nations, along with other Arab states, have categorically

rejected the idea, citing violations of Palestinian sovereignty and international law.

Present State of the Israel-Gaza War

- **Military Operations:** The situation in Gaza remains dire, with continuous military operations between Israel and Palestinian militant groups.
- **Shortage of Basic Amenities:** The humanitarian crisis in the enclave has reached catastrophic levels, with severe shortages of food, water, and medical supplies.
- **Displacement of civilians:** Reports indicate that thousands of civilians have been displaced, further exacerbating the already fragile living conditions. The ongoing war has prompted global calls for ceasefire agreements and humanitarian aid, but the conflict persists with no resolution in sight.

Geopolitical Significance of Egypt and U.S. Actions

- Egypt's role as a mediator in the Israel-Gaza conflict is crucial. Hosting the emergency summit **not only reaffirms its leadership in the Arab world** but also signals a strong regional opposition to U.S. interventionist policies.
- **Reinforcing Arab unity:** The summit also challenges the legitimacy of any unilateral decisions taken by Washington and Tel Aviv, reinforcing Arab unity on the Palestinian issue.
- **US Commitment to Israel's Security Interests:** On the other hand, the **United States' stance reflects its continued commitment to Israel's security interests**, but at the cost of deteriorating its relations with Arab allies.

Conclusion

- Egypt's decision to convene an emergency Arab summit **reflects the urgent need to address the escalating Palestinian crisis**. The strong rejection of Trump's proposal by Arab states **highlights regional unity** against forced displacement.
- While the **Israel-Gaza war** continues to devastate the region, diplomatic efforts through this summit could reinforce international opposition to unilateral actions by the U.S. and Israel. The unfolding events **will have long-lasting geopolitical implications**, shaping future Arab-Israeli relations and **influencing broader Middle East stability**.

STRATEGIC PRIORITIES REFLECTED IN INDIA'S MEA BUDGET 2025-26

Sub Topic: *Effect of Policies & Politics of Countries on India's Interests, International Treaties & Agreements*

Context:

The **Ministry of External Affairs (MEA)** plays a pivotal role in implementing India's foreign policy. MEA's budget has increased **by 67% from 2014 to 2025** but its percentage share in the Union Budget has declined from **0.8% to 0.4%**.

Key Priority Areas in MEA Budget

Neighbourhood First: Country-wise Allocation

- **Bhutan:** Rs 2,150 crore (**largest recipient, 39.2% of total aid**) – for hydropower, roads, and infrastructure.
- **Maldives:** Rs 600 crore (**increase from Rs 470 crore**) – reflecting efforts to **counter Chinese influence**.
- **Sri Lanka:** Rs 300 crore – supporting economic recovery.
- **Nepal:** Rs 700 crore – consistent aid allocation.
- **Bangladesh:** Rs 120 crore – **no change despite political shifts**.
- **Myanmar:** Rs 350 crore (**decrease from Rs 400 crore**) – **due to political instability**.
- **Afghanistan:** Rs 100 crore (**reduced from Rs 200 crore**) – reflecting a cautious approach towards the Taliban regime.

Strengthening Strategic Connectivity

- **Chabahar Port (Iran):** Rs 100 crore for regional trade and connectivity.
- **Kaladan Multimodal Project (Myanmar):** Continued funding to strengthen India's Act East Policy.
- **BBIN Electricity Trade (Bangladesh, Bhutan, India, Nepal):** Increased allocation to enhance regional energy security.
- **India-Myanmar-Thailand Trilateral Highway:** Focus on better trade connectivity.

Discretionary Expenditures

- **Indian Technical and Economic Cooperation (ITEC):** Rs 16,375 crore – for capacity building, training programmes, and grassroots development.
- **Special Diplomatic Expenditures:** Rs 24,900 crore – for bilateral relations and global perception management.

- **Disaster Relief Allocation:** Increased from Rs 60 crore to Rs 64 crore – for global humanitarian assistance.

Breakdown of MEA Budget 2025-26

- **Total Budget:** Rs 20,516 crore
- **Foreign Aid Allocation:** Rs 5,483 crore (down from Rs 5,806 crore in 2024-25)
- **Overseas Development Partnerships:** Rs 6,750 crore (33% of total MEA budget)
- **Discretionary Spending (ITEC and Special Diplomatic Expenditures):** Rs 24,900 crore & Rs 16,375 crore
- **Chabahar Port Allocation:** Rs 100 crore (same as last year)
- In **2025-26**, the MEA was allocated **Rs 20,516 crore**, a **7.3% decrease** from the previous year's projection.
- The decline is partly due to the absence of **Indian Exim Bank sovereign guarantees**, which led to higher spending in 2023-24 and 2024-25.

MEA Budget in Global Context

- India's diplomatic budget remains **relatively small** compared to major global powers.
- India has **only 850 IFS officers** for 193 embassies and consulates, whereas the **US (1000+)**, **China (7000+)**, and **UK (1200+)** have much larger diplomatic corps.
- India's annual recruitment of **32-35 officers** is insufficient to meet global diplomatic demands.

Geopolitical Objectives Behind MEA Spending

Countering China's Influence:

- **Increased aid to Maldives** as part of a diplomatic reset.
- **Sustained investments in Bhutan and Nepal** to maintain strategic influence.

Regional Security:

- Aid to **Sri Lanka and Myanmar** ensures stability in the Indian Ocean region.
- **Reduced aid to Afghanistan** aligns with a pragmatic approach to the Taliban regime.

Economic Diplomacy: Funding for **Chabahar Port** and **BBIN power trade** boosts India's regional trade leadership.

Act East and Extended Neighbourhood Strategy: Myanmar projects and **Trilateral Highway** align with India's Act East Policy.

Africa and Latin America Engagement:

- **Increased aid to Africa (Rs 225 crore from Rs 200 crore)** signals India's **global south leadership aspirations**.

- **Reduced aid to Latin America** suggests a more **region-specific approach**.

Shortfalls in MEA Budget Allocation

Institutional Capacity Constraints:

- India's **diplomatic corps** remains understaffed (850 officers managing 193 missions).
- MEA's **training budget decreased by 11.4%** year-on-year, impacting diplomatic effectiveness.

Limited Investment in Emerging Domains:

- Lack of dedicated funding for **critical technologies, AI, and cyber diplomacy**.
- No structured plan for **expanding India's role in global digital infrastructure (DPI)**.

Reduced Aid to Afghanistan & Myanmar: May limit India's strategic leverage in these conflict-prone regions.

Steps to Address Budget Shortfalls

Lateral Hiring:

- Expand **IFS recruitment to 100+ annually**.
- Integrate **defence personnel and international relations experts** for specialised diplomacy.

Capacity Building for Critical Technologies:

- Establish a **dedicated AI and cyber diplomacy desk**.
- Train diplomats in **technology-driven foreign policy**.

Strategic Resource Allocation:

- Increase funding for **MEA training programmes**.
- Expand India's footprint in **digital governance and DPI leadership**.

INDIA TO INAUGURATE EFTA DESK

Sub Topic: *Bilateral Groupings & Agreements, Regional Groupings, Groupings & Agreements Involving India and/or Affecting India's Interests*

Context:

In a move to bolster economic collaboration, the Union Minister for Commerce and Industry along with high-ranking officials from the **European Free Trade Association (EFTA)**, will inaugurate the EFTA Desk at Bharat Mandapam, New Delhi.

More on News

- The event will see participation from dignitaries including the Swiss State Secretary, the State Secretary of Trade and Industry, Norway, the Permanent Secretary of State, Iceland and the

Minister of External Affairs, Education, and Sport, Liechtenstein, alongside senior representatives from the EFTA Secretariat.

- This initiative aligns with Chapter 7 of the **India-EFTA Trade and Economic Partnership Agreement (TEPA)** and aims to strengthen trade, investment, and business ties between India and EFTA nations—Switzerland, Norway, Iceland, and Liechtenstein.

About BTIA

The Broad-Based Trade and Investment Agreement (BTIA) is a **proposed free trade agreement between India and the European Union (EU)**. Negotiations for the BTIA began on June 28, 2007, in Brussels, Belgium. The goal is to promote bilateral trade by removing barriers to trade in goods, services, and investments across all sectors of the economy. The BTIA negotiations have been **stalled since November 2013 due to differences over trade and investment**.

About EFTA

- The European Free Trade Association (EFTA) is an **intergovernmental organisation that was established in 1960 to promote free trade and economic integration** among its member states.
- It was founded as **an alternative trade bloc for European countries that were unable or unwilling to join the European Economic Community (EEC)**, the main predecessor of the EU.

Key Points:

- **Members:** The current members of EFTA are **Iceland, Liechtenstein, Norway, and Switzerland**.
- **Purpose:** EFTA's primary goal was to **eliminate customs duties on industrial products** traded between its member states.
- **Free Trade Agreements:** EFTA serves as a platform for its member states to jointly negotiate free trade agreements with countries outside the EU; currently, around 22 such agreements are in force.
- **Not a Customs Union:** Unlike the EU, EFTA is not a customs union, meaning that individual EFTA states can set their own customs tariffs and trade measures with non-EFTA countries.
- **European Economic Area (EEA):** Three of the four EFTA members (Iceland, Liechtenstein, and Norway) participate in the European Economic Area (EEA) with the European Union.
 - Switzerland does not participate in the EEA.

CBAM Exposure Index

The **World Bank** has developed a **Carbon Border Adjustment Mechanism (CBAM) Exposure Index** to help developing countries assess and prepare for the **EU's CBAM**, which will require importers of certain carbon-intensive goods to pay for their products' embodied carbon emissions. This policy could significantly impact the competitiveness of countries that export these goods to the EU.

CBAM

The EU Carbon Border Adjustment Mechanism (CBAM) is a **carbon tariff on carbon-intensive products imported into the European Union**. It is designed to **prevent carbon leakage**, which is the shifting of production to countries with lower or no carbon costs. The CBAM ensures that imported goods are subject to the same carbon costs as products produced within the EU.

About TEPA

The **India-European Free Trade Association (EFTA) Trade and Economic Partnership Agreement (TEPA)**, signed on March 10, 2024, is a comprehensive trade agreement aimed at strengthening economic ties between India and the four EFTA nations.

Objectives and Key Features:

- **Trade and Investment:** TEPA aims to create trade and investment opportunities by **reducing tariffs and non-tariff barriers**.
 - EFTA has committed to **promoting investments to increase foreign direct investment (FDI) in India by USD 100 billion over the next 15 years** and facilitate the creation of 1 million direct jobs.
- **Market Access:** EFTA is **offering 92.2% of its tariff lines**, covering 99.6% of India's exports.
 - This includes **100% market access for non-agricultural products and tariff concessions on Processed Agricultural Products (PAP)**.
- **Comprehensive Coverage:** The agreement includes 14 chapters, covering trade in goods, rules of origin, intellectual property rights (IPRs), trade in services, investment promotion and cooperation, government procurement, technical barriers to trade, and trade facilitation.
- **Enhanced Cooperation:** TEPA aims to ensure fair and transparent market access conditions for service providers and investors, enhance cooperation on intellectual property rights

protection and enforcement, and facilitate trade procedures and customs cooperation.

- **Strategic Priorities:** The trade deal prioritises tariff reductions and simplification of trade procedures, particularly for products like high-value fish, advanced chemicals, pharmaceuticals, machine equipment, and Swiss chocolate.

INDIA AND QATAR STRATEGIC PARTNERSHIP

Sub Topic: *Bilateral Groupings & Agreements, Regional Groupings, Groupings & Agreements Involving India and/or Affecting India's Interests*

Context:

In a significant diplomatic move, **India and Qatar signed an agreement upgrading their bilateral relationship to a strategic partnership.**

More on News

- The agreement, signed during the **visit of Qatari Amir Sheikh Tamim Bin Hamad Al Thani to India**, signals a deepening of ties in trade, investment, energy, security, and regional cooperation.
- Officials from India's Ministry of External Affairs (MEA) confirmed that **both nations are also exploring the possibility of a Free Trade Agreement (FTA)** to further enhance economic cooperation.

Strengthening India-Qatar Relations

- The agreement **brings Qatar in line with Kuwait, Oman, the United Arab Emirates, and Saudi Arabia, with whom India has already established strategic partnerships.**
- Alongside this, **India and Qatar signed a double taxation avoidance treaty**, aimed at fostering investment and easing financial transactions between businesses in both countries.

Discussion on West Asia and Israel-Palestine Conflict

The leaders also discussed pressing geopolitical issues, particularly the ongoing **Israel-Palestine conflict in Gaza.**

- The MEA confirmed that **both sides conveyed their respective positions on the Israel-Hamas issue**, with India reiterating its longstanding support for a two-state solution.

The visit is particularly significant as it **comes just two days before the five-state Arab summit in Riyadh**, where U.S. President Donald Trump is expected to present a proposal concerning Gaza.

- The proposal, which suggests relocating Palestinian populations to neighboring Egypt and Jordan, has been met with criticism, with some terming it "ethnic cleansing."
- India has not yet stated its position on this controversial plan, and MEA officials refrained from commenting on it.

Boosting Trade and Investment

- A key highlight of the visit was a **Joint Business Forum**, where **38 Qatari entities** from retail, food processing, hospitality, finance, and energy sectors **participated in discussions with their Indian counterparts.**
 - Both sides agreed on an ambitious target **to double bilateral trade to \$28 billion in the coming years.**
- India and Qatar are also **considering a bilateral FTA, even as negotiations continue for a broader India-Gulf Cooperation Council (GCC) FTA.**
 - The move reflects **India's strategy of deepening trade relations with Gulf nations, which are crucial partners in energy and investment flows.**

The **Gulf Cooperation Council (GCC)** is a regional, inter governmental, political, and economic alliance comprising **Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. It was established in Riyadh, Saudi Arabia, in May 1981.**

Indian Nationals in Qatar

The visit also addressed ongoing legal issues involving Indian nationals in Qatar.

- MEA officials acknowledged that **around 600 Indians are currently imprisoned in Qatar, with 85 individuals receiving pardons in 2024** under Qatar's clemency provisions.

A particularly sensitive issue remains the continued **detention of former Indian Navy officer Commander Purnendu Tiwary.**

- While seven other Indian Navy veterans, detained in the same case in 2022, were repatriated in February 2024, **Commander Tiwary's case remains subjudice in Qatari courts.**
- His release is a matter of ongoing diplomatic engagement, and the seven released officers have

reportedly appealed to Qatari authorities for his repatriation.

The elevation of India-Qatar ties to a strategic partnership marks a significant milestone in their bilateral engagement. With expanded trade and investment goals, cooperation in security and energy, and a possible FTA on the horizon, both countries are poised for a stronger economic and diplomatic relationship.

KEY TAKEAWAYS FROM PM MODI'S U.S. VISIT

Sub Topic: *Bilateral Groupings & Agreements, Regional Groupings, Groupings & Agreements Involving India and/or Affecting India's Interests*

Context:

Prime Minister Narendra Modi's recent official visit to the United States was a **milestone in strengthening bilateral relations**, with significant developments across trade, defence, technology, and energy.

Boosting Trade Relations

BTA: A major highlight of the visit was the **initiation of the first phase of a Bilateral Trade Agreement (BTA)** aimed at reducing trade barriers and streamlining regulatory processes.

- This agreement is **expected to encourage U.S. companies to invest in India** and integrate the country into global supply chains.
- The ambitious **goal of achieving \$500 billion in trade by 2030**—endorsed by the Confederation of Indian Industry (CII)—appears attainable with sectoral sub-targets and simplified cross-border procedures.

Resolving Tariff Issues: Efforts to resolve tariff issues on both sides have already been set in motion.

- Emphasis was placed on **boosting exports of industrial goods from the U.S. to India and labour-intensive products from India to the U.S.**, including agricultural goods.

Investments: Additionally, **greenfield investments, including those by Indian companies in the U.S., are being encouraged.**

- A well-structured BTA would further facilitate investment and technology transfers, benefiting both nations.

Advancing Technology, Defence, and Energy Collaboration

TRUST: The visit also saw the launch of the U.S.-India **Transforming the Relationship Utilising Strategic Technology (TRUST)** initiative, which aims to **strengthen technological cooperation in critical sectors such as defence, artificial intelligence (AI), semiconductors, quantum computing, biotechnology, energy, and space.**

- This initiative **opens avenues for private sector collaboration** with governments and academic institutions in both countries.

INDUS: The **INDUS Innovation Initiative** will further **accelerate research and development** in these advanced fields.

Roadmap on AI Infrastructure: As India emerges as a key player in the AI-driven economy, the U.S.-India Roadmap on AI Infrastructure is **expected to attract investments in data centres, computing power, and AI model development.**

- This initiative **could support Indian startups in sectors such as fintech, healthtech, and agritech**, benefiting not only India but also other developing nations.

Framework for the U.S.-India Major Defence Partnership: In defence, the establishment of a 10-year Framework for the U.S.-India Major Defence Partnership marks a significant step forward.

- Agreements on **technology transfers, joint production, and industrial collaboration** will promote indigenous manufacturing, skill development, and economic growth.
- Potential offset clauses in defence deals could provide substantial opportunities for Indian industry.

Energy: Energy cooperation was another focal point of discussions.

- Both leaders **emphasised the need to establish long-term strategic partnerships to ensure energy security and diversification.**
- India's 2025-26 Union Budget includes plans to collaborate with the private sector on **small modular reactors (SMRs)**, with U.S. companies expected to play a crucial role.
- With **India's net-zero targets in mind**, the U.S., with its abundant natural gas reserves, can serve as a stable energy partner.

Infrastructure and Digital Connectivity

- A significant outcome of the visit was the **commitment to advancing the India-Middle East-**

Europe Economic Corridor (IMEC) through joint infrastructure projects.

- Such initiatives could accelerate the development of railways, roadways, smart cities, and industrial zones, offering Indian industries new avenues for participation.
- The proposed undersea cable project between India and the U.S. is expected to boost India's digital economy and services exports, strengthening its position in global digital trade.

Enhancing Higher Education Collaboration

- Leading U.S. universities plan to establish campuses in India, providing more opportunities for Indian students while improving access to global academic resources.
- Additionally, efforts to streamline legal mobility between the two nations will further benefit students and professionals.

Beyond diplomacy, PM Modi's U.S. visit represents a transformative roadmap for India's economic and technological aspirations. By leveraging global partnerships, strengthening trade ties, and fostering innovation, India is positioning itself as a key player in the global economic landscape.

SUBJECT – INDIAN ECONOMY & AGRICULTURE AND BANKING

COOPING MECHANISM

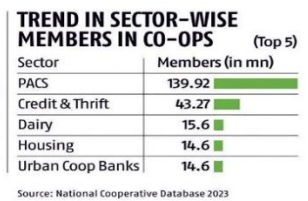
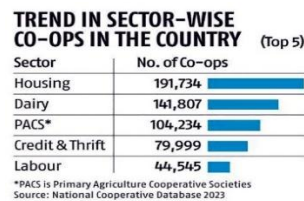
Sub Topic: Growth & Development,

Context:

In a significant move, Oil Marketing Companies (OMCs) chose to give sugar cooperatives precedence over private companies in the allocation of ethanol for the 880 million liters tender for the 2024-25 supply year, which began in November.

More on News

- This decision has delighted cooperative sugar mills, which accounted for 30% of the 32 million tonnes of sugar produced in the 2023-24 season.
- However, private millers have expressed dissatisfaction with this outcome.



Background

- **New Ministry:** The decision highlights the increasing influence of cooperatives, a shift attributed to the Ministry of Cooperation, which was established by a Union government gazette notification on July 6, 2022.
 - Before its creation, cooperatives were under the Cooperation Division of the Ministry of Agriculture and Farmer Welfare.
- **Bolstering the Sector:** Under the Ministry of Cooperation, efforts have been made to bolster the cooperative sector despite concerns that a larger government role could undermine the voluntary nature of cooperatives.
 - The Minister has promised 2025 will be a landmark year for the sector, focusing on transparency and expanding their reach.
- **Reach of Cooperatives:** India has over 800,000 registered cooperatives, many located in rural and semi-urban areas, impacting around 400 million people.
 - While prominent brands like Amul, Iffco, and Kribhco have been successful, the sector has seen failures, leading some economists to question its long-term viability.
- **Government Interference:** Despite this, experts believe the Ministry's efforts have brought cooperatives into the spotlight, although there are concerns about government interference in their agenda.

Cooperative Governance and Legal Challenges

- **Court's Ruling:** Following the formation of the Ministry of Cooperation, the Supreme Court struck down parts of the 97th Constitutional Amendment, which sought to limit state powers over cooperatives.
- **Jurisdiction:** The Court upheld state governments' authority to govern cooperatives within their jurisdiction while affirming the Central government's role in regulating multi-state cooperatives (MSCS).

- A report by **Primus Research** estimates that **India's cooperative sector could generate 55-56 million self-employment opportunities by 2030**, up from 30 million in 2018, with potential to **contribute 3-5% to GDP**.
- **Interventions:** However, to realise this potential, **critical interventions are needed**, including enhancing **digital infrastructure**, adopting **new technologies**, and improving access to **finance through priority sector lending**.

New Policies and Growth Initiatives

- **Umbrella Organisation:** A **draft policy on cooperatives is being developed**, recommending the establishment of an **umbrella organisation** under the **Reserve Bank of India (RBI)** and the **National Bank for Agriculture and Rural Development (Nabard)** to streamline credit structures for cooperatives.
- **PACS:** Efforts are also underway to expand the role of **Primary Agriculture Cooperative Societies (PACS)** in diverse economic activities such as running petrol pumps, ration shops, and medical stores.
 - Approximately **105,000 PACS exist in India**, with **65,000 operational**.
 - Plans are in place to establish **200,000 new PACS** in the next five years.
- **Initiatives:** Several initiatives are being rolled out to **support the cooperative sector**, including the **clearance of sugar mills' tax dues** worth `46,000 crore and the **development of the world's largest grain godown network under cooperatives**.
- **Tax reforms** have also been introduced, such as reducing the surcharge on income tax for cooperative societies earning between `1 crore and `10 crore,

National Cooperative Developments

- The Ministry of Cooperation has launched **three new multi-state cooperatives** focused on **exports, certified seeds, and organic products**.
- Major promoters of these cooperatives include **NDDDB, Amul, Nafed, Iffco, and Kribhco**, contributing to the capital of each cooperative.
- **Bhartiya Beej Sahakari Samiti Limited (BBSSL)** aims to standardise and distribute improved seeds under a single brand. It has already received 16,775 membership applications from 32 states.

- **National Cooperative Organics Limited (NCOL)** is a national cooperative for organic products, with 11 products launched and 5,154 applications received.
- **National Cooperative Exports Ltd.** focuses on promoting exports, generating 4,000 crore in revenue within its first few months by exporting rice, onion, sugar, and jeera.

The Ministry's push for cooperatives reflects a broader strategy to enhance their role in India's economy, support self-sufficiency, and improve the livelihoods of millions involved in the cooperative sector.

GOVERNMENT'S SHIFT FROM SHORT-TERM TO LONG-TERM BORROWING

Sub Topic: Fiscal Policy

Context:

The Government of India has reduced its net short-term borrowing by `1.2 lakh crore, decreasing the **supply of treasury bills (T-bills)** and short-term instruments while shifting towards **increased borrowing through long-term securities**, especially bonds with maturities over 10 years.

Impact of the Reduction in Short-Term Borrowing

Decline in T-bill and Short-Term Instrument Supply

- The redemption of **T-bills increased from (-) `50,000 crore to (-) `1.2 lakh crore**, leading to a fall in their supply.
- The government has chosen to rely on longer-term securities instead of frequent short-term borrowings.

Increase in Long-Term Securities (10+ Years Maturity)

- The government has **shifted focus to long-term bonds**, aligning with investor preferences.

The recent introduction of **50-year bonds** caters to long-term investors such as insurance companies and pension funds.

Reasons for the Shift

Institutional Investor Demand for Long-Term Bonds

- **Insurance companies and pension funds** require long-term investment instruments to match their long-term liabilities.
- These investors prefer **20+ year maturity bonds** due to their stability and predictable returns.

Growth in the Insurance Sector

- The insurance industry recorded a **7.7% growth in FY 2023-24**, with total premiums reaching **`11.2 lakh crore**.

- Life insurance premiums accounted for 8.3 lakh crore, while non-life insurance premiums stood at `2.9 lakh crore.
- The sector continues to attract high foreign investment, with insurance receiving 62% of total equity FDI inflows into the services sector.

Rationale Behind the Shift

Enhancing Macroeconomic Stability

- Long-term bonds reduce the frequency of debt rollovers, ensuring fiscal stability.
- This strategy minimises interest rate volatility risks associated with short-term borrowing.

Fiscal Consolidation Strategy

- The government's gross market borrowing is pegged at `14.82 lakh crore for FY 2025-26.
- Net market borrowing is `11.54 lakh crore, slightly lower than `11.63 lakh crore in FY 2024-25.

Infrastructure Financing Alignment

- Long-term bonds provide stable funding for capital-intensive infrastructure projects.
- The shift supports government initiatives like the National Infrastructure Pipeline (NIP) and Gati Shakti.

Implications of the Shift

Impact on Bond Yields and Interest Rates

- Increased issuance of long-term bonds could raise long-term bond yields, influencing borrowing costs.
- However, consistent demand from institutional investors can stabilize yields and prevent excessive volatility.

Strengthening Financial Market Depth

- Expansion of long-term government bonds improves financial stability and deepens the bond market.
- Benchmark long-term bonds provide pricing references for corporate debt, encouraging corporate bond issuance.

Increased Attractiveness for Global Investors

- The issuance of longer-term securities aligns with the needs of foreign institutional investors (FIIs) seeking stable returns.

Challenges and Considerations

Exposure to Interest Rate Risks

- Long-term bonds are more sensitive to interest rate fluctuations, impacting returns for investors.
- The government needs prudent debt management to mitigate potential risks.

Liquidity Constraints

- A shift to long-term bonds could reduce market liquidity, affecting fiscal maneuverability.
- Short-term instruments provide flexibility in responding to immediate financial needs.

Risk of Concentrated Investor Base

- A reliance on insurers and pension funds limits investor diversification.
- Any sudden change in their demand patterns could impact bond market stability.

Government Market Borrowing

Short-Term Borrowing Instruments

- Treasury Bills (T-bills): Issued for 91 days, 182 days, and 364 days.
- T-bill supply has declined due to a shift towards long-term bonds.

Long-Term Borrowing Instruments

- Government Bonds (G-secs): Maturity periods of 5 years, 10 years, 20 years, 30 years, and recently introduced 50 years.
- 50-year bonds cater to the rising demand from institutional investors.

What are T-Bills and Government Borrowing Instruments?

Treasury Bills (T-bills)

- Short-term debt instruments issued by the government.
- Maturity periods of 91, 182, and 364 days.
- Used for meeting short-term liquidity needs.

Government Securities (G-Secs)

- Long-term debt instruments with maturity periods ranging from 5 years to 50 years.
- Used for long-term capital financing.

Bonds with Special Features

- Inflation-Indexed Bonds (IIBs): Protect against inflation.
- Green Bonds: Used for funding environment-friendly projects.

COMMITTEE UNDER NATIONAL MANUFACTURING MISSION

Sub Topic: Industrial Policy, Infrastructure, Growth & Development

Context:

A committee is set to be established under the National Manufacturing Mission to address various challenges in the manufacturing sector. The focus will be on cutting the cost

of doing business, preparing a future-ready workforce, enhancing technology availability, and promoting Make in India.

National Manufacturing Mission (NMM)

Overview

- Announced in the Union Budget 2025-26 under the Make in India initiative.
- Covers small, medium, and large industries.
- Aims to boost domestic manufacturing, reduce import dependence, and create jobs.

Clean Tech Manufacturing

- Development of solar PV cells, EV batteries, motors & controllers, electrolyzers, wind turbines, high-voltage transmission equipment, and grid-scale batteries.
- Focus on domestic value addition and supply chain development.

Labour-Intensive Sectors

- **Footwear & Leather Industry** – New Focus Product Scheme to create 22 lakh jobs, generate `4 lakh crore turnover, and boost exports to `1.1 lakh crore.
- **Toy Industry** – National Action Plan for Toys to position India as a global manufacturing hub.

Infrastructure & Industrial Clusters

- **Strengthening supply chains and developing industrial clusters** for key sectors.
- **Establishment of National Institute of Food Technology in Bihar** to enhance food processing and increase farmer incomes.

Key Focus Areas of the Mission

The mission will **work on five major aspects**:

- **Ease and Cost of Doing Business:** Identifying bottlenecks affecting business operations and recommending policy changes to enhance competitiveness.
- **Future-Ready Workforce for In-Demand Jobs:** Addressing skill gaps and upgrading industrial training programmes through collaboration between industries and educational institutions.
- **Vibrant and Dynamic MSME Sector:** Strengthening small and medium enterprises through policy support while improving access to credit and modern infrastructure.
- **Availability of Technology:** Enhancing domestic R&D and technology transfer to reduce dependence on imported technology.
- **Quality Products and Global Competitiveness:** Encouraging industries to meet international

quality standards to expand exports and strengthen India's position in global supply chains.

Composition of the Committee

The committee **will have representation from**:

- **Central Government Ministries** overseeing manufacturing policies.
- **State Governments** to ensure regional cooperation.
- **Private Sector and Industry Leaders** to provide sector-specific insights.
- **Technology and Research Institutions** for innovation support.
- **Trade Bodies and MSME Representatives** to ensure inclusivity.

Current State of Manufacturing in India

Contribution to GDP

- The **manufacturing sector** accounts for **16-17% of India's GDP**.
- The government aims to increase this share through incentives and reforms.

Industrial Production Trends

- **Index of Industrial Production (IIP) growth** reached a **six-month high of 5.2% in November 2024**.
- Driven by festive demand and improved manufacturing activity.

Major Contributing Sectors

- **Basic Metals (14.86%)** - Odisha, Jharkhand, Chhattisgarh.
- **Coke and Refined Petroleum (14.02%)**- Assam, Bihar, Kerala.
- **Food Products (12.36%)** – Uttar Pradesh, Andhra Pradesh, A&N Islands.

Production-Linked Incentive (PLI) Scheme

- PLI-backed sectors contributed **58% to total manufacturing output**.
- Registered a **growth of 24.5%**, reflecting strong industrial support.

Need for This Committee

High Cost of Doing Business

- Need to streamline regulations and reduce logistical inefficiencies.

Regional Disparities

- Manufacturing is concentrated in a few states (Maharashtra, Gujarat, Tamil Nadu, Karnataka, Uttar Pradesh).
- Need to promote manufacturing hubs in underdeveloped regions.

Technology Gaps and Workforce Challenges

- Need for skill development and better technology access.
- Preparing industries for **Industry 4.0 and automation**.

Boosting Export Competitiveness

- Addressing non-tariff barriers.
- Enhancing supply chain efficiency and product quality.

Potential Impact of the Committee

Policy Reforms and Cost Reduction

- Improved ease of doing business through streamlined regulations.
- Lower operational costs for industries.

Employment and Skill Development

- New job opportunities through **reskilling and upskilling programmes**.
- Increased industrial employment, boosting economic growth.

Strengthened MSME Sector

- Better access to finance and technology for MSMEs.
- More opportunities for domestic and global expansion.

Increased Foreign and Domestic Investment

- **Improved investment climate** due to stable policies and incentives.
- Attraction of **FDI and joint ventures** in high-potential sectors.

ROLE OF INVESTMENT AND CONSUMPTION

Sub Topic: Mobilisation of Resources, Growth & Development

Context:

Economic growth can be compared to sailing on two interconnected boats—one representing the supply or production of goods and services and the other signifying demand or expenditure.

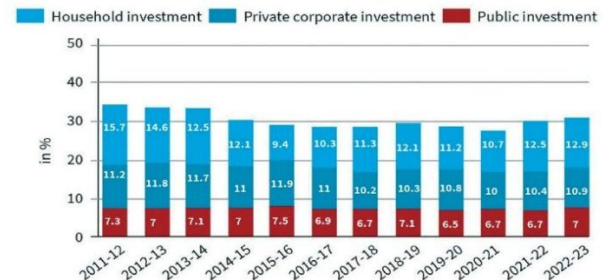
More on News

Gross Domestic Product (GDP) measures the value added by the production process.

For sustained growth, both supply and demand must move in sync.

- If supply lags behind demand, inflation occurs due to rising prices.
- Conversely, if demand weakens, businesses accumulate unsold inventories, leading to production cuts, job losses, and a downward economic spiral.

Chart 2: Investment as % of GDP in India by institutional sectors



Four Pillars of Aggregate Demand

An economy's demand, or aggregate expenditure, comes from four key sources:

- **Private Consumption:** Expenditures by individuals on essentials and discretionary items, such as food, clothing, and mobile phones.
- **Private Investment:** Spending by businesses and households on new machinery, factories, and residential buildings.
- **Government Expenditure:** This includes both consumption (such as salaries of public employees) and investment (such as infrastructure projects).
- **Net Exports:** The difference between a country's exports and imports in global trade.

*The **multiplier effect** is a key concept in economics that explains how an initial change in spending can lead to a larger overall impact on national income and economic activity.*

Investment and the Multiplier Effect

Investment: Among these, investment plays a crucial role due to its multiplier effect— where an initial investment stimulates additional economic activity.

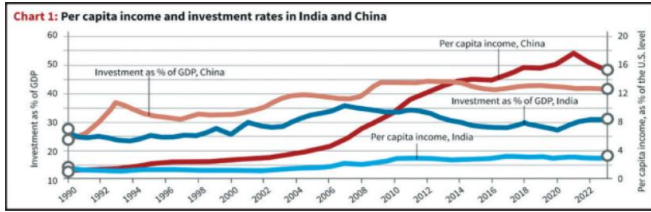
- For example, an investment of `100 might raise GDP by `125, indicating a **multiplier of 1.25**.

Infrastructure: Public infrastructure projects, such as highways, not only generate employment and incomes but also stimulate further development, such as the establishment of new businesses along the routes.

- The **multiplier effect varies depending on the type of investment and the region's economic conditions**.

Consumption: Compared to investment, consumption has a weaker multiplier effect.

- While **higher incomes lead to increased consumption**, the reverse is not as effective—**higher consumption does not necessarily generate proportional income growth across the economy.**
- **Keynesian economists** thus view consumption as a passive component of aggregate demand.



India vs. China: A Tale of Diverging Growth Paths

- In the **early 1990s**, India and China had nearly **identical per capita incomes**, with both countries at about **1.5% of the U.S. average.**
- However, **by 2023**, China's per capita income had **grown to five times that of India** (or **2.4 times when adjusted for purchasing power**).
- As a percentage of U.S. per capita income, China reached **15% in 2023**, while India stood at **3%.**
 - The key driver behind China's rapid economic expansion has been its high investment rates.
- From the **1970s onward**, **China consistently maintained higher investment rates than India.**
- **By 1992**, investment accounted for **39.1% of China's GDP**, compared to **27.4% in India.**

India briefly closed this gap in the early 2000s, with its investment rate peaking at 35.8% in 2007.

- However, the **2008 global financial crisis** led to diverging policy responses.
- **India's investment rate declined after 2012**, whereas China aggressively increased public investment, particularly in infrastructure, advanced manufacturing, and emerging technologies.
- By 2013, China's investment rate stood at 44.5%, while India's dropped to 31.3%. In 2023, these figures were 41.3% and 30.8%, respectively.

India's recent economic growth has been largely consumption-driven, with private consumption accounting for 60.3% of GDP in 2023, compared to 39.1% in China.

- The **dominance of consumption reflects weaknesses in other components of demand—low investment levels, moderate government spending, and a persistent trade deficit, where imports exceed exports, dampening domestic demand.**

Challenges of Consumption-Led Growth

- **Slow Growth:** A consumption-driven economy grows more slowly than one led by investment.
- **Inequality:** Moreover, it exacerbates income inequality.
- **Lack of Jobs:** Job creation and income growth remain sluggish for many Indians, leaving large sections of the population behind.

Need for Government-Led Investment

- In such a scenario, **government intervention becomes essential.**
- **Public investment in critical sectors can restore business confidence**, stimulate private investment, and ensure inclusive economic growth.
- However, **recent government policies, including the latest Union Budget, have not demonstrated the necessary commitment to increasing investment.**
- Instead, **tax concessions and cautious government spending suggest a preference for low-growth, consumption-driven strategies** that primarily benefit the middle and upper classes.

For India to achieve sustainable and equitable growth, a shift towards higher public investment is crucial. Strategic government spending can create a ripple effect, encouraging private investment and leading to broad-based economic development. Otherwise, India risks falling into a low-growth trajectory, limiting opportunities for millions and widening socio-economic disparities.

THE DIGITAL ENERGY GRID (DEG)

Sub Topic: Resources, Energy and Infrastructure

Context:

A recent paper by the **International Energy Agency (IEA)** and the **Foundation for Interoperability in Digital Economy (FIDE)** suggests implementing an open, interoperable protocol for energy.

More on News

- Launched on **February 12, 2025**, titled **"Digital Energy Grid: A Vision for a Unified Energy Infrastructure"** at the IEA headquarters in Paris.
- This transformative framework aims to **digitise energy transactions, assets, and participants,**

addressing inefficiencies in the **decentralised energy ecosystem**.

Current Energy Infrastructure & Challenges

- **Current Energy System:** The design of India's energy infrastructure has remained largely unchanged for over a century. The grid, which distributes power from generating stations, is largely a top-down system with new technologies added on without rethinking the core structure.
- **Challenges in Integration:** Modern energy systems, such as electric vehicle (EV) charging networks, distributed renewable sources, and energy efficiency solutions, are not integrated into the existing grid. This is due to outdated laws and infrastructure designed in a pre-digital era.
- **Growing Demand:** There is an urgent need to increase energy supply due to rising demand from cooling systems, EVs, and data centres. Integrating distributed and renewable energy sources can help meet this demand, but current infrastructure struggles with variable energy sources.
- **Need for System Redesign:** A significant redesign of the energy ecosystem is needed to address current and future needs, but the exact changes required are still unclear.

Proposed Solution - Digital Energy Grid

The **DEG** proposes an **interoperable, unified digital infrastructure** connecting all **energy stakeholders**—producers, consumers, and intermediaries. Leveraging **advanced digital technologies**.

Core Elements:

- **Identity** – Each entity in the energy system (power plants, grid, batteries, rooftop solar panels) will receive a globally unique identity.
- **Data Formats** – Standardised machine-readable formats will enable digital processing of energy data.
- **Verifiable Data Portability** – Secure verification procedures will ensure tamper-proof, portable data across the ecosystem.

Transforming the Energy Grid into a “Network of Networks”: DEG would unify various energy systems, similar to how the internet works for digital systems (e.g., HTTP for websites).

- It would enable bi-directional communication between systems, making energy flow more flexible and efficient.

- Allows decentralised participants to communicate directly instead of relying on a central control centre.

Benefits of DEG

- **Enhanced Grid Stability:** Neighborhoods can become self-sufficient by optimising energy consumption and sharing stored energy when needed.
- **Fault-Tolerant Networks:** Micro-networks can redistribute energy if certain nodes fail, increasing grid resilience.
- **Renewable Energy Integration:** Coordinating the production and consumption of rooftop solar and other renewables will stabilise the grid more effectively.
- **Optimised Energy Consumption:** Consumers can charge EVs when electricity is cheap and sell stored energy during peak demand.
- **Increased Private Sector Participation:** Greater involvement of private players while maintaining competition and consumer protection.

Regulatory Changes Required

- Existing laws restricting small distributed energy systems must be dismantled to enable interoperability.
- Regulatory frameworks should support the implementation of DEG without the need for additional security legislation.
- Regulators will play a key role in defining and enforcing protocols, ensuring a balanced approach between private-sector participation and consumer protection.

Implications for the Energy Sector

The adoption of the **DEG framework** is expected to **revolutionise the energy sector** by:

- **Reducing Operational Inefficiencies** → **Automation & real-time monitoring** minimise energy losses & costs
- **Promoting Sustainable Practices** → A **unified grid** accommodates **more renewable energy sources**
- **Enhancing Energy Security** → **Improved grid management** ensures **greater resilience against disruptions**.

SUBJECT – SCIENCE & TECHNOLOGY

INDIA'S DRONE REVOLUTION

Sub Topic: Achievement in the Field of Science & Technology Resources

Context:

India is embracing the Fourth Industrial Revolution by leveraging drone technology to redefine its economic and societal landscape.

More on News

- One of the most significant milestones in this transformation is the **2025 Maha Kumbh Mela**, which will mark the first-ever “**Digital Maha Kumbh.**”
- This monumental spiritual gathering, occurring **only once every 144 years** due to a rare planetary alignment, will **leverage cutting-edge drone technology.**

Maha Kumbh Mela 2025: A Digital Milestone

The **Maha Kumbh Mela 2025** is set to be a truly groundbreaking event, not only in its spiritual and cultural significance but also as a milestone in India's **digital revolution.**

Technological Integration:

- **AI-Powered Cameras & Drones:** These technologies will provide **real-time monitoring**, ensuring accurate data capture, reducing risks, and enhancing security during the event.
- **Underwater Drones:** A **world-first** for the Kumbh Mela, these drones will provide **24/7 surveillance**, particularly during the **Sangam Snan** (ritual bath) at the sacred confluence. The drones will be able to detect suspicious underwater activities, transmitting **real-time reports** to a central **Integrated Command and Control Center.**
- **Anti-Drone Systems:** The event will also feature **anti-drone systems** to safeguard the security of the large crowd from potential threats.

This initiative demonstrates **India's growing capabilities in drone technology**, pushing boundaries for large-scale, tech-driven public events.

India's Vision for Drones by 2030

- India is **positioning itself as a leader in the drone industry**, aspiring to become a **global drone hub by 2030.** The country aims to contribute **1-1.5% to GDP** through drones and create **500,000 jobs** in the sector.
- **Global Standing:** Ranked **2nd** in shaping the global drone industry, after the United States (*Drone Industry Insights 2024*).
- **Growth in Domestic Manufacturing:** Annual turnover is projected to increase from **INR 600 million (2020-21)** to **INR 9 billion (2024-25).**

Policy Initiatives:

- **Drone Rules 2021:** The government has streamlined regulations to foster the growth of the drone industry, reducing the number of approval forms and slashing fees. The introduction of the **Digital Sky Platform** enables simplified permissions and provides interactive airspace maps to help operators navigate drone regulations more easily.
- **Production-Linked Incentives (PLI):** Worth **INR 1.97 trillion**, aimed at fostering domestic manufacturing of drones and drone components, with a focus on **self-reliance** (Atmanirbhar Bharat).
- **Drone Import Policy:** India has imposed a ban on the import of **foreign drones**, promoting the growth of **domestic drone manufacturing.**
- **Drone Schools and Talent Development:** To build a skilled workforce, India has approved **63 Remote Pilot Training Organisations (RPTOs)**, ensuring the country has a steady stream of drone pilots ready for deployment in various sectors.

Drones in Key Sectors

- **Agriculture:** Drones are playing a pivotal role in **precision farming**, helping monitor crop health, optimise irrigation, and apply pesticides efficiently. Initiatives like **Kisan Drones** are improving agricultural practices by enabling real-time crop and soil health monitoring.
- **Infrastructure Development:** Drones are transforming the construction and infrastructure sectors by providing **high-resolution aerial data for project planning, design, and monitoring.** Drones help track project progress, detect safety issues, and ensure efficient resource utilisation.
- **Disaster Response:** Equipped with **thermal imaging** and other sensors, drones are invaluable during

disaster management. They are used for damage assessment, locating survivors, and monitoring inaccessible areas, thus enabling quick and efficient relief operations.

- **Empowering Rural Communities:** Initiatives like “**Namo Drone Didi**” are empowering women-led self-help groups (SHGs) by training them in drone technology for agricultural services. This not only promotes women’s empowerment but also offers new income streams in rural areas.

Challenges and Solutions

- **Regulatory Hurdles:** Some **compliance processes** remain cumbersome, particularly for **BVLOS (Beyond Visual Line of Sight)** operations, which are crucial for scalability.
- **Fostering Talent:** India lacks a sufficient number of **testing facilities** and affordable training programmes for **remote pilots**.
- **Harmonising Policies:** There is a need to **standardise drone policies** across states to create a uniform ecosystem that fosters growth.

Government Support and Future Directions

- **Creating a Viable Market:** By driving demand in government sectors and encouraging **commercial drone use**, the government can help kick-start the market.
- **Establishing Innovation Hubs:** Setting up **drone training centres** and **innovation incubators** in technical institutions across the country could help build a skilled workforce.
- **State-Level Drone Ecosystems:** Encouraging state governments to release policy papers on setting up drone manufacturing ecosystems and releasing annual performance reports would help foster regional development and innovation.

SACHETISING INTERNET BANDWIDTH

Sub Topic: Achievement in the Field of IT & Computer

Context:

The Union Budget has emphasised the development of Digital Public Infrastructure (DPI), which is considered a vital factor for the 21st-century economy, aiming to improve productivity and reduce inequality.

More on News

PM-WANI (Pradhan Mantri WiFi Access Network Interface) is highlighted as a crucial DPI for bridging the digital divide, particularly in rural areas, enabling easier access to information, improving productivity, and creating new income sources.

Pradhan Mantri WiFi Access Network Interface (PM-WANI)

- The **PM-WANI** is an ambitious initiative by the Indian government aimed at proliferating broadband internet access through public Wi-Fi hotspots.
- Launched in **December 2020**, PM-WANI seeks to bridge the digital divide by making internet access more affordable and widespread, especially in rural and underserved areas.

Key Components:

- **Public Data Office (PDO):** Establishes and operates PM-WANI compliant Wi-Fi hotspots. These can be set up by local businesses, such as shops and small establishments, without requiring licenses or fees.
- **Public Data Office Aggregator (PDOA):** Facilitates PDOs by aggregating their services and ensuring compliance with regulatory requirements. PDOAs also do not require licenses but need to register with the Department of Telecommunications (DoT).
- **App Provider:** Develops applications to register and authenticate users, making it easy for them to access Wi-Fi hotspots.
- **Central Registry:** Maintains details of App Providers, PDOAs, and PDOs.

The Digital Divide

- **Mobile market:** India is one of the largest mobile markets globally with over **1.15 billion mobile subscribers** (as of 2023). This has been driven by affordable mobile phones and competitive telecom pricing.
- **Coverage Gaps:** Out of 5.97 lakh villages, 25,067 remain without internet access.
- **Limited Internet Usage:** Approximately **45%** of the population does not access the internet, despite initiatives like **BharatNet** providing fiber optic connectivity at the gram panchayat level.

Challenges Faced by Rural Internet Users

- **Consumption gap:** Rural users, especially the economically disadvantaged, face higher internet costs as a percentage of their income. The lowest

income decile in rural areas spends `290/month (around **3% of their income**) on internet access, while the highest decile spends `444/month (only **0.75%**).

- In contrast, urban users spend `255 (2.2% of income) and `610 (1.5%) for internet access.
- **Minimum Recharge Costs:** The issue arises because **mobile companies charge a minimum recharge amount** (`180-200) for **1GB of data per day**, which forces rural households to ration their data usage, typically prioritising entertainment over productivity-related tasks.
- **Shared devices:** Rural households (average 4.4 members per household) often share a single device, leading to limited internet access, whereas urban areas dominate digital commerce, payments, and online learning.

Sachetisation as a Solution

- **Sachetisation** – the concept of offering smaller, more affordable product quantities – has been successful in driving adoption in FMCG products among low-income groups. A similar model is suggested for mobile internet plans.
- By breaking down the price points for internet access, it would allow rural users to afford data more flexibly, especially in economically disadvantaged communities.
- The implementation of a **PM-WANI-based** approach could democratise internet access, offering **affordable and flexible data plans**, ensuring broader and more equitable internet access for rural populations.

Recommendations for Inclusive Growth

- To ensure India's vision of **Viksit Bharat by 2047**, the following steps are essential:
- **Innovative Pricing Models:** Introduce sachet- sized data plans to make internet access more affordable for low-income households.
- **Policy Support:** Strengthen DPI initiatives like PM-WANI and BharatNet with better regulatory and financial support.
- **Incentivising Local ISPs:** Encourage local internet service providers to expand coverage and offer affordable pricing tailored to rural needs.
- **Public Awareness Campaigns:** Educate rural communities about the benefits of internet access beyond entertainment.

- **Private-Public Partnerships:** Collaborate with private companies to deploy affordable internet solutions.

ALGORITHMIC RADICALISATION

Sub Topic: Achievement in the Field of Artificial Intelligence

Context:

Algorithms have become a cornerstone of content distribution and user engagement on social media platforms.

More on News

- While these systems are designed to enhance user experience, they **often inadvertently amplify extremist propaganda and polarising narratives**.
- This phenomenon, known as **"algorithmic radicalisation,"** highlights how social media platforms steer users toward **ideological echo chambers through biased content curation**.

Understanding Algorithmic Amplification

Rank Content: Social media algorithms analyse user behaviour and rank content based on engagement metrics such as **likes, comments, shares, and watch time**.

Personalised Recommendations: Machine learning models **further personalise recommendations**, amplifying content that gains traction.

- This process often **leads to viral trends but also creates echo chambers**, where users are continuously exposed to similar viewpoints, reinforcing their biases.

Hashtags: Hashtags **play a crucial role in this dynamic**. They categorise content, making it more discoverable to a wider audience.

- When a post includes trending or niche- specific hashtags, algorithms prioritise its visibility, increasing engagement and further amplifying the content.
- This mechanism is exploited by extremist groups to spread propaganda to targeted audiences.

Algorithmic Echo of Extremism and Propaganda

User Interaction: Platforms like **YouTube, TikTok, Facebook, X (formerly Twitter), and Instagram** tailor content based on **user interactions**.

- However, by prioritising **engagement- driven metrics**, these algorithms **often promote**

emotionally charged or controversial material, creating feedback loops that amplify extremist ideologies.

Triggering Emotions: Research by academic Joe Burton has indicated that **algorithmic biases heighten engagement by triggering emotions** such as fear, anger, or outrage— key drivers in the spread of extremist content.

Radical Uses: Radical groups have effectively leveraged these platforms for propaganda and recruitment.

- The **Islamic State (IS) and al-Qaeda**, for instance, use **X and Telegram to cultivate a sense of belonging** among followers while disseminating radical material.
- Meanwhile, **TikTok's "For You" page** has been criticised for frequently recommending **far-right-wing content**, pulling users deeper into algorithmic rabbit holes that reinforce extremist ideologies.

Disinformation: Beyond terrorism, algorithmic exploitation is also evident in the **spread of disinformation, particularly during elections**, contributing to societal divisions and violence.

Challenges in Countering Algorithmic Radicalisation

- **Opacity:** The **opacity of social media algorithms** presents a significant challenge in addressing extremist content.
 - These algorithms function as **"black boxes,"** where even developers struggle to fully comprehend the processes governing content recommendations.
 - For instance, **TikTok's "For You" page has been flagged for promoting sensationalist and extremist material, yet the complexity of its operations makes mitigating algorithmic biases difficult.**
- **Adaptations:** Extremist groups exploit these gaps by adapting their content strategies— **using coded language, symbols, or euphemisms**—to evade detection systems.
- **Fail to Account Context:** Moreover, algorithms deployed globally often fail to account for local socio-cultural contexts, exacerbating the problem.
- **Free Speech:** Balancing free speech with effective content moderation remains a complex issue.
- Laws like Germany's NetzDG mandate platforms to remove harmful content within strict deadlines, but extremist groups find ways to exploit legal loopholes, ensuring their content remains within permissible boundaries while still spreading divisive ideologies.

Mitigating Risks: Tech Solutions and Policy Interventions

AI-Driven Moderation: Platforms like **YouTube have deployed machine-learning models** to detect and reduce extremist content.

- In 2023, YouTube's AI-driven moderation system **reduced flagged extremist videos by 30%.**
- However, **extremists continue to evade detection through coded language and satire.**

Counter-Narrative Strategies: Social media platforms can redirect users searching for extremist content toward tolerance- promoting material.

- **Instagram**, for example, has implemented **initiatives to promote positive content when users engage with radical themes.**

Government Regulations: India's Ministry of Electronics and Information Technology (**MeitY**) has **flagged over 9,845 URLs** containing harmful content.

- Under the **IT Rules 2021**, social media and digital news platforms **must trace content originators and remove flagged content within 36 hours.**

Algorithm Audits: Regular audits should be mandated to ensure algorithmic transparency and fairness.

- The **European Union's Digital Services Act 2023** requires social media companies to disclose how their algorithms function and allows independent researchers to assess their impact on users.

Stronger Accountability Measures: Governments should define clear policies on algorithmic responsibility, including penalties for platforms that fail to address the amplification of harmful content.

- **Germany's NetzDG law**, which imposes fines for failing to remove illegal content within 24 hours, has inspired similar regulations across Europe.

Context-Specific Content Moderation: Customised moderation policies, tailored to local contexts, can enhance the effectiveness of algorithmic interventions.

- **France**, for instance, **collaborates with social media companies to refine their algorithms** for detecting extremist content, considering regional dialects and cultural nuances.

The algorithmic amplification of propaganda and extremist narratives is a critical challenge in the digital age, with profound implications for social cohesion, political stability, and public safety. Addressing this issue requires a multifaceted approach involving technological innovations, regulatory frameworks, and collaborative efforts between governments, tech companies, civil society, and users.

SUBJECT – ENVIRONMENT, BIO-DIVERSITY AND DISASTER MANAGEMENT

“TREE AADHAAR” MISSION

Sub Topic: Conservation

Context:

The “Tree Aadhaar” mission launched by the Jammu & Kashmir government is a significant step toward preserving the region’s iconic **chinar trees**. This initiative focuses on creating a detailed census of these majestic trees, granting each one a unique identity for conservation purposes.

The term “chinar” is believed to have been coined by the Mughals, possibly by Emperor Jahangir. The name comes from a Persian phrase, “Che naar ast”, which translates to “What flame is that?” in reference to the tree’s crimson leaves during the autumn season.

What is a Chinar Tree?

- **Scientific Name:** *Platanus orientalis* var. *cashmeriana* (also known as Oriental plane tree).
- **Characteristics:** The chinar tree is known for its large canopy, maple-like leaves, and ability to thrive in cool climates with ample water. These trees can grow up to **30 meters tall** with a girth ranging between **10 to 15 meters**. It takes 30-50 years for a chinar tree to mature and **150 years** to reach full size.
- **Historical Significance:** The chinar is native to the **Eastern Himalayas** and holds deep cultural and historical importance in Kashmir.

Importance of Chinar Trees in Kashmir

- **Cultural Significance:** The chinar is considered the **state tree** of Jammu & Kashmir (now a Union Territory). The tree is integral to **Kashmiri art, literature, and crafts**, often depicted in **papier mâché, embroidery, carpet weaving, and wood carvings**.
- **Tourism and Aesthetics:** The changing colours of the chinar leaves, especially during autumn when they turn **crimson red** and **golden**, attract many tourists.
- **Religious and Historical:** The chinar also features prominently in the region’s **Muslim and Hindu shrines**. The oldest surviving chinar in Kashmir,

around **700 years old**, is located in **Chattergam village** and is believed to have been planted by a **Sufi saint**.

The Chinar Conservation Project (Tree Aadhaar Mission)

Purpose: The primary goal of the Tree Aadhaar initiative is to monitor, protect, and conserve these iconic trees by creating a comprehensive **census** of the Chinar population.

The Process:

- **Census and Enumeration:** The government has begun by conducting a district-wise census of chinar trees across the Kashmir valley and Chenab region.
- **Geo-Tagging and Tree Aadhaar:** Every tree identified in the census is assigned a **unique identity**, known as **Tree Aadhaar**, and **geo-tagged** to track its location and status.

Progress of the Project: As of now, **28,560 chinar trees** have been enumerated and geo-tagged, with an estimated total of **32,000 to 33,000** chinar trees in the region.

Technological Innovations: QR Code Tags: To further enhance monitoring and conservation, the government has introduced **metallic QR codes** on each chinar tree.

These codes, when scanned, provide detailed information on **25 parameters** about each tree, including:

- **Location (longitude and latitude).**
- **Age, height, girth, and number of branches.**
- **Health of the tree and eco-threats** it faces.
- **Canopy size and overall condition.**

Challenges

- **Illegal Cutting:** Despite requiring government approval, some chinar trees are felled illegally.
- **Untracked Trees:** Trees in restricted areas remain unmonitored.
- **Environmental Threats:** The health and survival of chinar trees are affected by urbanisation, pollution, and climate change.

Impacts and Future Outlook

- **Conservation:** By providing a unique identity to each tree, the mission helps in monitoring and preserving the Chinar population.
- **Heritage Preservation:** The initiative ensures that the cultural and historical significance of Chinar trees is maintained for future generations.
- **Public Awareness:** The QR codes and digital information make it easier for the public to learn about and appreciate these iconic trees.

RESILIENCE OF THE SUNDARBANS MANGROVES

Sub Topic: Conservation

Context:

A study titled “**Resilience of Sundarban mangroves in South Asia to Weather Extremes and Anthropogenic Water Pollution**” was conducted by researchers from IIT Bombay, IISER Kolkata, and ISRO’s National Remote Sensing Centre, Hyderabad.

More on News

Researchers studied **vegetation productivity** (how efficiently mangroves convert solar energy into biomass) and **flux data** (gaseous exchanges of CO₂ and water vapour between plants and the atmosphere).

The **Sundarbans**, located in India and Bangladesh, are the **world’s largest stretch of mangrove forests**. They serve as a critical ecosystem, providing defence against cyclones, supporting diverse wild-life, and helping combat global warming. A significant portion of the Sundarbans is recognised as a **Ramsar Site** (wetlands of international importance), and the Indian side of the region has been designated as a **UNESCO World Heritage Site since 1987**.

Key Findings:

- **Resilience to Stress:** Mangroves in the Sundarbans recover from physiological stress (like cyclones) quickly—within 1 to 2 weeks—and maintain stable productivity despite a decline in nutrient composition due to pollution.
- **Nutrient Composition Changes:** The study found that the ratio of nitrogen to phosphorus (N/Ph) in the mangroves shifted significantly, with nitrates increasing (**due to acid rain**) and phosphates decreasing from 2013 to 2015.
- **Stable Productivity:** Despite declining nutrient levels due to human pollution, mangroves maintained **stable productivity** by adjusting their interactions with **hydro- meteorological factors**.
- **Link Strength and Memory:** Mangroves adapt to stress by altering their interaction with the environment.
 - “**Link strength**” refers to how **interconnected** various **components** of the mangrove ecosystem are, while “**memory**” refers to the **mangroves’ ability**

to remember and store responses to past stress events (like cyclones).

What Are Mangroves and Their Importance?

- Mangroves are unique trees **capable of thriving in salty coastal waters**.
- The **Sundarbans exist** in the **delta formed by the Ganga, Brahmaputra, and Meghna rivers**, receiving both freshwater and tidal saline water.
- **According to the Global Mangrove Alliance**, the Sundarbans provide **habitat for endangered species** such as the **Bengal tiger, Irrawaddy River dolphin, finless porpoise, and estuarine crocodile**.
- **Mangroves act as a nursery for 90% of aquatic species** along India’s east coast and serve as a **bio-shield** against coastal storms.
- They play a significant **role in carbon sequestration**, extracting up to five times more carbon than terrestrial forests.
- The **Indian Sundarbans** were **classified as endangered** under the IUCN Red List of Ecosystems in 2020.

Significance of the Study

- The study highlights that **while the Sundarbans have shown resilience, their ability to self-repair has limits**.
- Understanding the resistance of mangroves to stressors is crucial in **identifying their breaking point and formulating conservation strategies**.
- The study urges a deeper understanding of the **limits of resistance** and **critical transitions** in mangrove ecosystems due to **anthropogenic stressors**.
- The findings highlight the need for **scientifically driven solutions** to protect and restore mangroves in South Asia.

Threats to the Sundarbans

The **Sundarbans mangroves**, especially in **non-protected regions**, face numerous threats such as:

- Exposure to **cyclones and storms**.
- Rising sea levels.
- Unsustainable practices in **agriculture and aquaculture**.
- Reduced freshwater supply.
- **Air pollution and land erosion**.
- Depletion of marine resources, including declining fish populations.

Restoration Efforts

Nature Conservancy India is working to restore **100 hectares** of degraded mangrove habitats and monitor **60 hectares** of

previously initiated restoration projects in the **Indian Sundarbans**.

- This aligns with the **MISHTI** (Mangrove Initiative for Shoreline Habitats & Tangible Incomes) initiative by the **Government of India**.

NITI Aayog has released a comprehensive report titled **“Greening and Restoration of Wastelands with Agroforestry (G.R.O.W)”**, focusing on the recovery and restoration of wetlands across India.

- The report introduces the **Agroforestry Suitability Index (ASI)**, a tool developed using remote sensing and GIS technologies to assess the suitability of different regions for agroforestry.

Sundari Mangroves Project: Launched to restore **4,500 hectares** of degraded mangroves in West Bengal, this project is supported by private sector partners like EcoAct and Meensou India.

THE ERA OF PLASTIC-DEGRADING BACTERIA

Sub Topic: *Environmental Pollution & Degradation*

Context:

Plastic pollution remains a critical **environmental challenge**, with **8.3 billion tonnes** produced globally over **65 years**, of which **less than 10% is recycled** and **4.9 billion tonnes persist in the environment**. Scientists are pioneering biological methods to address this crisis.

More on News:

Many **biologists have begun exploring ways to degrade plastic**, developing **bacteria or enzymes** that can break down plastic waste.

Driven by a **desire to create a sustainable solution**, several scientists have even turned into entrepreneurs, **founding companies to help scale these innovative approaches**.

However, the path to solving the plastic pollution problem is long and difficult. Scientists are still in the early stages of discovering methods that are fast and effective enough for widespread use.

Plastic Pollution Crisis

- Plastics are **non-biodegradable**, contributing to mounting environmental concerns, particularly in marine ecosystems and with the **emergence of microplastics affecting human health**.
- **Common plastics** such as **polyethylene (PE)**, **polystyrene (PS)**, and **polyvinyl chloride (PVC)**

are resistant to degradation due to their hydrophobic nature and lack of hydrolysable functional groups.

- **Polyethylene Terephthalate (PET)** is a widely used plastic, but it has a susceptibility to degradation because of its hydrolysable ester bonds.

Natural Enzymes and Their Limitations

- **Polyethylene terephthalate (PET)**, a common polyester in plastics, can be broken down by natural enzymes.
- In 2016, Kohei Oda’s team at Kyoto Institute of Technology discovered **Ideonella sakaiensis**, a bacterium that degrades PET using two enzymes, **PETase** and **MHETase**.
- PETase breaks down PET into **MHET**, which is further broken down by **MHETase** to yield terephthalate (TPA) and ethylene glycol (EG), both of which can be metabolised by other bacteria.
- However, most **natural enzymes take months or years to degrade plastic**, making them **impractical for industrial use**.

Engineering Faster Enzymes

- **Kavyashree Manjunath (Apratima Biosolutions):** Incubated at CCAMP Bengaluru, to develop a faster PET-degrading enzyme.
- Their **enzyme can degrade 90% of PET waste in 17 hours**, breaking it into **reusable terephthalic acid** and **ethylene glycol**
- The team is working on making the process even faster and cost-effective.
- Their goal is to **collaborate with the PET recycling industry** for large-scale adoption.

Microbes for Multi-Plastic Degradation

- **Breaking Inc. (Sukanya Punthambaker & Vaskar Gnyawali):** Discovered **bacterium X-32**, which degrades PET, polyolefins, and polyamides (nylon) but requires 22 months to fully break them into CO₂, water, and biomass.
 - Research focuses on isolating and enhancing the efficiency of enzymes involved.
- **Nathan Crook (North Carolina State University):** Engineered **Vibrio natriegens** bacteria to surface-express PET-degrading enzymes. Leverages bacterial evolution to improve degradation rates, calling enzymes the “rate-limiting step”.

Bacterial Spore Integration

- **Jon Pokorski (UC San Diego):** Incorporated heat-resistant *Bacillus subtilis* spores into thermoplastic polyurethane (TPU).
 - Degrades 90% of TPU in 5 months under compost conditions while enhancing material strength.
 - Advantages include scalability and reduced plastic use due to improved mechanical properties.

Major Advances in Enzyme Technology

- **Greg Beckham (National Renewable Energy Laboratory, US)** developed an enzyme that degrades crystalline PET.
- **Carbios, a French company,** engineered a heat-stable PET-degrading enzyme that **degrades 90% of PET waste in 10 hours**. Carbios aims to establish a large-scale PET recycling plant but faces funding delays.

Challenges and Future Directions

- **Speed vs. Versatility:** Enzymes act faster but target specific plastics, while microbes handle diverse plastics slower.
- **Scalability:** Industrial adoption requires cost-effective production, high waste-loading capacity, and regulatory approval for bacterial use.
- **Material Specificity:** Most solutions focus on PET, leaving polyolefins and mixed plastics underrepresented.

INDIA'S GROWING FOREST FIRE CRISIS

Sub Topic: Environmental Pollution & Degradation, Conservation

Context:

Wildfires are increasing globally, with Los Angeles being a recent example. The urgency to address and prevent forest fires is evident as their frequency grows. However, in India, this issue is equally critical but often overlooked until a major disaster occurs.

More on News

- **36% of India's forest cover is prone to fires** (Forest Survey of India).
- **10-fold increase in forest fires in the last two decades** (Council on Energy, Environment, and Water).

- Total forest cover has increased by only **1.12%** in the same period.

Impact of Forest Fires in India

- Forests are vital not just for wildlife conservation and biodiversity but also as lifelines for local communities.
- **States Most Affected by Forest Fires:** Uttarakhand and Himachal Pradesh frequently make headlines for wildfires. Madhya Pradesh, Maharashtra, Odisha, and Karnataka are also grappling with increasing fire frequency.

Wildfires, also known as forest fires, bushfires, or vegetation fires, are uncontrolled blazes that occur in forests, grasslands, savannahs, or other natural landscapes. These fires can spread rapidly, fueled by dry vegetation, high temperatures, low humidity, and strong winds. Wildfires are a natural part of many ecosystems, helping to clear dead vegetation, promote new growth, and maintain biodiversity. However, in recent decades, they have become more frequent and intense due to human activity and climate change.

- **Human and Climate-Driven Causes:** 90% of fires are caused by human activity – land clearing, slash-and-burn agriculture, and unattended campfires. Rising temperatures and extended dry spells, fueled by climate change, worsen fire intensity.

Devastating Consequences

- **Environmental:** Loss of trees, wildlife, and biodiversity.
- **Climate Impact:** India's forest fires emit **69 million tonnes of CO2 annually** (World Resources Institute).
- **Economic Losses:** ₹1.74 lakh crore annually due to forest degradation (Ministry of Environment, Forest & Climate Change, 2018).
- **Livelihood Impact:** Forest-dependent communities suffer due to loss of timber and non-timber products.
- **Water Crisis:** Fires disrupt the water cycle and degrade soil fertility.
- **Human-Wildlife Conflict:** Displaced animals enter human settlements, increasing risks.

Current Forest Fire Management in India

- India has policies like the **National Action Plan on Forest Fires** and the **Forest Fire Prevention and Management Scheme (FFPMS)**, which provides funding to state governments for prevention and management.

- However, the **funding for FFPMS has been inconsistent**: `46.40 crore (2019-2020), `32.47 crore (2020-2021), `34.26 crore (2021-2022), `28.25 crore (2022-2023), `40 crore (2023-2024, revised), and `50 crore (2024-2025).

Challenges

- **Technological Shortcomings**: The **Forest Fire Alert System lacks precision**, often misidentifying fires and delaying responses.
- **Limited use of advanced predictive modelling** to identify high-risk areas.
- **Insufficient deployment of drones and thermal imaging cameras** for monitoring and response.
- **Weak Community Involvement**: Local communities lack tools to report fires in real-time. Successful local programmes (e.g., women's self-help groups collecting pine needles in Uttarakhand & Himachal Pradesh) are not scaled nationally.

Solutions for a Stronger Forest Fire Response

Enhanced Technology & Predictive Tools: Deploy **AI-based fire risk mapping & predictive modeling** (leveraging data from the **Forest Survey of India, IMD, and ISRO**).

- **Use drones with thermal imaging** to monitor fire-prone areas and assess damage.
- **Scale-up pilot programmes from Tamil Nadu & Odisha**, which have tested such technologies

Community-Centric Approaches: Expand local reporting systems via **mobile apps, toll-free helplines, and SMS alerts**.

- **Example**: In **Uttarakhand and Himachal Pradesh**, self-help groups (primarily women) collect pine needles to prevent future fires.
- Adopt successful global models such as Nepal's Community Forest User Groups and Indonesia's Fire-Free Village Programme.
- **Train youth as 'forest fire scouts'** to combine traditional knowledge with modern tools.

Policy & Budgetary Strengthening: Ensure **steady funding for FFPMS**, preventing year- to-year fluctuations. **Integrate forest fire mitigation into broader climate and disaster preparedness policies**.

SUBJECT – INTERNAL SECURITY

DDOS CYBERATTACK DISRUPTION OF KAVERI 2.0 PORTAL

Sub Topic: Challenges to Internal Security Through Communication networks, Cyber Security

Context:

Recently, **Karnataka's Kaveri 2.0 portal**, which facilitates property registrations, experienced severe outages statewide due to a **Distributed Denial of Service (DDoS) attack**, as revealed by investigations by the Revenue and E-Governance Departments.

Nature of the Attack

- **DDoS Attack**: An attack designed to overwhelm a network or service with excessive traffic, making it unavailable.
- **Difference from DoS**: Unlike traditional Denial of Service attacks, DDoS uses multiple compromised systems to flood the target with requests.
- **Artificial Intelligence**: Attackers utilised AI- based techniques to generate massive traffic surges, with search queries for **Encumbrance Certificates (EC)** increasing by eight times.
- **Fake Accounts and Bots**: The creation of fake accounts and the use of bots contributed to overwhelming the portal's infrastructure.

WHAT MAKES FOR A HEATWAVE?

Places with normal maximum temperature	Heatwave if temperature higher by	Severe heatwave if temperature higher by
40 degree Celsius or less	5-6 degree Celsius	7 degree Celsius
More than 40 degree Celsius	3-4 degree Celsius	More than 5 degree Celsius
For any place	Maximum temperature remains above 45 degree Celsius for two consecutive days	

These criteria have to be met in at least two stations of a meteorological sub-division for at least two consecutive days. Source: Parliament question and IMD

Other Prominent DDoS Attacks

- **Elon Musk's X Platform (August 2024)**: A massive DDoS attack disrupted the platform before Musk's conversation with Donald Trump, then a U.S. presidential candidate.
- **GitHub Attack (2015)**: A China-based botnet targeted GitHub projects providing tools to bypass **Chinese censorship** by injecting malicious JavaScript into Baidu services.

Impact of the Attack

- **Disruption of Property Registration**: Over 252 sub-registrar offices across Karnataka were impacted, halting registrations.
- **Revenue Losses**: Regular property registrations typically range from 8,000 to 9,000 per day, causing significant financial losses during the attack.

About Kaveri 2.0: Revolutionising Property Registration in Karnataka

- **Kaveri 2.0** is the updated online property registration system launched in March 2023 by the **Karnataka Government** to streamline property transactions.
- It aims to **eliminate delays, middlemen, and corruption**, making the process **faster, transparent, and more efficient**.
- **Additional Integrations:** Kaveri 2.0 will soon integrate with services like **E-AASTHI, BHOOMI, and SAKALA** for comprehensive land transaction management.

- **Public Inconvenience:** Citizens faced delayed services, incomplete documents, and issues with biometric data.
- **Sector-Wide Impact:** Other services such as marriage and mortgage registrations were also affected by the cyberattack.

Government Response and Investigation

- **Cybercrime Investigation:** The **Cybercrime, Economic Offences, and Narcotics (CEN)** police launched an investigation to identify the perpetrators.
- **Security Audit:** The **Revenue Department** initiated a cybersecurity audit of the portal to identify vulnerabilities.
- **Collaboration with the E-Governance Department:** The department worked with cybersecurity experts to prevent further incidents.

Restoration of Services

- **Portal Recovery:** After remediation efforts, services were restored by **February 5, 2025**, with registration activities returning to near-normal levels.
- **Interim Measures:** Short-term solutions, such as **traffic filtering** and **rate limiting**, were implemented to stabilise the system.

Mitigation Strategies Against Future Cyberattacks

- **Enhanced Security Mechanisms:** The government introduced advanced **traffic filtering, rate limiting, and bot detection** technologies to strengthen the portal's defences.
- **Collaboration with Cybersecurity Experts:** Involvement of specialised cybersecurity agencies to enhance protection mechanisms.
- **Incident Response Plan:** The establishment of a dedicated team for continuous monitoring and timely response to emerging cyber threats.

Way Forward

- **Implementation of Advanced Security Features:** Incorporating more sophisticated security systems like **AI-based anomaly detection** and **multi-factor authentication**.
- **Public Awareness and Training:** Educating the public and government officials about cybersecurity risks and preventive measures.
- **Continuous Improvement of E-Governance Platforms:** Regular updates and upgrades to ensure resilience against evolving cyber threats and system disruptions.

PRELIMS BASED ARTICLES

SUBJECT – INDIAN HISTORY, HERITAGE AND CULTURE

DHIMSA DANCE

Sub Topic: Indian Art Forms, Indian Dance Forms

Context:

For the first time since India's Independence, **tribal families in Neelabandha**, a remote hilltop hamlet in **Arla Panchayat of Rolugunta mandal, Anapalli district**, have been connected to the power grid.

More on News

- The momentous occasion brought immense joy to the four households residing there, prompting them to break into a spontaneous performance of **Dhimsa**, a traditional tribal dance, celebrating the newfound brightness in their lives.



About Dhimsa

- It is a traditional tribal dance form primarily associated with the Porja caste in the Araku Valley of Andhra Pradesh, India.
- It is characterised by its **vibrant movements, rhythmic footwork, and communal participation**, reflecting the cultural heritage and daily life of the tribal communities in the region.

Origin and Cultural Significance

- Dhimsa dance has its roots in the **Koraput district of Odisha** but has become emblematic of tribal culture in the Visakhapatnam area.

- The term "**Dhimsa**" translates to "**sound of footsteps**," which highlights the dance's focus on rhythmic movement.
 - Traditionally, it was performed by young, unmarried women but has evolved to include participants of all ages and genders.
- The dance is performed during various occasions, including festivals, weddings, and community gatherings.
 - It serves not only as a form of entertainment but also as a means of fostering unity and cultural identity among the tribes.
 - The dance movements often emulate daily activities such as farming, gathering leaves, and rituals associated with marriage and wildlife protection.

Dance Style and Features

- Dhimsa is typically performed in a **circular formation by groups of dancers**, often consisting of **15-20 women** who move their feet in sync with the rhythm created by traditional instruments like the **dappu (drum), tudumu, mori, kiridi, and jodukommulu**.
- The attire worn by performers is colourful and adorned with tribal ornaments, enhancing the visual appeal of the dance.
- The dance consists of several variations, each with its unique theme and purpose. Some **notable types include**:
 - Boda Dhimsa**: A worship dance honouring village deities.
 - Gunderi Dhimsa**: A duet inviting male and female dancers to perform together.
 - Goddi Beta Dhimsa**: Involves swinging movements.
 - Bhag Dhimsa**: Depicts escaping from a tiger's attack.
 - Natikari Dhimsa**: A solo performance during festivals like Diwali.

SUBJECT – GEOGRAPHY

EXTREME WEATHER TRANSFORMS LAKES IN WESTERN GREENLAND

Sub Topic: *Important geographical phenomena, Climatology*

Context:

A recent study published in Proceedings of the National Academy of Sciences has revealed alarming changes in over 7,500 lakes in western Greenland, driven by extreme weather events in 2022.

What Happened to the Lakes?

Transformation in Record Time: The lakes, once crystal blue, turned brown, began emitting carbon, and suffered a drop in water quality in just a few months—an unprecedented rate of change.

Cause of the Change:

- In 2022, Greenland experienced unusual weather: **rain instead of snow** due to warmer temperatures, and **permafrost thawing**.
- The thawed permafrost released significant amounts of **organic carbon, iron, magnesium**, and other elements into the lakes.
- The extreme weather events were driven by **atmospheric rivers**—narrow regions in the atmosphere that transport large amounts of water vapour, leading to intense precipitation and heat.
 - As global temperatures rise, atmospheric rivers are expected to become **50–290% more frequent** by the end of the 21st century in regions like Greenland, North America, and Europe.

Impact on Lakes and Ecosystems

- **Water Quality Degradation:** The influx of carbon and other elements changed the **physical, chemical, and biological** properties of the lakes. By July 2023, the lakes had altered in colour, odour, and taste, and their water quality had deteriorated.
 - Increased **dissolved organic material** in the water could lead to the formation of **carcinogenic chlorination byproducts**, like **trihalomethanes**, during water treatment.
- **Environmental Consequences:** The change in colour decreased the amount of **sunlight**

penetrating the lakes, affecting **phytoplankton**, which are crucial for carbon dioxide absorption through photosynthesis.

- **Shift to Carbon Sources:** As light reduced, **organic carbon pathways** became more dominant in the ecosystem, causing a shift from a **carbon sink** to a **carbon source**. The lakes' emissions of carbon dioxide increased by **350%**.

Implication for Global Climate

- **Global Carbon Cycle Disruption:** The findings contribute to concerns about the stability of Earth's natural carbon sinks (oceans, forests, soils). As these sinks either stop absorbing carbon or become carbon sources, atmospheric carbon levels could rise significantly.
- **Carbon Absorption Decline:** A related study found that **carbon absorption by land** (forests, plants, and soil) in 2023 was at its lowest (Only 0.23–0.65 gigatonnes) since 2003, further emphasising the urgency of the situation.
- **A Warning for the Future:** The study highlights the **vulnerability of Arctic ecosystems** and the urgent **need for global action to mitigate climate change** and protect these vital water bodies.

THE ALARMING RISE OF GLOBAL SEA LEVELS

Sub Topic: *Important geographical phenomena, Distribution of Key Natural Resources, Water Resources*
GS Paper III - Environmental Pollution & Degradation

Context:

The study titled “**Community estimate of global glacier mass changes from 2000 to 2023**”, published in **Nature** on February 19, found that glaciers have lost between **2% and 39% of their ice** regionally, with a global loss of about 5%.

Glacial Ice Loss and Sea Level Rise

- **Glaciers worldwide** have been losing **273 billion tonnes of ice** annually for the last 25 years, which is equivalent to the amount of water the entire global population would consume over **30 years**.
- This melting has caused **global sea levels to rise by nearly 2 cm this century**. Although 2 cm might seem small, the consequences are significant

- **Andrew Shepherd**, a leading expert from Northumbria University, explained that **each centimetre of sea level rise** exposes **2 million people** to annual flooding.

Why Sea Levels Are Rising?

- **Glacier Melting:** The loss of ice from glaciers and ice sheets, particularly in regions like Greenland and Antarctica, contributes significantly to rising sea levels.
- **Thermal Expansion:** As global temperatures rise, the oceans warm up, causing seawater to expand. This process contributes to **one-third to half of global sea level rise**, according to NASA.

Current Sea Level Trends

- **Global Sea Level Rise:** Since **1880**, global sea levels have risen by approximately **21 cm (NOAA)**. However, the rate of increase has accelerated dramatically.
 - **1993:** Sea level was rising at **0.18 cm per year**.
 - **2024:** The rate has more than doubled to **0.42 cm per year**, which has led to more than **10 cm of rise** since 1993.
- This **acceleration** is unprecedented over the past **2,500 years**.

Regional Variations

- **Southwestern Indian Ocean:** This region is rising at a rate of **2.5 mm per year**, faster than the global average.
- **Coastal Cities in India:** Cities like **Mumbai, Haldia, Visakhapatnam**, and **Kochi** have witnessed significant sea-level rises. For example:
 - **Mumbai** has seen **4.44 cm** of rise from **1987 to 2021**.
 - **Haldia:** **2.726 cm**
 - **Visakhapatnam:** **2.381 cm**
 - **Kochi:** **2.213 cm**

Impact of Rising Sea Levels

- **Flooding and Coastal Erosion:** Increased sea levels result in **more frequent and severe coastal flooding and erosion**, displacing populations living near the coast. For instance, between **1990 and 2016**, West Bengal lost nearly **99 sq km** of land due to sea-level rise.
- **Coastal Ecosystems:** The rise impacts ecosystems like **mangroves, coral reefs, and salt marshes**, as well as **freshwater supplies**.

- **Storm Surges:** Rising sea levels lead to **stronger storm surges**, increasing the inland spread of water during tropical storms.

Future Projections

- A **2024 study in Scientific Reports** found that:
 - **29% of the global population** lived within **50 km of the shore** (2018).
 - **15% lived just 10 km away**.
- **NASA's Nadya Vinogradova Shiffer** warns: At current acceleration rates, another **20 cm rise by 2050** is expected. This would **double the sea level rise in just 30 years** compared to the previous century.
 - More frequent and intense floods worldwide.

SUBJECT – POLITY, GOVERNANCE, CONSTITUTION

NITI AAYOG' S POLICY RECOMMENDATIONS FOR SPUS

Sub Topic: *NITI Aayog, Planning, Co-operative Federalism*

Context:

NITI Aayog has proposed a set of 80 policy recommendations aimed at improving the quality of higher education in State Public Universities (SPUs). These recommendations focus on financial autonomy, research policy, and infrastructure development.

Overview of SPUs in India

- State Public Universities (SPUs) play a crucial role in India's higher education landscape.
- These institutions, established or incorporated by provincial or state acts and funded by state governments, are responsible for providing affordable and accessible higher education across the country.
- There are **495 SPUs** in India, with over **46,000 affiliated institutions** across the country.

Key Features of SPUs

- **Wide Reach:** SPUs account for approximately 81% of the total student enrollment in India. They serve as regional hubs, reaching nearly 3.25 crore students

- **Regional Balance:** SPUs have been instrumental in addressing regional imbalances in educational access, particularly in remote and underserved areas
- **Diverse Offerings:** These universities offer a wide range of undergraduate, postgraduate, and doctoral programmes across various disciplines.
- **Affordability:** SPUs provide affordable education, making higher education accessible to a larger segment of the population.

Financial Challenges Faced by SPUs

- Inadequate state government grants only cover a fraction of a university's operational expenses.
- Some universities struggle to even meet **faculty salary payments** due to funding constraints.

Proposal for Fee Autonomy

- NITI Aayog recommends granting **financial decision-making autonomy** to SPUs.
- A **pilot project** on fee autonomy has been proposed.
- Leading SPUs can be permitted **inflation- adjusted fee hikes** (around **5-10% annually**) to meet expenditure requirements.
- Fee hikes will be implemented within **reasonable limits** to maintain affordability.
- Scholarships and **fee waivers** should be provided for **socio-economically disadvantaged students**.

Dedicated Infrastructure Finance Agency for SPUs

- A specialised **Infrastructure Finance Agency** should be established for SPUs.
- The agency will be modeled after the **Higher Education Financing Agency (HEFA)**, which supports premier institutions like IITs and central universities.
- The agency will focus on providing **loans and grants** for:
 - Infrastructure development
 - Research facilities
 - Student, scholar, and faculty accommodation

Draft Research Policy for SPUs

- A framework is suggested to strengthen research capabilities in state universities.
- Focus on improving faculty support and funding for research activities.

SUBJECT – SOCIAL JUSTICE

DRUG REGULATORY INDEX

Sub Topic: *Issues Related to Health*

Context:

The **Union government** is developing a **Drug Regulatory Index** to **assess states and UTs** on their ability to enforce **central regulations on drugs, medical devices, and cosmetics**.

More on News

- The **Drug Controller General of India (DCGI)** is finalising the parameters for this index.
- Currently, **states and UTs follow different regulations**, leading to **inconsistent enforcement**.

Need for the Index

- **Inconsistent drug enforcement** across states and UTs.
- Some states allow fixed-dose combinations that are **not permitted by the Centre**.
- **Lack of awareness** among states regarding the **number of manufacturing and sales units** in their jurisdiction.
- Weak information dissemination in **northeastern states**.
- The index aims to bring **uniformity, transparency, and better coordination** between the **Centre and state governments**.

Parameters of the Drug Regulatory Index

- Number of raids conducted.
- Availability of enforcement staff.
- Samples tested & failure rates.
- Vacant and filled regulatory posts.
- Resources allocated.
- Number of manufacturing & sales units.
- Additional parameters are being added for comprehensive assessment.

Implementation & Approval

- The decision was taken in a **Drugs Consultative Committee (DCC) meeting** under the **Central Drugs Standard Control Organisation (CDSCO)**.
- The meeting was chaired by **Rajeev Raghuvanshi, DCGI**, in **January 2024**.

SUBJECT – INTERNATIONAL RELATIONS

ENERGY TAKES CENTRE STAGE IN INDIA-US TALKS

Sub Topic: *Bilateral Groupings & Agreements, Regional Groupings, Groupings & Agreements Involving India and/or Affecting India's Interests*

Context:

Energy emerged as a key focal point during the discussions between Indian Prime Minister Narendra Modi and former U.S. President Donald Trump in the Oval Office.

A Strategic Energy Partnership

- During a joint press conference, Trump openly criticised the lack of a level playing field in trade with India but suggested that increased U.S. oil and gas exports could help balance the equation.
- He highlighted **agreements aimed at making the U.S. a leading supplier of energy** to India and pointed to India's intention to amend its laws to facilitate the entry of U.S. nuclear technology.
- The **joint statement** issued after the meeting **reaffirmed the commitment of both nations to enhancing energy cooperation.**
- The two leaders stressed the **importance of energy affordability, reliability, and stable markets**, emphasising their respective roles as major producers and consumers.

Key Agreements on Oil, Gas, and Nuclear Energy

- The commitments outlined in the joint statement covered various energy sectors, including **oil, gas, and nuclear power.**
- The U.S. pledged support for India's full membership in the International Energy Agency.
- In return, **India announced plans to amend its Atomic Energy Act and Civil Liability for Nuclear Damage Act**, thereby paving the way for the U.S.-designed nuclear reactors with technology transfer provisions.
- Further **collaboration on advanced small modular reactors and strategic petroleum reserves** was also discussed, along with efforts to enhance hydrocarbon trade and infrastructure investments.

India's Shift from Russian Oil

- India, which **imports more than 87% of the crude oil it processes**, has been seeking reliable and cost-effective energy sources.
- The **U.S. emerged as a potential alternative supplier**, especially after sanctions imposed in early January on Russian firms Gazprom Neft and Surgutneftegaz, as well as 183 vessels involved in shipping Russian crude.
- Although **Russia accounted for less than 1% of India's total crude imports in 2021-22**, its share **surged significantly after offering massive discounts**, making it India's **second-largest supplier after Iraq by 2022-23**, with \$31.04 billion in trade.

Strengthening Bilateral Energy Trade

- Modi and Trump agreed to **boost energy trade, bolster energy security, and position the U.S. as a leading supplier of crude oil, petroleum products, and liquefied natural gas (LNG)** to India. Special emphasis was placed on expanding trade in natural gas, ethane, and petroleum products to ensure supply diversification and long-term energy security.
- Additionally, both leaders **committed to strengthening investments in oil and gas infrastructure and facilitating deeper collaboration** between energy companies in both countries.

The discussions marked a significant step in the evolving energy relationship between the two nations, positioning the U.S. as a key supplier in India's quest for energy security and diversification.

CHINA'S DAM ON YARLUNG ZANGBO AND ITS IMPLICATIONS FOR INDIA

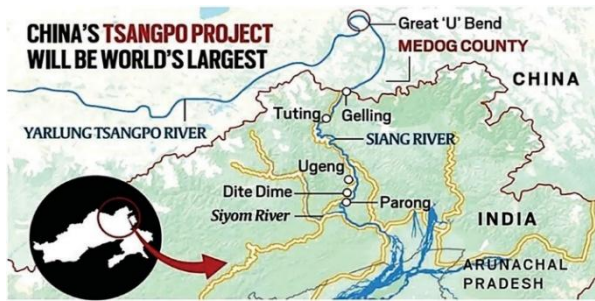
Sub Topic: *Effect of Policies & Politics of Countries on India's Interests, International Treaties & Agreements*

Context:

China is constructing a **mega hydropower project** on the **Yarlung Zangbo River**, known as the **Brahmaputra River** in India. The project is planned in the **Tibet Autonomous Region (TAR)** near the **Great Bend** of the river, close to the Indian border. This development has raised **geopolitical, environmental, and economic concerns** for India and downstream countries like **Bangladesh**.

Strategic and Geopolitical Concerns for India

- **Water Security:** Potential to control water flow, affecting India's northeastern states.



- **China's Leverage:** Possible use of the dam as a political tool in border tensions.
- **Lack of a Water Treaty:** Unlike the Indus Water Treaty with Pakistan, India and China lack a legally binding transboundary water-sharing agreement.
- **Influence in South Asia:** China's increasing hydro-hegemonic control over transboundary rivers may impact India's regional influence.

Environmental and Ecological Risks

- **Seismic Vulnerability:** The Himalayan region is highly earthquake-prone, making large-scale dams risky.
- **Disruption of River Ecology:** Changes in natural flow can impact aquatic biodiversity and wetland ecosystems.
- **Impact on Agriculture and Livelihoods:** Reduced water availability could affect agriculture, fisheries, and livelihoods in Arunachal Pradesh and Assam.
- **Flood and Siltation Risks:** Sudden water releases may lead to flash floods, while reduced silt deposits could degrade soil fertility.

Legal and Diplomatic Dimensions

- **International River Disputes:** Lack of a global enforcement mechanism for upstream-downstream water disputes.
- **Existing Mechanisms:** India and China have a Hydrological Data Sharing Agreement, but it lacks enforcement power.
- **India's Diplomatic Options:** Engaging with China through bilateral talks, leveraging regional platforms like BIMSTEC, and international forums such as the UN Water Convention.

India's Policy Response and Strategic Measures

- **Developing Counter-Dams:** Enhancing India's hydropower capacity in Arunachal Pradesh to counter China's projects.

- **Strengthening Water Diplomacy:** Advocating for a formalised water-sharing framework through regional partnerships.
- **Enhancing Water Storage and Management:** Constructing reservoirs and water conservation projects to mitigate dependency.
- **Technological Solutions:** Investing in early warning systems for flood management and real-time hydrological monitoring.

Conclusion

- The Yarlung Zangbo dam project presents multi-dimensional challenges for India, spanning security, environment, and diplomacy.
- A combination of diplomatic engagement, strategic infrastructure development, and regional cooperation is required to safeguard India's interests.
- Strengthening water governance and climate resilience policies will be crucial in addressing the long-term challenges posed by China's upstream projects.

SUBJECT – INDIAN ECONOMY & AGRICULTURE AND BANKING

MUTUAL CREDIT GUARANTEE SCHEME

Sub Topic: Growth & Development, Mobilisation of Resources

Context:

The Government of India has approved the **Mutual Credit Guarantee Scheme for MSMEs (MCGS-MSME)** to provide 60% guarantee coverage through the **National Credit Guarantee Trustee Company Limited (NCGTC)** for credit facilities of up to **Rs. 100 crore** for eligible MSMEs to purchase equipment/machinery.

Background & Rationale

- **Global Supply Chain Shift:** India is emerging as a preferred supply source due to its raw material availability, low labour costs, and strong manufacturing capabilities.
- **High Fixed Costs in Manufacturing:** Investment in Plant & Machinery (P&M) and Equipment is a major cost for manufacturers. **Easier credit**

availability can help in **expanding manufacturing capacity** at a faster rate.

- **Industry Demand for Credit Support:** Industry associations have **long advocated for a credit guarantee scheme** for MSME manufacturers, particularly **medium-sized enterprises**.
- **Encouraging Collateral-Free Loans:** This scheme will allow **banks and financial institutions to provide collateral-free loans**, ensuring **better credit access for MSMEs**.

Salient Features

- **Eligibility:** The borrower must be an MSME with a valid **Udyam Registration Number**.
- **Loan Amount:** The maximum loan amount guaranteed under the scheme is **Rs. 100 crore**.
- **Project Cost:** Can be higher than Rs. 100 crore, but **75% of the project cost** must be for the purchase of equipment/machinery.
- **Repayment Terms:** For loans up to **Rs. 50 crore**, the repayment period is up to **8 years**, with a **2-year moratorium period** on principal repayments. For loans **above Rs. 50 crore**, a **longer repayment schedule** and a **longer moratorium period** can be considered.
- **Upfront Contribution:** A **5% upfront deposit** of the loan amount is required when applying for the guarantee cover.
- **Guarantee Fee:** **Nil** during the year of loan sanction.
 - For the **next 3 years**, it will be **1.5% per annum** on the loan outstanding as of March 31 of the previous year. After 3 years, it will reduce to **1% per annum** on the loan outstanding as of March 31 of the previous year.
- **Scheme Duration:** The scheme will be operational for **4 years** from the date of issue of operational guidelines, or until a cumulative guarantee of **Rs. 7 lakh crore** is issued, whichever is earlier.

Major Impact on the Manufacturing Sector

- Manufacturing currently contributes **17% to India's GDP** and employs **over 27.3 million workers**.
- The scheme aligns with the **"Make in India, Make for the World"** initiative and aims to **increase manufacturing's share to 25% of GDP**.
- By facilitating easier access to **credit for plant and machinery**, the scheme is expected to **accelerate manufacturing growth** and boost **India's global competitiveness**.

Member Lending Institutions (MLIs)

- Under MCGS-MSME, loans will be provided through **registered MLIs**, which include:
 - All Scheduled Commercial Banks (SCBs).
 - **Non-Banking Financial Companies (NBFCs)**.
 - **All India Financial Institutions (AIFIs)**, which must register with the NCGTC to participate in the scheme.

This scheme is a **major step towards strengthening MSMEs**, promoting **manufacturing-led growth**, and **enhancing India's industrial capabilities**.

FISCAL HEALTH INDEX

Sub Topic: *Inclusive Growth, Growth & Development, Fiscal Policy*

Context:

On January 24, 2025, the Hon'ble Chairman of the 16th Finance Commission, Dr. Arvind Panagariya, launched the inaugural edition of **NITI Aayog's "Fiscal Health Index (FHI) 2025"** in New Delhi.

More on News

- The report provides a **comprehensive assessment of the fiscal health of 18 major states**, based on **five critical sub-indices: Quality of Expenditure, Revenue Mobilisation, Fiscal Prudence, Debt Index, and Debt Sustainability**.
- It offers **state-specific insights and highlights areas for improvement**, serving as a vital tool to guide policy reforms for sustainable and resilient economic growth.

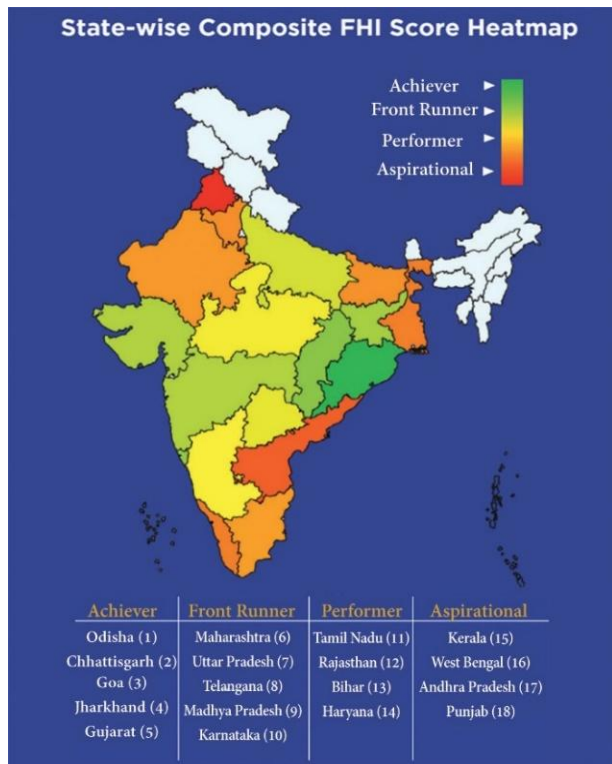
Key Highlights of the FHI 2025

- The Fiscal Health Index ranks states using a composite score derived from the five sub-indices.
- The inaugural rankings place Odisha at the top with a score of 67.8, followed by Chhattisgarh (55.2) and Goa (53.6).
 - These states **demonstrated strong fiscal health**, particularly in revenue mobilisation, expenditure management, and debt sustainability.
- Other states displayed mixed performance:
 - **Jharkhand showed marked improvement** in fiscal prudence and debt sustainability.
 - **Karnataka, however, experienced a decline in fiscal health** due to weaker

performance in expenditure quality and debt management.

- The report underscores the **stark disparities among states**, emphasising the **need for targeted reforms** to address specific fiscal challenges and achieve equitable growth across regions.

This report not only reaffirms the shared responsibility of the Centre and states but also paves the way for achieving **sustainable fiscal governance, laying the foundation for a resilient and prosperous nation.**



DIGITAL PAYMENTS INDEX

Sub Topic: Banking Sector & NBFCs

Context:

The Reserve Bank of India (RBI) has reported a significant rise in its Digital Payments Index (DPI), reflecting the rapid adoption of digital transactions in the country.

Key Highlights:

- Latest Index Value (September 2024):** The RBI-DPI index for September 2024 stands at **465.33**, marking an increase from **445.5** in March 2024.
- Announcement Date:** The March 2024 index value was announced on **July 26, 2024**.
- Growth Drivers:** The increase in the index is attributed to the continued expansion of

payment infrastructure and enhanced payment performance across the country. The central bank highlighted that the **Unified Payments Interface (UPI)** has been the most significant contributor to this growth.

UPI Dominates India's Digital Payments Landscape

- The RBI highlighted in a report that **UPI has been the most significant contributor** to digital payment growth due to its ease of use and widespread adoption.
- UPI's Dominance in Digital Payments:** UPI's share in India's total digital payments surged from **34% in 2019 to 83% in 2024**. The **Compound Annual Growth Rate (CAGR)** of UPI transactions over the last five years stood at **74%**.
- Decline of Other Payment Systems:** The collective share of **RTGS, NEFT, IMPS, credit cards, and debit cards** in digital payment volumes **declined from 66% in 2019 to just 17% in 2024**.
- Exponential Growth in UPI Transaction Volume and Value:** UPI transaction volume skyrocketed from **375 crore in 2018 to 17,221 crore in 2024**.
 - The total value of UPI transactions surged from **`25.86 lakh crore in 2018 to `246.83 lakh crore in 2024**.
 - The **five-year CAGR for UPI transactions** is **89.3% in volume and 86.5% in value**.

Introduction of RBI-DPI

- Launched in **January 2021**, the index measures the **extent of digitisation** in payments across India. The RBI has been publishing the RBI- DPI semi-annually since January 2021, with a four-month delay.
- The base period for the index is **March 2018**, with a baseline score of **100**.
- Key Parameters:**
 - Payment Enablers** – 25% weightage
 - Demand-Side Payment Infrastructure** – 10% weightage
 - Supply-Side Payment Infrastructure** – 10% weightage
 - Payment Performance** – 45% weightage
 - Consumer Centricity** – 5% weightage
- Measurement Approach:** Each parameter includes multiple sub-parameters and measurable indicators to assess the **penetration and deepening of digital payments** in the country.

The continuous rise in the RBI-DPI underscores India's growing shift toward a **digital-first economy**, with robust

infrastructure and improved payment mechanisms driving the transformation.

NATIONAL MONETISATION PIPELINE

Sub Topic: *Mobilisation of Resources,
Fiscal Policy*

Context:

The upcoming **second edition of the National Monetisation Pipeline (NMP)**, which spans from **FY26 to FY30**, is set to bring in an estimated `10 trillion by monetising government-owned assets.

More on News

- The **revenue generated will be reinvested** into the National Infrastructure Pipeline (NIP) of **`111 trillion**.
- **Roads, railways, and coal** are expected to account for a significant portion of these proceeds, likely contributing **70%** of the overall target.
- This is a notable increase compared to the first edition of the **NMP (FY22-FY25)**, where these three sectors together made up **66%** of the total revenue.

Performance and Learnings from First Pipeline

- The first NMP (FY22-FY25) **targeted `26 trillion**, with **90%** of the goal achieved.
- Sectors like coal, ports, and mines exceeded expectations, while railways and telecom underperformed.
- Coal monetisation outperformed highways, with **`2 trillion** in proceeds expected over four years.

About the National Monetisation Pipeline

- The **NMP** is an initiative by the Government of India aimed at unlocking the value of public infrastructure assets.
- **Launched** by Union Minister for Finance and Corporate Affairs, Smt. Nirmala Sitharaman, in August 2021, the NMP estimates an aggregate monetisation potential of **`6.0 lakh crores** over a four-year period from FY 2022 to FY 2025.
- **Core Assets:** The NMP focuses on monetising core assets of Central ministries and public sector entities.
- **Revenue Rights:** The government transfers revenue rights, not ownership, to private parties for a specified transaction period.

- **Brownfield Projects:** The initiative targets brownfield projects, which are de-risked from execution risks, to encourage private investment.
- **Top Sectors:** Roads, railways, power, oil & gas pipelines, and telecommunications are the top sectors by estimated value.
- **Economic Growth:** The goal is to tap private sector investment for new infrastructure creation, creating employment opportunities and promoting high economic growth.

Key Projections for NMP 2.0

- **Roads:** The road sector is expected to contribute **`23.5 trillion** over the next five years, reaffirming its importance in the government's monetisation strategy.
- **Railways:** Railways, which have seen underperformance in the first phase of the NMP, are projected to generate **`1.7 trillion by FY30**.
- **Coal:** The coal sector, which experienced a significant success in the first NMP, is set to target **`1.5 trillion** in the second edition, highlighting its growing role in the government's revenue-generating strategy.
- **Power:** The power sector is projected to contribute approximately **`1 trillion**.

Challenges and Adjustments in NMP 2.0

- The telecom sector significantly underperformed, achieving only **4%** of its **`35,000 crore** target.
- Due to this, telecom's monetisation targets are expected to be trimmed down in NMP 2.0.

PRADHAN MANTRI DHAN-DHAANYA KRISHI YOJANA (PMDKY)

Sub Topic: *Agriculture, E-Technology in
the Aid of Farmers*

Context:

Finance Minister Nirmala Sitharaman announced the launch of the **Pradhan Mantri Dhan-Dhaanya Krishi Yojana (PMDKY)** during the Union Budget presentation on **February 1, 2025**.

More on News

- The scheme aims to **boost agricultural productivity, enhance credit availability, and improve irrigation and storage infrastructure** in selected districts.

- The scheme is inspired by the **Aspirational Districts Programme (ADP)**.

The Aspirational Districts Programme

- PMDKY is modelled after the **ADP**, which was launched by **Prime Minister Narendra Modi in January 2018**.
- ADP focused on **transforming 112 of the most under-developed districts** based on three principles:
 - **Convergence** (aligning Central and State schemes)
 - **Collaboration** (coordinated efforts of nodal officers and district collectors)
 - **Competition** (district rankings based on progress in key indicators)
- The ranking under ADP was based on **49 Key Performance Indicators (KPIs)** across five broad socio-economic themes: **Health & Nutrition, Education, Agriculture & Water Resources, Financial Inclusion & Skill Development, and Infrastructure**.

Coverage: District Selection Criteria

- **PMDKY will cover 100 districts**, selected based on three key parameters:
 - **Low agricultural productivity**
 - **Moderate cropping intensity**
 - **Below-average farm credit availability**
- The **Ministry of Agriculture and Farmers' Welfare** is analysing data to finalise the districts.
- **Cropping intensity**, a measure of land use efficiency, will be a key factor in district selection.
- **India's average cropping intensity was 155% in 2021-22** (up from 111% in 1950-51).
- This indicator varies across states, influencing selection for PMDKY.
- The Ministry has also sought **district-wise farm credit data** from the **Department of Financial Services and NABARD**.

Objectives of PMDKY

The scheme aims to support **1.7 crore farmers** and focuses on **five key objectives**:

- **Enhancing Agricultural Productivity**: Focus on increasing the efficiency of agricultural output.
- **Adopting Crop Diversification & Sustainable Practices**: Encouraging farmers to diversify crops and embrace sustainable agricultural methods.
- **Augmenting Post-Harvest Storage**: Improving storage facilities at the panchayat and block levels to reduce post-harvest losses.

- **Improving Irrigation Facilities**: Enhancing irrigation infrastructure to ensure better water availability for crops.
- **Facilitating Availability of Credit**: Ensuring that farmers have access to both long-term and short-term credit.

Funding & Implementation

- **No separate budget allocation** has been made for PMDKY in the Union Budget.
- Instead, **existing funds from multiple agricultural and allied sector schemes** will be pooled.
- These schemes include programmes from the **Ministry of Agriculture and Farmers' Welfare** and the **Ministry of Fisheries, Animal Husbandry, and Dairying**.
- A **dedicated allocation may be made once the Union Cabinet formally approves the scheme**, paving the way for its **on-ground implementation**.

SEBI' S PROPOSED REFORMS FOR ESG RATING PROVIDERS

Sub Topic: Capital Market, Fiscal Policy, Liberalisation

Context:

The **Securities and Exchange Board of India (SEBI)** has proposed new regulations to **strengthen the ESG Rating Providers (ERPs) framework**. The key focus areas include **withdrawal of ESG ratings and disclosure of rating rationale**. The aim is to ensure **transparency, accountability, and credibility** in the ESG rating ecosystem.

Regulatory Framework for ERPs

- ERPs provide **Environmental, Social, and Governance (ESG) ratings** to assess a company's sustainability performance.
- In **2024**, SEBI mandated that ERPs **register and obtain a license**.

Guidelines for ESG Rating Withdrawal

Subscriber-Pays Model

- **Ratings can be withdrawn** if there are **no subscribers**.
- If the rated entity is part of a **rating package (e.g., Nifty 50 index)** with subscribers, withdrawal is not permitted.
- Once a rating is withdrawn, it must be removed for **all subscribers**.

Issuer-Pays Model

Ratings can be withdrawn after:

- **Three years** of continuous rating or **50% of the security's tenure**, whichever is higher.
- Approval from 75% of bondholders (by value).

Disclosure of Rating Rationale

ERPs using the **subscriber-pays model** must **restrict detailed reports to subscribers**.

- ESG ratings, however, must be published in a **specified format** on ERP websites.
- **Stock exchanges** must prominently display ESG ratings of **listed companies** under a separate tab.

Internal Governance of ERPs

- **Internal audits** for **Category-II ERPs** will be mandatory **after two years** of implementation.
- Establishment of a **Nomination and Remuneration Committee (NRC)** will also be required **after two years**.

Expansion of ERP Scope

- SEBI proposes that ERPs be allowed to **rate unlisted securities and other issuers**.
- Registered ERPs rating entities **outside SEBI's purview** must clarify their regulatory status in communications.

Streamlining ERP Operations

- ERPs can include **clarifications from rated entities** as an addendum to rating reports.
- The requirement for ERPs under the **subscriber-pays model** to share ratings with **stock exchanges** is being reconsidered.
- A shift towards an **activity-based regulatory framework** may integrate ESG rating regulations with existing **Credit Rating Agency (CRA) guidelines**.

Implications of SEBI's Proposed Reforms for ESG Rating Providers

SEBI's reforms will enhance **transparency, credibility, and regulatory oversight** in ESG ratings, benefiting investors and market participants.

- **Transparency & Standardisation** – Mandated disclosure of ESG ratings and rationale on websites and stock exchanges improves accessibility and reduces ambiguity.
- **Credibility & Market Trust** – Stricter governance norms, internal audits, and inclusion of rated entities' clarifications ensure fairer and more reliable ESG assessments.
- **Investor Impact** – A structured regulatory framework aligns ESG ratings with CRA

guidelines, enabling better risk assessment and informed decision-making.

- **Regulatory Oversight** – Expanding ERP coverage to unlisted securities enhances scrutiny, while requiring ERPs to clarify their regulatory status prevents misrepresentation.
- **Challenges for ERPs** – Restrictions on rating withdrawals and bondholder approval requirements may pose operational difficulties and delay rating adjustments.
- **Market & Policy Impact** – Integration with CRA norms could influence global ESG frameworks and drive wider adoption of sustainability principles in India.

Conclusion

- SEBI's proposed regulations aim to create a **robust, transparent, and efficient** ESG rating framework.
- Ensuring standardised disclosures, clear withdrawal mechanisms, and internal governance will enhance credibility and investor confidence.
- The proposed expansion in ERP scope may **increase market depth and facilitate better ESG assessments** across diverse sectors.

HIGH-POWERED COMMITTEE FOR INSURANCE SECTOR REFORMS

Sub Topic: *Mobilisation of Resources, Capital Market*

Context:

The **Insurance Regulatory and Development Authority of India (IRDAI)** has established a **high-powered committee** led by **Dinesh Khara**, former chairman of the State Bank of India, to **review the Insurance Act of 1938** and **recommend amendments**.

More on News

- This move comes as the **Indian government prepares to introduce the Insurance Amendment Bill in Parliament**, which aims to allow **100% foreign direct investment (FDI)** in the insurance sector.
- The committee has already convened its first meeting, signaling a **proactive approach to-wards implementing reforms**.
- The government anticipates that **increasing the FDI limit will attract foreign investment, enhance**

insurance penetration, and foster greater competition in the market.

Historical Context and Legal Framework

- Originally enacted during British rule, the **Insurance Act of 1938** serves as the legal foundation for India's insurance industry, outlining permissible insurance policies and regulatory mechanisms.
- The act led to the **establishment of IRDAI**, which oversees its implementation and ensures the sector operates within a defined legal structure.
- The act also **regulates insurance agents and their role in soliciting and procuring business.**

About IRDAI

It is a **statutory body** established under the **Insurance Regulatory and Development Authority Act, 1999**. Its primary purpose is to **regulate and promote the insurance industry in India**, ensuring the protection of policyholders' interests and fostering orderly growth within the sector. It comprises a **Chairman, five full-time members**, and four **part-time members**, all appointed by the Government of India.

Key Functions and Responsibilities:

- **Regulation of Insurance Companies:** IRDAI grants, renews, modifies, suspends, or cancels registrations for insurance companies operating in India.
- **Policyholder Protection:** The authority safeguards the interests of policyholders by ensuring timely settlement of claims and establishing a grievance redressal mechanism.
- **Promotion of Industry Growth:** IRDAI aims to promote the orderly growth of the insurance sector, encouraging fair practices and transparency among insurers.
- **Regulation of Premium Rates:** The authority regulates premium rates for certain insurance products to prevent excessive pricing and ensure affordability for consumers.
- **Approval of Insurance Products:** Before any new insurance product is launched, it must receive approval from IRDAI.
- **Financial Oversight:** IRDAI monitors the financial health of insurance companies, ensuring they maintain a solvency margin—a minimum capital requirement to meet potential claims.
- **Consumer Awareness Initiatives:** The authority conducts campaigns and publishes educational

materials to raise consumer awareness about various insurance products and their rights.

- **Ensuring Coverage for Vulnerable Sections:** IRDAI works to ensure that insurance coverage is accessible to rural populations and vulnerable segments of society, promoting inclusivity within the industry.

Key Reform Proposals

The government's proposed changes to the insurance sector include:

- **Composite licenses** to allow insurers to operate across multiple insurance categories
- **Differential capital requirements** to promote financial inclusivity
- **Reduction in solvency norms** to ease capital requirements for insurers
- **Issuance of captive licenses** for businesses to insure their risks
- **Changes in investment regulations** to enable diversified financial strategies
- **One-time registration** for intermediaries to simplify regulatory compliance
- **Permission** for insurers to distribute other financial products

With the proposed amendments and ongoing regulatory reforms, India's insurance sector is poised for significant transformation. By opening doors to higher foreign investments and streamlining regulations, the government aims to strengthen the industry, improve accessibility, and enhance financial security for Indian citizens.

SUBJECT – SCIENCE & TECHNOLOGY

FDA APPROVES SUZETRIGINE

Sub Topic: *Achievements of Indians in Science & Technology, Scientific Innovations & Discoveries, Biotechnology*

Context:

The **US Food and Drug Administration (FDA)** has approved **suzetrigine**, a **non-opioid painkiller**, to be sold under the brand name **Journavx**.

More on News

- Manufactured by **Vertex Pharmaceuticals**, **suzetrigine** is a **non-addictive** alternative to commonly used opioids, though it is currently expensive at **\$15.50 per pill**.
- This marks a significant milestone in pain management as suzetrigine is the first non-opioid pain medication approved in over 20 years.

What are Opioids?

- **Opioids** are a class of drugs derived from the **opium poppy plant** or that mimic substances found in it. Common opioids include **oxycodone, morphine, codeine, heroin, and fentanyl**.
- **Function:** Opioids work by attaching to **opioid receptors** in the brain, blocking pain signals and inducing feelings of pleasure or euphoria.
- **Addiction:** While effective for pain relief, opioids are highly addictive. The pleasurable feelings they induce can lead to psychological dependence.

How Does Suzetrigine Work?

- **Pain Mechanism:** Pain is a signal from the body indicating potential harm. It involves **nociceptors**, specialised nerve endings that send signals to the brain, signalling pain when tissue is damaged.
- **Suzetrigine's Action:** Unlike opioids, which numb pain in the brain, suzetrigine works by **interrupting pain signals before they reach the brain**. This means the brain doesn't register the pain even though tissue injury may still be present.
- **No Euphoria:** Suzetrigine doesn't induce feelings of pleasure or euphoria, meaning it **does not cause addiction or dependence**.

Suzetrigine's Dosage

- It is a **50-milligram prescription pill** taken every **12 hours** after an initial larger starter dose.
- **Trial Dosage:** In clinical trials, participants received an initial dose of **100 milligrams**, followed by **50 milligrams every 12 hours**.

Why This Approval Matters?

- **Opioid Crisis:** The United States faces a severe opioid crisis, with over **82,000 opioid-related overdose deaths** reported in **2022**.
 - The **over-prescription of opioids** has led to widespread misuse. The U.S. consumes **30 times more opioid pain medication** than necessary.
- **Government response:** In **2017**, **Donald Trump** declared opioids a **public health emergency**, calling the crisis a **"national shame"**. Trump has

threatened **tariffs** on **Mexico, Canada, and China** for failing to stop fentanyl exports into the US.

A Step Toward Solving the Opioid Epidemic

- Suzetrigine offers a **safer alternative to opioids**, **reducing addiction risks** while managing pain effectively.
- If widely adopted, it could **help curb opioid dependence** and **lower overdose deaths** in the US.

SANJAY - THE BATTLEFIELD SURVEILLANCE SYSTEM

Sub Topic: *Achievement in the Field of Defence Technology*

Context:

Raksha Mantri Shri Rajnath Singh flagged off the **SANJAY - The Battlefield Surveillance System (BSS)** on January 24, 2025, from **South Block, New Delhi**.

Overview of SANJAY

- SANJAY is an **automated system** that integrates inputs from ground and aerial battlefield sensors.
- It processes and verifies these inputs to create a **Common Surveillance Picture** of the battlefield, ensuring accurate and real-time information.
- The system operates over the **Army Data Network** and **Satellite Communication Network** to enhance battlefield transparency.
- A **Centralised Web Application** will provide inputs to the **Command & Army Headquarters** and the **Indian Army Decision Support System**.

Capabilities and Features

- Equipped with **state-of-the-art sensors** and **advanced analytics**, SANJAY will monitor **land borders**, prevent intrusions, and assess

Development and Induction

- **Indigenous Development:** SANJAY was **jointly developed** by the **Indian Army** and **Bharat Electronics Limited (BEL)**. This aligns with the Indian Army's focus on achieving **'Aatmanirbharta'** (self-reliance) and follows the **'Year of Technology Absorption'** initiative.
- **Phased Induction:** The system will be inducted into all operational **Brigades, Divisions, and Corps** of the Indian Army in three phases from **March to October 2025**. This period has been declared as the **'Year of Reforms'** by the **Ministry of Defence (MoD)**.

- **Cost and Budget:** SANJAY has been developed under the **Buy (Indian)** category at a cost of **Rs 2,402 crore**.

Strategic Significance

- By centralising real-time data feeds, the system will help commanders analyse, decide, and respond quickly to threats, improving **reaction times** against the enemy.
- Surveillance through systems like 'Sanjay' helps in monitoring critical aspects such as **terrain, infrastructure, troop deployments, and equipment placements**. The system will provide valuable insights for effective battlefield management.

INDIA'S NEW RESEARCH INITIATIVES AND INNOVATIONS

Sub Topic: Achievements of Indians in Science & Technology

Context:

India's commitment to cutting-edge **biomedical research and innovation** took a significant leap forward with the dedication of the nation's first Ferret Research Facility, the launch of the GARBH- INI-DRISHTI data repository, and the execution of a key technology transfer agreement.

More on News

- These momentous events took place at the **Translational Health Science and Technology Institute (THSTI)** in the NCR Biotech Science Cluster, Faridabad, Haryana, on February 3, 2025.
- The events, which were presided over by Dr. Rajesh Gokhale, Director General of the Biotechnology Research and Innovation Council and Secretary of the Department of Biotechnology.

Inauguration of India's First Ferret Research Facility

- The day marked the unveiling of India's first Ferret Research Facility, a state-of-the-art establishment designed to **meet the highest biosafety and research standards**.
- It will play a crucial role in **vaccine development, therapeutic testing, and research into emerging infectious diseases**.

- The facility strengthens India's **pandemic preparedness** strategy, positioning the country as a leader in global scientific efforts.

Launch of GARBH-INI-DRISHTI Data Repository

- **GARBH-INI-DRISHTI** is a **data repository and information-sharing hub** developed under the **GARBH-INi programme** at THSTI.
- The platform provides **clinical data, images, and biospecimens** from over **12,000 pregnant women, newborns, and postpartum mothers**.
- It is one of **South Asia's largest maternal and child health databases**, designed to enable transformative research aimed at improving **maternal and neonatal health**.
- The initiative is a result of **collaboration** between leading research institutions and hospitals in India.

Technology Transfer Agreement

- A key **technology transfer agreement** was signed between THSTI and **Sundyota Numandis Probioceticals Pvt. Ltd.**
- The agreement focuses on the commercialisation of **Lactobacillus crispatus**, a **synthetic microbial consortium** isolated from the reproductive tracts of women in the **GARBH-INi cohort**.
- This consortium has potential **nutraceutical applications**, promoting health and well-being through targeted microbiome-based interventions.

These initiatives represent a significant leap forward in **scientific research, data-driven healthcare, and industry collaboration**, positioning India for a healthier and more prosperous future.

TRAILGUARD AI

Sub Topic: Achievements of in the Field of Artificial Intelligence

Context:

The **Similipal Tiger Reserve** in Odisha has leveraged **AI-driven surveillance** to combat poaching.

- The introduction of **TrailGuard AI cameras**, designed to detect **unauthorised human movement** in protected areas, has led to **96 poacher arrests** and the **seizure of 86 illegal firearms** in the past **10 months**.

The Role of AI in Anti-Poaching Efforts

- **Real-Time Detection:** TrailGuard AI consists of **100-150 strategically placed cameras** that identify **humans, animals, and vehicles** in the reserve.
- **Immediate Alerts:** When a person enters the reserve, the system transmits an image to a **control room in 30-40 seconds**, allowing swift action.

Improved Enforcement:

- Officials **use undercover intelligence** to verify identities before making arrests.
- **House raids and surveillance data** have contributed to **swift convictions**.
- In **December 2023 alone, 40 poachers** were arrested.

Technology Design

- **Compact and Durable:** The TrailGuard camera system is smaller and less bulky than traditional systems, which reduces the chances of theft by poachers.
- **Battery Life:** One of the most valuable features is the **battery life** of up to **6 months to 1 year**, minimising the need for frequent maintenance in the challenging terrain of Similipal.
- **Cost-Effective:** The system costs around **Rs 50,000-53,000** per unit, making it affordable for large-scale use.

Challenges and Local Community Engagement

- The system has inadvertently affected **tribal communities** who have historically relied on the forest for sustenance, such as collecting firewood and non-timber products.
- The forest department is in talks with local people to ensure **safe access to the forest** for these purposes, without hampering anti-poaching efforts.
- Regular **awareness programmes** are being conducted with **tribal communities** to educate them about the importance of preventing poaching.

Wider Adoption and Future Potential

- The **TrailGuard AI system** has been successful not only in **Similipal** but also in **other reserves**, including **Kanha Tiger Reserve** and **Dudhwa National Park**, helping to monitor wildlife and mitigate **human-wildlife conflicts**.
- The system has been deployed in **five states** across **14 sites** and is gradually expanding, though the developers are cautious about rapid scaling to optimise the system's effectiveness.

GROK 3

Sub Topic: Achievements of in the Field of Artificial Intelligence

Context:

Elon Musk's xAI has launched Grok 3, the latest iteration of its artificial intelligence model, designed to compete with AI powerhouses like OpenAI, Google, and DeepSeek.

More on News

- Elon Musk's xAI is offering **Grok 3 for free** to all users temporarily, with a humorous note saying it will last "until our servers melt."
- Claims to be **the smartest AI on Earth** with **10 times more computational power** than its predecessor, Grok 2.
- The mission of Grok and xAI is to **understand the universe** and explore complex phenomena, including the search for aliens.

What is Grok 3?

- Grok 3 is xAI's latest **artificial intelligence model**, designed to provide a **deeper understanding** of complex topics through its enhanced reasoning and problem-solving abilities.
- **Improved Capabilities:** Grok 3 is trained on a **larger dataset** and upgraded infrastructure, making it more efficient for handling intricate tasks compared to Grok 2.
- **Standalone Apps:** Grok 3 will soon be available as standalone applications for **iOS, Android, MacOS, and Windows**.

Primary Modes of Grok 3

- **Think Mode** – For analysing and solving complex problems, like physics equations or calculating planetary trajectories.
- **Big Brain Mode** – Focuses on **creativity**, such as generating unique ideas, including combining existing games to design new ones.
- **DeepSearch Mode** – Focuses on **research and analysis**, providing detailed insights into topics like math, science, and coding.

Training and Development

- Trained on **200,000 Nvidia H100 GPUs**, costing an estimated **\$6-\$8 billion**.

- Training occurred over two stages: 122 days on 100,000 GPUs, then 92 days scaling to 200,000 GPUs.
- Grok 3's capabilities come from **synthetic dataset capabilities, self-correction functions, and reinforcement learning mechanisms.**
- **Grok 3's** development cost is significantly higher compared to competitors like **DeepSeek** (which reportedly spent \$6 million on its model).

Competition with Other AI Models

- Designed to challenge **OpenAI's GPT-4, Google, and DeepSeek.**
- Features like **Big Brain Mode** give it an edge in tackling complex challenges.
- Musk aims to make AI that is **more efficient, transparent,** and aligned with **human reasoning.**

AI TOOLS TO TRACK ANTIBIOTIC RESISTANCE

Sub Topic: *Achievements of in the Field of Artificial Intelligence*

Context:

Researchers from IIIT-Delhi, in collaboration with CHRI-PATH, Tata 1mg, and the Indian Council of Medical Research (ICMR), developed an AI tool called **AMRSense**.

More on News

The team published their research in **The Lancet Regional Health - Southeast Asia**, titled: *"Emerging Trends in Antimicrobial Resistance in Bloodstream Infections: Multicentric Longitudinal Study in India."*

AMRSense Overview

The tool uses routine data generated in hospitals to provide real-time insights into **antimicrobial resistance (AMR)** at the **global, national, and hospital levels.**

Key Features: Analyses hospital data to identify patterns in **antibiotic resistance** and predict future trends.

- **Inexpensive Approach:** Unlike genomics-based methods, AMRSense leverages **routine hospital data** to uncover relationships between different antibiotic pairs and AMR trends.
- **AI-Driven Decision Making:** It supports **antimicrobial stewardship** and surveillance, enabling better decision-making in clinical and public health settings.

Key Findings:

- The team analysed **six years of data** from **21 tertiary care centres** as part of the ICMR's AMR surveillance network.
- They identified **relationships between antibiotic pairs** and resistance patterns in **community and hospital-acquired infections.**
- AI helped in identifying **early signs of resistance** and its **directional trends, offering actionable insights** for intervention.

Why is This Approach Revolutionary?

- Traditional AMR studies rely on **genomics, which is expensive and resource-intensive.**
- The **IIIT-D team's approach** uses **routine hospital datasets, making it: Cost-effective, Scalable, and Efficient for real-time tracking.**

The AMROrbit Scorecard

- The team developed the **AMROrbit Scorecard**, which won the **2024 AMR Surveillance Data Challenge.**
- **Features of AMROrbit:** Visual representation of AMR trends for hospitals, departments, and even countries.
 - Compares local resistance levels with **global medians and global rates of change.**
 - Helps **clinicians and public health officials** make **data-driven decisions** to control AMR spread.
- **Ideal scenario: Low baseline resistance + Low rate of change** → Indicates effective AMR management. If resistance **spirals out of control**, AMROrbit helps suggest timely **interventions.**

Reliability of AI Models in AMR Tracking

- The research showed that **AI models captured real-world AMR trends** observed in historical data.
- However, future predictions may be impacted by **unforeseen events** (e.g., COVID-19).
- The models align with **global studies** tracking **increasing antibiotic resistance rates.**

Challenges and Future Plans

- **Limitations in areas with poor AMR surveillance data:** Countries without **digitalised medical records** may not fully benefit from the AI model.
- **Future research goals:** Expand AI-based AMR tracking to include **environmental factors: Antibiotic use in poultry farming, and Leachates in soil and water sources.**

- Integrate **hospital data**, **antibiotic sales records**, and **community-level data** for a **comprehensive AMR strategy**.

SUBJECT – ENVIRONMENT, BIO-DIVERSITY AND DISASTER MANAGEMENT

IMPACT OF COAL MINING DUST ON PLANTS

Sub Topic: *Environmental Pollution & Degradation*

Context:

A **2024 study** in the *Journal of Geophysical Research: Biogeosciences* used satellite data to assess the **impact of coal mining dust on plants in Jharsuguda**.

More on News:

- The researchers **used data from multiple satellites**, including **Landsat-8**, **Landsat-9**, **Sentinel-2**, and **PlanetScope**, to estimate the amount of mining dust on leaves.
- **Coal is essential for India's electricity generation** (around three-fourths) and is crucial in industries such as iron, steel, cement, and fertiliser. **India is the second-largest coal producer and consumer** in the world, following China.

Overview of Coal Mining

- Coal mining is the **process of extracting coal from the ground**, either from the surface or underground. It has been a significant source of energy for centuries, especially during the Industrial Revolution.

There are two primary methods of coal mining:

- **Surface Mining:** Used when coal is less than 200 feet underground. Large machines remove topsoil and overburden (layers of rock) to expose coal seams.
 - **Mountaintop Removal:** A specific type of surface mining where the tops of mountains are removed to access coal.
- **Underground Mining:** Employed when coal is deeper than 200 feet, this method involves creating tunnels and shafts to reach the coal.

Miners use elevators and small trains to access the coal, which can be thousands of feet deep.

Background

- In **1900**, **coal deposits** were **discovered** in **Jharsuguda, Odisha**, while workers were developing rail networks for the British Indian government. **By 2009**, Jharsuguda was **producing over 15 million tonnes of coal annually**.
- **Open-Cast Mining:** Involves removing soil and rocks to access coal deposits. While cost-effective, open-cast mining generates more dust than underground mining.
- **Pollution:** Dust from mining activities affects air quality and vegetation by clogging plant stomata, reducing photosynthesis, and impairing temperature regulation.

Challenges in Assessing Dust Impact

- Dust from mining can **spread up to 30 km from the site**.
- **Collecting dust-laden leaves** over such a vast area is **labour-intensive and time-consuming**.

Key Findings:

- The study validated satellite data by collecting **300 leaf samples** and measuring the dust weight difference. Satellite data was found to provide accurate **estimates of dust on plant leaves**, with validation from field samples.
- The study also used **ECOSTRESS** and **MODIS data** to **assess plant temperature and water vapour release**, key indicators of plant health.
- The researchers found that **one gram of mining dust on leaves led to a reduction of 2-3 grams of carbon absorption per square meter**, which could significantly contribute to global warming over time.
- Additionally, **clogged stomata lead to reduced transpiration**, which makes plants warmer, hinders photosynthesis and could cause stunted growth or death.

Implications

- The research demonstrates how **satellite data can efficiently monitor dust pollution in large areas**, helping governments identify affected regions and take preventive actions.
- **Recommended measures** include **water sprays and dust barriers to protect vegetation and ecosystems** from long-term damage.

MASS WHALE STRANDINGS

Sub Topic: *Conservation, Biodiversity*

Context:

Australian authorities announced the euthanasia of **90 false killer whales** that survived a **mass stranding** on a remote beach in Tasmania.

More on News

- The decision was made as **saving them was deemed impossible** due to complex conditions.
- **Total affected pod:** 157 whales stranded near **Arthur River, north-west Tasmania**.

What is Whale Stranding?

Definition: A phenomenon where **whales, dolphins, or porpoises** get stuck on land, usually on a beach.

Types:

- **Single strandings:** Involving individual animals.
- **Mass strandings:** Groups of hundreds of marine animals stranded together.

Historical Perspective:

- Occurred since **Aristotle's time**.
- Once considered a **gift from the gods** as stranded whales and dolphins provided **food and oil**.

Why Do Whales Strand?

- The exact reasons remain **unclear**, but experts identify several contributing factors:
- **Topography of the region:** Certain areas experience frequent strandings due to tidal variations making deep waters **suddenly shallow**.
- **Illness or injury:** Diseased or weak whales may struggle to navigate.
- **Human activities:** Increased Ocean noise, pollution, and climate change.

Hotspots for Mass Strandings

- **Tasmania, Australia**
- **Golden Bay, New Zealand**
- **Cape Cod, Massachusetts, USA**
- These areas see frequent strandings, possibly due to **rapid depth changes in surrounding waters**.

Human Activities and Whale Strandings

Increasing frequency: Human interference may be worsening strandings.

Key human-induced factors:

Noise pollution:

- Large commercial ships, **military sonar, offshore drilling**.
- Disrupts whales' ability to communicate, navigate, and detect predators.
- Loud noises can **deafen, disorient, or scare** whales, driving them ashore.

Climate Change & Ocean Temperature Rise:

- Affects **prey and predator distribution**, forcing whales to **move closer to shore**.
- Whales follow their food sources, which may now be in riskier coastal areas.

Can Mass Strandings Be Prevented?

Difficult to prevent entirely due to multiple causes.

Possible mitigation measures:

- **Reduce ocean noise pollution** by regulating shipping, drilling, and sonar use.
- **Monitor environmental changes** to understand whale movements.
- **Raise awareness** and take greater care in human activities affecting marine ecosystems.

PLACES IN NEWS

DEMOCRATIC REPUBLIC OF THE CONGO

Context:

The ongoing conflict in the Democratic Republic of Congo (DRC) has escalated significantly with the advance of the M23 rebel group, which has recently captured the city of Goma and is pushing further south into South Kivu province.

More on News

This is part of a long-standing and complex conflict involving power struggles, ethnic tensions, and control of valuable resources, particularly in the eastern part of the country.

Who Are the M23 Rebels?

- The **March 23 Movement (M23)** takes its name from the **March 23, 2009, peace accord**, which ended a **previous Tutsi-led rebellion** in eastern Congo.
- The group launched its current **rebellion in 2022**, accusing the **Congolese government** of failing to uphold the 2009 agreement and refusing to fully integrate **Congolese Tutsis** into the army and administration.
- M23 claims to defend **Tutsi interests**, particularly against **Hutu militias** like the **Democratic Forces for the Liberation of Rwanda (FDLR)**.
 - The **FDLR** was founded by **Hutus who fled Rwanda** after participating in the **1994 genocide**, in which nearly **one million Tutsis and moderate Hutus** were killed.
- M23 has controlled **Rubaya, a coltan-mining region** (**Coltan** is a crucial mineral used in **smartphones and other electronics**) in Congo, for over a year, earning an estimated **\$800,000 per month** through **mining taxes**.

About Democratic Republic of the Congo

- **Location:** Central Africa, landlocked except for a small Atlantic coast.
- **Form of Government:** Republic.
- **Size:** Second-largest country in Africa (after Algeria).

- **Capital:** Kinshasa (largest city in Central Africa).
- **Official Languages:** French.
 - The country also recognises four national languages: Kikongo (Kituba), Lingala, Swahili, and Tshiluba.
- **Geography:** The country **borders 9 countries** which include Angola, Burundi, Central African Republic, Republic of Congo, Rwanda, South Sudan, Zambia, Tanzania, and Uganda.



Physical Features:

- The **Congo Rainforest**, located in the central and western parts of the country, is the second-largest rainforest in the world after the Amazon.
- Most of the DRC is part of the **Congo River basin**, which includes the **Congo River**, the second-largest river in Africa at **4,398 km** long.

Major Mountain Ranges: Mount Stanley (highest mountain 5,109 meters), Mount Emin, Karisimbi, Mikenso etc.

Major Rivers: Congo River, Lomami River, Aruwimi River etc.

Highest and Lowest Points: The highest point in the DRC is **Mt. Stanley** at **5,110 meters**. The lowest point is the **Atlantic Ocean**, at **0 meters**.

Climate: In the equatorial climate zone, located near the Equator, temperatures are high (annual average for Yangambi 24.6°C), humidity is high and rains fall throughout the year averaging between 1,600 mm and 2,000 mm annually.

Natural Resources: Incredibly **rich in minerals** (diamonds, cobalt, copper), vast forests, and high hydropower potential.

NEW ZEALAND

- New Zealand, a remote and mountainous island nation located **off the southeast coast of Australia**, is a land of diverse landscapes and unique political features. Situated in the **southwestern Pacific Ocean**, near the center of the water hemisphere, New Zealand comprises **two main islands (the North Island and the South Island)** and over 700 smaller islands.



Geographical Features

- Land Area:** New Zealand is the **sixth- largest island country** in the world, covering a land area of 268,680 square kilometers (103,740 sq mi).
- Island Composition:** The two main islands, the **North Island (Te Ika-a-Māui)** and the **South Island (Te Waipounamu)**, are separated by the **Cook Strait**, which is 22 kilometers (14 mi) wide at its narrowest point.
 - Other significant islands include **Stewart Island/Rakiura**, **Chatham Island**, **Great Barrier Island**, **D'Urville Island**, and **Waiheke Island**.

- Coastline:** New Zealand boasts over 15,000 kilometers of varied coastline, featuring long sandy beaches on the North Island's East Coast and wilder, more rugged coastlines around the South Island.
- Mountains:** Approximately one-fifth of the North Island and two-thirds of the South Island are mountainous.
 - The South Island is dominated by the **Southern Alps**, featuring 18 peaks over 3,000 meters, with **Aoraki/Mount Cook being the highest at 3,724 meters**.
 - The North Island has a 'spine' of mountain ranges running through the middle.
- Volcanic Activity:** The North Island is marked by significant volcanism, particularly the **Taupō Volcanic Zone**, which includes the **active volcano Mount Ruapehu and Lake Taupō**, situated in a supervolcano's caldera.
- Plains:** Alluvial deposits have formed the **Canterbury Plains** in the South Island and several smaller plains in the North, creating fertile farmland.

SPECIES IN NEWS

MARSH CROCODILES

Context:

The two-day-long crocodile count in the Vishwamitri river wrapped up on February 6, 2025, with teams from the **GEER Foundation** and other local organisations involved in the process.

More on News

- The **Vadodara stretch** of the Vishwamitri, which spans 25 km, was divided into zones for the count, ranging from one to two kilometers long.
- Teams collected data on the **number of crocodiles, their size, location, and activities**. They also recorded sightings of other wildlife, such as **turtles, monitor lizards, pythons, and porcupines**.
- The previous count estimated **nearly 300 crocodiles** in the Vishwamitri River.

Vishwamitri River's Unique Ecosystem

- The Vishwamitri river, which **originates from the Pavagadh hill in Panchmahals district** and flows 200 kilometers to the Gulf of Khambhat, is home to a unique population of mugger or marsh crocodiles.
- Despite the **challenges** posed by **sewage and industrial pollution** in the river, the crocodiles have managed to thrive in the 25-kilometer stretch that passes through Vadodara, a city of three million people.
- The river is primarily rain-fed and has been historically home to a significant population of crocodiles. The presence of these reptiles in such an urban setting makes it a significant ecological feature of Vadodara.

About Marsh Crocodile

- **Scientific Name:** *Crocodylus palustris*
- **Common Names:** Mugger, Muggar, Broad-snouted Crocodile, Marsh Crocodile
- Broad head and snout, robust body, resembling the **American alligator**.
- **Broadest snout** of any crocodile.
- **First evidence of reptiles using tools:** observed using sticks and twigs as hunting lures.

- **Conservation Status:**
- **IUCN:** Vulnerable
- **IWPA (India):** Schedule I
- **CITES:** Appendix I
- **Distribution:** Found in **India, Sri Lanka, Pakistan, Nepal**, and possibly in **Bangladesh**. The species also extends west wards into **eastern Iran**.



- Significant Indian populations in **Ganga River drainage, Chambal River (Rajasthan & Madhya Pradesh), and Gujarat**.
- **Habitat:** Freshwater bodies like rivers, lakes, marshes, and artificial reservoirs.
- **Diet:** Primarily feeding on **fish**, but also preying on **amphibians, reptiles** (e.g., **snakes, turtles**), **birds**, and even **mammals** (e.g., **monkeys, deer, buffalo**). Juveniles feed on **crustaceans, insects, and small fish**.

Major Threats

- The potential for conflict arises when **space or food** is scarce. Devkar noted that conflicts can occur if **humans encroach upon the river** (through landfilling, dumping waste, etc.), but if both resources are abundant, crocodiles and humans can coexist peacefully.
- Crocodiles generally eat very little during the **winter** and are more active during the **breeding season in the summer**, when caution should be exercised.

Conservation Efforts

- The species is listed under **Schedule I** of the **Indian Wildlife Protection Act (IWCAA)**, which offers the highest level of protection.
- Conservation programmes focus on preserving critical **riparian** habitats (the soil- water interface), reducing **human-wildlife conflict**, and enforcing stricter regulations on **poaching** and **habitat destruction**.

ANDHRA PRADESH CURRENT AFFAIRS

COVER STORY: WHITE PAPER ON EXCISE POLICY

"Excise Liquor Policy in Andhra Pradesh: A Critical Analysis of Its Evolution Under the Previous Government"

1. Misleading Promises

- The government promised a phased reduction of liquor outlets and eventual prohibition.
- Liquor shops were reduced from **4,380 to 2,934**, but later increased to **3,392**, including 458 APTDC outlets.
- The number of bars remained unchanged at **840** since 2019.
- The promise of prohibition was **insincere**, with the policy being manipulated for **personal and political gains**.
- The flawed approach led to **increased crime, black marketing, and bootlegging**, severely affecting public health.

2. Flawed and Inconsistent Policy Regime

- Assumed that increased prices would reduce consumption and improve the quality of life.
- Liquor prices increased **by 75%**, but **without proper analysis**.
- **Alcohol-Related Excise Tax (ARET)** was repeatedly increased through multiple government orders (G.O 128 & G.O 129 in 2020).
- Price differences between Andhra Pradesh and neighbouring states (Telangana, Karnataka) led to **huge liquor smuggling**.
- Reports from the **Special Enforcement Bureau (SEB)** indicate:
 - **321% rise in liquor-related cases (May–July 2020)**
 - **466% rise in arrests**
 - **2012% increase in smuggling**
 - **636% rise in vehicle seizures**
- The flawed policy caused **illegal liquor distillation, inflow of NDPL (Non-Duty Paid Liquor), increased crime, and severe health risks**.

3. False Claims

- The government claimed that liquor consumption had reduced.
- Data shows **per capita liquor consumption** actually increased from **5.55 liters (2019-20) to 6.23 liters (2023-24)**.
- The government **misled** the public by making contradictory claims on prohibition.

4. Failed Restructuring

- Created the **Special Enforcement Bureau (SEB)** in 2020 to control illegal liquor but **failed** due to lack of coordination.
- SEB had **4393 personnel** and 208 Excise stations but failed to curb smuggling and illicit liquor.
- **Illicit distillation increased**, with **1.78 crore liters seized between 2019-24**.

5. Loss of Considerable Revenue/Income

- The state lost **₹42,762.15 crore** in revenue between 2019-24.
- The **sale volume of IMFL (Indian Made Foreign Liquor)** declined, while illicit liquor from neighboring states increased.
- Comparison with Telangana:
 - Andhra Pradesh's **liquor sales dropped by 324.96 lakh cases**, while Telangana's sales exceeded AP's by **15 lakh cases in 2023-24**.
 - Karnataka's liquor sales exceeded AP's by **350 lakh cases in 2023-24**.

6. Modus Operandi – Receiving Illegal Gratification

- **New players replaced established liquor manufacturers** through intimidation and political interference.
- **MNC brands faced delays in payments and orders were stopped**, forcing them out of the market.
- **Local producers received preferential treatment**, controlling wholesale and retail liquor sales.
- **Illegal kickbacks and monopolization of the liquor supply chain**.

7. Removal of Low-Priced Liquor

- In 2014-19, 31 brands were available at ₹50-70 (180ml) for low-income consumers.

- By 2019-24, the number of brands reduced to just 2, drastically affecting affordability.
- The sale of low-cost liquor dropped from 2.69 crore cases to just 8,454 cases.
- This forced the poor to consume illicit and dangerous alternatives, worsening health issues.

8. Grabbing Existing Manufacturing Capacity – Sub-lessees/New Players

- 60% of existing liquor production capacity was taken over by 26 new companies.
- Major manufacturers like SPY Agro, Pearl Distillery, and Esveear Distillery were forced out.
- New companies such as Adan, Graysons, Leela, and PV Spirits took control of ₹20,356 crore worth of liquor sales.

9. Discretionary & Preferential Procurement & Marketing – Alleged Extortion

- Between 2019-24, the procurement process shifted from an automated system to a manual, discretionary system.
- 38 new brands (28 IMFL, 10 Beer) introduced with questionable quality.
- ₹15,843 crore worth of sales controlled by just 7 companies (SNJ, Adan, Leela, NV, B9, Sona, Moonak).
- Allegations of ₹3,113 crore in extortion money collected per case of liquor/beer sold.

10. Discrimination Against Major MNCs and Brands

- Market share of global liquor brands fell from 53.21% (2018-19) to just 5.25% (2023-24).
- Major brands like United Spirits, Pernod Ricard, and John Distilleries were eliminated.
- Local distilleries like SNJ Sugars, Pearl Distillery, and SPY Agro captured the market.
- Pending bills worth ₹127 crore of MNCs like Pernod Ricard and United Breweries were deliberately withheld.

11. Impact on Consumers' Health & Well-being

- Alcohol-related suicides increased by 100% (2018-2022, as per NCRB data).
- 76.4% of women (aged 15-49) reported emotional, physical, or sexual violence by drunk husbands (NFHS-5, 2019-21).
- Liver ailments increased by 52% and kidney ailments by 54% between 2019-23.
- Alcohol and drug addiction OPD cases in Guntur increased by 1300% (from 343 in 2020 to 4,913 in 2023).

12. Sacrificing Future Revenues

- ₹13,148.82 crore raised through Non-Convertible Debentures (NCDs) for welfare programs.
- ₹16,446.15 crore outstanding debt remains unpaid.
- ₹20,676.99 crore received in special margin taxes bypassed the consolidated state fund.
- ₹165.76 crore commission paid to Trust Investment Advisors.

13. Way Forward

To reform the excise policy, the government proposes the following:

1. **Excise Department Restructuring** – Single line of control for better efficiency.
2. **Comprehensive Quality Control** – Ensuring high standards in liquor production and retail.
3. **Transparent Procurement Policy** – Avoiding preferential treatment and corruption.
4. **Liquor Shop & Bar Policy Revisions** – Ensuring fair distribution and availability.
5. **Liquor Pricing Adjustments** – Reducing smuggling and making liquor affordable for low-income groups.
6. **Strict Action Against Illicit Liquor** – Strengthening enforcement against NDPL.
7. **Enhanced Track and Trace System** – Digital tracking of liquor production and distribution.
8. **Digital Payments for Liquor Sales** – Eliminating cash transactions to reduce corruption.
9. **Review of NCDs and Future Debt Management.**
10. **Expansion of De-addiction and Rehabilitation Programs.**

Conclusion

The **White Paper on Excise Policy** highlights serious flaws in the previous government's liquor policy, including mismanagement, revenue loss, corruption, and consumer exploitation. The report suggests urgent policy reforms, increased transparency, and stringent enforcement measures to curb illicit trade and ensure a fair, revenue-generating excise system that prioritizes public health.

WhatsApp GOVERNANCE

Source: The Hindu

More in the news: Chief Minister N. Chandrababu Naidu has instructed officials to establish a dedicated 'Mana Mitra' WhatsApp Governance Cell at all Collectorates across the State.

Andhra Pradesh is poised to become the first state in India to implement WhatsApp governance, providing access to 161 public services.

- The HRD Minister is set to launch the initiative, with more services expected to be available in the second phase
- WhatsApp governance will facilitate the swift delivery of public services, supporting the administration's objective of placing Andhra Pradesh at the leading edge of technological advancement.
- Currently, services from various departments, including Endowments, Energy, APSRTC, Revenue, Anna Canteens, CMRF, and Municipal Administration, will be available on WhatsApp.
- The services will cover six key categories: electricity bill payments, revenue services, municipal services, grievance redressal, and booking for temple darshan/seva and bus tickets.
- The State government has allotted an official WhatsApp number 9552300009 for availing the services

Similar Initiatives in India:

MyGov Helpdesk on WhatsApp:

- The Government of India introduced the MyGov Helpdesk on WhatsApp to promote digital inclusion and efficient governance.
- Citizens can access Digilocker services, such as downloading PAN cards, driving licenses, and vehicle registration certificates, by sending 'Namaste' or 'Hi' to WhatsApp number +91 9013151515.

REVENUE EXPENDITURE & CAPITAL EXPENDITURE

Source: The Hindu

More in the news: The Andhra Pradesh state government presented the annual budget for the financial year 2025-26, with a total allocation of ₹3,22,359 crore. This includes an estimated ₹2,51,162 crore for revenue expenditure and ₹40,635 crore for capital expenditure

Revenue Expenditure:

- These are short-term costs incurred for the day-to-day functioning of a business. Also referred to as **operational expenses**.
- Common examples include:
 - Salaries and wages
 - Interest payments
 - Subsidies
 - Property taxes

Capital Expenditure:

- These are significant, one-time investments in fixed assets, aimed at generating revenue over an extended period.
- Typical examples include:
 - Building new schools or hospitals
 - Purchasing land or buildings
 - Acquiring appliances, manufacturing tools, or equipment to enhance infrastructure

Aspect	Capital Expenditure	Revenue Expenditure
Definition	Expenses incurred to acquire or enhance long-term assets, providing benefits over multiple accounting periods.	Expenses incurred for the day-to-day functioning of the business, benefiting only the current accounting period.
Purpose	To acquire, upgrade, or extend the life of fixed assets, such as machinery, buildings, or equipment.	To manage routine operational costs, such as salaries, rent, utilities, and repairs.
Accounting Treatment	Capitalized on the balance sheet as assets and depreciated over their useful life.	Charged directly to the profit and loss account as expenses in the period they are incurred.
Benefit Duration	Long-term benefits extending beyond one accounting period.	Short-term benefits confined to the current accounting period.
Examples	Purchase of land, construction of a building, acquisition of machinery.	Office supplies, utility bills, routine maintenance costs.
Tax Treatment	Not fully deductible in the year incurred; depreciation is allowed as a deduction over the asset's useful life.	Fully deductible as business expenses in the year they are incurred.

NAGARJUNASAGAR SRISAILAM TIGER RESERVE (NSTR)

Source: The Hindu

More in the news: A conservation project has been launched by the Andhra Pradesh Forest Department and the Eastern Ghats Wildlife Society (EGWS) in the Nagarjuna Sagar Srisaillam Tiger Reserve (NSTR) to protect the endangered Indian Pangolin, a highly trafficked and elusive species

Nagarjunasagar Srisaillam Tiger Reserve (NSTR) is the largest tiger reserve in India, located in the Nallamala hill ranges of Andhra Pradesh. Established in 1983, it spans an area of 3,727.82 square kilometers, encompassing parts of Prakasam, Nandyal, and Palnadu districts.

Geographical Features:

- **Terrain:** The reserve features a hilly landscape with plateaus, ridges, gorges, and deep valleys. Nagarjunasagar-Srisaillam Tiger Reserve is situated in the Nallamala hill range, part of the Eastern Ghats in Andhra Pradesh. It attained tiger status in 1983.
- It is the largest tiger reserve in the country. The total area of the tiger reserve is 3727 km sq
- **River Krishna:** This major river traverses the reserve for approximately 270 kilometers, contributing to the area's rich biodiversity.

Flora: NSTR's forests are primarily tropical dry deciduous, with notable species such as *Anogeissus latifolia*, *Terminalia* spp., *Pterocarpus marsupium*, and *Tectona grandis* (teak). The reserve also harbors endemic plants like *Andrographis nallamalayana* and *Eriolaena lushingtonii*.

Fauna: The reserve supports a diverse array of wildlife, including:

Mammals: Bengal tiger, Indian leopard, sloth bear, dhole (wild dog), and jackal.

- **Prey Species:** Sambar deer, chital (spotted deer), four-horned antelope (chowsingha), chinkara, mouse deer, wild boar, and porcupine.
- **Reptiles:** Mugger crocodiles, Indian python, and various species of turtles.

Conservation Significance: NSTR plays a crucial role in tiger conservation under India's Project Tiger initiative. It has been recognized for its significant leopard population, with an estimated 360 individuals, making it the highest among India's 55 tiger reserves.

Tourism and Attractions: The reserve offers various eco-tourism activities, including wildlife safaris, jungle camps,

bird watching, and hiking. Notable attractions within NSTR include:

- **Wildlife Safaris:** Opportunities to observe the diverse fauna in their natural habitat.
- **Stay in Jungle Camps:** Accommodations like the Nallamala Jungle Camps at Bairlutu and Pacherla provide immersive nature experiences.
- **Bird Watching:** The reserve is home to numerous bird species, making it a haven for bird enthusiasts.
- **Hiking:** Trails such as the one leading to Veerlakonda Watch Tower offer panoramic views of the landscape.

About Indian Pangolin:

- The Indian Pangolin (*Manis crassicaudata*) is a solitary, nocturnal mammal found across the Indian subcontinent, including Bangladesh, Pakistan, and Sri Lanka.
- It inhabits various ecosystems such as forests, grasslands, and agricultural areas.
- This species is characterized by its large, overlapping scales made of keratin, which provide protection against predators.
- Primarily feeding on ants and termites, the Indian Pangolin uses its strong claws to break into insect nests and its elongated, sticky tongue to extract prey.

Conservation Status:

- **IUCN Red List:** Endangered (EN)
- **Indian Wildlife (Protection) Act, 1972:** Schedule I
- **CITES:** Appendix I

COMPRESSED BIOGAS

Source: The Hindu

More in the news: The Tirumala Tirupati Devasthanams (TTD) will start producing compressed biogas (CBG) in July from food waste at the Matrusri Tarigonda Vengamamba Nitya Anna Prasadam Complex and other TTD facilities

The project aims to produce 1,500 kg of biogas daily, addressing waste management and energy needs

Compressed Biogas (CBG) is a renewable energy source produced through the anaerobic digestion of organic materials such as agricultural residue, cattle dung, sugarcane press mud, municipal solid waste, and sewage treatment plant waste.

This process yields biogas, which is then purified to remove impurities like hydrogen sulfide (H₂S), carbon dioxide (CO₂),

and water vapor, resulting in a methane-rich gas (>90% methane). When compressed to high pressures (up to 250 bar), this purified biogas becomes Compressed Biogas (CBG), possessing properties similar to Compressed Natural Gas (CNG) and serving as a green, renewable automotive fuel.

Government Initiatives Promoting CBG

The Government of India has launched several initiatives to promote the production and utilization of CBG, integrating it with other renewable energy and waste management schemes:

1. **Sustainable Alternative Towards Affordable Transportation (SATAT) Scheme:** Launched on October 1, 2018, by the Ministry of Petroleum and Natural Gas, the SATAT scheme aims to establish an ecosystem for the production of CBG from various waste and biomass sources. The objectives include utilizing over 62 million metric tonnes of waste generated annually in India, reducing import dependence, creating job opportunities, and reducing vehicular emissions and pollution from burning agricultural/organic waste. The scheme plans to roll out 5,000 CBG plants across India in a phased manner, expected to produce 15 million tonnes of CBG per annum, approximately 40% of the current CNG consumption in the country.
2. **Priority Sector Lending:** The Reserve Bank of India has included loans to startups (up to ₹50 crore) for setting up CBG plants under priority sector lending. This inclusion facilitates easier access to credit for entrepreneurs in the CBG sector, promoting the establishment of new plants and the growth of the industry.

AVIAN INFLUENZA (H5N1)

Source: The Hindu

More in the news: Recently, around four lakh chickens have died in West Godavari district, Andhra Pradesh, over the past 45 days.

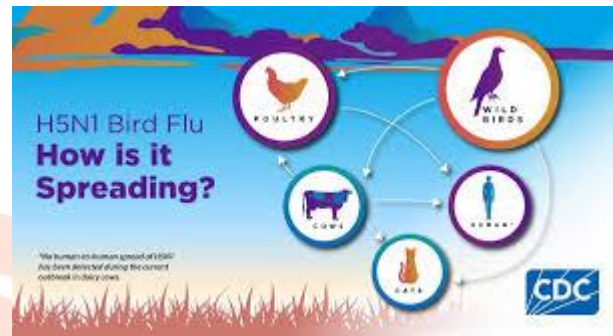
- The Animal Husbandry Department suspects avian influenza as the cause and has sent samples to labs in Bhopal and Vijayawada for confirmation.
- Avian Influenza (H5N1), commonly known as bird flu, is a zoonotic viral infection that primarily affects birds but can occasionally infect humans
- Avian Influenza is a viral infection caused by Influenza A viruses, classified into subtypes based

on Hemagglutinin (H) and Neuraminidase (N) proteins.

- The H5N1 subtype is highly pathogenic, leading to severe disease in birds and potential transmission to humans.

Transmission:

- The primary mode of transmission to humans is through direct contact with infected birds or contaminated environments.
- Human-to-human transmission is rare and has not been sustained.



Symptoms in Humans:

- Symptoms range from typical influenza-like signs (fever, cough, sore throat) to severe respiratory illnesses and multi-organ failure.

Geographical Spread:

- Since its identification in 1996 in China, H5N1 has spread across Asia, Europe, Africa, and the Americas, becoming endemic in many regions

One Health Approach:

- Recognizing the interconnectedness of human, animal, and environmental health, the government promotes a 'One Health' approach.
- This strategy fosters collaboration across sectors to effectively manage zoonotic diseases like Avian Influenza.

Other Avian Influenza Subtypes:

- **H5N8** – Another highly pathogenic avian influenza (HPAI) strain found in birds.
- **H7N9** – Has caused human infections, with high mortality rates.
- **H9N2** – A low-pathogenic avian influenza (LPAI) strain that has occasionally infected humans.

Other Influenza A Viruses Affecting Humans:

- **H1N1 (Swine Flu)** – Caused the 2009 pandemic; originated from pigs.
- **H2N2 (Asian Flu)** – Caused a pandemic in 1957-1958.
- **H3N2 (Hong Kong Flu)** – Caused a pandemic in 1968-1969.

- **H1N2** – A reassortant virus found in both humans and pigs.

Zoonotic Influenza Viruses:

- **H6N1** – Detected in birds; one human case reported in Taiwan.
- **H10N8** – A rare strain that infected humans in China.
- **H3N8** – Primarily infects horses, dogs, and birds but has potential zoonotic risks.

MODEL QUESTIONS

1) Where is the headquarters of the Marine Products Export Development Authority (MPEDA) located?

- Chennai
- Mumbai
- Kochi
- Vishakhapatnam

2) Which of the following aircraft made its international flying debut at Aero India 2025?

- F-35 Lightning II
- Sukhoi Su-57
- HAL Tejas Mk2
- Eurofighter Typhoon

3) The Kumbh Mela is celebrated based on the alignment of which two celestial bodies?

- Sun and Moon
- Sun and Jupiter
- Moon and Saturn
- Venus and Mars

4) The Market Intervention Scheme (MIS) is implemented when market prices fall below what threshold?

- 50% of Minimum Support Price (MSP)
- 80% of Fair Average Quality (FAQ)
- Cost of Production
- Procurement Price fixed by the government

5) What is the time limit for providing information under the RTI Act if it concerns the life and liberty of a person?

- 30 days
- 60 days
- 48 hours
- 7 days

Solutions:

- | |
|------|
| 1) C |
| 2) B |
| 3) B |
| 4) D |
| 5) C |

TELANGANA CURRENT AFFAIRS

COVER STORY: TELANGANA'S BIODIVERSITY: A HAVEN FOR WILDLIFE AND CONSERVATION

Telangana, the youngest state of India, boasts a rich tapestry of biodiversity, encompassing a variety of ecosystems that support numerous native, migratory, and endemic species. The state's commitment to conservation is evident through its establishment of national parks, wildlife sanctuaries, and community reserves.

Biodiversity in Telangana

Telangana's diverse habitats range from dry deciduous forests to wetlands, each supporting unique flora and fauna. The state's forests are predominantly tropical dry deciduous, interspersed with scrublands and grasslands. This variety in habitats contributes to the state's rich biodiversity.

Important Species

Native Species: Telangana's forests are home to several native species, including the Indian leopard (*Panthera pardus fusca*), sloth bear (*Melursus ursinus*), and the chital deer (*Axis axis*). The blackbuck (*Antelope cervicapra*), once nearing extinction in the region, now thrives in protected areas like the Mahavir Harina Vanasthali National Park.

Endemic Species: The Deccan Mahseer (*Tor khudree*), a freshwater fish, is endemic to the river systems of the Deccan plateau, including those in Telangana. Additionally, certain plant species like *Pterocarpus santalinus* (red sanders) are native to this region.

Migratory Species: Wetlands such as the Ameenpur Lake attract numerous migratory birds. Species like the greater flamingo (*Phoenicopterus roseus*), northern shoveler (*Spatula clypeata*), and various species of sandpipers visit these water bodies during their migratory routes.

Nesting Grounds

The Manjira Wildlife Sanctuary, with its nine islands, serves as crucial nesting sites for aquatic birds. Species such as the painted stork (*Mycteria leucocephala*), Asian openbill (*Anastomus oscitans*), and black-crowned night heron (*Nycticorax nycticorax*) breed here, taking advantage of the sanctuary's marshy fringes and tree cover.

Conservation Measures

National Parks: Telangana has established national parks like the Mahavir Harina Vanasthali National Park and Mrugavani National Park to protect its wildlife and habitats. These parks not only conserve biodiversity but also serve as recreational and educational centers for the public.

Wildlife Sanctuaries: Sanctuaries such as the Manjira Wildlife Sanctuary and Pocharam Wildlife Sanctuary play pivotal roles in conserving avian species and aquatic ecosystems. The Nagarjunsagar-Srisailem Tiger Reserve, which spans across Telangana and Andhra Pradesh, is the largest tiger reserve in India, providing a haven for the Bengal tiger (*Panthera tigris tigris*) and other wildlife.

- **Eturnagaram Wildlife Sanctuary:** Established in 1952, this is one of Telangana's oldest sanctuaries, covering an area of 812 square kilometers. The sanctuary's terrain is varied, with the Godavari River flowing through it, creating diverse habitats. Flora includes teak and other deciduous species, while fauna comprises tigers, leopards, wolves, dholes, and several deer species.
- **Kinnerasani Wildlife Sanctuary:** Located in the Khammam district, this sanctuary surrounds the Kinnerasani Reservoir on the Kinnerasani River. It is contiguous with the Eturnagaram Wildlife Sanctuary and supports a variety of wildlife, including several endangered species.
- **Manjeera Wildlife Sanctuary:** Situated around the Manjeera Reservoir, this sanctuary provides a riverine habitat supporting mugger crocodiles and freshwater turtles. The reservoir also serves as a crucial source of drinking water for Hyderabad.

Biodiversity Reserves: The Ameenpur Lake stands out as India's first Biodiversity Heritage Site in an urban area, recognized for its rich avian diversity and ecological significance.

Zoo Parks: The Nehru Zoological Park in Hyderabad serves as both a conservation center and an educational facility, housing various species and engaging in breeding programs for endangered animals.

Community and Conservation Reserves: Community-led initiatives have been instrumental in conserving local biodiversity. For instance, local communities around Ameenpur Lake have actively participated in its

conservation, leading to its designation as a Biodiversity Heritage Site.

Tiger Reserves in Telangana

Amrabad Tiger Reserve: Initially part of the Nagarjunsagar-Srisailem Tiger Reserve, the Amrabad Tiger Reserve became a separate entity following the bifurcation of Andhra Pradesh. Spanning approximately 2,611.4 square kilometers, it is one of India's largest tiger reserves. The reserve encompasses the Nallamala Hills and is characterized by dry deciduous and moist deciduous forests. It also serves as the home of the Chenchu tribe, an indigenous community with a profound connection to the forest.

Kawal Tiger Reserve: Located in the northern part of Telangana, the Kawal Tiger Reserve covers an area of 2,015.44 square kilometers. This reserve features dry deciduous forests and is part of the Eastern Ghats. It is a critical habitat for tigers, leopards, and Indian bison (gaur). As of recent estimates, approximately 21 tigers inhabit the reserve.

Elephant Reserves

While Telangana does not have a designated elephant reserve, it shares ecological corridors with neighboring states that facilitate elephant movement. Notably, the Koundinya Wildlife Sanctuary in Andhra Pradesh, located near the Telangana border, serves as a crucial habitat for elephants. This sanctuary opens up vital corridors to habitats in Tamil Nadu and Karnataka, aiding in elephant conservation.

Conservation Initiatives and Community Involvement

The Telangana Forest Department plays a pivotal role in the protection, conservation, and management of the state's forests and wildlife. Initiatives include anti-poaching measures, habitat restoration, and community engagement programs. The department also monitors wildlife using camera traps and has plans to deploy artificial intelligence systems for enhanced conservation efforts.

Community involvement is integral to conservation in Telangana. For instance, the Chenchu tribe in the Amrabad Tiger Reserve participates actively in conservation efforts, blending traditional knowledge with modern practices. Additionally, sacred groves across the state, preserved by local communities, provide sanctuary to local flora and fauna, highlighting the cultural dimensions of biodiversity conservation.

Special Programs and Initiatives

The Telangana Forest Department has launched several programs aimed at afforestation, wildlife protection, and habitat restoration. Initiatives like the "Haritha Haram" aim to increase the state's green cover, thereby supporting biodiversity conservation. Additionally, the department's

"Catch the Trap" initiative focuses on curbing illegal hunting activities by conducting checks and seizing hunting equipment.

Telangana's commitment to preserving its rich biodiversity is evident through its network of protected areas and community-driven conservation efforts. By safeguarding native, migratory, and endemic species, and implementing robust conservation measures, the state sets a commendable example of balancing development with ecological sustainability.

WETLANDS

Source: The Hindu

More in the news: Minister for Environment and Forests, Konda Surekha, announced that the Telangana government has identified Manjeera Reservoir, Pakhal Lake, Kinnerasani Reservoir, Ramappa Lake, and Ameenpur Lake as wetlands, and a notification regarding this will be issued soon

Definition of Wetlands: Areas covered or saturated with water, sourced from groundwater, aquifers, springs, rivers, lakes, or seawater in coastal regions with strong tides.

Ramsar Convention Definition: Wetlands include marshes, fens, peatlands, and water bodies (natural or artificial, permanent or temporary, fresh, brackish, or saltwater), with marine water depths not exceeding six meters at low tide.

Objective of the Ramsar Convention: Aims to conserve and sustainably use wetlands due to their ecological, economic, and cultural significance.

Designation of Ramsar Sites: Recognizes wetlands of international importance based on unique ecological characteristics.

Member Obligations: 172 signatory countries are committed to maintaining the ecological character of Ramsar sites and ensuring their sustainable use.

Selection Criteria:

- Wetlands must support plant/animal species at critical life stages or serve as a refuge during adverse conditions.
- The site's ability to support fish populations and waterbirds is also a key consideration.

Recent Additions to Ramsar Sites:

The latest wetlands added to the Ramsar list in 2024 include:

- Karaivetti Bird Sanctuary, Tamil Nadu:** A freshwater lake attracting thousands of birds

annually, declared a sanctuary in 1999 and designated as a Ramsar site in 2024.

2. **Nanjayan Bird Sanctuary, Tamil Nadu:** A protected area and bird sanctuary located in Tiruppur district, notified in 2022 and designated as a Ramsar site in 2024.
3. **Kazhuveli Bird Sanctuary, Tamil Nadu:** A protected area and bird sanctuary located in Villupuram district, notified in 2021 and designated as a Ramsar site in 2024.

States with the Highest Number of Ramsar Sites:

As of August 14, 2024, the states with the highest number of Ramsar sites are: **Tamil Nadu:** 20 sites

- **Uttar Pradesh:** 10 sites
- **Punjab:** 6 sites
- **Odisha:** 6 sites

1. Pakhal Lake:

- **Location:** Warangal district, Telangana.
- **Description:** A man-made lake constructed in the 13th century, surrounded by the Pakhal Wildlife Sanctuary, providing habitat for diverse flora and fauna.
- **Conservation Efforts:** The lake's inclusion within the wildlife sanctuary aids in its protection under state wildlife conservation regulations.

2. Kinnerasani Reservoir:

- **Location:** Bhadrachalam district, Telangana.
- **Description:** Situated within the Kinnerasani Wildlife Sanctuary, the reservoir supports rich biodiversity, including several migratory bird species.
- **Conservation Efforts:** Protected under the wildlife sanctuary's framework, benefiting from state conservation initiatives.

3. Ramappa Lake:

- **Location:** Mulugu district, Telangana.
- **Description:** An ancient lake near the UNESCO World Heritage Site, Ramappa Temple, serving as an important ecological zone.
- **Conservation Efforts:** While not a designated protected area, its proximity to heritage sites emphasizes the need for integrated conservation approaches.

4. Ameenpur Lake:

- **Location:** Sangareddy district, Telangana.
- **Description:** The first urban biodiversity heritage site in India, recognized for its avian diversity.

- **Conservation Efforts:** Declared a Biodiversity Heritage Site under the Biological Diversity Act, 2002, facilitating community involvement in conservation

STATE INFORMATION COMMISSION (SIC)

Source: The Hindu

More in the news: RTI appeals have been accumulating as all positions of state information commissioners, including the Chief Information Commissioner (CIC), have remained vacant for the past two years, since February 2024.

Establishment & Purpose: The State Information Commission (SIC) is a statutory body under the RTI Act, 2005, aimed at promoting transparency and accountability in state public authorities.

Mandate: The RTI Act mandates every state to establish its own State Information Commission to ensure effective implementation of citizens' right to information.

Composition:

- Headed by a State Chief Information Commissioner (SCIC).
- Can have up to 10 State Information Commissioners (SICs), depending on state administrative needs.
- The number of commissioners is determined by the respective state governments.

Appointment:

- The Governor appoints the SCIC and SICs.
- Selection is based on recommendations from a committee comprising:
 - Chief Minister (Chairperson)
 - Leader of the Opposition in the Legislative Assembly
 - A State Cabinet Minister nominated by the Chief Minister.

TELANGANA CASTE SURVEY

Source: The Hindu

More in the news: The state Legislative Assembly unanimously passed a resolution urging the Union government to adopt the Telangana model and conduct a survey covering socio-economic, educational, employment,

political, and caste factors to better understand the dynamics of various castes.

- **Survey Duration & Reach:** Conducted over **50 days**, covering over **35 million individuals**.
- **Objective:** Analyzed **population distribution among caste categories**, with **Backward Classes (BC)** as the majority.
- **Purpose:** Aims to **enhance welfare schemes** and **improve job opportunities** for underrepresented groups.

Survey Overview

- Conducted by the **Telangana government** as a **Socio-Economic, Educational, Employment, Political, and Caste survey**.
- Covered **3,54,77,554 individuals** and **96.9% of households**.
- Carried out by **94,863 enumerators** and **9,628 supervisors** across **94,261 enumeration blocks**.
- **Data entry** was completed by **76,000 operators** in **36 days**.

Population Breakdown

- Backward Classes (BC): 56.33%
- Scheduled Castes (SC): 17.43%
- Scheduled Tribes (ST): 10.45%
- Other Castes (OC): 15.79%

MODEL QUESTIONS

1) Which of the following Tiger Reserves in Telangana was initially part of Nagarjunsagar-Srisaillam Tiger Reserve before bifurcation?

- Kawal Tiger Reserve
- Eturnagaram Wildlife Sanctuary
- Amrabad Tiger Reserve
- Pocharam Wildlife Sanctuary

2) Consider the following statements regarding Telangana's biodiversity:

- Telangana's forests are predominantly tropical dry deciduous, interspersed with scrublands and grasslands.
- The state has no significant wetland ecosystems due to its dry climate.

Which of the statements given above is/are correct?

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

3) Which of the following statements is/are correct about biodiversity in Telangana?

- The blackbuck (*Antelope cervicapra*), once nearing extinction in the region, now thrives in protected areas.
- The Nagarjunsagar-Srisaillam Tiger Reserve is exclusively located in Telangana.
- Kinnerasani Wildlife Sanctuary is contiguous with the Eturnagaram Wildlife Sanctuary.

Select the correct answer using the codes given below:

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

4) Which caste group had the highest population percentage according to the Telangana survey?

- Scheduled Tribes (ST)
- Scheduled Castes (SC)
- Backward Classes (BC)
- Other Castes (OC)

5) With reference to the State Information Commission (SIC), consider the following statements:

- The SIC is responsible for overseeing the implementation of the RTI Act at the state level.
- The President of India appoints the members of the SIC.

Which of the statements given above is/are correct?

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

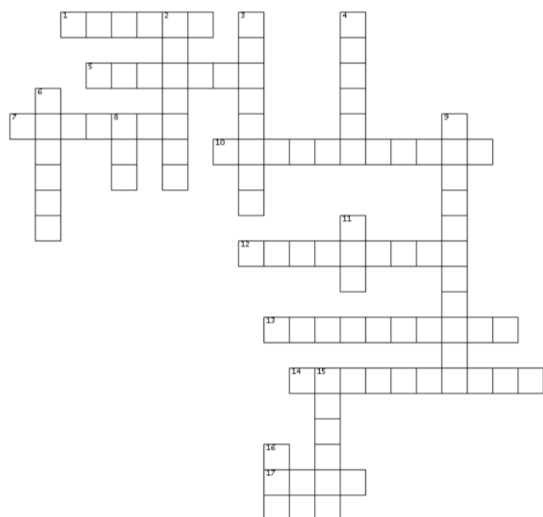
Solutions:

1) C
2) A
3) C
4) C
5) A

FUN ZONE

CROSS WORD ABOUT TOURIST PLACES IN INDIA

INCREDIBLE INDIA: A JOURNEY THROUGH TIME & TOURISM



ACROSS

1. Home to the Sun Temple in Odisha
5. Famous for its Brahma temple, one of the few in the world
7. A coastal town in Karnataka, known for its pristine beaches and Mahabaleshwar temple.
10. Known as the city of temples in Tamil Nadu
12. UNESCO-listed Harappan site in Gujarat
13. The largest mangrove forest in the world, home to the Royal Bengal Tiger.
14. A sacred Hindu site associated with Lord Rama and the Ram Setu.
17. A major hill station in Tamil Nadu, part of the Nilgiri Hills.

DOWN

2. A high-altitude mountain pass in Himachal Pradesh connecting Kullu and Lahaul-Spiti
3. One of the holiest Hindu cities on the banks of the Ganges.
4. The site of the Great Stupa built by Emperor Ashoka in Madhya Pradesh.
6. The largest freshwater lake in Northeast India, known for floating vegetation called Phumdis.

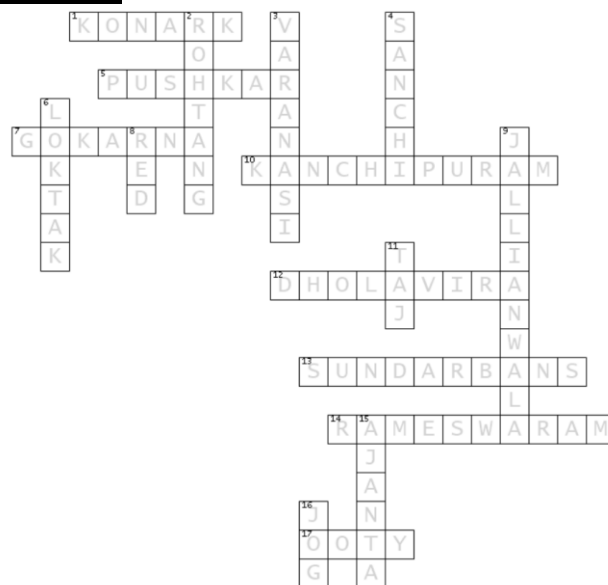
8. Colour of the fort built by the Mughal in Delhi where the Prime Minister hoists the flag
9. The site of the infamous 1919 massacre by British troops
11. A Mahal built as a symbol of love by Shah Jahan in Agra
15. Rock-cut Buddhist cave paintings in Maharashtra
16. The second-highest plunge waterfall in India, located in Karnataka.

Use the clues to fill in the words above.

Words can go across or down.

Letters are shared when the words intersect.

SOLUTION





EKAM IAS ACADEMY

Let's Work Together, We Hard, You Smart



Ready to Shape Your Future? Join EKAM Today!

 Call us @ **81210 17337**



FOLLOW US



SUBSCRIBE



EKAMIASACADEMY.COM



LOCATION



1-10-237, 2nd Floor, Near Sub-Registrar
Office, Ashok Nagar, HYD-500020



Find us online
@www.ekamiasacademy.in