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10 JUNE - 15 JUNE 2024

WEEKLY CURRENT AFFAIRS

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GENERAL STUDIES – 1

Topics: [Post-independence consolidation and reorganization within the country.](#)

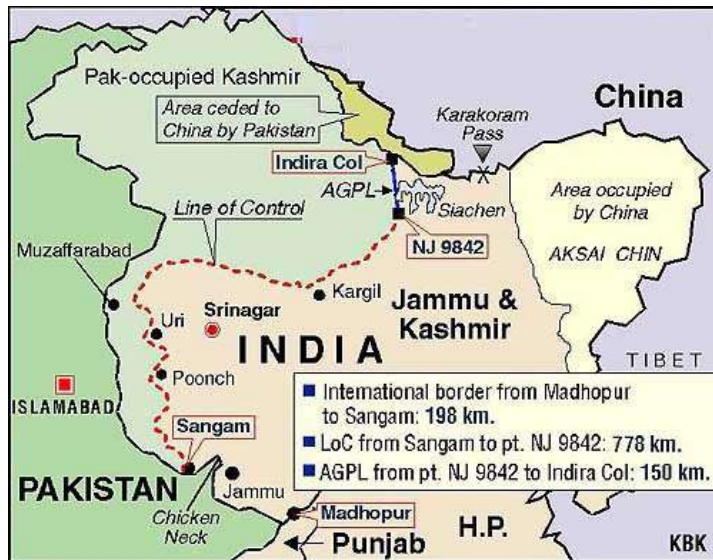
1. 25 YEARS OF KARGIL WAR

Context:

To honour the 25th anniversary of the Kargil War victory, the Indian Army has launched a Pan-India Motorcycle Expedition.

What was the Kargil War?

After the Indo-Pak War of 1971, several military conflicts occurred between India and Pakistan. Both countries conducted nuclear tests in 1998, escalating tensions that led to the **Kargil War in 1999**. The Kargil War **fought between May and July 1999** in the Kargil district of Jammu and Kashmir (now part of Ladakh), resulted in an Indian victory.



Factors Leading to the Kargil War:

1. **Strategic Objectives:** Pakistan aimed to internationalize the Kashmir issue and cut off Ladakh from India by capturing strategic points in Kargil.
2. **Vacated Border Posts:** Pakistan exploited India's strategy of vacating border posts during winter, infiltrating troops and militants.
3. **India-Pakistan Rivalry:** Long-standing animosity over Jammu and Kashmir fueled the conflict.
4. **Ignoring Past Treaties:** Pakistan's actions defied the Simla Agreement of 1972, which prohibited unilateral changes to the Line of Control (LoC).
5. **Hope for International Mediation:** Pakistan hoped the conflict would prompt international mediation, especially by the U.S., favouring their stance on Kashmir.

Operation Vijay:

In 1999 **Pakistani troops infiltrated the Indian side** of the Line of Control (LoC) under **Operation Badr**, aiming to cut off Indian troops in Siachen. In response, the **Indian Army launched Operation Vijay**.

Implications of the Kargil War on Indian Security Strategy:

1. **Border Vigilance and Infrastructure:** India enhanced border surveillance and infrastructure, such as constructing all-weather roads.
2. **Military Modernization:** The war highlighted the need for advanced military equipment, leading to defence modernization like the induction of Bofors guns.
3. **Emphasis on Diplomacy:** India's diplomatic efforts isolated Pakistan internationally, highlighting the importance of global diplomacy.
4. **Recognizing Nuclear Deterrence:** The war underscored the danger of conventional conflicts escalating into nuclear ones.
5. **Reinforced Intelligence Mechanisms:** The surprise attack led to enhanced intelligence-gathering and coordination, resulting in the establishment of the Defence Intelligence Agency (DIA) in 2002.

Lessons Learned

General VP Malik, the Army Chief during the Kargil War, highlighted key lessons for India in the **Bharat Rakshak Monitor**. He emphasized the **potential for a proxy war to escalate into a conventional conflict** between India and Pakistan, noting that state-sponsored terrorism is a **double-edged weapon due to socio-political divides**. Malik dispelled the notion that nuclear weapons decrease the likelihood of war, stressing that conventional warfare remains possible, with Kargil serving as a warning.

The **Kargil Review Committee (KRC)** was set up by the **Government of India in July 1999**, three days after the end of the Kargil War. The committee was set up **"to examine the sequence of events and make recommendations for the future"**.

The Committee recommended a **comprehensive review of India's national security system** by expert bodies. Specific areas for review include the **National Security Council, intelligence, counter-terrorism operations, border management, etc.**

Conclusion:

We celebrate **'Kargil Diwas' on 26th July 2023**. It is a stark reminder of the valour of the armed forces and the **evolving dynamics of India's security concerns**. The Kargil War is a testament to the nation's resilience, adaptability, and unwavering commitment to protecting its sov-

ereignty against all odds.

Insta Links:

- [Indo-Pakistan relations](#)

Mains Links:

Q. Analyze the circumstances that led to the Tashkent Agreement in 1966. Discuss the highlights of the Agreement. (UPSC 2013)

2. 40 YEARS OF OPERATION BLUESTAR

Context:

Slogans advocating **Khalistan** were recently raised at the Golden Temple complex in Punjab's Amritsar during the 40th anniversary of '**Operation Bluestar**'.

What is the Khalistan Movement?

The **Khalistan movement seeks to establish a sovereign Sikh state called Khalistan** in the Punjab region. It traces its origins to India's independence and Partition, with communal violence leading to the **displacement of Sikhs**. The movement gained momentum with the **Punjabi Suba Movement for a Punjabi-speaking state**, leading to the **Anandpur Sahib Resolution in 1973**. By the 1980s, **Jarnail Singh Bhindranwale's influence** (a radical leader of Sikhism) and violent tactics escalated tensions, culminating in the **1984 Operation Bluestar** to remove him from the Golden Temple complex.

Factors responsible for the movement:

1. **Pre-partition origin:** Stemming from India's independence and Partition, the division of Punjab witnessed communal violence, leading to a desire for autonomy.
2. **Linguistic Reorganization of States (1966):** The creation of a Sikh-majority Punjab, albeit smaller, fueled calls for greater autonomy and cultural rights.
3. **Anandpur Sahib Resolution (1973):** The demand for autonomy heightened tensions between Punjab and the central government.
4. **Religious Identity:** The distinct Sikh identity fueled the movement, aiming to protect Sikh religious and cultural rights.
5. **Socio-economic Factors:** Grievances over socio-economic disparities and unemployment in Punjab provided fertile ground for the movement.
6. **External Influences:** Support from Sikh diaspora communities abroad, both ideological and financial, sustained the movement's momentum.

TIMELINE

A SCARRED PAST

1940: Akali Dal chief Master Tara Singh opposes idea of Pakistan, says Sikhs would press for 'Azad Punjab' (later articulated as Khalistan), with parts of Lahore and Multan included

Apr. 1981: US-based Khalistan ideologue Ganga Singh Dhilon raises demand for Khalistan

Sept. 1981: Punjab police arrest Damdami Taksal jathedar Jarnail Singh Bhindranwale. He is freed a month later

Aug. 1982: Akali leaders such as H.S. Longowal and Parkash Singh Badal launch the Dharam Yudh Morcha with Bhindranwale for implementation of the Anandpur Sahib resolution and transfer of Punjab-speaking areas of Himachal Pradesh and Haryana to Punjab

1984: The Indian Army conducts Operation Blue Star at Golden Temple in June; Bhindranwale is killed. PM Indira Gandhi is assassinated by her Sikh bodyguards on Oct. 31. Anti-Sikh riots begin

July-Aug. 1985: PM Rajiv Gandhi and Longowal sign accord. Longowal is killed by extremists on his return to Punjab

1984-1995: Insurgency hits its peak in Punjab. Militants target security agencies and Hindus. The police crackdown is led by

Aug. 1995: Punjab CM Beant Singh is killed by Khalistan militants

1995-1997: Badal rebrands the Akali Dal as a secular party, allies with the BJP to sweep the 1997 assembly poll; begins sidelining radicals in party

2002-2007: The Congress defeats SAD-BJP in the 2002 poll; Amarinder Singh, an ex-Akali leader, becomes CM. But his 'soft on Khalistan' image swings urban Hindu votes to the BJP in 2007 and brings Badal back to power

2015: Incidents of alleged desecration of the Guru

supercoop Julo Ribeiro and then K.P.S. Gill

2017: AAP enters poll fray. A controversy erupts over Arvind Kejriwal reportedly camping at Khalistan Liberation Front activist Gurwinder Singh's home in Punjab. Congress sweeps election

2018: The US-based Sikhs for Justice announces 'Referendum 2020', purportedly to vet the opinion of Punjab's everywhere on Punjab's secession from India

2020: Farmers' protests against central farm laws erupt in Punjab and rage at Delhi's borders. Security officials claim radicals abroad using it to stoke Khalistan sentiment



What was Operation Bluestar?

Operation Blue Star, **conducted by the Indian Army between 1st June and 6th June 1984**, aimed to flush out militants from the **Golden Temple and neutralize Jarnail Singh Bhindranwale**, a key figure in the Khalistan movement. It was followed by Operation Black Thunder (1986 and 1988)

Aftermaths of Operation Blue Star:

1. Following Operation Blue Star, **PM Indira Gandhi's assassination sparked widespread communal violence**.
2. **Anti-Sikh Riots of 1984:** Following the assassination of Prime Minister Indira Gandhi by her Sikh bodyguards, large-scale anti-Sikh riots erupted in Delhi and other parts of India. The **government was accused of not taking adequate measures** to prevent the violence and failing to protect the lives and properties of Sikhs.
3. **The bombing of Air India:** A year later, Sikh nationalists from Canada bombed an Air India flight, killing 329 people, claiming it was in retaliation for Bhindranwale's death.
4. **Human Rights Violations:** During and after the period of the Khalistan movement, there were reports of human rights abuses by security forces and terrorists, including extrajudicial killings, torture, and disappearances
5. **Lack of Political Dialogue:** The government failed to engage in meaningful political dialogue with Sikh leaders and address their concerns regarding political representation, economic disparities, and cultural preservation
6. Punjab endured a **prolonged insurgency until 1995**, allegedly supported by Pakistan.

Although the movement was crushed following **Opera-**

tion Blue Star (1984) and Operation Black Thunder (1986 and 1988), it continues to **evoke sympathy and support among sections of the Sikh population**, especially in the Sikh diaspora in countries such as **Canada, the UK, and Australia.**

What should be done:

1. **Recognising new challenges:** Recognizing the challenge posed by traditional stakeholders and new social media recruits is necessary.
2. **Collaborate with foreign governments:** The Indian security and intelligence forces need to collaborate with foreign governments to monitor anti-India activities carried out by the Khalistani forces and restrict their funding sources.
3. **Enhance security efforts:** The Indian government must heighten security efforts to counteract the increase in Khalistani social media activity since the opening up of the Kartarpur Corridor.
4. **Promote economic and social development:** At the domestic level, the Punjab and Union governments and security forces must collaborate to improve the economic condition of the state to again put the state on the path of development.
5. **Engage with the Sikh diaspora:** Indian agencies, such as the missions established in those countries, must diplomatically engage with the Sikh diaspora to tackle the misinformation campaign being peddled by Khalistani organizations. Such engagements will facilitate a positive relationship between the Indian state and the Sikh diaspora.
6. **Beef up security:** Indian security forces need to step up their preparedness to tackle the increase in drones used to deliver weapons and drugs to Punjab.
7. **Engage Pakistan:** In addition to Western countries, India should not back away from exercising diplomacy with Pakistan and should work to extradite terrorists hiding in Pakistan.

Conclusion:

The Khalistan movement **still resonates, fueled by factors like vote bank politics**, social issues such as unemployment and drug abuse, and backing from non-state actors.

Insta Links:

- [A brief history of the Khalistan movement](#)

GENERAL STUDIES – 2

Topics: [Indian Constitution- historical underpinnings, evolution, features, amendments, significant provisions and basic structure; Comparison of the Indian constitutional scheme with that of other countries.](#)

3. FIRST PAST THE POST (FPTP) VS PROPORTIONAL REPRESENTATION

Context:

In the recently concluded election to Lok Sabha, The **ruling NDA won 293 seats with 43.3% of the vote, while the opposition INDIA bloc, with 41.6% of votes**, secured only 234 seats. The article explores the **potential benefits and challenges of adopting a Proportional Representation (PR) system in India’s electoral democracy.**

First Past the Post (FPTP)	Proportional Representation (PR)
An electoral method where the candidate with the most votes in a constituency wins. E.g., Used in the UK, Canada, and India for legislative elections.	Allocates seats in the legislature based on the proportion of votes each party receives, unlike FPTP where the top candidate wins. It aims for an accurate reflection of voter preferences.
Working	Working
Single-Member Districts: Each constituency elects one representative.	Party Lists: Voters vote for parties; seats are allocated based on vote share.
Plurality Wins: The highest vote-getter wins, not necessarily a majority.	Multi-Member Districts: Allows proportional seat allocation.
	Thresholds: Minimum vote percentage required to gain representation.
Advantages	Advantages
Simplicity: Easy for voters and straightforward counting.	Fair Representation: Reflects voters’ preferences accurately.
Strong and Stable Governments: Often produce clear winners.	Minority Inclusion: Better chances for smaller parties and minority groups.
Direct Representation: Ensures geographic areas have dedicated representatives.	Reduced Wasted Votes: Most votes contribute to election results.
Accountability: Representatives can be easily voted out.	Encourages Voter Turnout: Voters feel their votes have more impact.
Disadvantages	Disadvantages
Disproportionality: Vote-share may not match seat-share.	Coalition Governments: This can lead to instability if coalitions disagree.

Wasted Votes: Votes for losing candidates don't count.	Complexity: Harder for voters and authorities to manage.
Minority Rule: Candidates can win with less than majority votes.	Fragmentation: Many small parties can make consensus difficult.
Geographic Concentration: Can favour parties with concentrated support.	Weaker Constituency Links: Representatives may not be tied to specific areas.
Encourages Gerrymandering: Boundaries can be manipulated to favour parties.	Influence of Party Leadership: Party leaders control candidate lists, centralizing power.

Types of PR:

- List PR:** Voters choose a party, and seats are filled by candidates from the party's list based on vote share.
- Mixed-Member PR:** Combines FPTP and PR; voters cast two votes—one for a candidate and one for a party.
- Single Transferable Vote (STV):** Voters rank candidates in order of preference, with seats allocated based on the proportion of votes and transferred preferences.

Should India move towards a proportional representation?

Yes:

- Vote wastage:** There is little to no vote wastage of votes in this system as all parties get power according to vote share.
- Power sharing:** Majority-based government demands power sharing among different parties which provides representation to all sections and voices within the country.
- NCRWC:** The National Commission to Review the Working of the Constitution (NCRWC) had also recommended **studying the feasibility of proportional representation** to correct the downsides of the FPTP system.

No:

- Representation:** As there is no constituent representative in this system, people may have trouble holding leaders accountable.
- Stability:** Government would still require a majority which means changing alliances and complex coalitions can cause political instability. This can be seen in the case of Israel.
- Methodologies:** Complex methodology of voting puts pressure on voter awareness and turnout while deciding a threshold for minimum vote share can arbitrarily take out small parties from the picture.

International Practices:

- Brazil and Argentina:** Use party list PR systems.
- South Africa, Netherlands, Belgium, Spain:** Also use party list PR systems.
- Germany:** Bundestag has 50% seats from constituencies (FPTP) and 50% from PR based on vote share (minimum 5% votes required).
- New Zealand:** The House of Representatives has 60% seats from territorial constituencies (FPTP) and 40% from PR based on vote share (minimum 5% votes required).

Conclusion:

Therefore, it can be concluded that no one system is perfect and the selection of a suitable electoral system is important in deciding the nature of democracy in a country. India is often known as the survivor of dangerous decades and an island of democracy in the third world, showing the effectiveness of the FPTP system. Thus, reforms can be initiated within it rather than radically moving to an entirely new system.

What is Mixed Member Proportional Representation (MMPR)?

MMPR combines elements of both Proportional Representation (PR) and First Past the Post (FPTP) systems. For example, Germany's Bundestag fills 299 of its 598 seats through FPTP, while the remaining seats are allocated based on PR. This system is also used in South Africa, the Netherlands, Belgium, and Spain.

Significance of MMPR

- Stability:** MMPR balances the stability of FPTP with the fair representation of PR.
- Representation to Smaller States:** It mitigates disenchantment among smaller states by avoiding purely population-based seat allocation.
- Law Commission Recommendation:** The 1999 report by the Law Commission of India suggested introducing MMPR on an experimental basis.

Mains Link:

Q. Discuss the role of the Election Commission of India in the light of the evolution of the Model Code of Conduct. (USPC 2022)

Prelims Links:

Q. Consider the following statements: (USPC 2017)

- The Election Commission of India is a five-member body.
- The Union Ministry of Home Affairs decides the election schedule for the conduct of both general elections and bye-elections.
- Election Commission resolves the disputes relating to splits/mergers of recognised political parties.

Which of the statements given above is/are correct?

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

Topics: Functions and responsibilities of the Union and the States, issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges therein.

4. FEDERALISM IN INDIA AFTER THE 2024 GENERAL ELECTION

Context:

The aftermath of the 2024 general election in India has brought to light a significant **shift towards increased democratization**, with regional parties gaining substantial representation in Parliament. This development is expected to **bolster federalism in India**.

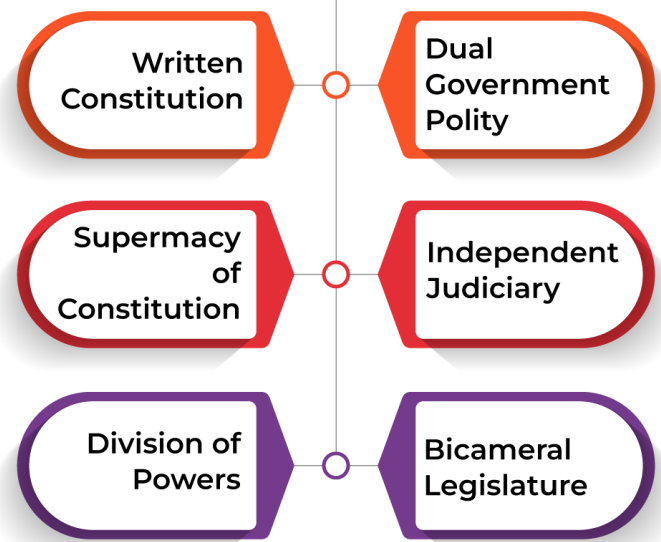
What is Federalism?

Federalism is a system of government **that combines a central or "federal" government with regional governments** within a single political framework, distributing powers between them. In India, the **Constitution outlines the structure of governance**, delineating the relationship between the federal government and state governments. Legislative, administrative, and executive powers are divided between the Union government and the states through the **Union List, State List, and Concurrent List**.

Features of Indian Federalism:

- Multilevel Government:** Federalism entails the existence of two or more tiers of government, typically a central or federal government and regional or state governments.
- Separate Jurisdiction:** Each level of government possesses its own authority and autonomy in areas such as legislation, taxation, and administration, even though they govern the same populace.
- Constitutional Specification:** The powers and functions of each tier of government are clearly delineated and safeguarded by the Constitution, ensuring a balance of authority.
- Dispute Resolution Mechanism:** The Supreme Court is vested with the authority to adjudicate disputes arising between state governments, providing a mechanism for resolving conflicts within the federal structure.

Features of Federalism



What does the 2024 Election result mean for Indian federalism?

- Increase in regional party** representation in Parliament.
- Diverse composition** in ruling coalition and opposition.
- Potential for more **inclusive governance**.
- Voter preference for **addressing local issues** directly.
- The challenge** to traditional **dominance of central parties**.
- Concerns over **central policies undermining** state autonomy.
- Tensions over resource allocation** and political rhetoric during the campaign.

Challenges to Centre-State Relations:

Challenges	Examples
State border disputes	Assam-Meghalaya, Assam-Mizoram disputes
Interference in state matters	Government of NCT of Delhi (GNCTD) Act, Agriculture laws, 2020
Alleged use of autonomous agencies against Opposition-led states	Enforcement Directorate raids
Governors sitting over state bills	Tamil Nadu, Telangana Governors pulled by Supreme Court
Resource Allocation Complaints	Kerala's complaints on resource transfer, Karnataka's drought relief concerns, West Bengal's MGNREGS funds

Legal Disputes	Rise in legal disputes between states and Centre, as highlighted by Supreme Court
Bias in Finance Commissions	States argue for fair allocation, citing bias towards the Centre in Finance Commissions
Disparities	Richer states like Mumbai contribute significantly to national taxes but receive a smaller share, leading to development disparities. Poorer states require more resources for development , and while the Finance Commission aims for fair distribution, historical disparities remain.

The concept of cooperative federalism:

It implies a system of governance where central and state governments collaborate and work together to achieve common goals, respecting each other's constitutional boundaries.

Constitutional Boundaries between Centre and States:

- Division of Powers:** The Constitution of India divides powers between the Union and state governments through three lists in the Seventh Schedule: Union, state and concurrent lists.
- The doctrine of Pith and Substance:** This doctrine is used by courts to determine under which list a particular legislation falls. If the core subject matter of legislation falls within a list assigned to one level of government, the law is deemed valid even if it incidentally encroaches on a subject in another list.

Some examples to illustrate the spirit of cooperative federalism:

- GST Council:** The GST Council, which includes representatives from both the central and state governments, is tasked with making decisions on tax rates, exemptions, and the implementation of GST. This collaborative framework ensures that both levels of government have a say in the tax policy, balancing regional interests with national priorities.
- Disaster Management:** In the event of natural disasters, such as floods, earthquakes, or pandemics, the central government often works closely with state governments. **For instance, during the COVID-19 pandemic**, the Centre issued guidelines and provided resources, but states had the

flexibility to adapt these guidelines to their local contexts. This allowed for a more tailored response, accommodating the diverse conditions across states.

- National Education Policy (NEP) 2020:** While the policy outlines broad national objectives, it allows states to customise and implement reforms according to their specific needs and contexts.
- River Water Disputes:** The **Inter-State River Water Disputes Act** allows the central government to set up tribunals to adjudicate disputes, but the implementation of tribunal awards requires cooperation from the states involved. **For instance, the resolution of the Cauvery water dispute** involved extensive consultations and compliance from both Karnataka and Tamil Nadu, overseen by the central government.
- Niti Aayog:** NITI Aayog acts as the quintessential platform for the Government of India by bringing States together as **'Team India'** to work towards the national development agenda.

Strengthening Federalism:

- Strengthening of Inter-State Council:** Over the years multiple committees have recommended strengthening of the Interstate Council where the concurrent list subjects can be debated and discussed, balancing Centre state powers.
- Democratic Decentralisation** of administration and strengthening governments at all levels in true spirit. Power should be decentralised based on the **principle of subsidiarity**.
- Increase Resource Devolution:** Raising the current 41% resource devolution from the Centre to the States can empower states, enabling more localized governance.
- Fair Finance Commission Practices:** The Sixteenth Finance Commission should strive for equitable treatment of all states, reducing friction and promoting fairer resource distribution, especially benefiting poorer states to address inequality.
- Enhance State Autonomy:** By diminishing the central government's control in programs such as the Public Distribution System and MGNREGS, states can affirm their constitutional roles as equal partners in governance, preventing central dominance over state initiatives.

Conclusion:

For the central government to exercise its powers within constitutional boundaries in the spirit of cooperative federalism, it must engage in continuous dialogue, respect the autonomy of states, and ensure that policies and decisions are made collaboratively. This approach not only strengthens the federal structure but also promotes a more inclusive and responsive governance system.

Insta Links:

- [Federal system of India- federalism with tilt towards centre](#)

Mains Links:

Though the federal principle is dominant in our constitution and that principle is one of its basic features, but it is equally true that federalism under the Indian Constitution leans in favour of a strong Center, a feature that militates against the concept of strong federalism. Discuss. (UPSC 2014)

Prelims Links:

Q. Which one of the following is not a feature of Indian federalism? (UPSC 2017)

- There is an independent judiciary in India.
- Powers have been clearly divided between the Centre and the States.
- The federating units have been given unequal representation in the Rajya Sabha.
- It is the result of an agreement among the federating units.

Ans: (d)

Q. Local self-government can be best explained as an exercise in (USPC 2017)

- Federalism
- Democratic decentralization
- Administrative delegation
- Direct democracy

Ans: (b)

5. A REVIEW OF VILLAGE GOVERNMENT IN INDIA

Context:

The World Bank Group released a Policy Research Working Paper titled “Two Hundred and Fifty-Thousand Democracies: A Review of Village Government in India,” analyzing the impact of the **73rd Constitutional Amendment** on India’s democratic path.

What is Panchayati Raj (PRI)?

A Panchayati Raj Institution (PRI) is a **local self-government system in rural areas of India**, established to decentralize administration and promote grassroots democracy.

What was the 73rd Constitutional Amendment?

It added **Part IX to the Constitution, encompassing provisions from Article 243 to 243-O**. Its salient features include the **establishment of Gram Sabha** as a permanent unit **comprising all registered village residents** and the implementation of three tiers of Panchayati Raj Institutions (PRIs) at the village, intermediate, and

district levels, although states with **populations below 20 lakh may not have the intermediate level**. Additionally, the amendment mandates **reservation of seats for Scheduled Castes (SCs) and Scheduled Tribes (STs) at every level of the Panchayat**, proportionate to their population, along with **1/3rd reservation of seats for women**.

The **73rd Constitutional Amendment of 1992**, sought to revolutionize rural governance in India by empowering Panchayats with greater autonomy and resources. While this amendment ushered in a new era of decentralization, Panchayats have yet to fully realize their potential as effective entities for planning and service delivery in rural areas.

Competitive political landscape post the 73rd constitutional amendment:

- Increased Political Participation:** The amendment led to a surge in political participation at the grassroots level, with more candidates contesting Panchayat elections.
- Empowerment of Marginalized Communities:** Reserved seats for marginalized communities, including Scheduled Castes, Scheduled Tribes, and women, played a pivotal role in enhancing political competition.
 - **Eg: 21 states** in India have reserved 50% of seats in Panchayati Raj institutions (PRIs) for women.
- Formation of Multiple Political Parties:** The competitive landscape saw the emergence of multiple political parties at the local level, leading to a **vibrant political environment** within Panchayats.
- The shift in Power Dynamics:** The competitive nature of Panchayat elections signalled a shift in power dynamics, emphasizing the importance of local governance in shaping policies and addressing community-specific issues.
- Enhanced Accountability:** The competitive political landscape was envisioned to enhance accountability as elected representatives would be mindful of their performance to secure re-election in subsequent terms.

Key Findings of the World Bank Report:

- **Funding Dependency:** PRIs rely heavily on grants from state and national authorities.
- **Shortage of Functionaries:** Scarcity of Panchayat Secretaries, with an average of **0.67 per** Gram Panchayat.
- **Recentralization Trends:** Local government autonomy eroded by MIS-based beneficiary selection and digital tracking.
- **Revenue Composition:** Only 1% of revenue is generated by taxes, majority from grants.
- **Revenue Per Panchayat:** Average tax revenue per panchayat is Rs 21,000, while grants from

central and state governments total Rs 17 lakh and Rs 3.25 lakh respectively.

- **Inter-State Disparities:** Kerala and West Bengal lead in revenue per panchayat, while Andhra Pradesh, Haryana, Mizoram, Punjab, and Uttarakhand lag behind.

Other issues with the Panchayats:

1. **Inadequate Capacity Building:** Many Panchayat members lack the necessary skills and knowledge to manage finances, plan projects, and monitor progress. This leads to inefficient resource utilization and poor project outcomes.
2. **Financial Constraints:** Panchayats heavily rely on central government grants, which are often delayed or inadequate.
 - **Eg:** Panchayats received **95%** of their revenues from the **devolved** funds from the Centre/State while generating only 5% from own powers.
3. **Lack of Transparency and Accountability:** Weak monitoring systems and limited public access to information make it difficult to hold Panchayats accountable for their actions.
4. **Socio-economic Inequalities:** Existing social inequalities and discrimination can hinder equitable development within Panchayat jurisdictions. This requires specific interventions to address the needs of marginalized communities and ensure inclusive development.
5. **Limited Community Participation:** Many citizens remain unaware of their rights and responsibilities in the Panchayati Raj system.

Key Recommendations of the World Bank Report:

1. **Enhance Local Tax Capacity:** Improve property records and grant Panchayats more authority to levy taxes.
2. **Empower Gram Sabhas:** Increase their frequency and broaden their authority, including village planning and beneficiary selection.
3. **Strengthen SHG-Panchayat Linkages:** Foster greater coordination between Self-Help Groups (SHGs) and Panchayats to better address women's needs and improve decision-making.

Other Suggested Measures:

1. **Fiscal autonomy:** Grant Panchayats greater fiscal autonomy by empowering them to raise and manage their own finances. Eg. **Kerala's** decentralized planning model has empowered Panchayats.
2. **Regular elections:** Ensure regular, timely elections to maintain the democratic functioning of Panchayats.
3. **Citizen participation:** Promote awareness campaigns and civic education to enhance citizen understanding and participation in local governance and enhance regular meetings and participation in **Gram Sabha**.
4. **Social audit:** Strengthen social audit mechanisms by providing training to villagers, ensuring trans-

parency in financial records, and addressing concerns raised through audits.

- **Eg:** Social audits in **Rajasthan** have led to the identification and correction of irregularities.
5. **Inter-panchayat coordination:** Encourage joint planning and resource sharing through inter-panchayat **forums, workshops**, and knowledge exchange programs.
 6. **Decentralisation:** Devolve additional powers and responsibilities to Panchayats across sectors like education, health, and agriculture, while providing **capacity-building support** to ensure effective implementation.

Related Initiatives

1. **SVAMITVA Scheme:** Survey of Villages and Mapping with Improved Technology in Village Areas (SVAMITVA) scheme was launched on National Panchayati Raj Day 2020 to enable the economic progress of Rural India by providing a "**Record of Rights**" to every rural household owner.
2. **e-Gram Swaraj e-Financial Management System:** e-Gram Swaraj is a Simplified Work Based Accounting Application for Panchayati Raj.
3. **Geo-Tagging of Assets:** The Ministry of Panchayati Raj (MoPR) has developed "mActionSoft", a mobile-based solution to help in capturing photos with Geo-Tags (i.e., GPS Coordinates) for the works which have assets as an output.
4. **Citizen Charter:** In order to focus on the commitment of the PRIs towards its Citizens in respect of the Standard of Services, the MoPR has provided a platform to upload Citizen Charter documents with the slogan "**Meri Panchayat Mera Adhikaar – Jan Sevaayein Hamaare Dwaar**".

Conclusion:

The **Venugopal Committee report of 2018**, highlighted the critical role of Panchayats in fostering rural development and achieving sustainable progress. It emphasizes the need to address the challenges faced by Panchayats, such as inadequate capacity building, financial constraints, lack of transparency, and limited citizen participation.

Insta Links:

- [Local Self Governance](#)

Mains Links:

Q. To what extent, in your opinion, has the decentralisation of power in India changed the governance landscape at the grassroots? (UPSC 2022)

Q. Assess the importance of the Panchayat system in India as a part of local government. Apart from government grants, what sources can the Panchayats look out for financing developmental projects? (USPC

2018)

Q. In absence of a well-educated and organised local level government system, 'Panchayats' and 'Samitis' have remained mainly political institutions and not effective instruments of governance. Critically discuss. (USPC 2015)

Prelims Links:

Q. Local self-government can be best explained as an exercise in (UPSC 2017)

- (a) Federalism
- (b) Democratic decentralisation
- (c) Administrative delegation
- (d) Direct democracy

Ans: (b)

Q. The fundamental object of Panchayati Raj system is to ensure which among the following? (UPSC 2015)

- People's participation in development
- Political accountability
- Democratic decentralisation
- Financial mobilisation

Select the correct answer using the code given below

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

Ans: (c)

Topics: Structure, organization and functioning of the Executive and the Judiciary; Ministries and Departments of the Government; pressure groups and formal/informal associations and their role in the Polity.

6. ALTERNATE DISPUTE REDRESSAL SYSTEM (ADR): ARBITRATION GUIDELINES

Context:

The **Department of Expenditure under the Ministry of Finance** released guidelines for **using arbitration and mediation in domestic public procurement contracts.**

More about the Guidelines:

Aim: Guidelines aim to **streamline the dispute resolution process** for domestic procurement by government entities and address unique challenges in arbitration.

Key Points:

1. **Avoid the automatic inclusion** of arbitration in large contracts.
2. **Restrict arbitration** to disputes **below Rs 10**

crores.

3. **Prefer institutional arbitration** when used.
4. **Adopt mediation** under the **Mediation Act, 2023**, for high-value matters.

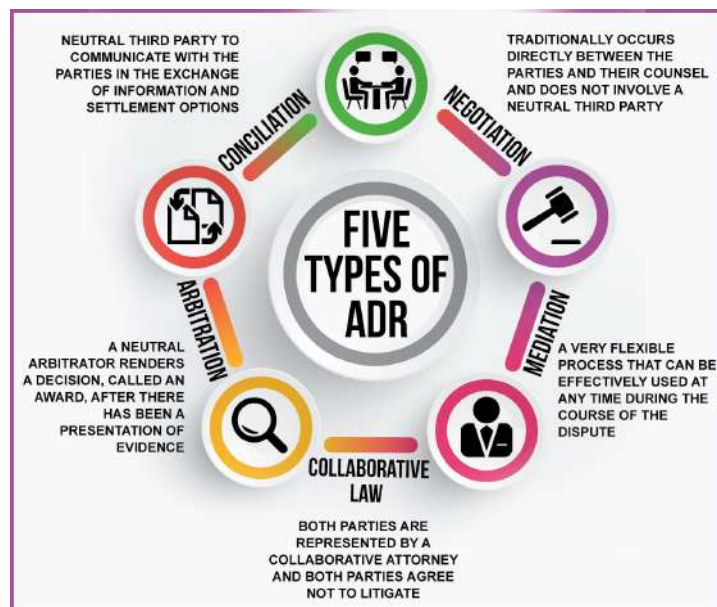
What is Arbitration?

Arbitration is a **quasi-judicial method of resolving disputes outside the courts**, where the parties to a conflict agree to submit their issues to an **impartial third party (the arbitrator)** who makes a decision that is **binding**. It is often chosen for its faster resolution process, confidentiality, and the ability to select an expert in the relevant field.

- It is a type of **Alternate Dispute Resolution (ADR)**, governed by the **Arbitration and Conciliation Act, 1996 (amended in 2021).**

What is ADR?

Alternate dispute resolution (ADR) refers to the means by which disputes are settled outside the traditional court system. In India, modes of ADR include arbitration, negotiation, mediation, and Lok Adalats.



What is Mediation?

It is an **alternative dispute resolution (ADR) method** in which a **neutral third party**, known as a mediator, helps parties in a dispute reach a mutually agreeable resolution. Mediation is considered a more **cost-effective, efficient, and less adversarial method** compared to traditional court litigation.

Why has the government shifted its policy against Arbitration?

1. **Government's Distrust in Arbitrators:** The government perceives that **arbitrators often lack integrity and collude** with private parties, re-

sulting in unfavourable awards that are hard to challenge.

2. **The disadvantage of Transferable jobs:** Government officials' transferable jobs may limit their deep knowledge, putting them at a disadvantage against private parties in arbitration.
3. **Issue of Informal nature:** The informal, binding nature of arbitration can lead to errors and misapplication of the law. Many arbitration decisions are challenged in high courts, failing to ease the courts' burden.
4. **Decision-Making Ability of Officials:** Government officials, facing multiple layers of accountability and scrutiny, are unlikely to agree to any decision which might be unpopular with the government.
5. **Vivad se Vishwas – II Scheme:** The 2023 scheme shows the government's preference for settlements (rather than arbitration), often proposing significant discounts on arbitral awards.

Potential Implications of the Guidelines:

1. **Deter Foreign Investors:** Restrictions on arbitration, especially for high-value disputes, may deter foreign investment.
2. **Ease of Doing Business:** Complicates business operations; India ranked low in 'Enforcing Contracts' (163rd in 2019, World Bank).
3. **Arbitration Hub Vision:** Challenges India's ambition to be an international arbitration hub.
4. **Diminished Investor Confidence:** Unpredictable legal frameworks may erode investor confidence.
5. **Infrastructure Development:** Shift to court adjudication could delay projects and increase costs.
6. **Contractual Uncertainty:** Removing arbitration clauses introduces uncertainty in business contracts.
7. **Potential for Corruption:** Settlement negotiations may increase corruption due to a lack of transparency.
8. **Stifling Innovation:** A slow dispute resolution system can hinder startups and innovation.
9. **Overburdening Courts:** The overburdened Indian courts are ill-equipped for complex commercial disputes, leading to prolonged litigation despite efforts to expedite processes.

Other challenges with India's ADR mechanism are:

Challenges	Description
Lack of Government Support	Uneven growth and limited support for ADR in different regions.
	Lack of funding for ADR centres, especially in smaller cities.
	Need for greater government backing to promote ADR mechanisms.
Insufficient Infrastructure	An inadequate number of ADR centres even after 27 years of the Arbitration and Conciliation Act, 1996.
	Lack of funding hampers the establishment of ADR facilities in small towns.
	Accessibility issues due to the concentration of ADR centres in cities.
Court Interference	Frequent interference of courts in arbitral and ADR proceedings.
	Over-interference affects the autonomy of ADR mechanisms.
	Hindrance to the flexibility and freedom of parties in ADR.
Execution Process	Parties often need to approach courts for execution after ADR awards.
	Counteracts the goal of a streamlined dispute resolution process.
Lack of Skilled Professionals	Limited availability of skilled arbitrators, negotiators, and mediators.
	Lack of specialized institutions for training in ADR skills.
	Unskilled professionals can lead to unsuccessful ADR outcomes.
Limited Remedies and Appeal	Narrow scope for appeal after the ADR award, offering few remedies.
	Parties may feel restricted in pursuing justice through ADR.
Lack of Awareness	Widespread lack of awareness about ADR mechanisms in society.
Potential for Coercion	In cases where one party is more influential, there's a risk of coercion.
Inability to Reach Mutual Agreement	- Despite efforts by negotiators/mediators/arbitrators, parties may be unwilling to agree.

What should be done to improve Arbitration?

1. **Reconsideration of Policy:** The government should rethink excluding arbitration clauses and instead enhance the arbitration framework.

- Strengthening Arbitration:** Improving the arbitration process, including timely arbitrator appointments and award enforcement, can enhance its effectiveness.

Measures to Promote ADR:

- Strengthening Legal Frameworks:** Ensure laws support ADR, making mediated agreements enforceable and integrating ADR into the judicial system.
- Enhancing Awareness and Education:** Conduct awareness campaigns and educational programs about ADR benefits and processes.
- Improving Training and Certification:** Develop comprehensive training for mediators/arbitrators, establish certification processes, and integrate ADR training into education curriculums.
- Role of Technology:** Utilize AI, big data, Machine Learning, and blockchain in legal processes, especially for blockchain-driven arbitration processes for smart contracts.
- Government's Shift to Mediation:** Establish ADR centres, particularly mediation centres, within government departments to resolve disputes. For example, the Maharashtra Mediation and Conciliation Centre in India resolves disputes involving government departments.

Additional Points:

Key features of the Mediation Act, 2023

Key Feature	Description
Pre-litigation Mediation	Parties must attempt mediation before approaching the court/tribunal; courts can refer parties to mediation anytime.
Disputes not Fit for Mediation	Claims against minors, criminal prosecutions, and rights affecting third parties; list amendable by central government.
Applicability	The Act applies to mediations in India: involving only domestic parties, or involving at least one foreign party in a commercial dispute, or if specified in the mediation agreement.
Mediation Process	Confidential proceedings must be completed in 180 days (extendable by another 180 days); withdrawal is allowed after two sessions .

Mediators	Appointed by parties or mediation service provider ; mediators must disclose conflicts of interest.
Mediation Council of India	Will be established by the central government; and includes a chairperson, two full-time members, three ex-officio members , and one part-time member.
Functions of the Council	Registration of mediators, recognizing mediation service providers and institutes.
Mediated Settlement Agreement	Final, binding, and enforceable like court judgments ; can be challenged on grounds of fraud, corruption, impersonation, or unsuitability for mediation.
Community Mediation	For resolving disputes affecting local peace and harmony ; It will be conducted by a panel of three mediators.

The [Mediation Act, 2023](#) is a **progressive legislation for peaceful dispute resolution** in India. The NITI Aayog (2021) has observed that the model of **compulsory mediation** up to a few sessions has **been successful** in countries such as **Italy, Brazil, and Turkey**. The new act will lead to more **out-of-court settlements** and **reduce the pendency** in courts.

Insta Links:

- [Reforming arbitration law](#)
- [Bills & Acts – Arbitration Laws in India](#)

Mains Links:

Q. What are the major changes brought in the Arbitration and Conciliation Act, 1996 through the recent Ordinance promulgated by the President? How far will it improve India's dispute resolution mechanism? Discuss. (UPSC 2015)

Prelims Link:

Q. With reference to Lok Adalats, which of the following statements is correct? (UPSC 2010)

- (a) Lok Adalats have the jurisdiction to settle the matters at the pre-litigation stage and not those matters pending before any court
- (b) Lok Adalats can deal with matters which are civil and not criminal in nature
- (c) Every Lok Adalat consists of either serving or retired judicial officers only and not any other person
- (d) None of the statements given above is correct

Ans: D

Topics: Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes.

7. PM AWAS YOJANA EXPANSION: CENTRE TO SPEND RS 4 TRILLION

Context:

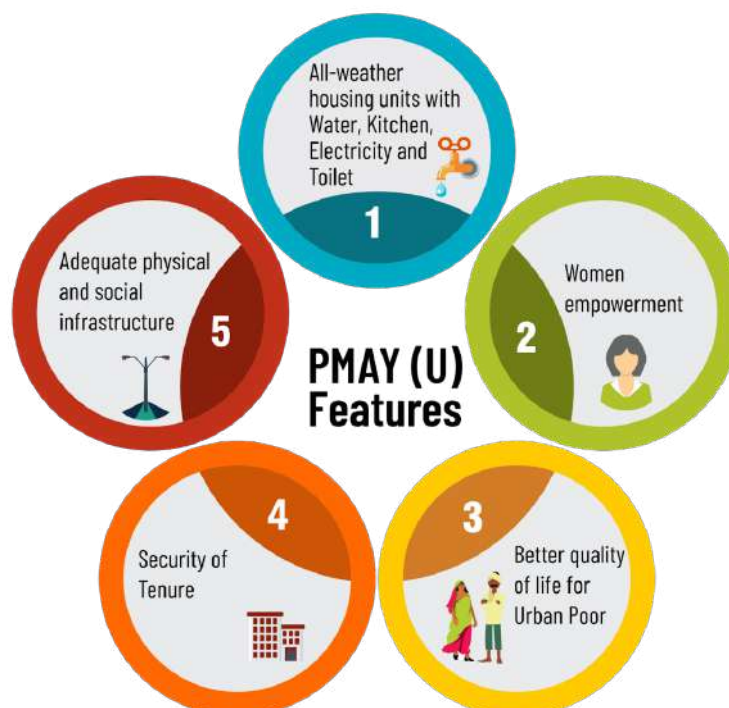
The Union Cabinet has approved the construction of **20 million more houses under PMAY-Gramin and 10 million under PMAY-Urban**.

What is PM Awas Yojana?

It is a **housing scheme launched by the government of India** to provide affordable housing for all by 2024. The scheme has two variants, **PMAY -Rural and PMAY - Urban**.

About PMAY:

	PMAY-Urban	PMAY-Rural
Nodal Ministry	Launched in 2015 by Ministry of Housing and Urban Affairs	Launched in 2016 by Ministry of Rural Development
Type	Both Centrally Sponsored and Central Sector Scheme	Centrally Sponsored
Beneficiaries	EWS (economically weaker section) : up to 3 lakh incomes; LIG (Lower income group) : 3-6 lakh income MIG (Middle income group) : 6-12 lakh income EWS is eligible for Assistance in all four verticals of Mission; LIG/MIG is eligible under only the CLSS component (Central Sector Scheme)	Identified through Socio-Economic and Caste Census (SECC), 2011
Four Verticals	<ol style="list-style-type: none"> In-situ Slum Redevelopment Credit Linked Subsidy Scheme (CLSS) Affordable Housing in Partnership Beneficiary-led Construction/Enhancement 	N/A
Current Status	Over 83 lakh houses completed as of 3rd June 2024 (of 2.95 crore houses sanctioned)	About 2.62 crore houses completed as of 11 June 2024



Significance of Pradhan Mantri Awas Yojana:

1. **Targets poor:** Targets urban poor including EWS, LIGs, and MIGs in Urban areas. PMAY-Gramin improves housing for rural poor.
2. **Wide Coverage:** PMAY-Urban covers all 4041 statutory towns from the Census 2011, focusing on 500 Class I cities.
3. **Financing through Subsidy:** **6.5%** interest subsidy on housing loans for 15 years; **Rs 1.5 lakh** for eligible urban poor for construction or renovation.
4. **Affordable Housing Partnership:** Rs **1.5 lakh** Central Assistance per EWS house; projects must have at least 35% EWS houses to qualify.
5. **Women Empowerment:** Promotes female ownership or joint ownership of houses.

Performance of PMAY-G:

1. **Completion Rate:** Only 55% of the target met.
2. **Construction:** Over **83 lakh houses completed** as of 3rd June 2024 (of **2.95 crore** houses sanctioned)
3. **Funding:** 85% of beneficiaries received sanctioned funds.
4. **Employment:** Generated employment, especially for migrant labourers during the lockdown.

Limitations of the scheme:

- **COVID pandemic:** the pandemic has slowed down the timely construction of houses and therefore government was forced to extend the deadline from **2022 to March 2024**.
 - In rural areas, Pradhan Mantri Awas Yojana has a completion rate of **67.72%**.
- **Poor implementation by state:** Six States account for 70% of the target units — West Bengal, Madhya Pradesh, Bihar, Odisha, Uttar Pradesh and Chhattisgarh.
 - **Bihar** has one of the lowest completion rates at **59%**.
- **Lack of clear land titles and documents:** In both rural and urban areas, issues such as a lack of clear titles and other land documents tend to crop up. This further slowed down the pace of construction of houses.
- **Withholding of funds by the Centre:** Recently, the Centre withheld funds for the scheme in two Opposition-ruled States — **West Bengal** and **Chhattisgarh**.
 - Many times states like Chhattisgarh have defaulted on the payment because of lack of funds.
- **Credit linked limit:** According to the PMAY Credit Linked guidelines the interest subsidy of **6.5%** will be given to the people who fall under backward classes or economically weaker groups.
 - However, the subsidy is not for all the people living in these groups.
- **Tenure limit:** As the yojana says the applicant will get a tenure of **15 years** to repay the loan. But the time will be granted only if the loan amount is 6 lakhs or less.
 - If the loan amount is more than **6 lakhs** then the tenure will be less than 15 years.

[For Sustainability Concerns with the housing \(under PMAY\): Click Here](#)

Government Initiatives under PMAY-U:

1. **Affordable Rental Housing Complexes (ARHCs):** Provide affordable rental housing for urban migrants/poor near their workplaces.
2. **Global Housing Technology Challenge (GHTC):** Mainstreams innovative, sustainable, eco-friendly, and disaster-resilient construction technologies.
 - a. **Light House Projects (LHPs):** Part of GHTC, aimed at reducing construction time and building resilient, affordable houses.
3. **CLSS Awas Portal (CLAP):** Integrates all stakeholders in real-time to process applications and track subsidy status.
4. **Mivan Construction Technology:** Uses advanced aluminium formwork for faster and environmentally friendly construction.
5. **Insulating Concrete Formwork (ICF) Technique:** Utilizes polystyrene panels filled with concrete for strong, durable, and well-insulated structures.
6. **Hybrid Concrete Construction:** Combines cast-in-place concrete with precast materials, accelerating construction and reducing costs.

Conclusion

The government has done a commendable job by **converging the Pradhan Mantri Awas Yojana with other schemes that provide electricity, toilets and LPG gas connections**. The implementation of PMAY has remained largely transparent and the progress has been satisfactory. However, the government should address the major issues with the PM Awas Yojana.

Insta Links:

- [Pradhan Mantri Awas Yojana- Gramin \(PMAY-G\)](#)

Topics: Important aspects of governance, transparency and accountability, e-governance applications, models, successes, limitations, and potential; citizens charters, transparency & accountability and institutional and other measures.

8. COOPERATIVE SOCIETIES ARE NOT SUBJECT TO THE RTI ACT

Context:

The Madras High Court ruled that **cooperative societies are not subject to the RTI Act**. The court set aside a **Tamil Nadu Information Commission order** that had directed a cooperative society to **disclose loan details**.

Justice V. Bhavani Subbaroyan stated that **cooperative societies do not qualify as 'public authorities'** under **Section 2(h)** of the **RTI Act**. The court's decision aligns **with previous rulings, including a 2013 Supreme Court verdict**.

Positive Implications of the Judgement:

1. **Autonomy of Cooperative Societies:** Reinforces the independence of cooperative societies by not categorizing them as public authorities under the RTI Act.
2. **Legal Clarity:** Provides a clear legal interpretation that can guide similar cases in the future.
3. **Operational Efficiency:** Cooperative societies can operate without the administrative burden of complying with RTI requests, potentially increasing efficiency.

Negative Implications:

1. **Reduced Transparency:** Limits public access to information on cooperative societies, potentially reducing transparency and accountability.
2. **Potential for Misuse:** Without RTI oversight, there may be a higher risk of corruption or misuse of funds within cooperative societies.
3. **Public Distrust:** The decision might foster distrust among the public, particularly if cooperative societies are seen as non-transparent entities.

About RTI Act, 2005:

1. **Objective:** Ensures transparency and accountability by providing citizens access to information from public authorities.
2. **Constitutional Basis:** Rooted in the right to freedom of speech and expression (Article 19 of the Indian Constitution) [State of UP vs. Raj Narain Case (1975)].
3. **Key Provisions:** Time limits for information provision, proactive disclosure, appointment of Public Information Officers (PIOs), and establishment of Central and State Information Commissions.

Public Authorities (PAs) under the RTI Act, 2005:

1. **Definition:** Includes government bodies, state-controlled entities, and NGOs significantly funded by the government.
2. **Duties:** Maintain organized records, regularly disclose information, and designate PIOs for information dissemination.

Exemptions under Section 8:

1. Information affecting the **sovereignty, integrity, or security of India**.
2. Information **forbidden by courts** or constituting contempt of court.
3. Information **breaching Parliament's or State Legislature's privilege**.
4. **Commercial confidences, trade secrets**, and intellectual property (unless public interest requires disclosure).

5. **Personal information** invades privacy without public interest.

Cooperatives in India and issues faced by them:

Meaning: Co-operatives are voluntary, democratic, and autonomous organisations controlled by their members who actively participate in their policies and decision-making.

Efforts to promote them:

- **After independence**, the first five-year plan (1951-56) emphasised the adoption of co-operatives to cover various aspects of community development.
- **97th Amendment (2011):** It inserted Article 43B in the DPSP of the Indian Constitution inserted,
 - As per Article 43B. States shall endeavour to promote voluntary formation, autonomous functioning, democratic control and professional management of cooperative societies

Issues faced by the co-operatives:

- Inadequacies in governance
- **Politicisation and the excessive role of the government**
- Inability to ensure active membership
- Lack of efforts for capital formation
- **Inability to attract and retain competent professionals**
- Elections to co-operative boards have been postponed indefinitely

What are Multi-state Co-operative Societies?

- Regulated by the **Multi-State Co-operative Societies Act 2002**, these are societies that have operations in more than one state (like FPOs).
- **Part IXB (also inserted by the 97th amendment) of the Indian constitution** is applicable only to multi-state co-operative societies (as per an SC verdict), as states have the jurisdiction to legislate over state co-operative societies.

Read about The Multi-State Cooperative Societies (Amendment) Bill 2023: [Here](#)

Insta Links:

- [Bill to amend Multi-State Cooperative Societies Act introduced in LS](#)

9. FLAWS IN THE CRIMINAL JUSTICE SYSTEM

Context:

Recently, **a woman in Bareilly, Uttar Pradesh, falsely accused a man of rape**, leading to wrongful imprisonment. It highlights the loopholes in India's Criminal Justice System. Also, the government recently extended the centrally sponsored scheme for **Fast Track Special Courts (FTSC) till 2026**.

Structure of the Criminal Justice System in India:

The Criminal Justice System in India ensures justice for victims and fair treatment for the accused . It operates based on the Indian Penal Code (IPC) and Criminal Procedure Code , soon to be replaced by Bharatiya Nyaya Sanhita and Bharatiya Nagarik Suraksha Sanhita .	
Three main pillars:	Police: Investigate crimes, apprehend suspects, and enforce laws.
	Judiciary: Interpret laws and deliver judgments, with the Supreme Court and High Courts at the top.
	Correction System: Manage prisons, focusing on punishment and rehabilitation.
Key Principles	Presumption of innocence (the accused is considered innocent until proven guilty beyond a reasonable doubt), the right to a fair trial (the accused has the right to a fair and public trial, including the right to defend themselves and present evidence), and adherence to due process.

Major Challenges in India's Criminal Justice System

1. **British Legacy:** The old laws were remnants of British colonial rule, designed to maintain their control over India's justice system.
2. **Punitive Approach:** The focus of the laws was punishment rather than ensuring justice for citizens.
3. **Low Conviction Rates:** The laws contributed to low conviction rates and delayed justice, eroding public trust in the legal system.
4. **Pendency:** Over 5 crore pending cases (July 2023).
5. **Delays:** Delays violate the right to a speedy trial (N.S Sahni v. Union of India).
6. **Lack of Resources:** Only 21 judges per million population (Dec 2023); 35% lower judiciary posts and 400 High Court vacancies (May 2023).
7. **The politicization of Police:** Despite SC (Prakash Singh v. Union of India (2006)) warning Separation of duties was not implemented.

8. **Bail Issues:** Over 75% of the prison population are undertrial; prisons at 130% occupancy.
9. **Gender Bias:** Persistent biases, e.g., Karnataka HC judge’s comments on a rape victim.
10. **Prison Conditions and Mental Health:** Model Prison Manual 2016 mandates mental health services, however, there is a high rate of mental illness among prisoners.
11. **Maharashtra:** 42,577 prisoners but only one psychiatrist and two psychologists (2022).
12. **Non-Implementation of Police Complaints Authority:** Prakash Singh (2006) mandated Police Complaints Authorities (PCAs).
13. **Human Rights Violations:** 175 deaths in police custody (2021-2022).

The positive aspects of the proposed criminal law reforms (Bharatiya Nyaya Sanhita and Bharatiya Nagarik Suraksha Sanhita.):

1. **Modernization of Criminal Justice System:** E.g., using e-FIR, Zero FIR, new cyber offences, and modernised evidence collection.
2. **Update of Outdated Laws**
3. **Stringent Provisions for Women and Children:** The Bharatiya Nyaya Sanhita (BNS) has dedicated a separate chapter to these matters and introduced new forms of offence.
4. **Innovations:** Innovations such as trial in absentia and the introduction of community service as a penalty for minor offences are noteworthy.
5. **Gender Inclusivity:** The proposed reforms have reviewed language for gender neutrality and replaced outdated terms such as ‘insanity’ with ‘mental illness.’
6. **Specific Definitions and Offences:** The bills define and address offences like terrorism, organized crime, mob lynching, and negligent acts, adding new dimensions to criminal law.
7. **Protection for Victims:**g., protection and rights of victims, including provisions related to victims’ participation, and rights.
8. **Expedited Justice:** E.g., Requirement for judgments to be given within 30 days after the trial concludes and limitations on adjournments.

What more needs to be done:

1. **Bail Reform: Supreme Court directive:** Bail should be the rule (Balchand v. State of Rajasthan, 1978). Implement the **Law Commission’s 268th Report (2017)** to reduce undertrial detention and ensure bail is the norm, not the exception.
2. **Victim and Witness Protection:** Fully implement the Witness Protection Scheme (2018) with proper funding and oversight, as recommended by the Malimath Committee (2003).
3. **Revamping Fast-Track Courts:** Assign dedicated judges, improve infrastructure, set binding timelines,

- and introduce case management systems to expedite cases.
4. **Combatting Criminalization of Politics:** Establish an institution to tackle political criminalization, investigate the political-criminal nexus, and take decisive action, as suggested by the **Vohra Committee (1993)**.
5. **Legal Aid Reform:** Increase funding and create performance-based incentives for legal aid providers to ensure effective representation for disadvantaged defendants.
6. **AI in Case Management:** Integrate AI for case management, scheduling, and pretrial risk assessment, ensuring transparency and preventing biases.
7. **Prison Administration Reform:** Implement mandatory segregation of undertrials, convicts, and first-time offenders, and enforce national health insurance schemes in prisons, following the **Justice Amitava Roy Committee recommendations**.
8. **Gender Sensitization:** Mandatory training for judicial officers on gender sensitivity, and establishing accountability mechanisms for gender-biased comments, referencing the **SC Handbook on Gender Stereotypes**.
9. **Victim-Centric Justice:** Provide comprehensive victim support services, including counselling, legal aid navigation, and a guaranteed right to be heard in court.
10. **Promoting Restorative Justice:** Adopt restorative justice practices focusing on **healing harm caused by crime**, as recommended by **the Madhav Menon Committee (2007)**.

Additional information:

Reforms in Indian Criminal Law

Provisions	Bhartiya Nyaya Sanhita Bill 2023	Bharatiya Nagarik Suraksha Sanhita Bill 2023	Bharatiya Sakshya Bill 2023
Replaces	Indian Penal Code, 1860	Criminal Procedure Code, 1898	Indian Evidence Act, 1872
Focus	Reflects Indian ethos, justice-oriented	Enhances citizens’ protection	Modernizes evidence presentation
Sections	356 sections (replacing 511)	533 sections (160 changed)	170 sections (23 changed)
Women and Children	A separate chapter dedicated to them; New offence: false promise of marriage, Employment etc.; Initiating children into crime made punishable.	Sexual intercourse on false promise of marriage, employment, etc., is a new offence.	
Digital Integration	Expanded definition of documents; Address newer crimes, cyber offences	Digitization of processes	Accepted documents include electronic and digital records, video recordings, emails, etc.
Speedy Trials	Summary trials, time limits	Trial expedited; 90-day window for investigation after chargesheet filing; Witness protection scheme to be made by states; Bail after serving 1/3rd of the maximum sentence for first-time offenders.	Video recording of search and seizure operations by the police
Victim Support	Compulsory status updates of victim support	Protection, timely information	Video recording of search and seizure operations by the police
Terrorism and Organized Crime	New definitions of Terrorism for 1 st time; Armed rebellion, separatist activities, organized crimes, etc.; Mob lynching made an offence explicitly	Harsher provisions against gangs	Define and address organized crimes
Fugitive		Trials for fugitives in absentia	
FIR	Zero FIR, e-FIR introduced	Zero FIR, e-FIR introduced; community service as punishment	Mandatory digitization of FIR, chargesheets; Mandatory use of Forensic services for offences punishable with 7 or more years
Sedition Law	Repealed		

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Insta Links:

- [India's Criminal Justice System](#)

Mains Link:

Q. We are witnessing increasing instances of sexual violence against women in the country. Despite existing legal provisions against it, the number of such incidences is on the rise. Suggest some innovative measures to tackle this menace. (UPSC 2014)

Q. Mob violence is emerging as a serious law and order problem in India. By giving suitable examples, analyze the causes and consequences of such violence. (UPSC 2015)

GENERAL STUDIES – 3

Topics: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

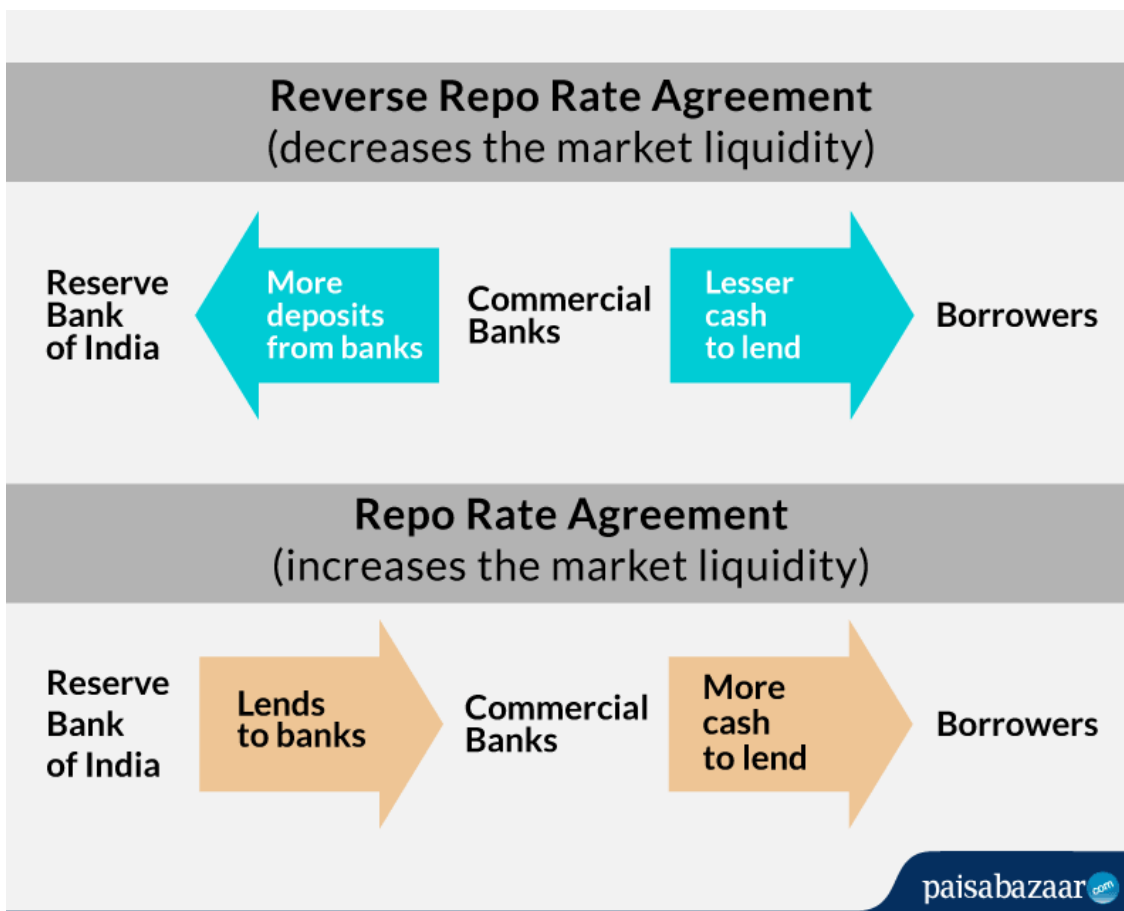
10. RBI KEEPS REPO RATE UNCHANGED

Context:

The **Reserve Bank of India (RBI)** has refrained from cutting the repo rate despite stable inflation rates. The repo rate, which influences loan EMIs, has **remained unchanged since February 2023**.

What is the Repo Rate and who maintains it?

The repo rate is the interest **rate at which the RBI lends money to commercial banks**. It impacts economic activity: a lower rate stimulates borrowing and spending, while a higher rate discourages it. **The RBI's monetary policy aims to maintain price stability**, target a 4% inflation rate, and promote economic growth by **adjusting the repo rate accordingly**. Lowering the rate **stimulates borrowing post-pandemic**, while raising it curbs excessive spending during inflationary periods like the Russia-Ukraine conflict.



Other Tools for Controlling Interest rates

1. **Open Market Operations (OMO):** The RBI buys or sells government securities to adjust money supply and interest rates.
2. **Cash Reserve Ratio (CRR):** The percentage of deposits banks must hold with the RBI, influencing their lending capacity.
3. **Statutory Liquidity Ratio (SLR):** The percentage of deposits banks must invest in government securities, also affecting liquidity and interest rates.

Reasons for Not Cutting Interest Rates:

Reasons	Description
1) Sticky Inflation:	Despite a gradual decline, inflation hasn't reached the 4% target since January 2021, hovering around 5% in the first four months of 2024.
2) Commitment to Durable Inflation Targeting:	The RBI aims for sustained inflation around 4% , not just occasional dips below this level.
3) Strong Economic Growth:	India's GDP growth rate has been robust, with forecasts revised upwards to 7.2% for the current financial year , suggesting no urgent need for rate cuts to stimulate activity.
4) Fiscal Deficit Concerns:	The RBI's decision may be influenced by the forthcoming Union Budget and government borrowing plans , which could impact inflation or interest rates.

Understanding the Impact of High Interest Rates:

Positives:

1. **Taming Inflation:** High rates discourage borrowing and spending, reducing the money supply and easing inflationary pressures.
2. **Financial Stability:** Attract foreign investments, strengthening the rupee and foreign exchange reserves, boosting financial stability.
 1. E.g. India's foreign exchange reserves surged past \$600 billion in 2023 amidst high interest rates, providing a cushion against global uncertainties.
3. **Promoting Savings:** Higher interest rates on deposits incentivize saving, increasing domestic capital availability for investment and growth.
 1. E.g. Fixed deposit rates above 7% in India have encouraged individuals to save more, leading to higher bank deposits.
4. **Curbing Asset Bubbles:** Discourage excessive speculation in assets like real estate and stocks,

promoting financial market stability.

1. Example: **High interest rates during 2010-11** helped cool down the overheating real estate market in India, **preventing a potential bubble.**
5. **Encouraging Financial Discipline:** High rates promote prudent borrowing and lending practices among businesses and individuals, **reducing risk-taking and defaults.**

Negatives:

1. **Slower Economic Growth:** Expensive borrowing can **dampen investment and consumer spending**, potentially slowing economic growth.
 1. E.g. **High interest rates during 2019-20** contributed to a slowdown in India's GDP growth rate.
2. **Increased Debt Burden:** Existing borrowers face higher interest payments, straining finances and **potentially leading to defaults.**
3. **Impact on Investment:** High rates can discourage investments in key sectors like **infrastructure and manufacturing, hindering long-term growth.**
4. **Pressure on Businesses:** High borrowing costs can squeeze profit margins and hamper business expansion plans, potentially **impacting job creation.**
 1. E.g. **Small and medium enterprises (SMEs)** often face challenges in **accessing credit at high interest rates.**
5. **Impact on Consumer Spending:** High interest rates on credit cards and personal loans can **reduce discretionary spending, impacting retail sales and overall consumption.** E.g. High interest rates on auto loans have led to a **slowdown in car sales in India.**
6. **Currency Appreciation:** High interest rates can attract foreign capital, leading to **currency appreciation, which can hurt export competitiveness.** E.g. The Indian rupee's appreciation in 2023 due to high interest rates posed challenges for **export-oriented sectors like textiles and IT.**

Conclusion

The RBI's decision to maintain high interest rates reflects its efforts to **balance inflation control with growth** considerations. It will continue to **monitor economic data and adjust rates** as needed to achieve a harmonious outcome for the Indian economy.

Other steps announced by RBI in this MPC Meeting:

1. **Rationalization of Export and Import regulations** under the Foreign Exchange Management Act (1999) to boost ease of doing business.
2. **Establishment of a Digital Payments Intelligence Platform (DPIP)** using advanced technology to combat payment fraud.
3. **Formation of a committee chaired by A.P. Hota** to explore setting up a digital public infrastructure for DPIP.

- Integration of UPI Lite into the e-mandate framework** with an auto-replenishment feature for the UPI Lite wallet.
- Revision of bulk deposit definition to include Single Rupee term deposits of ₹3 crore** and above for Scheduled Commercial Banks (excluding Regional Rural Banks(RRBs)) and Small Finance Banks. For Local Area Banks, the threshold is ₹1 crore and above as applicable for RRBs.

About MPC:

The **Monetary Policy Committee (MPC)**, established under the **amended RBI Act of 1934**, comprises **six members**: three from the RBI and three appointed by the government. It decides the policy repo rate aimed at meeting the inflation target. Each member holds one vote, with the Governor having a casting vote in case of a tie.

Insta Links:

- [Variable Rate Repo \(VRR\)](#)
- [What is the RBI's MPC?](#)

Mains Link:

Q. Do you agree with the view that steady GDP growth and low inflation have left the Indian economy in good shape? Give reasons in support of your arguments. (UPSC 2019)

Prelims Link:

Q. Which of the following statements is/are correct regarding the Monetary Policy Committee (MPC)? (UPSC 2017)

- It decides the RBI's benchmark interest rates.
- It is a 12-member body including the Governor of RBI and is reconstituted every year.
- It functions under the chairmanship of the Union Finance Minister.

Select the correct answer using the code given below:

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

Ans: (a)

Q. If the RBI decides to adopt an expansionist monetary policy, which of the following would it not do? (UPSC 2020)

- Cut and optimize the Statutory Liquidity Ratio
- Increase the Marginal Standing Facility Rate
- Cut the Bank Rate and Repo Rate

Select the correct answer using the code given below:

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

Ans: (b)

Topics: Science and Technology- developments and their applications and effects in everyday life Achievements of Indians in science & technology; indigenization of technology and developing new technology.

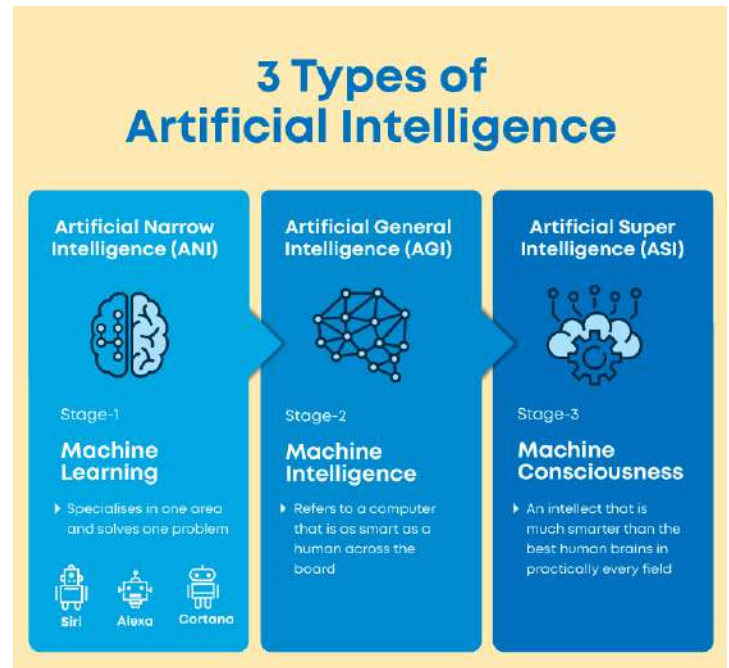
11. POTENTIAL OF ARTIFICIAL GENERAL INTELLIGENCE (AGI) FOR INDIA

Context:

Artificial general intelligence (AGI) holds the potential to revolutionize India's trajectory.

What is Artificial general intelligence (AGI)?

Artificial General Intelligence (AGI) surpasses conventional AI in sophistication. Unlike AI, **AGI aims for a broad, human-like intelligence, encompassing reasoning, learning, and creativity.** It generalizes knowledge, engages in complex reasoning, and exhibits self-awareness and creativity. AGI seeks to **emulate human cognitive abilities** across diverse tasks and domains.



Applications of AGI:

Application	Example
Healthcare	AGI can analyze diverse medical data to offer personalized treatment options, improving outcomes in personalized medicine.
Finance and Business	AGI can automate tasks in finance, providing real-time analysis and accurate market predictions for better decision-making.

Education Sector	AGI can revolutionize adaptive learning platforms , offering personalized education tailored to individual student needs globally.
Space Exploration	AGI can operate autonomous systems for space exploration , analyze data from space missions, and contribute to new discoveries.
Military and Defense	AGI can enhance surveillance, military strategies, and combat systems for defence purposes.

Initiatives taken:

Initiative	Description
Global Partnership on Artificial Intelligence (GPAI)	India's participation in an international initiative aimed at fostering collaboration among nations to promote the responsible development and use of artificial intelligence.
US India Artificial Intelligence Initiative	Collaborative efforts between India and the United States to advance research, development, and application of artificial intelligence technologies for mutual benefit.
Responsible Artificial Intelligence (AI) for Youth	An initiative aimed at educating and empowering youth to understand and responsibly utilize artificial intelligence technologies for societal benefit.
AIRAWAT (Artificial Intelligence Research, Analytics and Knowledge Assimilation Platform)	A platform facilitating research, analytics, and knowledge assimilation in the field of artificial intelligence, fostering innovation and collaboration among researchers, academia, and industry professionals.
IndiaAI Mission	Approved by the Indian Cabinet in March 2024 , this initiative involves significant funding over five years to develop AI infrastructure accessible to startups, academia, and industry, positioning India as a global AI leader.
Artificial Intelligence (AI) Act	The European Union has finalized the world's first comprehensive law regulating artificial intelligence , known as the AI Act.

Concerns Related to AGI:

- Existential Risk:** Concerns about AGI surpassing human intelligence and becoming excessively autonomous, posing existential risks that are challenging to anticipate and control.
- Job Losses and Unemployment:** Potentially substantial decrease in job opportunities due to AGI automation, leading to social and economic inequality and concentration of power among overseers.
- Human Oversight and Accountability:** Risks associated with AGI controlling information environments and influencing critical areas like elections, raising concerns about oversight and accountability.
- Environmental Concern:** Significant energy consumption and e-waste generation associated with developing AGI systems, highlighting environmental impact concerns.
- Ethical Dilemmas:** AGI advancement raises ethical challenges related to responsibility, confidentiality, and biased decision-making, requiring compliance with ethical norms to avoid unintended outcomes and inequalities.
- Loss of Basic Human Skills and Creativity:** Reduced human involvement in tasks may lead to a decline in creativity and innovation, with AGI potentially producing more innovative but less diverse outcomes compared to human works.

What should India do?

- Establish Dedicated AI Department:** Create a central authority to coordinate AI efforts, setting standards and policies aligned with national interests.
- Democratize Data Access:** Liberate and democratize access to vast datasets across sectors to stimulate AI development tailored to India's unique landscape.
- Build Strategic AI Ecosystem:** Develop AI capabilities in defence, drone technology, and cybersecurity, supporting the creation of companies in these fields.
- Launch AI Skilling Initiative:** Train 50 million people in AI usage skills and 1 million in advanced AI development skills, focusing on data literacy, ethics, and sector-specific applications.
- Foster Educational Partnerships:** Collaborate with universities and technical institutes to integrate AI-focused curricula and provide scalable access to industry training through online platforms.

Conclusion:

Moving forward, establishing robust ethical frameworks is paramount for the responsible develop-

ment and deployment of AGI. Collaborative efforts involving **governments, industry stakeholders, and researchers** are necessary to create guidelines emphasizing safety, transparency, and accountability. **Prioritizing transparency and explainability** in AGI systems is crucial to ensure understandable and verifiable decision-making processes, fostering trust and minimizing the risk of unintended consequences.

Mains Link:

Q. What are the main socio-economic implications arising out of the development of IT industries in major cities of India? (UPSC 2022)

Q. “The emergence of the Fourth Industrial Revolution (Digital Revolution) has initiated e-Governance as an integral part of government”. Discuss. (USPC 2020)

Prelims Link:

Q. With the present state of development, Artificial Intelligence can effectively do which of the following? (UPSC 2020)

1. Bring down electricity consumption in industrial units
2. Create meaningful short stories and songs
3. Disease diagnosis
4. Text-to-Speech Conversion
5. Wireless transmission of electrical energy

Select the correct answer using the code given below:

- (a) 1, 2, 3 and 5 only
- (b) 1, 3 and 4 only
- (c) 2, 4 and 5 only
- (d) 1, 2, 3, 4 and 5

Ans: (b)

12. UN DECLARES 2025 AS INTERNATIONAL YEAR OF QUANTUM SCIENCE AND TECH

Context:

UN has declared **2025 as International Year of Quantum Science and Tech**. Next year marks the **centenary of Werner Heisenberg’s foundational paper on quantum mechanics**.

What is Quantum computing?

Quantum computing is a **new way of computing that uses the principles of quantum mechanics** to perform calculations. In traditional computing, **data is processed using bits, which are either a 0 or a 1**. But in quantum computing, the **data is processed using quantum bits or qubits, which can be both a 0 and a 1 at the same time**. This property of qubits is called **superposition**, which allows for multiple calculations to be performed

simultaneously, making quantum computing exponentially faster than traditional computing for certain types of problems.

Foundational Concepts of Quantum Mechanics

1. **Wave-Particle Duality:** Small objects exhibit both particle and wave characteristics.
2. **Quantum Superposition:** Particles can exist in multiple states simultaneously until measured.
3. **Entanglement:** Linked particles affect each other regardless of distance.
4. **Heisenberg’s Uncertainty Principle:** The position and speed of a particle cannot both be known with perfect accuracy simultaneously.



SUPERPOSITION

Superposition describes a particle’s ability to exist across many possible states at the same time. So the state of a particle is best described as a “superposition” of all those possible states.



ENTANGLEMENT

Quantum entanglement refers to a situation in which two or more particles are linked in such a way that it is impossible for them to be described independently even if separated by a large distance.



OBSERVATION

Superposition and entanglement only exist as long as quantum particles are not observed or measured. “Observing” the quantum state yields information but results in the collapse of the system.

Potential socio-economic impacts of quantum computing:

Impact on society:

1. **Privacy and Data Security:** Quantum computing’s ability to break current encryption raises **privacy and data security concerns**. Governments, businesses, and individuals must adapt by developing quantum-resistant encryption and secure communication protocols.
2. **Disruption of Industries and Jobs:** Quantum computing can disrupt industries like **finance, healthcare, and transportation**, introducing efficiency but also **potential job displacement**.
 - a. Workforce preparation is vital to mitigate negative employment impacts.
3. **Ethical Considerations:** Ethical concerns surrounding **responsible use, equitable access, and potential misuse** of quantum technology must be addressed with clear frameworks and guidelines.
4. **Digital Divide:** Widespread quantum computing may worsen the digital divide. Ensuring equitable access to resources and education is essential to prevent further social and economic disparities.

Economic impact

1. **Scientific advancements:** Quantum computing could accelerate scientific research by simulating complex quantum systems, **revolutionizing drug discovery, materials science, and climate modelling**.
 - a. This can lead to breakthroughs in **healthcare, energy, and environmental protection**, benefiting society at large.
2. **Faster data analysis:** Quantum computers excel

at specific types of calculations, allowing for significantly faster data analysis. This speed boost is vital for addressing big data challenges, particularly those **involving large datasets** generated at high speeds.

3. **Enhanced machine learning:** Quantum computing enhances machine learning, optimizing algorithms efficiently, particularly in **computer vision for faster** and **more accurate image and video analysis**.
 - a. **Generative AI** offers better **real-time recommendations**, benefiting driverless cars and digital public services.
4. **Optimization for complex problems:** Quantum computers can solve complex optimization problems much faster than classical computers. This capability is essential for tackling intricate **analytics challenges, resulting in more efficient solutions for complex systems**.
5. **Advancements in industrialization:** Quantum computing fuels Industry 4.0 and beyond, powering technologies like digital twins. It boosts the efficiency of **distributed computing, federated learning, IoT, blockchain, and more**, yielding higher-quality results.
 - a. For instance, adopting quantum tech could add **\$280-310 billion to India's economy by 2030**.
6. **Process efficiency in digital transformation:** Quantum computing's real-time data analysis capabilities can accelerate process automation within organizations.
 - a. This means that tasks can be automated more quickly and efficiently, contributing to overall digital transformation efforts.

Challenges Associated with Quantum Computing:

1. **Error Correction:** Develop effective error correction techniques, as quantum computers are susceptible to errors due to their inherent sensitivity.
2. **Cost of Implementation:** Quantum computers and their infrastructure are expensive to develop and maintain which may hinder widespread adoption, limiting access to quantum computing resources.
3. **Lack of Skilled Workforce:** There is a shortage of professionals with expertise in quantum computing which may impede the effective utilization of quantum technologies.
4. **Ethical and Security Concerns:** Addressing ethical considerations surrounding quantum computing, especially in fields like cryptography and AI.
 - a. **Ensuring responsible use and preventing malicious applications** to avoid potential security threats.
5. **Integration with Classical Systems:** Developing effective interfaces and integration mechanisms between quantum and classical computing systems.
 - a. **Seamless integration** is essential for practical applications in hybrid computing environments.
6. **Environmental Impact:** Quantum computers require **extremely low temperatures**, contribut-

ing to **high energy consumption**.

- a. Addressing the environmental impact and energy efficiency of quantum computing systems is crucial for sustainable implementation.

Ethical Considerations of Quantum Computing:

1. **Misinformation and Bias:** Risk of AI algorithms amplifying biases, leading to unfair outcomes.
2. **Privacy Infringement:** Potential for more intrusive data analysis; robust privacy protection needed.
3. **Autonomous Weaponry:** Concerns about creating independent, life-or-death decision-making weapons.
4. **Societal Repercussions:** Potential disruptions in employment, economy, and social dynamics.
5. **Technical and Security Challenges:** Ethical issues related to decoherence, error correction, and security implications.

Government Initiatives:

Initiatives	Description
National Quantum Mission (2023)	To seed, nurture, and scale up scientific and industrial R&D and create a vibrant & innovative ecosystem in Quantum Technology.
Quantum Enabled Science & Technology (QuEST)	A research program to build quantum capabilities.
Quantum Computing Applications Lab (QCAL)	To accelerate quantum computing-led research and development and enable new scientific discoveries.

Quantum Computing

Context: Union Cabinet has approved the National Quantum Mission (NQM)

Quantum computing uses quantum bits (qubits) that can be both 0 and 1 at the same time, allowing for multiple calculations to be performed simultaneously, making quantum computing exponentially faster than traditional computing for certain types of problems.

About National Quantum Mission

	Description
Objective	Develop and promote Quantum Technology in India
Timeframe	2023 – 2031 (8 years)
Major themes	<ul style="list-style-type: none"> • Quantum Computing: Develop physical qubit computers with a capacity ranging from 50-1000 qubits (to be completed within 3-8 years) • Quantum Communication: Develop secure satellite-based communication with a range of 3000 km and communication lines using Quantum Key Distribution over 2000 km (to be completed within 3-8 years) • Quantum Sensing and Metrology: Develop quantum sensors (magnetometers with high sensitivity in atomic clock systems) for Navigation, healthcare and diagnostics, defence, and energy sectors (to be completed within 8 years) • Quantum Material and Devices: Develop devices and materials (superconductors, novel semiconductor structures, and topological materials) for quantum technology (to be completed within 3-8 years)
Key Agencies Involved	Department of Science & Technology, Department of Atomic Energy, Department of Telecommunications, DRDO, ISRO
Other Aim	The Mission also aims to establish four thematic hubs (T-Hubs) at research institutes and R&D centres (based on above themes)
Significance	India will be among the top six leading nations (US, Canada, France, Finland, China and Austria.) involved in the research and development in quantum technologies.
Other programmes	National Mission for Quantum Technologies and Applications (NM-QTA); Quantum-Enabled Science & Technology (QuEST); C-DOT's Quantum Communication Lab and Quantum Key Distribution (QKD) solution.

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What Can Be Done to Overcome the Challenges?

1. **Quantum-Resistant Encryption:** Develop new encryption methods to secure data against quantum computers.
2. **Ethical Guidelines and International Regulations for Autonomous Systems:** Establish clear ethical guidelines and international regulations to prevent unintended consequences and ethical breaches.
3. **Ethical Frameworks for Converging Technologies:** Create frameworks to manage the ethical impact of merging technologies like quantum computing and AI, ensuring equitable benefit distribution.
4. **Transparent Communication and Collaboration in Quantum-Powered AI:** Promote transparent communication and collaboration to address security risks and ensure responsible development.

Conclusion

The government must prioritize quantum computing, as it relies on exploiting information assets both within and outside organizations in the long term. India has a significant opportunity to make strategic investments in research, development, and training to enhance its capability in this domain for the benefit of its citizens and the nation.

Insta Links:

[Quantum Computing](#)

Mains Links:

Q. What is quantum computing? Explain its applications and steps taken by India to promote quantum technologies in the country. (250 words)

Prelims Link:

Q. Which one of the following is the context in which the term “qubit” is mentioned?

- (a) Cloud Services
- (b) Quantum Computing
- (c) Visible Light Communication Technologies
- (d) Wireless Communication Technologies

Ans: B

[Topics: Conservation related issues, environmental pollution and degradation, environmental impact assessment.](#)

13. UNESCO'S NEW TOOLS FOR GREENING EDUCATION

Context:

UNESCO has launched the **Greening Curriculum Guidance (GCG) and Green School Quality Standards (GSQS)** under the **Greening Education Partnership**.

More about the initiative:

1. **Goal:** Greening at least **50% of schools globally by 2030** through the Greening Education Partnership.
2. **Target Audience:** Policy-makers, education ministries, educators, learners, and communities.
3. **Launched a New GCG:** A practical manual outlining climate education, detailing learning outcomes, and guiding countries to integrate environmental topics into curricula.
4. **Launched a New GSQS:** Sets minimum requirements for creating green schools through an action-oriented approach.

Pillars of Green Education:

1. **Greening Schools:** Ensure schools achieve green accreditation.
2. **Greening Curriculum:** Integrate climate education into all levels of education.
3. **Greening Teacher Training:** Build school capacities for climate education.
4. **Greening Communities:** Enhance community resilience through learning centres.

What is the Greening Education Partnership?

The Greening Education Partnership is a **global initiative comprising 80 member states**, aiming to tackle the **climate crisis through education**. It focuses on equipping learners with the knowledge, skills, values, and attitudes nec-

essary to address climate change and promote sustainable development. The partnership emphasizes **greening schools, integrating climate education into curricula, enhancing teacher training, and strengthening community resilience.**

Issues with the School Greening?

1. **50% of countries** surveyed by UNESCO **lack climate change in their curricula.**
2. **70% of young people** cannot explain climate disruption.

India has integrated climate change education into NCERT textbooks and aims to make it interdisciplinary through [NCF 2023](#)

Recommendations:

1. **NEP 2020:** The NEP 2020 outlines **climate change as a crucial component of environmental education.**
2. **National Curriculum Framework 2023:** It defines content approaches, learning standards and assessments across all stages of education, including a practical approach to environmental awareness.
3. **Educating girls can indirectly mitigate** climate change through demographic impacts.
4. **Vocational-Based Climate Education:** India's green economy requires climate education at all levels.
5. **Stakeholder Partnerships:** Collaborations enhance the integration of climate concepts in education.
6. **Teacher Training:** Incorporate climate topics in pre-service and in-service training for better delivery.
7. **Subject Integration:** Embed climate concepts across subjects to foster critical thinking and holistic understanding.
8. **Whole-School Approach:** Integrate climate action in teaching, governance, operations, and community partnerships.
9. **Innovative Pedagogies:** Use immersive learning, experiential projects, technology, and gamification to enhance climate education.

Insta Links:

- [Impact of Climate Change on Children](#)

14. GLOBAL PLASTIC TREATY

Context:

The **ongoing discussions in the Intergovernmental Negotiating Committee (INC-4) of the United Nations Environment Agency (UNEA) for a global treaty on plastic pollution** prompt considerations for a fair transition for informal waste workers.








What is the Global Plastic Treaty?

The Global Plastics Treaty, initiated in 2021, is a pivotal international effort aimed at **combatting plastic pollution on a global scale.** Established during the **fifth UN Environment Assembly in Nairobi, Kenya,** the treaty has progressed through various meetings worldwide, including Dakar, Senegal; Uruguay; Paris, France; Nairobi, Kenya; and Canada, with the final meeting set for South Korea.

Notably, the **International Alliance of Waste Pickers has played a significant role,** advocating for the inclusion of informal waste pickers in the treaty discussions to promote sustainable waste management and equitable policies.

What are Plastics?

Plastics are materials that can be shaped when soft and then hardened to maintain their form. They are polymers, composed of **many repeating units.** Plastics fall into two main categories: **thermoplastics,** which can be melted and reshaped repeatedly, and **thermosets,** which become rigid when heated and cannot be remelted.

POLYMER TYPES	EXAMPLES OF APPLICATIONS	SYMBOLS
Polyethylene Terephthalate (PET)	Fizzy drink and water bottles. Salad trays.	 PET
High Density Polyethylene (HDPE)	Milk bottles, bleach, cleaners and most shampoo bottles.	 HDPE
Polyvinyl Chloride (PVC)	Pipes, fittings, window and door frames (rigid PVC). Thermal insulation (PVC foam) and automotive parts.	 PVC
Low Density Polyethylene (LDPE)	Carrier bags, bin liners and packaging films.	 LDPE
Polypropylene (PP)	Margarine tubs, microwaveable meal trays, also produced as fibres and filaments for carpets, wall coverings and vehicle upholstery.	 PP
Polystyrene (PS)	Yoghurt pots, foam hamburger boxes, plastic cutlery, protective packaging for electronic goods and toys. Insulating material in the building and construction industry.	 PS
Unallocated references	Any other plastics that do not fall into any of the above categories - for example polycarbonate which is often used in glazing for the aircraft industry.	 0



Issues with the Plastics:

Global Plastics Problem	Facts
Increase in Plastic Waste	Production reached 353M tonnes in 2019, expected to triple by 2060
Low Recycling Rates	Only 9% recycled globally, 50% sent to landfills, 19% incinerated
Informal Sector's Role	Recycles 85% of the 9% that is recycled, reducing landfill waste
Vulnerability of Workers	Face job losses due to privatization, exclusion from policy discussions
Environmental Impact	60M tonnes of plastic pollute the environment annually without the informal sector

What should the Global Plastic Treaty contain?

- Global Objectives:** The treaty targets marine and environmental pollution caused by plastics, focusing on global goals and ecosystem impact assessment.
- Guidelines for International Cooperation:** It may outline support mechanisms for wealthier nations to assist poorer ones in achieving plastic reduction objectives.
- Prohibitions and Targets:** Expect bans on specific plastics, products, and additives, alongside binding targets for recycling and recycled content in consumer goods.
- Chemical Testing Mandates:** The treaty might mandate testing certain chemicals in plastics for safety and environmental protection.
- Consideration for Vulnerable Workers:** Details may address a just transition for waste pickers and workers in developing countries reliant on the plastic industry for livelihoods.
- Progress Assessment:** Provisions for evaluating member states' progress in implementing plastic pollution reduction measures will ensure accountability and drive continuous improvement.

Challenges to such a treaty:

Challenges	Description
Differences Among Countries	The " High Ambition Coalition (HAC) " advocates for ambitious goals like ending plastic pollution by 2040 and phasing out single-use plastics. Whereas, the US diverges by promoting voluntary measures over binding commitments. Influence of Industry Interests Oil-producing countries like Saudi Arabia, Russia, and Iran oppose plastic production caps, using delay tactics to hinder discussions

Scope of the Agreement	Deciding the agreement's scope involves questions like coverage of plastic creation and disposal, types of pollution, and ban considerations. Fossil fuel and chemical corporations seek to weaken the treaty's impact, opposing production cuts and framing the issue as solely a waste management concern.
Reporting and Monitoring	Establishing a reliable reporting and monitoring system faces challenges, such as concerns over national self-reporting accuracy.
Strategic Financing and Governance	Including strategic financing, circularity support, and governance approaches requires alignment across participating countries.

India's Stance at INC:

- India advocates for reaffirming states' sovereign rights** to sustainable development.
- India proposes objectives to safeguard human health** and the environment from plastic pollution while ensuring sustainable development, emphasizing principles like equity.
- Restrictions on Plastic Production:** India opposes limitations on primary plastic polymers, arguing they exceed UNEA resolution 5/14's scope.
- Chemicals and Polymers of Concern:** India advocates for evidence-based decisions on chemicals.
- Midstream Measures:** Advocates for nationally determined approaches for downstream measures like Extended Producer Responsibility (EPR).
- Emissions and Releases:** Emphasizes eliminating plastic waste leakage, excluding manufacturing and recycling emissions.
- Prioritizing Waste Management:** Advocates prioritizing plastic waste management, excluding manufacturing and recycling emissions.
- Cross-Cutting Issues:** Expresses concerns about cross-cutting issues like trade and financing, insisting on comprehensive assistance and technology transfer.

About Intergovernmental Negotiating Committee (INC)

It was formed by the **United Nations Environment Programme (UNEP) in March 2022** to create a global **binding agreement on plastic pollution**. Its goal is to address plastic's entire life cycle, including its impact on marine environments and may employ both voluntary and binding measures. The INC has held meetings, including INC-1 in Uruguay in November 2022, INC-2 in France in May-June 2023, and INC-3 in Nairobi in December 2023.

Insta Links:

- [OECD Report: Towards Eliminating Plastic Pollution by 2040](#)

Mains Link:

Q: What are the impediments in disposing the huge quantities of discarded solid waste which are continuously being generated? How do we remove safely the toxic wastes that have been accumulating in our habitable environment? (UPSC 2018)

Prelims Links:

Q. Why is there a great concern about the 'microbeads' that are released into the environment? (UPSC 2019)

- (a) They are considered harmful to marine ecosystems.
- (b) They are considered to cause skin cancer in children.
- (c) They are small enough to be absorbed by crop plants in irrigated fields.
- (d) They are often found to be used as food adulterants.

Ans: (a)

Q. In India, 'extend producer responsibility' was introduced as an important feature in which of the following? (UPSC 2019)

- (a) The Bio-medical Waste (Management and Handling) Rules, 1998
- (b) The Recycled Plastic (Manufacturing and Usage) Rules, 1999
- (c) The e-Waste (Management and Handling) Rules, 2011
- (d) The Food Safety and Standard Regulations, 2011

Ans: (c)

15. DRYING UP: FIXING URBAN INDIA'S WATER PROBLEM

Context:

Urban India faces **recurring water crises due to fast-depleting aquifers**. Despite efforts by the government to **provide tap water, aquifer health remains neglected**.

India's Status:

India is endowed with rich water resources:

- India has **4% of the world's water resources**
- India has **1123 billion cubic metres of surface and groundwater resources**.
- **Rainfall:** According to the Central Water Commission, **India receives 4,000 billion cubic metres** in rainfall, which is **higher than its requirement**.
- **However, in 2023, around 91 million Indians** will not have access to safe water. This data indicates the massive water shortage in India.

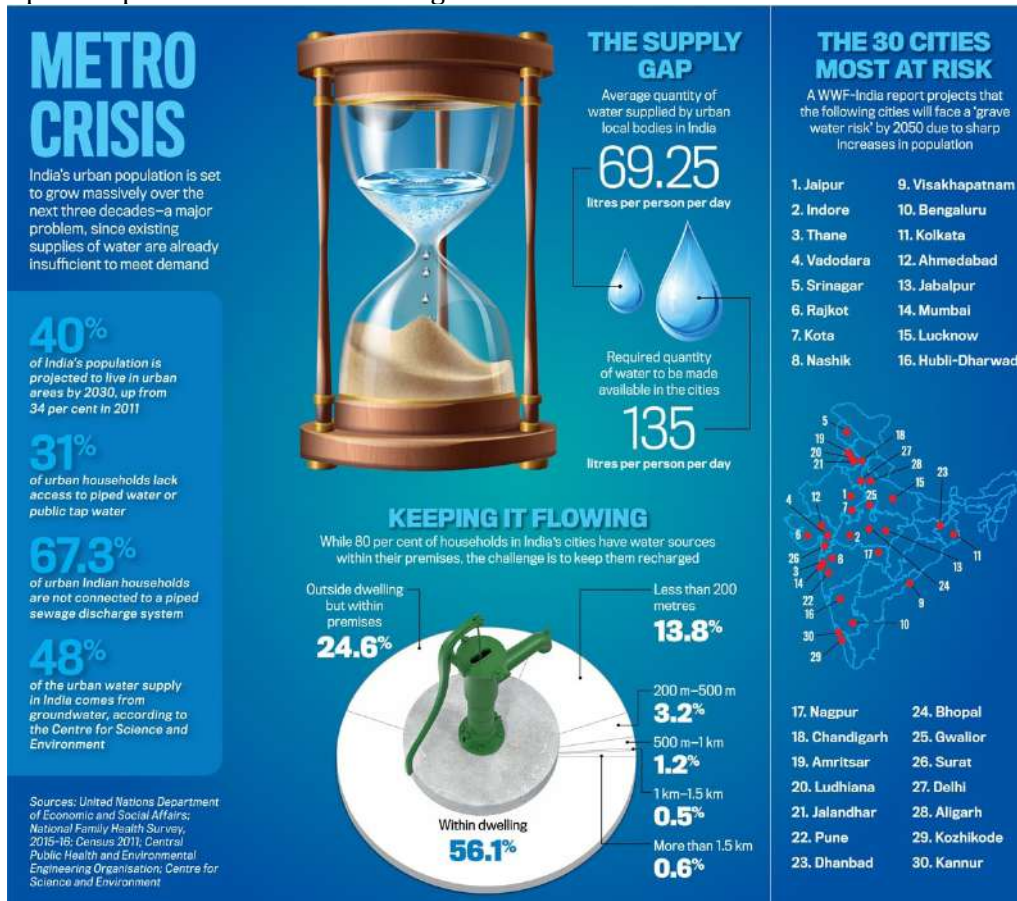
Structure of Water Management in India:

Level	Organization	Responsibilities
C e n t r a l L e v e l	Ministry of Jal Shakti (MoJS)	Formulates national water policies and oversees water resource management activities across the country. Established in May 2019.
	Central Water Commission (CWC)	Provides technical guidance on water resource development projects and river basin planning.
	Central Groundwater Board (CGWB)	Assesses, monitors, and manages groundwater resources in India.
	Central Pollution Control Board (CPCB)	Promotes the cleanliness of streams and wells across states by preventing, controlling, and reducing water pollution, as defined in the Water Act of 1974.

State Level	State Water Resources Departments	Implement water policies and manage water resources within their respective states.
	Irrigation Departments	Manage irrigation systems and ensure water distribution for agricultural purposes.
	State Pollution Control Boards (SPCBs)	Monitor and control water pollution within the state.
Local Level	Panchayats (Village Councils)	Manage water resources at the village level, promote water conservation, and ensure equitable distribution.
	Municipalities	Manage water supply and sanitation in urban areas.
	Water User Associations (WUAs)	Groups of farmers formed to manage and maintain irrigation systems at the local level.

Despite being endowed with water resources, India faces a water crisis due to the following reasons:

- **Uneven Rainfall:** Uneven distribution of rainfall with around **70% of India’s rainfall being confined to 3-4 months**. And there is **regional variability** with some regions having very high rainfall while others suffer from scarcity.
- **River basins:** **Uneven flow** of water in different river basins. For instance, the **surplus in the Ganga-Brahmaputra basin** but the **deficit in seasonal rivers** in Indian **peninsular regions**.
- **Inadequate rainfall:** According to data released by the **India Meteorological Department**, the **South-West monsoon** during June- August 2023 has been **below normal in 42 per cent** of the districts.
- **Groundwater overuse:** According to the **Stockholm International Water Institute**, with farmers providing **electricity subsidies** to help power the groundwater pumping, the water table has seen a drop of up to **4 meters** in some parts of the country.
- **Water pollution:** The **Central Pollution Control Board** reported that of the 603 rivers assessed, there are **311 Polluted stretches** in 279 rivers in 30 States & Union Territories.
- **Climate change:** **Changing rainfall patterns and, an increase in the frequency of droughts** have affected water availability in various regions. **Eg: El Nino** episodes are becoming more frequent
- **Agriculture policies and practices:** Fertilizer subsidies, free electricity, price support for water-intensive crops and practices like flood irrigation.



Source: India Today

Major Consequences of the Water Crisis:

1. **Hindering Human Capital Development:** Girls miss school due to water collection duties.; **Waterborne illnesses and malnutrition** cause cognitive impairments in children.
2. **Long-Term Economic Risks:** Water scarcity could cost India up to 6% of its GDP by 2050.
3. **Rise of Water Mafias:** Informal water markets with high prices, worsening social and economic inequalities.
4. **Impact on Transboundary Water Disputes:** Increases tensions and potential conflicts with neighbouring countries over shared river basins.
5. **Threat to Biodiversity:** Depleting water levels and pollution endanger freshwater species, including the Ganges River Dolphin.

Key Government Schemes To Tackle The Groundwater Crisis in India:

1. **MGNREGA:** Supports water conservation through rural employment.
2. **Jal Kranti Abhiyan:** Raises awareness on water conservation.
3. **National Water Mission:** Promotes sustainable water management.
4. **Atal Bhujal Yojana (ABHY):** Improves groundwater management.
5. **Jal Jeevan Mission (JJM):** Aims to provide tap water to rural households.
6. **National Mission for Clean Ganga (NMCG):** Addresses Ganga basin groundwater issues.
7. Programs like the **Sahi Fasal Campaign**

Steps to Address the Water Crisis in India:

1. **Inclusive Water Governance:** Inclusive representation in local water management committees and decision-making bodies to ensure that the voices of all castes are heard.
2. **Interlinking of Rivers:** Connect surplus rivers to deficient regions.
3. Adopt **One Water Approach:** Manage water sources sustainably and inclusively.
4. **Transforming Fallow Land:** Convert underutilized land into water recharge parks with bioswales, wetlands, and rainwater harvesting structures.
5. **Desalination Plants:** Use renewable energy and waste-to-energy for desalination plants, creating clean water and utilizing waste.
6. **Urban Rainwater Harvesting:** Mandate rainwater systems in new buildings and retrofit existing ones; install green roofs.
7. **Promote Drip Irrigation:** Encourage drip irrigation and aquaponics to reduce water use in agriculture.

8. **Smart Water Grids:** Implement sensors and real-time monitoring for efficient water distribution.
9. **Fog Harvesting:** Use mesh structures to capture moisture from fog in hilly areas.
10. **Decentralized Management:** Adopt community-driven water supply and sanitation projects, and decentralized wastewater treatment.
11. **Zero Liquid Discharge:** Mandate ZLD systems in industries to recycle wastewater and reduce freshwater use.

To learn about **Traditional Methods of water conservation in India:** [Click Here](#)

Conclusion:

India, despite its water surplus, grapples with a water crisis, highlighting the need for **improved water resource management.** The key lies in **credible data collection** to understand water demand across various sectors like **agriculture, domestic, and industrial use.** Prioritizing water distribution among these sectors is crucial. Embracing the principles of **reduce-recycle-reuse and promoting water conservation** methods are vital steps. Furthermore, there's a need for the **convergence of laws, schemes, and agencies** to ensure optimal utilization of water resources.

Insta Links:

- **Regenerative agriculture: A step towards water conservation**

Mains Links:

How and to what extent would micro-irrigation help in solving India's water crisis? (UPSC 2021)

What is water stress? How and why does it differ regionally in India? (UPSC 2019)

What are the salient features of the Jal Shakti Abhiyan launched by the Government of India for water conservation and water security? (UPSC 2020)

Suggest measures to improve water storage and irrigation systems to make their judicious use under the depleting scenario. (UPSC 2020)

Prelims Links:

What are the benefits of implementing the 'Integrated Watershed Development Programme'? (UPSC 2014)

1. Prevention of soil runoff
2. Linking the country's perennial rivers with seasonal rivers
3. Rainwater harvesting and recharge of groundwater table
4. Regeneration of natural vegetation

Select the correct answer using the code given below:

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

Ans: C

Q. With reference to 'Water Credit', consider the following statements: (UPSC 2021)

1. It puts microfinance tools to work in the water and sanitation sector.
2. It is a global initiative launched under the aegis of the World Health Organization and the World Bank.
3. It aims to enable the poor people to meet their water needs without depending on subsidies.

Which of the statements given above are correct?

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

Ans: C

16. THE SUCCESS OF MONTREAL PROTOCOL

Context:

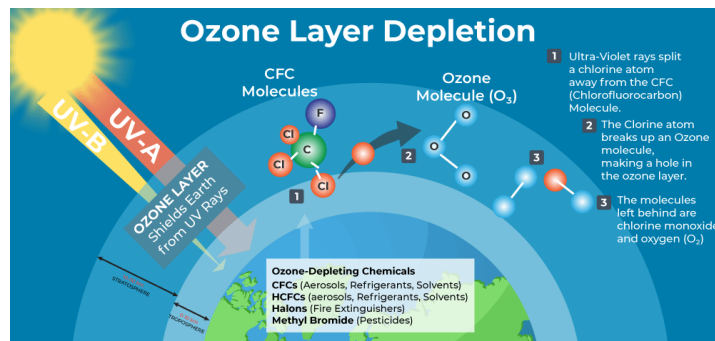
The **Montreal Protocol** has **successfully reduced radiative forcing and equivalent effective chlorine from hydrochlorofluorocarbons (HCFCs)** since 2021, indicating progress in mitigating climate change and ozone layer loss, as per a new study published in the Nature Journal.

What is the Montreal Protocol?

The Montreal Protocol, **enacted in 1987**, is a global treaty designed to phase out the **production and use of ozone-depleting substances (ODS)**. This treaty operates under the **framework of the Vienna Convention** (adopted in 1985). A significant addition to the Protocol came with the **adoption of the Kigali Amendment in 2016**, which became effective in 2019. This amendment specifically targets the **reduction of Hydrofluorocarbons (HFCs)**, which serve as **non-ODS alternatives** to previously phased-out substances like **Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs)**.

What are Ozone and Ozone-Depleting Substances (ODS)?

Ozone-depleting substances (ODS) are synthetic compounds, such as Chlorofluorocarbons (CFCs) and **Hydrochlorofluorocarbons (HCFCs)**, containing **chlorine and bromine**. When released into the atmosphere, these chemicals can ascend to the **stratosphere**, where they trigger catalytic reactions that degrade ozone molecules.



Ozone Depleting Substances (ODS)	Sources
Chlorofluorocarbons (CFCs)	Refrigerators, air-conditioners, solvents, dry-cleaning agents, etc
Halons	Fire- extinguishers
Carbon tetrachloride	Fire- extinguishers, solvents
Methyl chloroform	Adhesives, aerosols
Hydrofluorocarbons	Fire extinguishers, air conditioners, solvents

Success of Montreal Protocol: the most successful global climate treaty

1. Researchers indicate a **significant reduction in the ozone hole's size since 2000**, attributing it to global efforts **to limit the use of chlorofluorocarbons** and other harmful gases.
2. Projections suggest **complete healing of Northern Hemisphere and mid-latitude ozone by the 2030s**, followed by the Southern Hemisphere in the 2050s, and Polar Regions by 2060.
3. **Decrease in the impact of Hydrochlorofluorocarbons (HCFCs)** on Earth's energy balance since 2021, **five years earlier than expected**.
4. **HCFCs, compounds, notably HCFC-22**, the most abundant, have declined significantly.
 - a. **HCFC-22**, commonly used as a refrigerant, **possesses a Global Warming Potential (GWP)** thousands of times higher than carbon dioxide (CO₂).
5. **Minor declines in HCFC-141b**, the second most abundant, used as a blowing agent in foam production.
6. **India has successfully phased out HCFC-141b** under **ODS Regulation and Control Amendment Rules, 2014**, aligning with its commitment to the Montreal Protocol for Ozone Layer Depletion.

The Montreal Protocol offers **a model of a successful environmental treaty** that brought nations together to act swiftly on protecting the ozone layer.

The Montreal Protocol serves as a model for addressing environmental challenges:

1. **Greenhouse Gas Emissions:** Despite efforts, emissions and temperatures continue to rise, with the Paris Agreement showing limited effect-

tiveness.

2. **Biodiversity Loss:** Human land and sea use are driving biodiversity loss, but international efforts have seen little progress.
3. **Wildfires:** Increasing greenhouse gases worsen wildfires, necessitating better planning and international co-operation.
4. **Climate Change:** The reality of climate change is undeniable, requiring developed nations to support developing countries in meeting Paris Agreement goals.

Conclusion

With the **robust international coalitions** and **effective implementation** of the framework, the Montreal Protocol achieved a milestone in reducing ozone depletion. To protect the environment and to achieve more sustainable development there is a need to follow the pattern of the Montreal Protocol in solving other environmental problems.

Insta Links:

- [Ozone Depletion and Protection](#)

Prelims Link:

Q. Which one of the following is associated with the issue of control and phasing out of the use of ozone-depleting substances? (UPSC 2015)

- (a) Bretton Woods Conference
- (b) Montreal Protocol
- (c) Kyoto Protocol
- (d) Nagoya Protocol

Ans: (b)

Q. Consider the following statements: (USPC 2012)

Chlorofluorocarbons, known as ozone-depleting substances, are used

1. in the production of plastic foams
2. in the production of tubeless tyres
3. in cleaning certain electronic components
4. as pressurizing agents in aerosol cans

Which of the statements given above is/are correct?

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

Ans: (c)

CONTENT FOR MAINS ENRICHMENT

Topic in News	Usage in Answers																																																																																																																																																																								
<h3 style="color: red; margin: 0;">1. DIETARY PATTERNS IN INDIA</h3>	<p>Context: The 2022-23 Household Consumption Expenditure Survey highlights some surprising dietary trends in India, emphasizing vegetable, fruit, pulse, and milk consumption.</p> <p>Key findings:</p> <ol style="list-style-type: none"> 1. Food Expenditure Snapshot: Rural India spends more per capita on milk than on vegetables, fruits, and pulses. Urban areas also prioritize milk over these items. 2. Regional Insights: Rajasthan’s “vegetarian” tag contrasts with lower spending on vegetables, fruits, and pulses. Northeastern states show higher vegetable consumption than Gujarat (despite having a significant Vaishnav-Jain population) 3. Milk Priority: Milk consumption is high, even in states with lower expenditure on vegetables, fruits, and pulses. North, West, and Central Indian states spend more on milk than on eggs, fish, and meat. 4. Non-Vegetarian Trend: Kerala, Goa, West Bengal, Northeastern, Odisha, Jharkhand, and Chhattisgarh prioritize expenditure on eggs, fish, and meat over milk. 5. In India, vegetarianism typically includes dairy but not necessarily veganism. <p>Key terms:</p> <ol style="list-style-type: none"> 1. Vegetarians abstain from meat but consume animal products like dairy and eggs. 2. Vegans avoid all animal products, including dairy, eggs, and honey, relying solely on plant-based foods. 3. Non-vegetarians include meat, poultry, seafood, and sometimes dairy and eggs in their diets. <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>VEGETARIAN STATES (Value of monthly per capita consumption in Rs)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">RURAL</th> <th colspan="2">URBAN</th> </tr> <tr> <th>Milk*</th> <th>Meat**</th> <th>Milk*</th> <th>Meat**</th> </tr> </thead> <tbody> <tr><td>Haryana</td><td>933.28</td><td>47.02</td><td>1040.79</td><td>85.33</td></tr> <tr><td>Delhi</td><td>813.31</td><td>103.66</td><td>836.74</td><td>134.05</td></tr> <tr><td>Punjab</td><td>782.39</td><td>66.88</td><td>836.85</td><td>75.41</td></tr> <tr><td>Rajasthan</td><td>660.85</td><td>49.15</td><td>776.47</td><td>54.87</td></tr> <tr><td>Sikkim</td><td>659.79</td><td>555.02</td><td>901.17</td><td>608.2</td></tr> <tr><td>Himachal Pradesh</td><td>629.21</td><td>135.13</td><td>686.09</td><td>121.92</td></tr> <tr><td>Gujarat</td><td>476.35</td><td>47.64</td><td>669.78</td><td>77.78</td></tr> <tr><td>Jammu & Kashmir</td><td>482.46</td><td>219.33</td><td>651.82</td><td>214.88</td></tr> <tr><td>Uttarakhand</td><td>427.3</td><td>131.77</td><td>570.32</td><td>143.8</td></tr> <tr><td>Uttar Pradesh</td><td>337.02</td><td>99.42</td><td>516.59</td><td>113.88</td></tr> <tr><td>Bihar</td><td>309.51</td><td>202.59</td><td>420.23</td><td>228.93</td></tr> <tr><td>Madhya Pradesh</td><td>302.94</td><td>71.21</td><td>446.35</td><td>83.46</td></tr> <tr><td>Karnataka</td><td>234.08</td><td>222.31</td><td>332.84</td><td>292.38</td></tr> <tr><td>Maharashtra</td><td>226.87</td><td>147</td><td>393.99</td><td>198.41</td></tr> </tbody> </table> <p><small>*Includes milk products; **Includes Egg and Fish. Source: Survey on Household Consumption Expenditure, 2022-23.</small></p> </div> <div style="width: 48%;"> <p>NON-VEGETARIAN STATES (Value of monthly per capita consumption in Rs)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">RURAL</th> <th colspan="2">URBAN</th> </tr> <tr> <th>Meat**</th> <th>Milk*</th> <th>Meat**</th> <th>Milk*</th> </tr> </thead> <tbody> <tr><td>Goa</td><td>679.59</td><td>419.12</td><td>655.15</td><td>449.93</td></tr> <tr><td>Tripura</td><td>656.13</td><td>232.39</td><td>731.99</td><td>359.49</td></tr> <tr><td>Nagaland</td><td>652.53</td><td>162.94</td><td>868.56</td><td>258.13</td></tr> <tr><td>Mizoram</td><td>611.94</td><td>147.29</td><td>720.34</td><td>204.22</td></tr> <tr><td>Kerala</td><td>545.44</td><td>224.65</td><td>503.59</td><td>245.61</td></tr> <tr><td>Manipur</td><td>520.05</td><td>140.22</td><td>430.46</td><td>167.96</td></tr> <tr><td>Arunachal Pradesh</td><td>519.13</td><td>199.3</td><td>706.12</td><td>339.21</td></tr> <tr><td>Meghalaya</td><td>442.57</td><td>118.77</td><td>632.78</td><td>207.56</td></tr> <tr><td>Assam</td><td>371.59</td><td>149.82</td><td>487.99</td><td>300.82</td></tr> <tr><td>Tamil Nadu</td><td>325.22</td><td>249.21</td><td>358.18</td><td>345.3</td></tr> <tr><td>West Bengal</td><td>312.64</td><td>122.51</td><td>442.43</td><td>225.03</td></tr> <tr><td>Telangana</td><td>321.05</td><td>266.62</td><td>344.34</td><td>394.53</td></tr> <tr><td>Andhra Pradesh</td><td>317.41</td><td>305.93</td><td>310.95</td><td>390.52</td></tr> <tr><td>Odisha</td><td>186.7</td><td>96.6</td><td>234.98</td><td>224.27</td></tr> <tr><td>Jharkhand</td><td>185.56</td><td>147.29</td><td>198.52</td><td>330.26</td></tr> <tr><td>Chhattisgarh</td><td>102.47</td><td>84.84</td><td>107.76</td><td>234.79</td></tr> </tbody> </table> </div> </div> <p style="margin-top: 10px;">Usage: The data/Examples can be used in Indian Society/ Sociology/ Essay related Questions on food diversity.</p>		RURAL		URBAN		Milk*	Meat**	Milk*	Meat**	Haryana	933.28	47.02	1040.79	85.33	Delhi	813.31	103.66	836.74	134.05	Punjab	782.39	66.88	836.85	75.41	Rajasthan	660.85	49.15	776.47	54.87	Sikkim	659.79	555.02	901.17	608.2	Himachal Pradesh	629.21	135.13	686.09	121.92	Gujarat	476.35	47.64	669.78	77.78	Jammu & Kashmir	482.46	219.33	651.82	214.88	Uttarakhand	427.3	131.77	570.32	143.8	Uttar Pradesh	337.02	99.42	516.59	113.88	Bihar	309.51	202.59	420.23	228.93	Madhya Pradesh	302.94	71.21	446.35	83.46	Karnataka	234.08	222.31	332.84	292.38	Maharashtra	226.87	147	393.99	198.41		RURAL		URBAN		Meat**	Milk*	Meat**	Milk*	Goa	679.59	419.12	655.15	449.93	Tripura	656.13	232.39	731.99	359.49	Nagaland	652.53	162.94	868.56	258.13	Mizoram	611.94	147.29	720.34	204.22	Kerala	545.44	224.65	503.59	245.61	Manipur	520.05	140.22	430.46	167.96	Arunachal Pradesh	519.13	199.3	706.12	339.21	Meghalaya	442.57	118.77	632.78	207.56	Assam	371.59	149.82	487.99	300.82	Tamil Nadu	325.22	249.21	358.18	345.3	West Bengal	312.64	122.51	442.43	225.03	Telangana	321.05	266.62	344.34	394.53	Andhra Pradesh	317.41	305.93	310.95	390.52	Odisha	186.7	96.6	234.98	224.27	Jharkhand	185.56	147.29	198.52	330.26	Chhattisgarh	102.47	84.84	107.76	234.79
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FACTS FOR PRELIMS

GS-1

Society

1. SATNAMI COMMUNITY

Context:

The **Satnami community in Chhattisgarh** protested the desecration of a sacred structure, leading to violence where they attacked the SP office, torched vehicles, and threw stones at police personnel.

Who are Satnamis?

The Satnamis, **a significant Scheduled Caste (SC) community** in Chhattisgarh, trace their **roots back to Bir Bhan of Narnaul, Haryana**, who founded the sect in **1657**. They follow the teachings of **Saint Ravidas** and prioritize honesty, justice, and proper earning. Satnamis hold **Mini Mata in high regard**, as she was the **first female Member of Parliament from Chhattisgarh**, winning the 1955 by-election to enter the Lok Sabha.

More about Satnami:

1. **Satnami revolt of 1672:** A rebellion **against Mughal rule led by the Satnamis**, triggered by the killing of a Satnami by a Mughal soldier. They seized control but were eventually suppressed by Aurangzeb, facing brutal retaliation.
2. **Satnami revival:** In 1820, **Saint Ghasidas founded a significant Satnami group in Chhattisgarh**, providing religious and social identity. His teachings emphasized **monotheism, ethical conduct, equality, and dietary restraint**, propagated through his work **Nirvan Gyan**. Satnamis have historically navigated their position **within the broader Hindu hierarchy**, influenced by connections with the **Kabir Panth**. A section of the **Sanjay-Dubri Tiger Reserve** was renamed **Guru Ghasidas National Park** by the Chhattisgarh government in honour of Guru Ghasidas.



गुरु घासीदास

Fig: Guru Ghasidas

Geography

2. COLD LAVA

Context:

A **volcanic eruption at Mount Kanlaon in the Philippines** led to **rivers of cold lava, or lahar**.

About Cold Lava:

- **Cold lava, or "lahar,"** is a **hazardous flow of volcanic material, debris, and water** that descends rapidly from volcanoes, resembling a **fast-moving landslide rather than molten lava**.
- This dense mixture forms when **water interacts with volcanic ash and debris on a volcano's slopes**, creating a **river-like flow that can be more destructive than molten lava due to its speed and force**.
- The term **"cold lava" is misleading, as it remains hot internally** but appears and behaves like wet concrete.
- **Driven by gravity and the volume of displaced material**, lahars can **travel far from the volcano's summit**, picking up additional debris and increasing in volume and destructive power.



3. NOTIFIED DISASTERS

Context:

The ongoing discussion on **including heatwaves as a notified disaster** under the **Disaster Management Act (DM Act)** has reopened due to the extreme heat in many parts of India.

Currently, **heatwaves are not considered disasters under the Act**, which was enacted after the 1999 Odisha super-cyclone and the 2004 tsunami. The Act defines a disaster as a **catastrophic event resulting in substantial loss of life, property, or damage** to the environment, beyond the community's coping capacity.

States have prepared heat action plans to deal with extreme heat impacts, but financial constraints hinder their implementation. The reluctance to include heatwaves as a notified disaster **stems from concerns about the financial implications** and the difficulty in attributing deaths solely to heatwaves. While some states have added heatwaves as local disasters, the Centre has resisted national notification, citing financial and practical difficulties.

The Disaster Management Act of 2005 regulates the allocation and utilization of resources from the **National Disaster Response Fund (NDRF) and the State Disaster Response Fund (SDRF)**. These funds are dedicated to managing and responding to notified disasters. Currently, there are **12 such disasters, including cyclones, droughts, earthquakes, fires, floods, tsunamis, hailstorms, landslides, avalanches, cloud bursts, pest attacks, and frost & cold waves**. In 2020, the government designated **COVID-19 as a notified disaster as a special one-time measure**

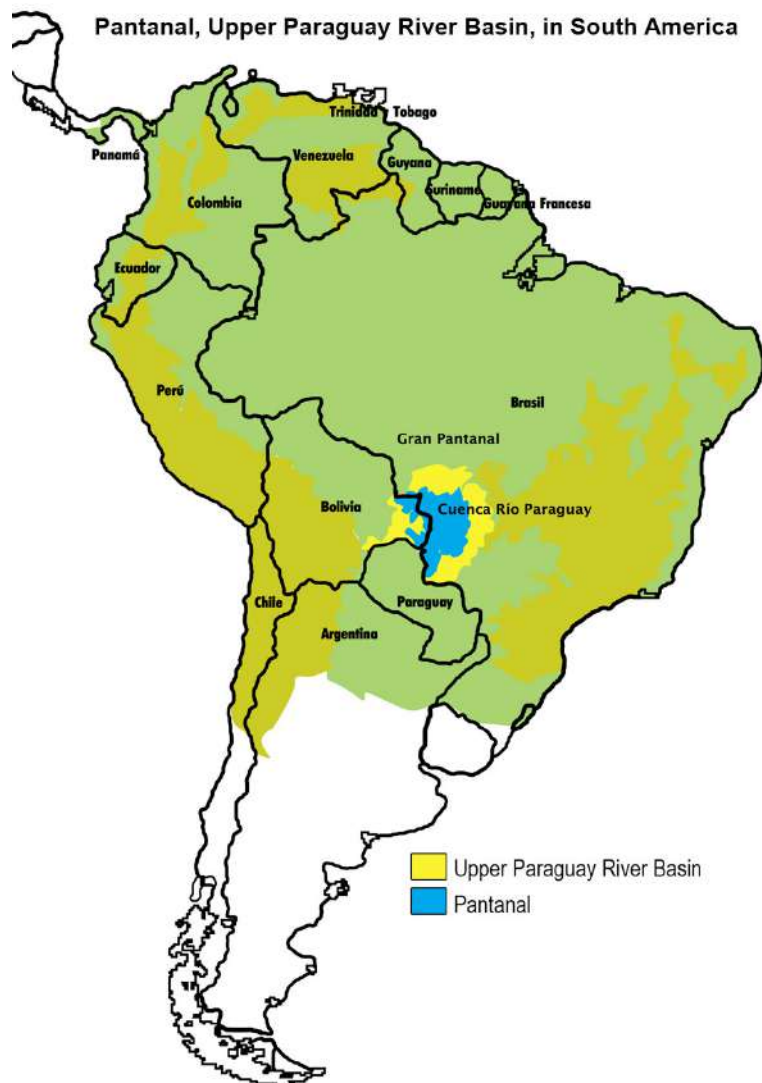
4. BRAZIL'S PANTANAL WETLANDS

Context:

Brazil's Pantanal wetlands are **facing an unprecedented surge in wildfires** due to extremely dry conditions.

What are Pantanal?

It is the **world's largest tropical wetland**, spanning across **Bolivia, Brazil, and Paraguay**. Fed by the **Paraguay River and its tributaries**, it covers an estimated area of 140,000 to 195,000 square kilometres. During rainy seasons, **about 80% of the floodplains** are submerged, fostering a diverse range of aquatic plants and supporting numerous animal species. Designated as a **National Heritage in Brazil**, it faces threats from activities like cattle grazing, pollution, and infrastructure development. Despite its ecological significance, **less than 5% of the Pantanal is protected**, with most of it under private ownership.



GS-2

Salient features of Indian Constitution

1. FREEDOM OF ARTISTIC EXPRESSION IN INDIA

Context:

Karnataka bans the **Hindi film 'Hamare Baarah'** due to communal concerns, suspending its exhibition and trailers for two weeks or until further notice.

About Freedom of artistic expression:

It is the principle that artists should be free from legal or conventional constraints in creating their art. In India, the Supreme Court affirmed this **right for movies under Article 19(1)(a) of the Constitution**. International agreements like the **Universal Declaration of Human Rights and the International Covenant on Civil and Political Rights** also uphold this freedom. Films are considered differently due to their unique ability to combine visuals, sound, and emotions in a potent manner, making prior censorship necessary to prevent potential negative impacts on viewers' minds.



Judiciary

2. MERCY PETITION

Context:

The President of India has **rejected the mercy plea** of a member of **the banned group Lashkar-e-Taiba** convicted for the 2000 Red Fort attack.

About Mercy Petition:

- A mercy petition is a **formal request made by a person sentenced to death or imprisonment seeking leniency from the President or Governor**.
- This process is available in countries like the USA, UK, Canada, and India.
- In India, it is tied to the fundamental right to **life under Article 21 of the Constitution**.

Constitutional Framework:

Article 72: Grants **the President the power to pardon, reprieve, respite, or remit punishments** or to **suspend, remit, or commute sentences**, including:

- Sentences by Court Martial
- Sentences for offences under Union laws
- Death sentences

Article 161: Grants similar powers to State Governors for offences under State laws.

FATE OF PETITIONS

➤ At 45, R Venkataraman rejected the maximum number of mercy petitions



➤ President Pranab Mukherjee comes second as he has rejected 31 of the 33 petitions he has received from convicts

➤ S Radhakrishnan, Zakir Husain and V V Giri received 57, 22 and 3 mercy petitions, respectively, and all deaths were commuted to life

➤ K R Narayanan and A P J Abdul Kalam kept pending almost all pleas they received

Governance

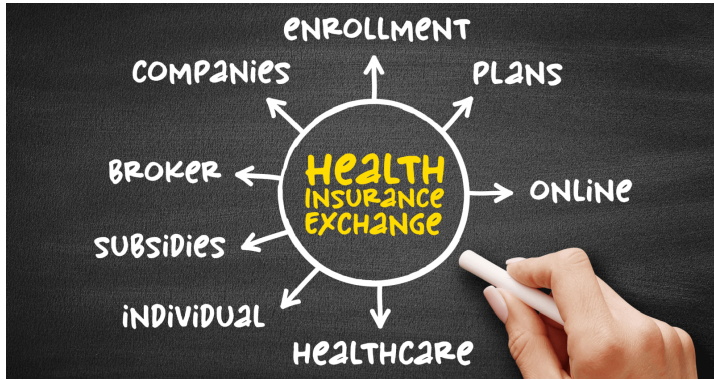
3. NATIONAL HEALTH CLAIM EXCHANGE

Context:

The Health Ministry and **IRDAI** are collaborating to **launch the National Health Claim Exchange (NHCE)**, aiming to streamline healthcare access and claims processing.

What is NHCX?

NHCX is a **communication protocol facilitating the exchange of health claim information** between payers, providers, and beneficiaries. NHCX will **centralize health claims, enabling seamless interoperability, improving efficiency, and reducing administrative** burdens on hospitals. Twelve insurance companies and one TPA have integrated with NHCX. Under the **Digital Health Incentive Scheme**, hospitals receive financial incentives for digital health transactions through NHCX.



Current Claim Processing: The existing process lacks standardization and is mostly manual, leading to inefficiencies and variations across insurers and providers.

About IRDAI:

The Insurance Regulatory and Development Authority of India (IRDAI) is a **statutory body under the Ministry of Finance**, Government of India, regulating the insurance industry. **Established in 1999, it's headquartered in Hyderabad**, Telangana. Recently, IRDAI directed health insurance providers to create specialized policies for senior citizens and **removed the age limit for purchasing health insurance policies**, effective April 1, 2024. It operates with a **10-member body appointed by the government**, including a chairman and both full-time and part-time members.

About Technical textiles:

They are specialized fabrics with diverse applications in industries like automotive, construction, healthcare, and more. Their demand stems from a country's development and industrialization. These textiles are categorized into **12 segments based on their usage, including Agrotech, Meditech, Mobitech, Geotech, and others**. For instance, Mobitech covers products like seat belts and airbags in vehicles, while Geotech includes materials for soil erosion control.

	Agrotech Horticulture + landscape gardening, agriculture + forestry, animal keeping		Meditech Hygiene, medicine
	Buildtech Membrane, lightweight + massive construction, engineering + industrial building.		Mobitech Cars, ships, aircraft, trains, space travel
	Clothtech Garments, shoes		Oekotech Environmental protection, recycling, waste disposal
	Geotech Road infrastructure, Railways, Irrigation and Hydraulic structures, Waste Landfills, Dams etc.		Packtech Packaging, protective-cover systems, sacks, big bags, container systems
	Homotech Furniture, upholstery + interior furnishing, rugs, floor coverings		Protech Person and property protection
	Indutech Filtration, cleaning, mechanical engineering, chemical industry		Sporttech Sport and leisure, active wear, outdoor, sport articles.

About The National Technical Textiles Mission:

It was **approved in 2020, and aims to elevate India** as a global leader in technical textiles and boost **domestic usage from USD 40 billion to USD 50 billion by 2024**. Operated under the Ministry of Textiles, it **spans four years with key components** focusing on research, market development, exports, and education. India's technical textiles sector, **currently at USD 40 billion with an 8% share** in the global market, targets accelerated growth to 15-20% annually to compete with major players like the USA, Europe, China, and Japan.

4. GREAT SCHEME

Context:

The **Ministry of Textiles** has approved **Grant for Research and Entrepreneurship across Aspiring Innovators in Technical Textiles (GREAT) schemes** for startups in technical textiles.

It is part of the **National Technical Textiles Mission (NTTM)**. Under the GREAT scheme, grant-in-aid, typically **up to INR 50 lakhs, over 18 months** will be provided. The scheme aims to harness India's talent and expertise in the technical textiles sector to introduce innovative products and technologies to the market.

GS-3

Indian Economy

5. BASE EROSION AND PROFIT SHIFTING

Context:

The 16th meeting of the OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting (BEPS) concluded

- **An inclusive framework on BEPS** is finalizing negotiations on Pillar One, while the **Global Minimum Tax under Pillar Two** is being implemented in countries globally

What is an Inclusive Framework?

The OECD/G20 Inclusive Framework on BEPS, with 147 countries and jurisdictions including India, **fights tax avoidance and promotes fair tax practices** through a Two-pillar approach: Pillar One **reallocates profits of large MNEs**, while Pillar Two establishes a **Global Minimum Corporate Tax of 15%**. This framework ensures fairness in tax systems, addresses tax avoidance, and adapts to evolving business models and digital economies.

What is BEPS?

- It refers to corporate tax planning strategies used by multinationals to shift profits from higher-tax jurisdictions to lower or no-tax jurisdictions.
- The OECD defines BEPS strategies as **exploiting gaps and mismatches in tax rules**. It erodes the tax base (costing countries USD 100-240 billion in lost revenue annually) of the higher-tax jurisdictions.
- **As developing countries** have a higher reliance on corporate income tax, they suffer from BEPS disproportionately.
- **Working together within the OECD/G20 Inclusive Framework on BEPS, over 135 countries** and jurisdictions are collaborating on –
 - The implementation of measures to tackle tax avoidance,
 - Improving the coherence of international tax rules and
 - Ensuring a more transparent tax environment.

The objective of the Outcome Statement: It delivered a package to further implement the Two-Pillar Solution to Address the Tax Challenges Arising from the Digitalisation of the Economy.

Two-Pillar Solution/ Global Anti-Base Erosion (GloBE) rules: These rules were agreed upon in 2021 by 137 countries and jurisdictions under the OECD/G20 Inclusive Framework on BEPS.

KEY ELEMENTS OF THE TWO-PILLAR SOLUTION

Pillar One	Pillar Two
<p>Taxing rights over 25% of the residual profit of the largest and most profitable MNEs would be re-allocated to the jurisdictions where the customers and users of those MNEs are located</p>	<p>GloBE rules provide a global minimum tax of 15% on all MNEs with annual revenue over 750 million euros</p>
<p>Tax certainty through mandatory and binding dispute resolution, with an elective regime to accommodate certain low-capacity countries</p>	<p>Requirement for all jurisdictions that apply a nominal corporate income tax rate below 9% to interest, royalties and a defined set of other payments to implement the "Subject to Tax Rule" into their bilateral treaties with developing Inclusive Framework members when requested to, so that their tax treaties cannot be abused.</p>
<p>Removal and standstill of Digital Services Taxes and other relevant, similar measures</p>	<p>Carve-out to accommodate tax incentives for substantial business activities</p>
<p>The establishment of a simplified and streamlined approach to the application of the arm's length principle in specific circumstances, with a particular focus on the needs of low capacity countries</p>	

6. IBBI

Context: **Insolvency and Bankruptcy Board of India (IBBI)** issues new guidelines for **appointing IPs as resolution professionals effective from July 1, 2024**. The

guidelines aim to streamline the process by establishing a panel of IPs for appointments, ensuring eligibility criteria, and requiring prior experience in handling Insolvency and Bankruptcy Code assignments.

What is IBBI?

IBBI is a **statutory body under the Insolvency and Bankruptcy Code, 2016**, headquartered in New Delhi under the Ministry of Corporate Affairs. It oversees service providers in the insolvency ecosystem, regulates insolvency and resolution processes for corporations and individuals, and operates under a Governing Board appointed by the Central Government

भारतीय दिवालिया और सौजन्य अधिनियम बोर्ड
Insolvency and Bankruptcy Board of India

Insolvency and bankruptcy regulator in India

Established in 2016 by the Insolvency & Bankruptcy Code (IBC)

Headquarters: New Delhi
Headed by IBBI Board Chairman

- Regulating authority for insolvency and bankruptcy proceedings
- Oversees the activities of the Insolvency Professional Agencies (IPA), Insolvency Professionals (IP) and Information Utilities (IU), Registered Valuers, and Registered Valuer Organisations
- Makes and implements rules governing the corporate insolvency resolution process, individual insolvency, corporate liquidation and individual bankruptcy

7. STICKY INFLATION

Context:

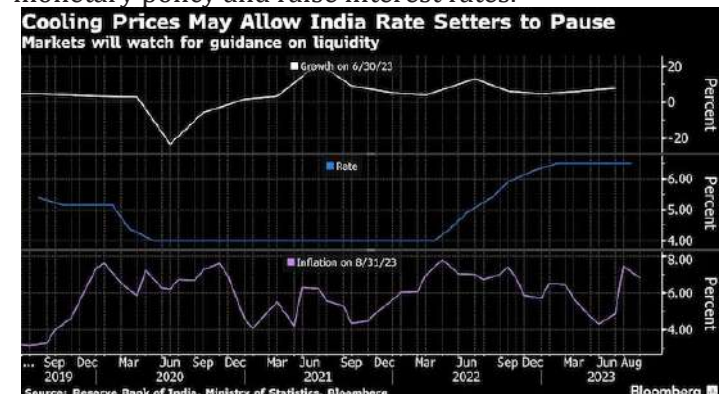
Recently RBI has refrained from cutting interest rates despite declining retail inflation rates, which have hovered near the 4% mark since September 2023.

What is Sticky Inflation?

Sticky inflation refers to a **situation where inflation rates remain relatively high or stable over time**, despite changes in economic conditions or monetary policy. This phenomenon is characterized by a slow decline in inflation rates and resistance to central bank efforts to lower them through measures like interest rate cuts.

Reasons: Rising wages and prices for consumer goods and services are typically the main factors behind inflation stickiness.

Implications: It can push monetary authorities to tighten monetary policy and raise interest rates.



8. GAAR

Context:

The Telangana High Court ruled against a taxpayer using bonus stripping to offset losses, marking the first judgment on [GAAR](#).

What is Bonus Stripping?

Bonus stripping involves **buying shares of a company before it issues bonus shares** and selling the original shares immediately after to incur a short-term capital loss.

What is GAAR?

GAAR, or General Anti-Avoidance Rules, authorize tax authorities to reject tax advantages on transactions lacking commercial substance and aiming solely to evade taxes. It **commenced on April 1, 2017**, and is outlined in **Chapter X-A of the Income-tax Act, 1961**.

Science & Technology

9. TRISHNA

Context:

Thermal Infrared Imaging Satellite for High-resolution Natural Resource Assessment (TRISHNA) mission, a collaboration between **ISRO and CNES (French Space Agency)**, aims to monitor surface temperature and water management globally.

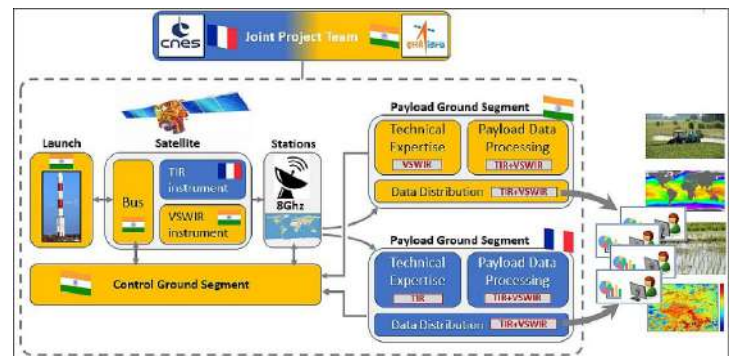
It includes two primary payloads: Thermal Infra-Red (TIR) from CNES for infrared imaging and VNIR-SWIR from ISRO for surface reflectance mapping. Operating in a **Sun-synchronous orbit**, it will aid **climate monitoring, urban planning, and disaster management**.

Objectives: The mission aims to monitor the energy and water budgets of continental biospheres, alongside high-resolution observation of water quality and dynamics. It provides detailed monitoring of surface temperature, emissivity, and radiation variables, aiding regional to global surface energy budgeting. Additionally, it assists in assessing urban heat islands, detecting thermal anom-

alies, and monitoring snow-melt runoff, glacier dynamics, aerosol optical depth, atmospheric water vapour, and cloud cover.

Other Indo-French collaborations to monitor Earth: Megha-Tropiques. Saral

Other Related Initiatives: **GEOGLAM** is an initiative launched by the G20 to improve food security and sustainable agriculture through Earth observations. **Global Water Watch** is a data platform offering free, global information on water reservoirs and river systems using AI and Earth Observation algorithms, developed by Deltares, WRI, and WWF



10. LARGE ACTION MODELS (LAMs)

Context:

Global companies are increasingly **adopting Large Action Models (LAMs)** to streamline operations and reduce costs.

What are LAMs?

Large Action Models (LAMs) are advanced AI models that can understand complex goals communicated in **natural language and autonomously perform tasks** in the real world. They **go beyond generating and interpreting text like ChatGPT** and can handle tasks like **vacation planning, job application automation**, and personalized content creation.

Examples include **automating claims processing in insurance firms, enhancing customer interactions**

in airlines, and boosting sales conversions in retail through personalized recommendations. LAMs are expected to become **integral to businesses, similar to SAAS** applications or hyper-scale cloud enablement, and may lead to job displacement but also create new roles and opportunities.

11. SAFEEXO-CAS

Context:

Scientists at Columbia University College of Dental Medicine have developed a **new gene editing platform called "safeEXO-Cas,"** using **exosomes as delivery vehicles for CRISPR/Cas9 components.**

This platform **enhances precision in targeting specific cells and tissues,** overcoming the limitations of current delivery methods.

What are Exosomes?

Exosomes are naturally occurring vesicles that act as vehicles for transporting molecules, such as proteins and genetic material, between cells. These tiny membrane-bound structures play a crucial role in cell-to-cell communication and have potential applications in drug delivery, diagnostics, and therapeutics.

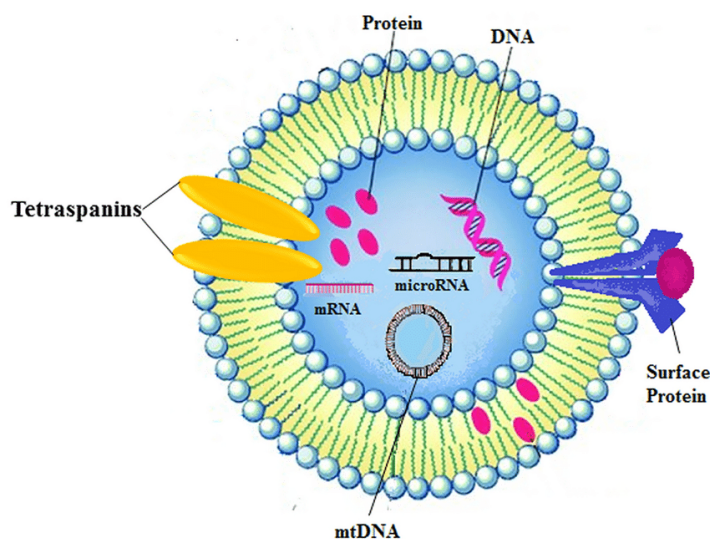
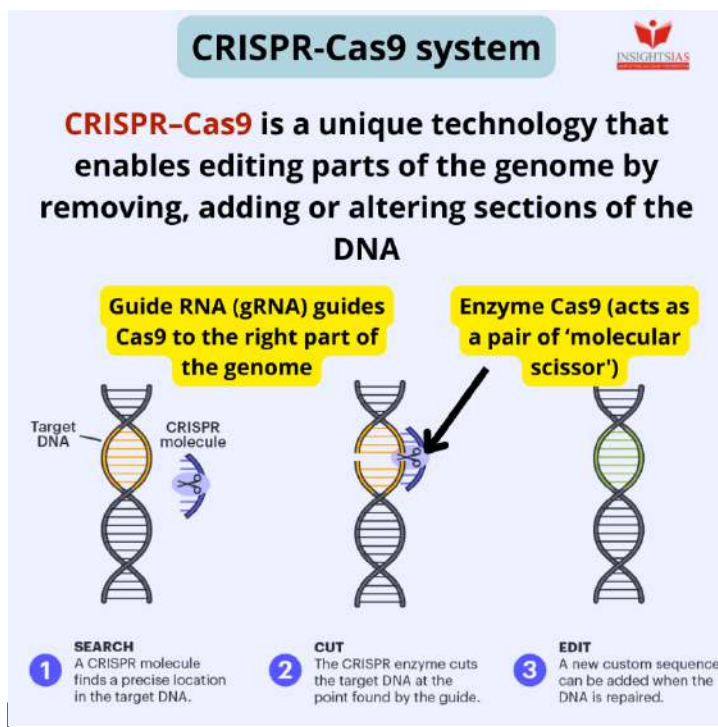


Fig: Structures of Exosomes

About CRISPR/Cas9 technology:

It is a genome editing tool, that works as a cut-and-paste mechanism on DNA strands, allowing targeted modifications to the genome. Its applications include editing genes in human embryos, improving crop resilience, and treating diseases like sickle cell disease.



12. INITIATIVES TO FOSTER INNOVATION

Context:

NITI Aayog, under its Atal Innovation Mission (AIM), launched two initiatives, **to foster innovation and sustainability in India.**

Initiative	Description	Collaboration/ Focus
AIM - ICDK Water Challenge 4.0	Tackles critical water-related challenges through innovative solutions	Collaboration with Innovation Centre Denmark (ICDK) at the Royal Danish Embassy in India
Innovations for You (5th Edition)	Coffee table book series featuring 60 entrepreneurs contributing to societal betterment through sustainable innovations	Focuses on SDG Entrepreneurs in India



13. APPLE INTELLIGENCE

Context:

Apple introduced “**Apple Intelligence**,” a generative AI system integrated **into iPhones, iPads, and Macs via iOS 18, iPadOS 18, and macOS Sequoia.**

- Apple Intelligence combines **generative AI with personal context to provide personalized, context-aware responses, enhancing user experience while prioritizing privacy through on-device processing and Private Cloud Compute.**

Key features include:

- Writing Tools
- Email Management
- Creative Tools
- Enhanced Siri



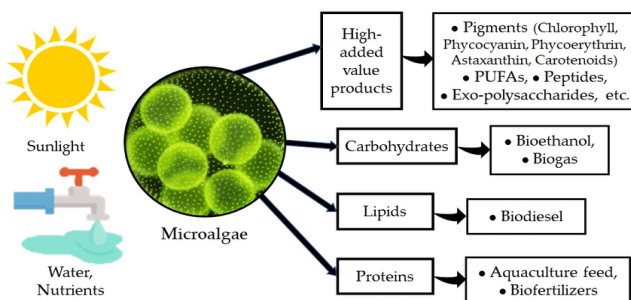
14. MICROALGAE

Context:

Scientists at the **CSIR-Indian Institute of Chemical Technology (IICT)** have identified **microalgae, specifically ‘Chlorella sorokiniana’, as a promising protein supplement for food and feed.**

- Their research highlights the **Chlorella Growth Factor (CGF), a protein-rich extract from the algae, which offers high-quality protein and essential amino acids** that surpass those in commercially available soy meal.
- CGF is beneficial for **human and animal health, promoting overall well-being and immunity.**

The microalgae **do not compete with traditional crops for space and resources,** making them a sustainable alternative protein source.



15. XYLITOL

Context:

A recent study has found that **artificial sweeteners, particularly xylitol, commonly found in products like sugar-free chewing gums, low-sugar baked goods, mints, and toothpaste, may increase the risk of blood clots, heart attacks, and strokes.**

- The study revealed that **xylitol enhances platelet aggregation and activity, leading to a hyper-coagulable state.**
- This heightened platelet reactivity can **cause clots in blood vessels, potentially obstructing blood flow and resulting in serious cardiovascular events.**

The study also noted that **erythritol, another artificial sweetener, poses similar risks.**



16. PORTABLE OPTICAL ATOMIC CLOCK

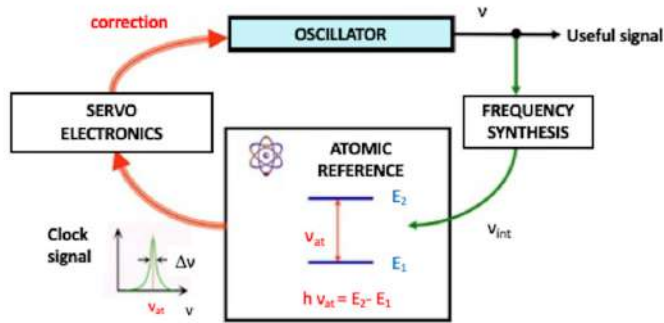
Context:

Researchers have **developed a portable optical atomic clock for use on ships, offering superior accuracy compared to other maritime timekeeping methods.** They assert it is the most advanced optical clock available for maritime use.

About Atomic Clock:

Atomic clocks measure time using atom vibrations, particularly electrons’ oscillations, with extreme precision, having an error margin of a few billionths of a second per day. They rely on stable **caesium atoms,**

whose specific vibration frequency serves as the clock's basis. A **microwave cavity filled with caesium vapour** stimulates atom vibration, emitting radiation at a precise frequency. This emitted frequency is compared to a standard, adjusting the clock's timekeeping.



Developed for maritime use, **it represents a significant advancement in optical timekeeping, aiding navigation, maritime communication, and scientific research**, including monitoring underwater seismic and volcanic activity and conducting experiments in space.

17. ISRO'S ADITYA-L1 MISSION

Context:

Recently, ISRO's Aditya-L1 mission **captured images of the Sun during the May solar storm**.

The **Solar Ultra Violet Imaging Telescope (SUIT) and the Visible Emission Line Coronagraph (VELC) instruments** on board took images and made vital observations, aiding in the **study of solar flares**, energy distribution, sunspots, and space weather prediction.

Aditya-L1

Context: It was launched on September 2, is currently in Earth's orbit, but it is scheduled to leave this orbit and move towards the Earth-Sun system's Lagrange 1 (L1) point

Aspect	Explanation
Mission Objective	To study the Sun, its upper atmospheric dynamics (chromosphere and corona) , and understand the physics of the solar corona and its heating mechanism for the five years.
Launch Vehicle	Polar Launch Vehicle (PSLV)
Orbit	L1 orbit (First Lagrange point of the Sun-Earth system)
Primary Payload	Visible Emission Line Coronagraph (VELC)
Other Payloads	Solar Ultraviolet Imaging Telescope (SUIT), Solar Low Energy X-ray Spectrometer (SoLEXS), High Energy L1 Orbiting X-ray Spectrometer (HELIOS), Aditya Solar Wind Particle Experiment (ASPEX), Plasma Analyser Package for Aditya (PAPA)
Significance of VELC	VELC is a solar coronagraph capable of simultaneous imaging, spectroscopy, and Spectro-polarimetry . It can image the solar corona down to 1.05 times the solar radius.
Purpose of Studying the Sun	To gain a deeper understanding of the Sun's radiation, heat, flow of particles, and magnetic fields ; provide clues about the high temperature of the solar corona; understand space weather dynamics; and offer early warnings for solar events.
Importance of L1 Point	L1 point provides an unobstructed view of the Sun , even during phenomena like an eclipse; allows payloads to directly observe the Sun; makes the mission fuel-efficient.
What is L1 Point?	Lagrange points are equilibrium positions in space where the gravitational forces of two large bodies, like the Earth and the Sun, produce enhanced regions of attraction and repulsion.

To know more Visit Insights IAS Daily Current Affairs

What are Geomagnetic storms?

They occur when events like **solar flares emit higher-than-normal levels of radiation** toward Earth, interacting with its magnetic field. These disturbances, driven by **solar coronal mass ejections (CMEs)** or high-speed streams of solar wind from coronal holes, lead to geomagnetic storms.

Effects of such storms range from **the appearance of auroras to disruptions in communication** systems due to high radiation, making communication on Earth challenging.

These storms are classified on a scale measuring their effects. **At G1**, there are weak fluctuations in power grids and minor impacts on satellite operations, with auroras visible. **At G5, voltage control problems and grid system** collapse occur, radio waves are disrupted for days, and auroras can be seen at lower latitudes.

18. ENTEROBACTER BUGANDENSIS

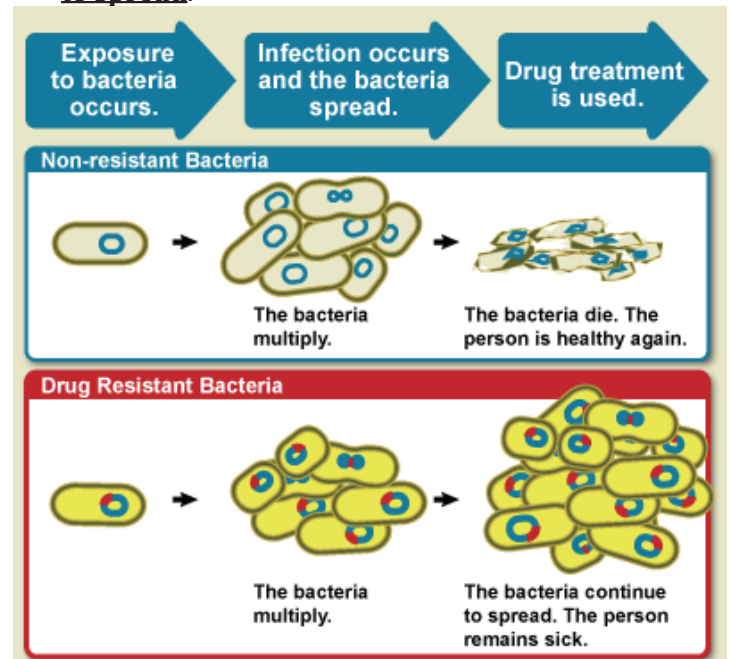
Context:

A collaborative study by **IIT-Madras and NASA's Jet Propulsion Laboratory** has examined the behaviour of **multi-drug resistant Enterobacter bugandensis** aboard the **International Space Station (ISS)**.

- This bacterium, known for causing difficult-to-treat hospital infections, **displayed significant genomic and functional adaptations due to the unique ISS environment**, including **microgravity, elevated CO2, and increased radiation**.

About Multidrug-resistant organisms:

- Multidrug-resistant organisms (MDROs) are bacteria** that have become resistant **to multiple antibiotics and can no longer be treated with them**.
- MDROs are also sometimes **called "superbugs"** because they can **cause infections and are often easy to spread**.



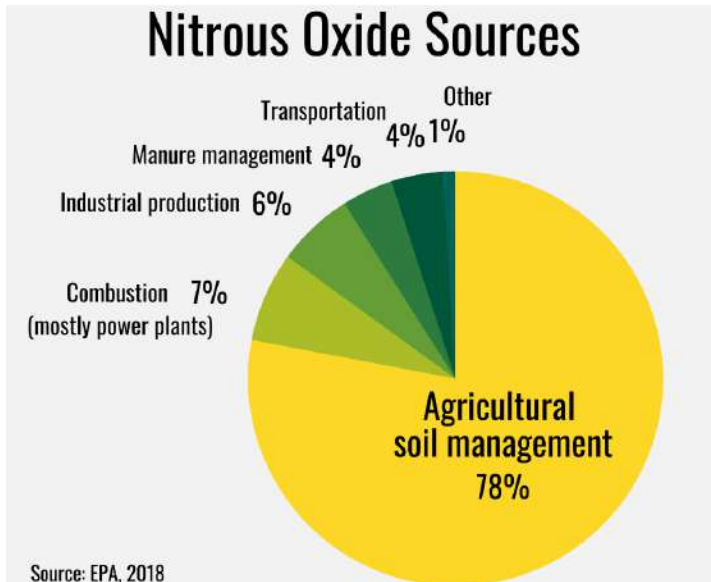
19. NITROUS OXIDE

Context:

A study by the Global Carbon Project found that **nitrous oxide (N₂O) emissions increased by 40% from 1980 to 2020**, with **China being the largest emitter**, followed by **India and the US**.

- Nitrous oxide, **a potent greenhouse gas**, is **primarily released from agricultural activities**, specifically from **nitrogen fertilizers and animal manure**, which accounted for **74% of emissions in the last decade**.
- In 2022, **N₂O levels in the atmosphere were 25% higher than in the pre-industrial era**.
- To limit global warming to below 2 degrees Celsius, **nitrous oxide emissions from human activities must be reduced by at least 20% from 2019 levels by 2050**.

The top 10 emitters also include Brazil, Russia, Pakistan, Australia, Indonesia, Turkey, and Canada.

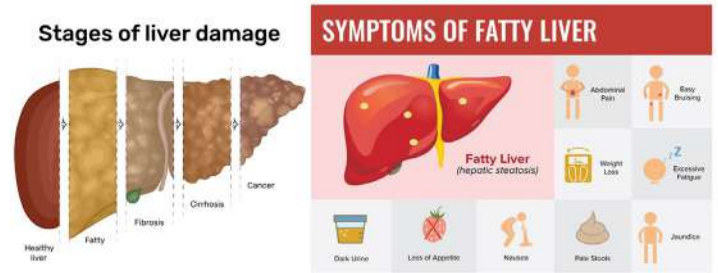


20. FATTY LIVER DISEASE

Context:

The **rise in fatty liver disease**, now termed **Metabolic dysfunction-associated steatotic liver disease (MASLD)**, is closely linked to **metabolic syndrome, including obesity, diabetes, high blood pressure, and abnormal cholesterol levels**.

- MASLD, particularly its progressive form known as **Metabolic dysfunction-associated steatohepatitis (MASH)**, which causes liver inflammation and scarring, is **expected to become the leading cause of chronic liver disease and liver transplants**.
- Global MASLD **prevalence is around 25-30%**, with **India's adult prevalence at 38.6% and 36% among obese children**.



21. DONANEMAB

Context:

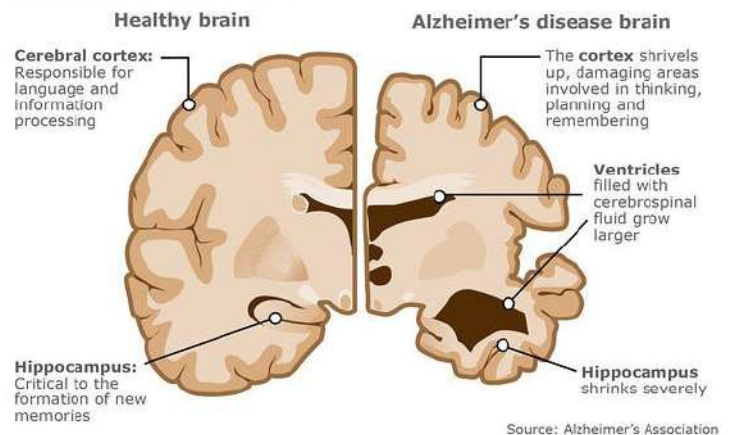
A **new Alzheimer's drug, donanemab**, has received support from an **FDA advisory committee, moving closer to approval**.

- Intended for **early-stage Alzheimer's**, it shows **significant slowing of cognitive decline**.
- The drug works by **targeting amyloid beta protein deposits in the brain**.

Alzheimer's disease is a **brain disorder** that **slowly destroys memory and thinking skills** and is the **most common type of dementia**.

It's characterized by **changes in the brain that lead to protein deposits, brain shrinkage, and eventually cell death**.

Alzheimer's disease



22. GOOGLE SEARCH ALGORITHMS

Context:

An anonymous email claiming access to **Google's Search algorithm API documents** was recently disclosed.

What is an API document?

API documents, or Application Programming Interface documents, are comprehensive guides that detail the functionalities, parameters, endpoints, and usage instructions for developers seeking to integrate with or uti-

lize an API (Application Programming Interface).

What is Google’s search algorithms?

They are **intricate systems designed to retrieve and present information** from its vast index based on user queries. They **analyze billions of web pages** using specific criteria like backlinks and content quality to rank results. Google continuously updates these algorithms to enhance search quality and combat spam.

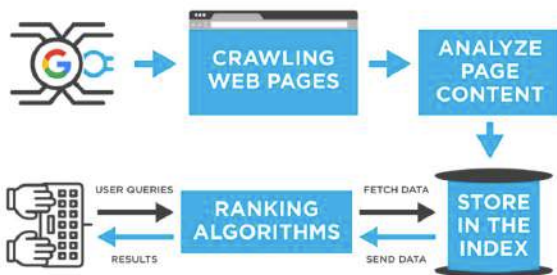
How does it work?

The search process involves three stages:

1. Crawling
2. Indexing
3. Searching/ranking

Web crawlers discover and index URLs, categorizing their content. When a user queries, the algorithm **uses language models to understand the query, correct spelling**, and determine intent. It assesses **content relevance based on keyword matches** and signals of expertise and trustworthiness, like backlinks and content length.

User-friendly factors like **mobile-friendliness and page load times** are also prioritized, along with **personalization based on location and search history**.



Environment & Ecology

23. PLACENTAL MAMMALS

Context:

New research from Stockholm University, in collaboration with other institutions, reveals that brown fat, a crucial heater organ in placental mammals, evolved exclusively in modern placental mammals.

What are Placental mammals?

Placental mammals, classified under the subclass **Eutheria**, are animals that have a placenta, **a vascular organ formed during gestation** for nutrient exchange between the mother and fetus. They **carry their fetus in the uterus** until birth at an advanced stage, nourishing them through the placenta. This allows for **longer fetal growth**, resulting in larger and more mature offspring at

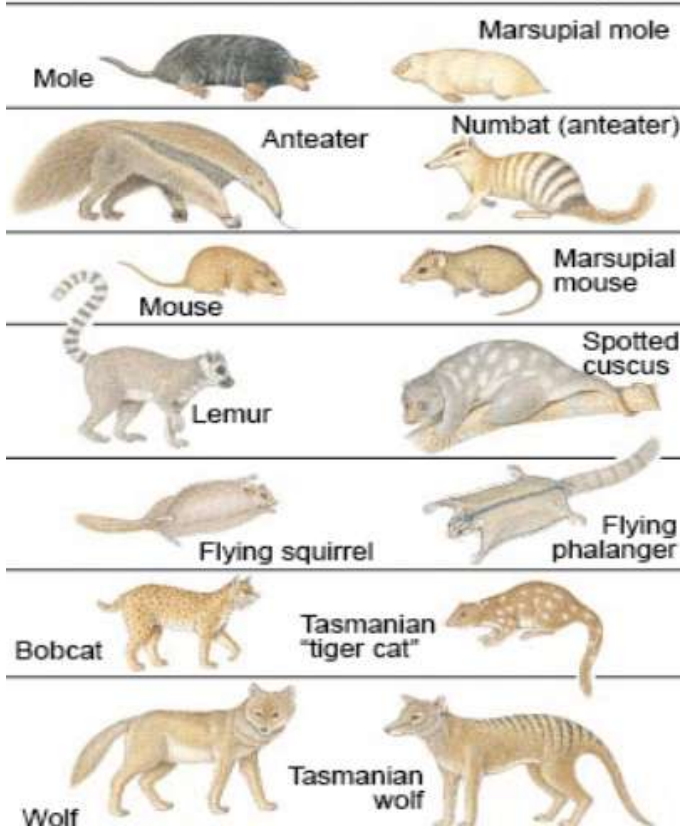
birth.

Fossil evidence suggests **they evolved around 163-157 million years ago**.

Marsupials, on the other hand, give birth to **relatively undeveloped young**, which continue to grow in a pouch outside the womb, nourished by a short-lived placenta. Over 330 species of marsupials exist, with examples including kangaroos and koalas.

Feature	Placental Mammals	Marsupials
Birth Process	Give birth to relatively developed young	Give birth to relatively undeveloped young, which continue to grow and develop outside the womb, typically in a pouch
Placenta	Have a well-developed placenta	Have a less-developed, short-lived placenta that nourishes their young for a few days before birth
Gestation Period	Longer gestation period, allowing for larger and more mature offspring at birth	Shorter gestation period, resulting in less mature offspring at birth, which continue to develop externally
Heat Production	Possess fully evolved brown fat for heat production	Possess a not fully evolved form of brown fat, lacking thermogenic function
Epipubic Bone	Do not have an extra pubic bone for pouch support	Have an extra pubic bone, the epipubic bone, to support their pouch
Examples	Humans, dogs, cats, elephants, etc.	Kangaroos, koalas, opossums, etc.

Placental Mammals Australian Marsupials



24. VEERANGANA DURGAVATI TIGER RESERVE

Context:

A rare **four-horned antelope** has been sighted for the first time in the Veerangana Durgavati Tiger Reserve.

About the four-horned antelope, also known as Chousingha:

It is a **small bovid antelope found in Asia**. Unique for **its four horns, only males bear them**, with one pair between the ears and another on the forehead. Typically, **solitary and diurnal**, they may form small groups. **Endemic to India and Nepal**, they inhabit open, dry, deciduous forests in hilly terrain, often near water bodies. **Classified as Vulnerable on the IUCN Red List** due to habitat loss and hunting.



About Veerangana Durgavati Tiger Reserve:

It spans **Sagar, Damoh, and Narsinghpur districts in Madhya Pradesh**, being the seventh in the state. It encompasses **parts of the Nauradehi and Durgavati Wildlife Sanctuaries**, featuring the historic **Singorghar Fort**. A green corridor links it to the **Panna Tiger Reserve** for tiger movement. Rivers from the **Narmada and Yamuna basins** flow through, with dry deciduous vegetation dominated by **Teak, Saja, and others**.

25. SNOW LEOPARDS EAT PLANTS: STUDY

Context:

Snow leopards, carnivores of High Mountain Asia, also consume plants, particularly those of the **Myricaria genus**. This was discovered by Japanese scientists through analysis of faecal samples collected in **Kyrgyzstan's Tien-Shan Mountains**.

Snow Leopard



IUCN: 'Vulnerable'
Schedule-I species of the Indian Wildlife (Protection) Act, 1972
Feature: It is an elusive mountain cats found in:



Jammu and Kashmir, Ladakh (Hemis NP is known for presence of Snow Leopard), Himachal Pradesh, Uttarakhand and Sikkim and Arunachal Pradesh.

Prey Species



Siberian ibex



Blue Sheep

Distribution of Snow Leopard



More about the Snow leopards:

It inhabits the **mountains of Central and South Asia, including 12 range countries** like India, where there are around **718 snow leopards**. They are mainly found where their principal prey, **ibex and blue sheep**, live. Snow leopards are the **state animals of Himachal Pradesh and Ladakh**. **Hemis National Park** (Ladakh) is known as the Snow Leopard Capital of the world

Conservation Efforts Worldwide	Snow Leopard Trust: Focus on community-based conservation programs
	Global Snow Leopard and Ecosystem Protection Program (GSLEP): Aims to secure 20 landscapes across the Snow Leopard range by 2020
Conservation Efforts in India	Project Snow Leopard (Government of India, 2009): Focus on conservation in high-altitude ecosystems
	Community Involvement: Initiatives like Himal Sanrakshak recognize local communities' role in protection and conflict reduction
	Snow Leopard Population Count: Introduced First National Protocol for population monitoring in 2019
	Ministry's Recovery Programme: Snow Leopard is on the list of 21 critically endangered species for recovery
	Snow Leopard Conservation Breeding Programme: Conducted at Padmaja Naidu Himalayan Zoological Park, West Bengal

26. REPORTS IN NEWS

Report	Description
Building Better: India's Path to Superior Quality Infrastructure Report	Released by GLOBAL TRADE RESEARCH INITIATIVE (GTRI)
	India's quality infrastructure: It is led by the Bureau of Indian Standards (BIS) , and includes standardization, Quality Control Orders (QCOs) , and Compulsory Registration Orders (CROs), aimed at ensuring product quality, safety, and performance.
	Since the BIS Act 2016, over 140 QCOs have been issued for more than 550 products.
	Benefits of QCOs: Higher QCOs have resulted in reduced imports of substandard products, fewer consumer complaints and product recalls, increased domestic electronics production, and facilitated international trade.
	What are QCOs? Quality Control Orders (QCOs) are mandatory regulatory standards implemented by the Bureau of Indian Standards (BIS) to ensure products meet specific quality, safety, and performance criteria.
The main aim of the QCO is to control the import of sub-quality and cheaper items and to ensure that customers get quality products. QCOs cannot be challenged at WTO if they are imposed on grounds of health, safety, environment deceptive trade practice, or national security.	

<p>Household Consumption Expenditure Survey 2022-23</p>	<p>The Consumption Expenditure Survey 2022-23 reveals that Indian households, both rural and urban, spent the most on processed food.</p> <p>Key findings:</p> <ol style="list-style-type: none"> Consumption expenditure on non-food items has increased over the years, surpassing 50% of total expenditure. The share of expenditure on food in rural India was 46% and in urban India was 39%. Rural and urban households spent most on beverages, refreshments, and processed food. The average estimated Monthly Per Capita Consumption. Expenditure (MPCE) in 2022-23 is observed to be Rs. 3,773 in rural India and Rs. 6,459 in urban India Fall in the Gini coefficient, for both rural and urban spending between 2011-12 and 2022-23 (showing inequality is decreasing between Rural and Urban areas) <p>The National Sample Survey Office (NSSO) released the Household Consumption Expenditure Survey (HCES), which collects data on household consumption of goods and services. Since 1950, NSSO, headed by the Director General, has conducted large-scale nationwide surveys on socio-economic subjects and the Annual Survey of Industries (ASI). It operates under the Ministry of Statistics and Programme Implementation.</p>																								
<p>World Wealth Report 2024</p>	<p>The Capgemini Research Institute's recently published World Wealth Report 2024.</p> <p>Wealth bands include Ultra-HNWIs (\$30 million or more), Mid-Tier Millionaires (\$5-30 million), and Millionaires Next Door (\$1-5 million)</p> <p>Key Findings: India saw a 12.2% increase in the HNWI population, reaching more than 3 million, with over 12% growth in financial wealth to \$1,445 billion.</p> <p>Economic indicators in India showed improvements, including a decrease in the unemployment rate to 3.1%, a 29% increase in market capitalization, and a rise in national savings to 33.4% of GDP.</p> <div style="display: flex; justify-content: space-between;"> <div data-bbox="395 1193 853 2033"> <h3>Top investments by ultra-rich (in %)</h3> <p>■ 10-year price change ● 12-month price change</p> <table border="1"> <thead> <tr> <th>Asset class</th> <th>10-year price change (%)</th> <th>12-month price change (%)</th> </tr> </thead> <tbody> <tr> <td>Watches</td> <td>138</td> <td>5</td> </tr> <tr> <td>Art</td> <td>105</td> <td>11</td> </tr> <tr> <td>Jewellery</td> <td>37</td> <td>8</td> </tr> </tbody> </table> </div> <div data-bbox="922 1193 1476 2033"> <h3>Rise in number of ultra-rich (in %)</h3> <p>■ 2022-23 ■ 2023-28</p> <table border="1"> <thead> <tr> <th>Region</th> <th>2022-23 (%)</th> <th>2023-28 (%)</th> </tr> </thead> <tbody> <tr> <td>India</td> <td>6.10</td> <td>50.10</td> </tr> <tr> <td>Asia</td> <td>2.60</td> <td>38.30</td> </tr> <tr> <td>World</td> <td>4.20</td> <td>28.10</td> </tr> </tbody> </table> </div> </div> <p>Source: Knight Frank's <i>The Wealth Report 2024</i></p>	Asset class	10-year price change (%)	12-month price change (%)	Watches	138	5	Art	105	11	Jewellery	37	8	Region	2022-23 (%)	2023-28 (%)	India	6.10	50.10	Asia	2.60	38.30	World	4.20	28.10
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Reports	Description
State of World Fisheries and Aquaculture 2024 report	By the Food and Agriculture Organization (FAO)
	The report focuses on “Blue Transformation in Action,” highlighting key findings such as record-high fisheries production globally and India’s prominent role in aquatic animal production.
	FAO’s “Blue Transformation” vision aims for sustainable aquaculture expansion, effective fisheries management, and upgraded aquatic value chains.
	Fisheries and aquaculture align with global biodiversity agreements like the Kunming-Montreal Global Biodiversity Framework , emphasizing the importance of conservation and sustainable use of marine biological diversity beyond national jurisdiction.
	About FAO: It is a specialized UN agency established on October 16, 1945, headquartered in Rome, Italy. It aims to lead global efforts to eliminate hunger and ensure food security for all.
Strengthening Data Ecosystems in Indian Schools report	By Aapti Institute and Mozilla foundation with funding from United States Agency for International Development (USAID)
	School education data, including enrollment rates, student-teacher ratios, and assessment results , are crucial for targeted policies and interventions, personalized learning, and efficient resource allocation. However, issues like lack of integration among diverse datasets , digital divides, and labor-intensive data collection hinder progress.
	Recommendations include establishing a centralized data agency, incentivizing teachers for data entry, and strengthening infrastructure.
	Initiatives: National Digital Education Architecture (NDEAR) and Unified District Information System for Education Plus (UDISE+) aim to revolutionize the education system by providing unified digital infrastructure and managing school-level data. Additionally, Anganwadi Centres oversee data for children aged 3 to 6 through the POSHAN Tracker .


Reports	Descriptions
“Raising Ambition, Accelerating Action: Towards Enhanced NDCs for Forests” report	Report published by the UN Environment Programme (UNEP)
	A UNEP report highlights significant gaps in forest protection, management, and restoration in current Nationally Determined Contributions (NDCs) , which represent countries’ efforts to reduce emissions and adapt to climate change.
	From 2019 to 2023, tropical deforestation in the top 20 countries emitted 5.6 billion tonnes of CO2 equivalent annually . Despite this, only eight countries have explicit targets to reduce deforestation, all falling short of the global goal to halt deforestation by 2030.
	International Agreements to Prevent Deforestation:
	REDD+ : Efforts to reduce emissions from deforestation and forest degradation.
	New York Declaration on Forests : Aimed to halve deforestation by 2020.
	Glasgow Leaders’ Declaration : To halt and reverse forest loss by 2030.
	Bonn Challenge : Restore 150 million hectares by 2020 and 350 million hectares by 2030.
	About UNEP: The United Nations Environment Programme (UNEP), established in 1972 , sets the global environmental agenda and promotes sustainable development within the UN system. It produces major reports like the Emission Gap Report and leads campaigns such as Beat Pollution . Based in Nairobi, Kenya , UNEP advocates for global environmental protection and coordinates initiatives like World Environment Day.

Study on Urbanization and regional climate change-linked warming of Indian cities	<p>A study of 141 Indian cities reveals their vulnerability to the compounding effects of climate change and urbanization.</p>
	<p>Key findings indicate a 60% increase in warming due to urbanization alone, with the Urban Heat Island effect exacerbating temperatures. Cities experience nearly double the warming compared to the rest of India due to dense population, infrastructure, and increased emissions.</p>
	<p>To address this, urbanization must be carefully planned, and comprehensive climate-action plans implemented for sustainable development.</p>
	<p>India has initiatives like the National Mission on Sustainable Habitat and the Ease of Living Index to promote low-carbon growth and enhance urban liveability. Additionally, the Climate Smart Cities Assessment Framework aims to facilitate the adoption of best practices for climate resilience.</p>

Reports	Description
Global Trends Report: Forced Displacement in 2023	<p>By United Nations High Commissioner for Refugees (UNHCR)</p>
	<p>As of the end of 2023, there were over 117 million forcibly displaced people globally, with 40% being children under 18 years old. Among them, over 68 million were internally displaced people who remain within their own countries.</p>
	<p>The majority of refugees, 73%, come from five countries: Afghanistan, Syria, Venezuela, Ukraine, and South Sudan.</p>
	<p>Recommendations of the report: It includes resettlement of displaced to third countries, enhancing refugee integration through education and labour mobility, and upholding refugees' rights under national and international law.</p>
	<p>What is Forced displacement? It occurs when individuals are compelled to leave their homes due to various factors like persecution, violence, human rights violations, disasters, food insecurity, and the impacts of climate change.</p>
	<p>About UNHCR (headquartered in Geneva, Switzerland): It originated as the Office of the High Commissioner for Refugees after World War II, established by the UN General Assembly in 1950. It aims to safeguard the rights and improve the lives of those displaced by conflict and persecution. Operating in 135 nations, it has been awarded the Nobel Peace Prize twice, in 1954 and 1981.</p>
Energy Progress Report 2024	<p>The report is a joint effort of five SDG 7 (affordable and Clean Energy) custodian agencies – International Energy Agency (IEA), International Renewable Energy Agency (IRENA), United Nations Statistics Division (UNSD), World Bank and World Health Organization (WHO).</p>
	<p>The latest data on Sustainable Development Goal (SDG) 7 reveals concerning trends. In SDG 7.1.1, the global number of people lacking access to electricity rose for the first time in over a decade, reaching 685 million, driven by factors such as the global energy crisis and inflation. In India alone, 11 million people lacked access to electricity in 2022.</p>
	<p>SDG 7.1.2 highlights that over 2 billion people globally lack access to clean cooking fuels and technologies, leading to over 3 million premature deaths annually. India bears the largest share of this deficit, with 360 million people lacking access to clean cooking fuels. Conversely, However, SDG 7.3 underscores the need for accelerated annual improvements in energy efficiency, exceeding 3.8%, to achieve the target by 2030.</p>
	<p>SDG 7.2 notes a positive global trend, with renewable energy comprising 18.7% of Total Final Energy Consumption in 2021, rising to about 35% in India</p>
	<p>Recommendations include closing the investment gap in emerging economies through substantial investment and policy support for renewable energy deployment. Furthermore, there's a call for prioritizing clean cooking within multilateral forums to address this pressing issue globally</p>

MAPPING

INTERNATIONAL

Place	Why in News?
<p>1. GARDI SUGDUB (PANAMA)</p>	<p>Context: Hundreds of Indigenous families have relocated from Gardi Sugdub due to rising sea levels, becoming Panama’s first climate change-induced displacement. Panama also becomes first nation to evacuate its island community over climate change impact</p> <p>About Panama: <u>It is situated in Latin America at the southern tip of Central America</u>, sharing borders with South America. It is flanked by Costa Rica to the west and Colombia to the southeast, with the Caribbean Sea to the north and the Pacific Ocean to the south. Panama City, its capital, is the largest city, housing nearly half of its over 4 million inhabitants. Panama seceded from Colombia in 1903 with U.S. support, facilitating the construction of the Panama Canal. The canal’s revenue remains a significant contributor to Panama’s economy, along with commerce, banking, and tourism.</p>  <p><small>© Encyclopædia Britannica, Inc.</small></p>

2. CRETE ISLAND (GREECE)

Context: A 4,000-year-old stone structure from the **Minoan civilization discovered on a Cretan hilltop** is puzzling archaeologists and threatening the construction of a new airport near Kastelli, Crete Island (Greece)

Described by **Greece’s Culture Ministry as a “unique and extremely interesting find,” this labyrinthine, 1,800-square-meter building** resembles a huge car wheel from above and features eight-stepped stone walls.

About Crete Island

Crete is the largest island in Greece and the fifth largest in the Mediterranean Sea, situated in the southern part of the Aegean Sea. It is bordered by the **Sea of Crete to the north**, the Libyan Sea to the south, the Myrtoan Sea to the west, and the Carpathian Sea to the east. The island features rugged mountains, with Mt. Ida (Psiloritis) being the highest point.

Historical Context

Crete has been inhabited since the Paleolithic Age, with the **Minoan Civilization** emerging around 2700-1420 BCE. After a major earthquake, the Mycenaeans took over, followed by various rulers including the Romans, Byzantines, Andalusians, Venetians, and Ottomans. Crete joined Greece after gaining independence from Ottoman rule.



3. ARMENIA

Context: Armenia becomes the **43rd signatory of the Artemis Accords**, a set of principles for global space exploration cooperation led by NASA.

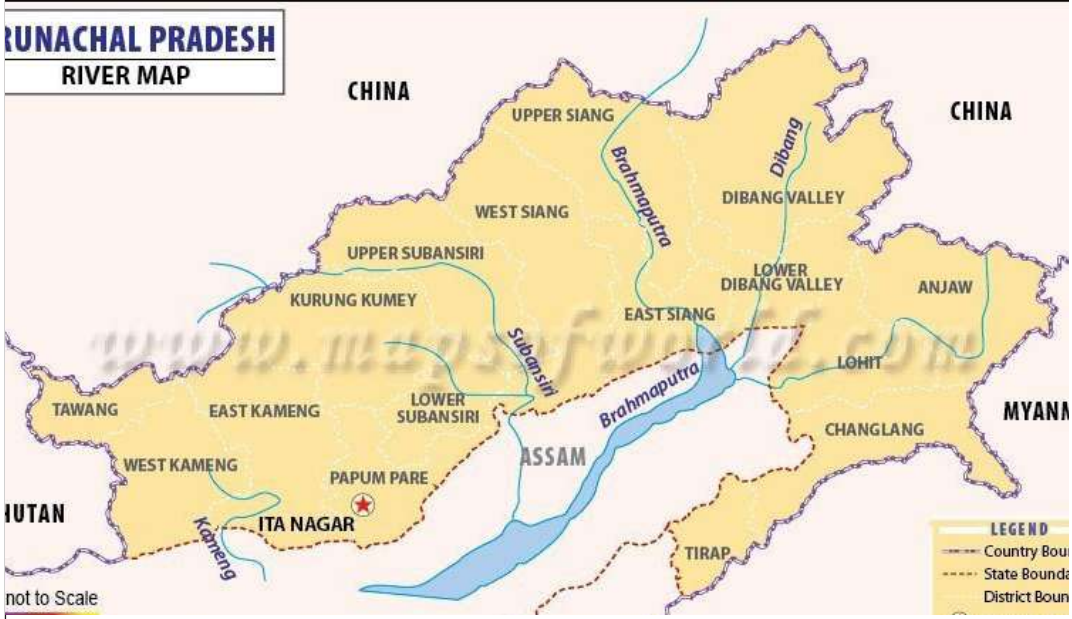
What are Artemis Accords?

The Artemis Accords, **established in 2020 by NASA** and seven founding member nations, including the US, are **a set of non-binding principles** aimed at guiding civil space exploration. With **43 signatories, including India (signed in 2023)**, the accords promote peaceful, sustainable, and transparent cooperation in space, grounded in the **Outer Space Treaty of 1967**.

About Armenia: Armenia is a **landlocked country** in the mountainous Caucasus region between Asia and Europe. **Yerevan** is the capital. Armenia was the first state to **adopt Christianity** as its official religion. It underwent the **Armenian genocide during World War I**. After periods of independence and **Soviet rule**, it became independent in 1991.



INDIAN

Place	Why in News?
<p>4. SUBANSIRI LOWER HYDRO ELECTRIC PROJECT (SLHEP)</p>	<p>Context: A Memorandum of Agreement (MoA) has been signed for the implementation of a fisheries management plan at the 2000 MW Subansiri Lower Hydro Electric Project (SLP) in Assam.</p> <p>About SLHEP: The Subansiri Lower Hydro Electric Project (SLHEP) is a 2000 MW gravity dam under construction on the Subansiri River, a trans-Himalayan river known for its gold dust, flowing through Assam, Arunachal Pradesh, and Tibet. It's the largest tributary of the Brahmaputra, contributing about 8% of its flow. SLHEP, run by NHPC, will be India's largest hydroelectric plant, utilizing the river's potential for hydropower.</p>  <p>ARUNACHAL PRADESH RIVER MAP</p> <p>not to Scale</p>
<p>5. LIPULEKH PASS</p>	<p>Context: Indian traders, engaged in border trade through the Lipulekh pass since 1992, urge the government to resume trade with China. The route was closed due to the Covid-19 pandemic in 2019, leaving goods worth Rs 15 lakh stranded in Tibet.</p> <p>About Lipulekh Pass: It is located near the India-China (Tibet)-Nepal tri-junction in Uttarakhand's Pithoragarh district, is a crucial pass in the Kumaun region's Kali Valley. Historically, it has served as a vital trade route for traders, pilgrims, and travelers, facilitating cultural exchange for centuries. Importantly, it offers a shorter travel route for the Kailash Mansarovar Pilgrimage, saving considerable travel time.</p> 