Today's Prelims Topics

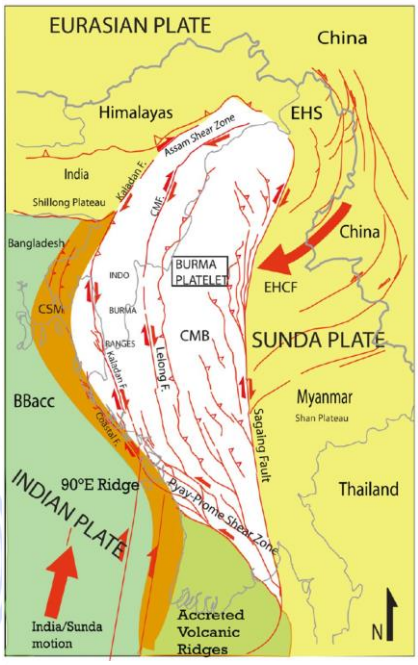
What caused massive earthquake in Myanmar

Context

Recently Myanmar was struck by a **magnitude 7.7 earthquake**, causing significant devastation in the country.

What Caused the Earthquake?

- **Tectonic Plate Movements:**
  - The **Earth's lithosphere** is divided into **tectonic plates**, which have been **moving for billions of years**. Their interactions create **earthquakes and other geological features**.
  - The **Myanmar earthquake occurred due to "strike-slip faulting"**, which happens when **two plates rub sideways** against each other.
- **Sagaing Fault:**
  - It is a **1,200 km long fault line**, runs from **north to south** through **Mandalay and Yangon**.
  - Areas along this line are one of the country's **most earthquake-prone areas**.



Why Was This Earthquake So Powerful?

- **Magnitude: 7.7**, making it one of the **strongest quakes worldwide in the last two years**.
- **Shallow Depth: 10 km**, which means **seismic energy did not dissipate much before reaching the surface**, causing more damage.
- **Fault Line:** Located on the **Sagaing Fault**, which is **highly active and capable of producing large earthquakes**.

Source:

- Indian Express - Myanmar Earthquake

News in short

Green Grabbing

- **Green grabbing** is the **appropriation of land and resources under the pretext of environmental conservation or sustainability projects**.
- It often displaces **indigenous communities, small farmers, and marginalized groups**.
- The term is similar to **"land grabbing"** but is justified through claims of **climate action, conservation or renewable energy development**.

Source:

- Down to Earth - Green Grabbing

Khadi and Village Industries Commission (KVIC)

- **KVIC** is a **statutory body** under the **Union Ministry of Micro, Small and Medium Enterprises (MSME).**
- It was established in **1956** under the **Khadi and Village Industries Act, 1956**, to promote, develop and regulate **Khadi and village industries** in rural India.
- **Key Initiatives of KVIC:**
  - **Prime Minister's Employment Generation Programme (PMEGP):** To provide financial assistance for setting up new micro-enterprises in the non-farm sector.
  - **Khadi Vikas Yojana:** To modernize and strengthen the Khadi sector, ensuring higher wages for artisans.
  - **Honey Mission:** To promote bee-keeping as a source of income for farmers and unemployed youth.
  - **RE-HAB" (Reducing Elephant-Human Attacks using Bees) project:** To prevent elephant attacks by using bee boxes as a fence along elephant corridors

Source:

- PIB - Khadi and Village Industries Commission

SMILE Program

- SMILE stands for Strengthening Multimodal and Integrated Logistics Ecosystem.
- It is designed to enhance **India's logistics infrastructure, reduce costs and increase efficiency.**
- The initiative aligns with the National Logistics Policy (NLP) and PM Gati Shakti National Master Plan.
- It is funded by the **Asian Development Bank (ADB).**
- **Nodal Ministry:** Ministry of Commerce and Industry (Department for Promotion of Industry and Internal Trade - DPIIT).

Source:

- PIB - SMILE Program

YuWaah Initiative

- The Ministry of Rural Development (MoRD) and United Nations Children's Fund (UNICEF) YuWaah have signed a Statement of Intent (SOI) to empower rural women and youth across India.

About YuWaah

- YuWaah (Generation Unlimited India) is a multi-stakeholder global initiative led by **UNICEF,**

launched in **2019.**

- It is aimed at empowering young people with skills, employment opportunities and civic engagement platforms.
- YuWaah collaborates with government agencies, private sector companies, civil society organizations and youth networks to create an inclusive and productive future for India's youth.
- **YuWaah Youth Platform:** A one-stop digital platform for career counseling, training, and job matching.

Source:

- PIB - YuWaah Initiative

INDRA 2025

- It is a **Bilateral Naval Exercise between India & Russia.**
- It was started in **2003**. This one is the **14th** edition.
- It focuses on enhancing maritime cooperation and exchanging best operational practices.

Source:

- PIB - INDRA

Teesta River

- **Origin:** from the **Tso Lhamo Lake in the Sikkim Himalayas,** near the border with Tibet.
- It forms a **boundary between Sikkim and West Bengal**.
- It passes through the plains of West Bengal and enters Bangladesh, where it joins the Brahmaputra River (known as the Jamuna in Bangladesh).
- **Tributaries**:
  - **Left-bank**: Lachung Chhu, Chakung Chhu, Dik Chhu, Rani Khola, Rangpo Chhu.
  - **Right-bank:** Zemu Chhu, Rangyong Chhu, Rangit River.
- It has potential source for hydropower projects due to its rapid flow through steep terrains in Sikkim.

Water-Sharing Dispute Between India and Bangladesh

- No official treaty exists on **Teesta water-sharing.**
- **Interim agreement proposed in 2011**: India agreed to give Bangladesh **37.5% of Teesta's water**, while India would retain **42.5%** (remaining water was for ecological flow).
- This agreement **was not signed due to opposition from the West Bengal government**.
- Due to India's reluctance, Bangladesh has welcomed **Chinese investment in the "Teesta River Comprehensive Management and Restoration Project."**

Source:

- The Hindu - Teesta

Editorial Summary

PAC Recommendations on GST Reforms

Context

The 19th report of Parliament's Public Accounts Committee (PAC) presents a critical evaluation of the Goods and Services Tax (GST) regime.

More in News

- The report highlights significant structural and operational deficiencies in the GST framework, particularly concerning revenue collection, state compensation, and audit compliance.

About PAC

- **Origin:** It was established in **1921** on the basis of the **Government of India Act, 1919. (Montague-Chelmsford Reforms).**
    - It is one of the **oldest Parliamentary Committees** in India.
- **Composition:** 22 members (15 from Lok Sabha + 7 from Rajya Sabha).
- **Election method:** Members of the committee are elected through a **system of proportional representation by means of a single transferable vote**.
- **Chairman: Appointed by the Speaker** from amongst members of the committee.
    - Since 1967, it has been a Parliamentary tradition to appoint the Chairman from the Opposition party.
    - **Current Chairman**: K. C. Venugopal
- **Tenure:** 1 Year (Chairman & Members)
- **Significance**: Essential for ensuring **executive accountability** to the people and enforcing **parliamentary oversight** over the government's actions.

What are the roles of PAC?

- **Examine the audit reports** submitted by the Comptroller and Auditor General (CAG) and present its findings to Parliament.
- Acts as a **watchdog over public finances** by reviewing the audit reports on appropriation accounts and finance accounts.
- **Scrutinises the appropriation accounts** to ensure:
    - Funds were legally available.
    - A competent authority sanctioned their use.
    - Procedures and rules were properly followed.

Note:

- PAC is **one of the three financial committees** of selected Members of Parliament.
    - The other two are the **Estimates Committee** and the **Committee on Public Undertakings (CoPU).**
- PAC does not examine reports of those public undertakings which are allotted to the **Committee on Public Undertakings.**

PAC's Limitations

- **Lack of Enforcement Mechanism**: Although the PAC identifies irregularities in public expenditure, there are **no mechanisms to enforce corrective action**s.
- **Post-Facto Examination**: The PAC reviews **government expenditure** only **after it has already been incurred**, limiting its ability to prevent inefficiencies.

- **Advisory Nature of Recommendations**: The PAC's **recommendations** are **advisory** and **not binding** on the government, reducing its influence on immediate corrective action.
- **No Mandate to Examine Policy**: The PAC lacks the authority to **examine government policies** in a broader sense, restricting its role to the review of financial matters.

19th Report of the Public Accounts Committee (PAC) on GST

- **Decline in Indirect Tax Revenue:** The PAC underscores a **nearly 2% drop in indirect tax revenue** between **FY18 and FY20** (the first two years of GST implementation).
    - This decline occurred **before the COVID-19 pandemic** and reflects systemic issues within the GST regime.
- **Compensation Fund and Delayed Payments:** The **GST (Compensation to States) Act, 2017** mandated the creation of a **Compensation Fund** to offset states' revenue losses due to GST.
    - States were promised **14% annual revenue growth** for five years (2017–22), using **FY16** as the base year.
    - However, the report notes:
        - Several states have reported **non-receipt or delayed receipt** of compensation.
        - This has negatively affected state-level governance and fiscal stability.
- **Centre's Non-Compliance with Audit and Certification:** The PAC highlights that the Centre has failed to:
        - Furnish the Compensation Fund Account to the **Comptroller and Auditor General (CAG)**.
        - Ensure timely certification and release of compensation to states.
    - This has strained the functioning of the GST regime, which was designed to be a **unified yet federal tax structure**.
- **Impact on Manufacturing-Heavy States:** As a **destination-based tax**, GST is levied at the point of consumption rather than production.
    - This has led to a **sharp decline in indirect tax collections** for manufacturing-heavy states, reducing their fiscal autonomy.
    - Major revenue-generating states have long raised concerns about the **centralising tendencies** of GST.
- **Audit Irregularities and Lack of Oversight:** The PAC flagged serious lapses in the Finance Ministry's audit practices:
    - A sample of **10,667 cases** revealed **2,447 inconsistencies** amounting to **₹32,577.73 crore**.
    - The Finance Ministry's audit approach was criticised as "**lackadaisical**."

Recommendations by PAC

The PAC proposed several corrective measures:

- **Formal Mechanism with CAG**: Establish a structured mechanism for regular audits and certification of the Compensation Fund.
- **Timely Resolution of Pending Cases**: Ensure updates and action on unresolved audit cases.
- **Development of "GST 2.0"**: A comprehensive review of the GST regime to address structural deficiencies.
    - States are seeking a greater share of GST revenues — closer to **70%–80%** (from the current **50%**).

Conclusion

The PAC's report calls for a systemic overhaul of the GST framework to address delays in state compensation, strengthen audit practices, and restore fiscal balance between the Centre and the States. The proposed "GST 2.0" is expected to address these structural issues and improve state-level fiscal autonomy.

Source: [The Hindu: Equitable Distribution]

Advantage China in Africa's nuclear energy market race

Context

China has emerged as an attractive partner for African countries interested in developing nuclear energy.

Status of Africa's Nuclear Energy

- **Current Capacity:**
  - Africa currently has **only one operational nuclear plant** — the Koeberg Nuclear Power Station in **South Africa**, built by a French consortium.
  - Despite having vast untapped potential, Africa's nuclear energy sector is still in its early stages.
- **Projected Growth:**
  - Africa is expected to generate **15,000 MW of nuclear energy by 2035**.
  - This represents a major investment opportunity of **$105 billion**.
  - Countries like **Ghana, Nigeria, Sudan, Rwanda, Kenya, and Zambia** have announced plans to develop nuclear energy to enhance electricity access.

How Other Countries Are Partnering with Africa for Nuclear Energy

- **France:** Historically dominated Africa's nuclear market, especially in **Francophone Africa**.
  - However, France's influence is declining due to increased competition from other global powers.
- **United States:** Since **2023**, the U.S. has been organising the **US-Africa Nuclear Energy Summit (USANES)**.
  - Future engagement depends on the policy direction under **President Donald Trump**.
  - Ghana has already partnered with U.S.-based companies like **NuScale Power** and **Regnum Technology Group** for Small Modular Reactors (SMRs).
- **Russia:** Russia's **Rosatom** is constructing a nuclear reactor in **El Dabaa, Egypt** since **July 2022** (though progress has been slow).
  - Russia has signed agreements with **Egypt, Mali, Burkina Faso, and Burundi**.
  - However, Russia's economic challenges due to the Ukraine war and sanctions could limit its ability to fund large-scale nuclear projects in Africa.
- **South Korea:** South Korea's **Korea Hydro and Nuclear Power (KHNP)** has shown interest in Africa's nuclear market.
  - However, its involvement remains limited compared to China and Russia.

How China Leads the Race in Africa's Nuclear Market

- **Early Strategic Moves:** China's involvement began in **2012** with a scholarship program for African and South Asian students in nuclear energy, sponsored by the **China Atomic Energy Authority** and the **International Atomic Energy Agency (IAEA)**.
  - This helped train African professionals in Chinese nuclear technology and procedures.
- **State-Owned Companies Driving Expansion:** Two major state-owned firms are leading China's nuclear expansion in Africa:
  - **China General Nuclear Power Group (CGN)**
  - **China National Nuclear Corporation (CNNC)**
- **Recent Agreements:** In **2024**, at the **Forum on China-Africa Cooperation (FOCAC)**:
  - **Nigeria** signed an MoU with China for the design, construction, operation, and maintenance of nuclear power stations.
  - **Uganda** signed an MoU with China to build a **2 GW nuclear plant** (the first unit of 1 GW is expected to be operational by **2031**).
  - **Kenya** plans to have a research reactor by **2030** but has yet to confirm its partner.

  - **Ghana** partnered with **China National Nuclear Corporation** to build a Large Reactor (LR).
- **Pro-Russian African States Leaning Toward China:** The junta-led governments of **Burkina Faso, Niger, and Mali** initially approached **Russia's Rosatom** for nuclear capacity.
  - However, given Russia's financial constraints, these countries may increasingly rely on **Chinese funding** and expertise.
- **Belt and Road Initiative (BRI):** China's ability to build nuclear plants and the **transmission networks** needed to distribute electricity gives it a strategic advantage.
  - African nations may turn to **BRI-linked financing** to support nuclear infrastructure development.

Impact on India

- **India's Nuclear Generation Capacity:** As of **January 30, 2025**, India's nuclear generation capacity stands at **8,180 MW**.
  - India's goal is to generate **100 GW of nuclear energy** by **2047**.
- **Dependence on African Uranium:** Africa is critical for India's nuclear fuel supply:
  - In **2009**, India signed a civil nuclear cooperation agreement with **Namibia**.
  - India also plans to develop uranium mining projects in **Niger** and **Namibia**.
- **Challenge from China's Dominance:** With China's growing influence in Africa's nuclear sector, securing long-term uranium supplies may become more difficult for India.
  - Increased Chinese involvement could create geopolitical hurdles for India's nuclear fuel strategy and overall energy security.
- **Potential Diplomatic and Strategic Balancing:** To counter China's dominance, India may need to:
  - Strengthen strategic ties with African nations through energy partnerships.
  - Enhance India's nuclear cooperation framework with African countries beyond uranium sourcing.

Conclusion

Africa's nuclear energy sector is poised for rapid growth, with a projected capacity of **15,000 MW by 2035** and an investment opportunity of **$105 billion**. China is currently leading the race, leveraging its state-backed companies and financing under the **Belt and Road Initiative**. Other major players like the **U.S.**, **Russia**, **France**, and **South Korea** are competing for influence but face financial or strategic limitations. For India, securing African uranium will be essential to achieving its nuclear energy targets, but rising Chinese dominance could complicate these efforts.

Source: [The Hindu: Advantage China in Africa's nuclear energy market race]

Separatist Politics Decline in Kashmir: Reason

Context

The separatist politics that dominated Kashmir for decades seems to be weakening under the assertive stance of the central government.

Trends Indicating the Decline of Separatist Movement in Kashmir

- **Formal Dissociation from Separatist Ideology:** Members of several separatist outfits like J&K Peoples Movement, Democratic Political Movement, J&K Tahreeq Isteqlal, Tahreek-i-Istiqamat, and J&K Salvation Movement have publicly announced their exit from separatist politics.
    - Even second-rung separatist leaders and smaller groups are now renouncing separatism, indicating a significant shift in political sentiment.
- **Banning of Key Separatist Organizations:** Since 2019, the Ministry of Home Affairs has banned major separatist organizations, including:
        - Jamaat-e-Islami
        - Jammu and Kashmir Liberation Front (JKLF)
        - Awami Action Committee (Mirwaiz Umar Farooq)
        - Ittihadul Muslimeen (Mohammad Abbas Ansari)
        - Democratic Freedom Party (Shabir Shah)
    - The Hurriyat Conference, once an influential coalition of over 20 organizations, has been rendered largely inactive, with most top leaders jailed or sidelined.
- **Reduced Influence of Pakistan in Kashmir Politics:** Pakistan's internal political and economic instability has weakened its ability to support separatist activities in Kashmir.
    - Cross-border infiltration and logistical support for militancy have seen a decline in recent years.
- **Shift from Urban to Guerrilla-Style Warfare:** Militancy has morphed into a rural and forest-based conflict, signaling that separatists are losing hold over urban centers.
    - Advanced surveillance, communication technologies, and terrain-mapping tools have pushed militancy to the fringes.

Reasons Behind the Decline of Separatist Movement

- **Abrogation of Article 370 (2019):** The removal of Jammu and Kashmir's special constitutional status integrated the region more closely with the Indian Union.
    - The reorganization into Union Territories allowed greater administrative and political control by New Delhi.
- **Heavy Security Presence:** Deployment of security forces across Kashmir has helped control large-scale protests and unrest.
- **Crackdown on Separatist Groups and Leadership:** Arrest of top leaders and banning of separatist groups weakened the organizational structure of the separatist movement.
    - Financial channels supporting separatism were disrupted through enforcement actions and sanctions.
- **Central Government's Assertive Approach:** The government adopted a **no-compromise policy towards separatism and militancy**.
    - Political engagement with separatists, which was seen during previous governments, was completely stopped post-2014.
- **International Isolation of Pakistan:** Pakistan's diplomatic setbacks and economic challenges reduced its capacity to support insurgency in Kashmir.
    - Global counter-terrorism measures put pressure on Pakistan to curb its involvement in Kashmir.
- **Rise of Aspirational Politics and Development Narrative:** The central government has promoted a new narrative of peace, prosperity, and integration in Kashmir.

  - Increased focus on infrastructure, education, healthcare, and employment generation created alternative opportunities for youth.
  - Government-backed investment and tourism revival efforts contributed to economic stability.
- **Public Fatigue and Declining Popular Support:** Decades of violence and instability have led to growing public fatigue with separatist politics.
  - The local population is increasingly seeking peace and economic opportunities over political conflict.

Source: The Hindu: Valley and Hills

Fall in Cotton Production

Context

India's cotton production peaked with Bt cotton adoption (2002-2014) but in recent years it declined.

More in News

- Cotton imports increased from **$518.4 million (2023-24)** to **$1,040.4 million (2024-25)**.
- Cotton exports fell from **$729.4 million (2023-24)** to **$660.5 million (2024-25)**.
- India now relies on cotton imports from the **US, Brazil, Australia**, and **Egypt**.

Background of Cotton Production in India

- **Pre-2002 Period:**
  - India was a net importer of cotton with low productivity.
  - Cotton production was reliant on traditional hybrids like:
    - **H-4** (first hybrid, 1970)
    - **Varalaxmi** (first inter-specific hybrid, 1972)
    - **LSS (Labh Singh Selection)** (1933)
- **2002-2014: Cotton Boom Due to Bt Cotton**
  - Introduction of genetically modified (GM) Bt cotton hybrids in **2002-03** transformed production.
  - Bollgard-II technology (2006) further enhanced yield by providing protection from multiple pests (American bollworm, cotton leafworm).
  - Cotton production tripled from **13.6 million bales (2002-03)** to **39.8 million bales (2013-14)**.
  - Lint yield rose from **127 kg/hectare (1970-71)** to **566 kg/hectare (2013-14)**.
  - India became the **world's largest producer** (2015-16) and **second-largest exporter** (2011-12).
- **2014 Onwards: Production Decline**
  - Cotton production declined to an average of **33.8 million bales** over the last five years.
  - In **2024-25**, production projected at **29.5 million bales** — lowest since **2008-09**.
  - Lint yield dropped to **sub-450 kg/hectare**.
  - Imports (3 million bales) are now surpassing exports (1.7 million bales).

Lint yield refers to the amount of **clean, usable cotton fibers** obtained from harvested cotton after removing the seeds and other impurities. It is usually measured in **kilograms per hectare (kg/ha)**.

Reasons Behind the Decline in Cotton Production

- **Policy Paralysis on GM Crops:** After a successful Bt cotton rollout, approval for new GM technologies stalled.
  - **E.g.,** Since **Bollgard-II** in **2006**, no new GM technology for cotton has been approved.
- **Emergence of Pink Bollworm Infestation:** Pink bollworm infestations emerged in central-western and southern regions since 2014 and spread to northern regions by 2018.
  - **Lack of new pest-resistant GM hybrids** worsened the damage.
- **Regulatory and Judicial Hurdles:** Regulatory bodies **blocked field trials of GM crops** under the **Environment Protection Act (1986).**
  - Courts interfered in technical matters, delaying new technology approvals.
  - Hybrid mustard (developed by Delhi University) remains unapproved despite successful trials and safety data.
- **High Production Costs and Falling Yields:** Rising input costs and stagnant yields made cotton farming less profitable.

    - Farmers lack access to updated pest-resistant and climate-adaptive varieties.
- **Global Pressure and Trade Barriers:** US and Brazil are pushing for the removal of the **11% import duty** on cotton.
    - India's decision to allow imports of GM soyameal and cake in **2021** may lead to similar demands for GM corn and cotton imports.

What Needs to Be Done

- **Revive Approval Process for GM Crops:** Fast-track the approval of new GM technologies like Bollgard-III and indigenous pest-resistant varieties.
    - Allow field trials of genetically modified mustard and cotton hybrids.
- **Strengthen Pest Control Measures:** Develop integrated pest management (IPM) strategies.
    - Encourage breeding of pest-resistant, high-yielding cotton varieties.
- **Policy Clarity on GM Crops:** Establish a transparent, science-based regulatory framework for GM crop approvals.
    - Limit political and activist interference in scientific evaluation processes.
- **Support Farmers with Technology and Inputs:** Ensure access to high-quality seeds and affordable inputs.
    - Educate farmers on sustainable farming practices and pest control.
- **Protect Domestic Cotton from Import Competition:** Maintain strategic import duties to protect domestic production.
    - Negotiate trade terms with major exporters like the US and Brazil.
- **Enhance Research and Development:** Invest in agricultural research institutions for developing climate-resilient and pest-resistant cotton varieties.
    - Encourage public-private partnerships in cotton seed research and production.

Source: Indian Express: Losing the thread

AI Literacy

Context

AI literacy is crucial for India's future competitiveness and innovation, empowering individuals to engage with AI and avoid falling behind globally.

Significance of AI Literacy

- **Economic Competitiveness**: AI literacy equips individuals with the skills to engage in and drive innovation, positioning India as a global leader in AI rather than just a service provider.
- **Job Readiness**: Understanding AI enhances employability, preparing the workforce for automation and evolving job requirements.
- **Empowered Decision-Making**: AI literacy enables individuals to critically assess AI-generated content, recognise biases, and engage with AI tools effectively.
- **Innovation and Problem-Solving**: AI literacy fosters creativity and the ability to design AI-based solutions for real-world problems, boosting technological and social advancements.
- **Inclusive Growth**: Widespread AI literacy ensures that rural and underserved populations are not left behind in the AI revolution.
- **Ethical and Responsible AI Use**: Educating people about AI's ethical implications helps prevent misuse and promotes fairness, transparency, and accountability.

Challenges in AI Literacy in India

- **Lack of Integration in Education**: AI and computational thinking are not widely incorporated into school and college curricula.
    - **E.g.**, Approximately 66% of Indian schools lack internet access, hindering technology integration in education
- **Digital Divide**: Rural and underserved communities have limited access to AI education and digital infrastructure.
    - **E.g.,** Despite a 13% growth rate, only 31% of the rural population uses the internet, compared to 67% of urban residents.
- **Skills Gap**: Workforce skilling programs are industry-focused and not comprehensive enough to cover AI literacy for all professions.
- **Policy and Regulatory Hurdles**: Absence of a national AI literacy strategy and slow policy response hinder AI education expansion.
- **Limited Public Awareness**: Low understanding of AI's role in daily life and its impact on jobs, privacy, and decision-making.
- **Insufficient Research and Investment**: Inadequate funding and institutional support for AI education and research.

What Needs to Be Done

- **National AI Literacy Curriculum**: Develop a structured K-12 AI literacy program, including computational thinking, problem-solving, and ethical AI use.
- **AI Labs and Tinkering Spaces**: Establish AI learning hubs in schools and universities to promote hands-on learning and experimentation.
- **Workforce Reskilling**: Broaden AI training programs beyond the IT sector, covering agriculture, healthcare, and other key industries.
- **Public Awareness Campaigns**: Educate the public on AI's impact and empower them to engage critically with AI tools.
- **Investment in Research and Development**: Increase funding for AI research and foster collaboration between academia, industry, and government.
- **Ensure Equity and Accessibility**: Design AI literacy initiatives tailored to regional and socio-economic differences to ensure broad participation.

Source: Indian Express: The New Reading And Writing