Today's Prelims Topics

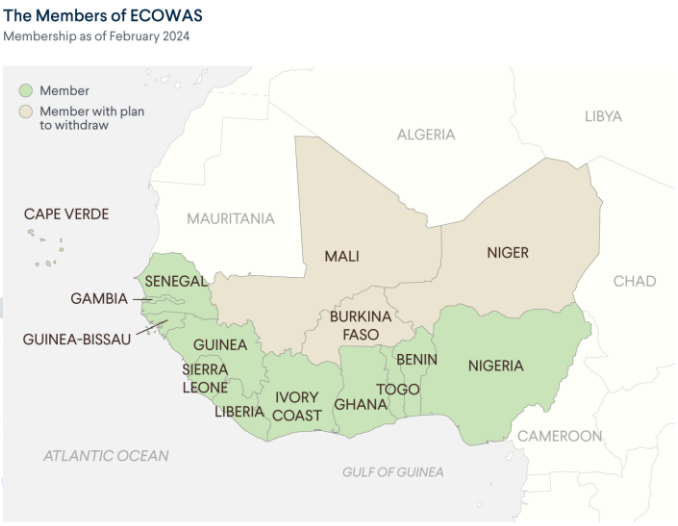
ECOWAS

Context

A recent survey reveals that over half of Togolese support leaving ECOWAS to join the Sahel States Alliance.

About ECOWAS

- **Founded:** 1975 (Treaty of Lagos)
- **Mission:** Foster economic integration among member states
- **Vision:** Seamless region with democratic governance, rule of law, and effective governance
- **Members:** 12
    - **Mali, Niger, Burkina Faso** left ECOWAS and formed the Alliance of Sahel States.
- **Key Objectives**:
    - Unified currency
    - Single trade zone (in areas: industry, transport, telecommunications, energy, finance, socio-cultural)
- **Conflict Resolution**: Aims to resolve regional military conflicts
    - Managed Economic Community of West African States Monitoring Group(ECOMOG) peacekeeping force (led by Nigeria in 1990s-2000s)
- **Headquarters:** Abuja, Nigeria.



Sahel States?

The three countries—**Mali, Burkina Faso, and Niger**—formed the **Alliance of Sahel States (AES)** to seek **military support from Russia** while distancing themselves from the influence of the US and France.

The **Sahel** is a **semi-arid region** in western and north-central Africa, serving as a transitionalzone between the **Sahara Desert** to the north and the **humid savannas** to the south.

Source: Down To Earth

A draft notification for emissions intensity targets for high-emitters

Context

The Ministry of Environment, Forests and Climate Change (MoEFCC) has released a draft notification setting emissions intensity targets for high-emitters.

Key Provisions of the Draft Notification for Emissions Intensity Targets for High-Emitters (MoEFCC, April 2024)

- **Objectives:** Fulfil India's **Nationally Determined Contributions (NDCs)**.
    - Promote **sustainable and cutting-edge technologies** in high-emission sectors.
- **Introduction of a Compliance-Based Carbon Market:** India is set to launch its **first mandatory carbon market in 2026**.
    - The draft notification lays the foundation for this cap-and-trade system.

Mechanism: Cap-and-Trade System

- Industries meeting or exceeding emission reduction targets can **generate tradable carbon credits**.
- Those failing to meet targets can **buy credits** from others.
- Non-compliance leads to **environmental compensation fines** imposed by the **CPCB**.

- **Emissions Intensity Targets:** Targets are based on **emissions per unit of economic output** (intensity-based, not absolute).
    - Aims to reduce **GHG emissions intensity by 45% by 2030** from 2005 levels.
- **Scope of Coverage: 282 industrial units** are mandated under this scheme.
    - Sectors included:
        - **Cement** (largest share – 186 units)
        - **Aluminium**
        - **Chlor-alkali**
        - **Pulp and paper**
    - **Power sector excluded**, despite being the **largest emitter (39.2%)**.
- **Baseline Emission Calculation:** A baseline is created for each industrial unit based on:
    - **Direct energy emissions**
    - **Process emissions**
    - **Indirect emissions**
    - Covers **CO_2 and perfluorocarbons (PFCs)**.
- **Monitoring & Governance: Bureau of Energy Efficiency (BEE)** will administer the compliance market.
    - Validation and verification will be done by **third-party agencies**.
    - Oversight by **NSCICM (National Steering Committee for Indian Carbon Market)** ensures integrity.

Source: MongaBay

Phytoplankton

Context

According to a new study, iron released due to human activities enhances spring phytoplankton blooms as well as speeds up the rate at which nutrients are consumed.

About Phytoplankton

- **Definition**: Phytoplankton, or microalgae, are microscopic organisms that, like land plants, contain chlorophyll and rely on sunlight for photosynthesis.
- **Habitat**: They float near the ocean surface where sunlight can reach.
- **Nutrient Requirements**: They need inorganic nutrients like nitrates, phosphates, and sulfur to synthesize proteins, fats, and carbohydrates.
- **Types of Phytoplankton:**
    - **Dinoflagellates**: Move using whip-like tails called flagella.
        - Have complex protective shells.
    - **Diatoms**: Possess rigid, interlocking shells made of a different material (silica).
        - Do not have flagella; drift with ocean currents.
- **Ecological Role:**
    - Serve as a **primary food source** for marine animals like shrimp, snails, and jellyfish.
    - Help sustain **balanced marine ecosystems**.
- **Harmful Algal Blooms (HABs):** Occur when excess nutrients cause uncontrolled phytoplankton growth.
    - Can release **toxic substances** harmful to fish, shellfish, birds, mammals, and humans.

Japan's New AI Act

Context

In May 2025, Japan introduced a law on the Promotion of Research, Development, and Utilisation of Artificial Intelligence.

Key Provisions of Japan's AI Act

- **Creation of Strategic AI Headquarters:** A central AI command center is to be set up, involving the **Prime Minister and the full Cabinet.**
    - It will be responsible for drafting and implementing a basic national plan for AI research, development, and deployment.
- **Basic Principles for AI Development and Use**: Emphasizes enhancing international competitiveness, promoting the comprehensive and systematic development and utilization of AI, ensuring transparency in AI processes, and fostering international cooperation.
- **Defined Responsibilities for Stakeholders:** Assigns roles to national and local governments, research institutions, businesses, and citizens.
    - Businesses are expected to actively leverage AI to improve productivity, enhance operations, and foster new industries.
    - They are also required to cooperate with policy measures implemented by national and local authorities.
- **Government Policy Measures:** The national government is tasked with several policy measures, including promoting research and development, developing and sharing infrastructure necessary for AI advancement, monitoring global AI trends, and establishing countermeasures against misuse that infringes on individual rights.
- **National AI Strategy:** Mandates the formulation of a comprehensive national plan for AI development and utilization.

Source: The Hindu

President's Rule

Context

A group of 10 MLAs from the Manipur Assembly recently met with the State Governor to urge the formation of a stable government. Manipur has been under President's Rule since February 2025.

About President Rule

Constitutional provisions regarding President Rule

- **Article 355:** Duty of the Centre to ensure that the government of every state is carried on in accordance with the **'provisions of the Constitution'.**
- **Article 356:** President can issue a proclamation that the government of state cannot be carried in accordance with the 'provisions of the constitution'. **(can act with or without a Governor's report).**
- **Article 365:** Failure of state government to comply with the directions of the Centre → President can hold that State government cannot be carried in accordance with the 'provisions of the constitution' → President's Rule

- **Approval:** Must be approved by both houses of Parliament **within two months** with a simple **majority**.
- **Duration:** After approval by both houses' emergency continues for **six months.**
    - It can be extended for a maximum period of **three years (Parliament approval every 6 months).**
- **Revocation:** President proclamation (No Parliamentary approval is needed).

Effects of President Rule

- The President is empowered to administer the state under the President's rule as it dismisses the State Council of ministers headed by the Chief Minister.
- The President can transfer State Legislature's powers to **Parliament.**
- It **does not impact** the functioning of the High Court.
- The President **can only dissolve a state legislative assembly after Parliament's approval of the proclamation**, and until then, the assembly remains suspended. **(SC in SR Bommai Case)**

Judicial Review and Landmark Case

- **S.R. Bommai Case (1994) – Landmark Judgement:**
    - **Judicial review** of the President's Rule is permissible.
    - **Political misuse** of Article 356 is **unconstitutional**.
    - **Legislative Assembly should not be dissolved** before **Parliamentary approval**; can only be kept under **suspended animation**.
    - Should be used only in **cases of constitutional breakdown**, not for ordinary law and order problems.
- **Other Examples of Judicial interventions:**
    - **Bihar (2005):** President's Rule struck down.
    - **Uttarakhand (2016):** President's Rule revoked by High Court.
    - **Arunachal Pradesh (2016):** SC reinstated the dismissed government.

Facts

- Article 356 was used for the first time while imposing the President's rule in **Punjab in 1951.**
    - **Manipur: maximum number of President rule - 11** (Including latest).
- Laws made by Parliament, President or any other specified authority **continue to be operative** even after the end of the President's Rule. **i.e.**, Laws are not **coterminous** with the duration of President's Rule
    - However such laws can be **altered or repealed** by the state legislature.

Source: The Hindu

Places in News

Columbia

News? Gran Tomatina Colombiana was celebrated in Colombia.

- The festival, created to **mirror Spain's La Tomatina festival.**

About Columbia

- **Location:** Known as **Gateway of South America** because it lies in the northwestern part of the continent where **South America connects with Central and North America**.
- **One of the 13 countries** from which the **Equator passes.**
- **Capital**: Bogota
- **Bordered by:** Venezuela and Brazil (east); Panama (north); Peru and Ecuador (south).
    - Caribbean Sea, Pacific Ocean.
- **Geographical features:**
    - Pico Cristobal Colon (**Highest Point**).
    - **Nevado del Ruiz** (an active volcano).
    - **Major Rivers**: Magdalena, Amazon, Orinoco.

Source: The Hindu

Editorial Summary

Biocontrol Agents As A Solution For Invasive Species

Context

Apart from mechanical and chemical control methods to tackle invasive plant species, scientists also employ classical biocontrol agents such as fungi.

About Invasive Alien Species

- According to the **Convention on Biological Diversity (CBD)**, invasive species are **introduced outside their natural distribution that threaten biodiversity.**
    - **Characteristics**: **Ability to arrive, survive, and thrive in new environments** by reproducing quickly and outcompeting native species for resources.
- **In India:** Under the amended **Wildlife Protection Act, 1972 (2022)**, they are defined as non-native species whose introduction or spread could negatively impact native wildlife or habitats in India.
    - However, this definition does not cover species that are invasive only in certain regions within India, such as the chital in the Andamans.
- **Examples of Invasive Species in India:**
    - **Fauna:**
        - **Fish**: African catfish, Nile tilapia, red-bellied piranha, and alligator gar.
        - **Turtles**: Red-eared slider, which is a common exotic pet that competes with local species for food and habitat.
        - **Chital**: Introduced by the British in the early 20th century, have no natural predators on the islands and have become an invasive species, spreading across the **Andaman archipelago**.
    - **Flora:**

        - ***Mikania micrantha*** (also called **"mile-a-minute weed"**) — native to Central and South America but introduced multiple times to India — is now a major invasive plant affecting biodiversity and crops.

Impacts of Invasive Species

- **Ecological Damage:** Displace or eliminate native flora and fauna
    - Threaten endangered species (*e.g.,* Manas Wildlife Sanctuary's grasslands impacted by Mikania)
- **Economic Losses:** Lower agricultural and plantation yields (*e.g.,* tea, teak, rubber)
    - Costly to manage and control.
- **Biodiversity Threats:** Lead to extinction of endemic species
    - Disrupt ecological balance (*e.g.,* Indian mongoose introduced to control rats ended up harming local wildlife)

- **Public Health Concerns:** Some invasive plants cause allergies and skin irritation (*e.g.,* Parthenium).

Control Measures for Invasive Species

- **Mechanical Control: Manual weeding, uprooting, burning**
  - Effective but **labour-intensive** and **temporary**
  - Mikania grows several cm/day — difficult to match by manual removal.
- **Chemical Control:** Use of **herbicides and pesticides**
  - Often **environmentally harmful** and **costly**
  - Effects may not be long-lasting
- **Classical Biological Control: Introduction of natural enemies** (insects, fungi, pathogens) from native habitats
  - **Example: Puccinia spegazzinii** fungus used against *Mikania micrantha*
    - **Zygogramma bicolorata** beetle used against *Parthenium hysterophorus*
    - **Weevil Cyrtobagous salviniae** for *Salvinia molesta*
- **Policy and Regulatory Measures:** Strengthening **quarantine laws** and **biosecurity**
  - Timely **approval of biocontrol agents**
  - Raising awareness among farmers and stakeholders
- **Research and Monitoring:** Continuous ecological research to identify suitable biocontrol agents
  - Climate suitability studies, as climate change may affect efficacy.

Limitations of Biological Control Agents

- **Host Specificity Required**: Must target only the invasive species to avoid harming native flora/fauna.
- **Time-Consuming Process**: Requires years of research, testing, and regulatory approval.
- **Ecological Risks**: Potential to become invasive themselves or disrupt local ecosystems.
- **Climate Sensitivity**: Effectiveness can reduce under unsuitable temperature or humidity conditions.
- **Slow Results**: Impact may take months or years to be visible, unlike chemical methods.
- **Limited Scope**: Less effective against fast-moving or generalist invasive species (e.g., certain fish or insects).

Conclusion

Invasive species like *Mikania micrantha* pose serious **ecological and economic threats**. While **chemical and mechanical methods** have limitations, **biological control**, though slow, is a **sustainable and ecologically benign strategy**. However, success depends on **government support**, **public awareness**, and **timely approvals**.

Source: Mongabay

Decline in FDI

Context

The RBI Bulletin (May 2025) provides foreign direct investment (FDI) figures for the fiscal year 2024-25.

Trend

- **Diverging Figures:**
  - **Gross FDI inflows** reached **$81 billion** in FY25.
  - **Net FDI** fell sharply to **$353 million**, a **near-zero figure**.
- **Declining FDI Ratios:**
  - **Gross FDI-to-GDP** ratio declined from **3.1% (FY21)** to **2.1% (FY25)**.
  - **Net FDI-to-GDP** dropped from **1.6% to 0%** in the same period.
  - **FDI as % of Gross Fixed Capital Formation (GFCF)** peaked at **7.5% in FY21**, but declined steeply afterward.
- **Rising Disinvestment and Outward FDI (OFDI):**
  - Increased capital outflow due to disinvestment and Indian firms investing abroad.
  - A significant portion of OFDI goes to tax havens like **Singapore and Mauritius**.
- **Shift in FDI Composition:**
  - **Private Equity and Venture Capital (PE/VC) funds** now dominate FDI, forming **over 75.9%** of inflows by FY21.
  - **Greenfield FDI** (new projects) has seen a steady decline.

Reasons For The Divergence

- **High Repatriation and Disinvestment:** Over half of FDI inflows were sent back out via dividends, share sales, or exits.
  - PE/VC funds, with short-term horizons (3–5 years), cashed out during stock market booms.
- **Rising Outward FDI:** Indian companies are investing more abroad to tap into global markets and supply chains.
  - This reduces net FDI, as more capital flows out.
- **Global Headwinds:** Higher interest rates, wars, and global economic slowdown made investors cautious.
  - Resulted in reduced fresh investments into India.
- **Policy and Regulatory Uncertainty:** Complex rules, weak enforcement, and absence of strong investment treaties are discouraging investors.

Impacts

- **Illusion of Investment Strength:** Headline numbers (gross inflows) mask the **underlying weakness** of actual productive investment.
- **Low Contribution to Capital Formation:** Dominance of brownfield and financial FDI limits **technology transfer**, job creation, or industrial upgradation.
- **Economic Vulnerability:** High volatility due to **short-term, speculative** flows reduces economic stability.
- **Loss of Policy Credibility:** Disconnect between government claims and real data undermines **investor confidence** and policymaker credibility.
- **Missed Industrial Development:** India's manufacturing and tech sectors receive **less benefit**, further aggravating structural economic issues.

Way Forward

- **Shift Focus to Greenfield FDI:** Incentivize **long-term investments** in infrastructure, manufacturing, and R&D through targeted policy and ease of doing business.
- **Tighten Capital Flow Regulations: Regulate PE/VC flows** more carefully, especially those via tax havens; ensure alignment with national development goals.
- **Improve Investment Environment:** Enhance policy clarity, reduce bureaucratic hurdles, and strengthen contract enforcement to attract serious investors.
- **Transparent Reporting:** Disaggregate FDI data to distinguish between **productive** vs. **financial flows** for better policymaking.
- **Reform Tax Treaties and Curb Treaty Shopping:** Revise **Double Taxation Avoidance Agreements (DTAAs)** with tax havens to prevent round-tripping and misuse.
- **Strengthen Domestic Capabilities:** Promote **technology upgrading, skill development**, and innovation domestically to make India a destination for quality FDI.

Source: The Hindu

Detailed Coverage

Commitment to Glacier Preservation

Context

India reaffirms commitment to glacier reservation at the Plenary Session of the High-Level International Conference on Glaciers in Dushanbe, Tajikistan.

Importance of Glaciers

- **Freshwater Reservoirs:** Glaciers store about 70% of the world's freshwater, making them the largest freshwater reservoirs on Earth.
- **Water Supply**: In Asia, the Ganges River, originating from the Gangotri Glacier, supports around 400 million people.
- **Regulating Climate:** Glaciers reflect sunlight due to their high albedo, helping to regulate Earth's temperature.
- **Economic Value:** Glaciers attract millions of tourists annually, supporting local economies.
    - **For example**, glacier tourism in New Zealand contributes over USD $81 million/ year.
- **Cultural and Spiritual Significance:** Many Indigenous communities view glaciers as sacred.
    - For example, the **Snow Star Festival in Peru's Andes** celebrates the spiritual importance of glaciers.

What are the Current Challenges?

- **Climate Change Result to Massive Ice Loss**: Between 2000 and 2023, glaciers lost an average of 273 billion tonnes per year (according to World Meteorological Organisation (WMO)).
- **Natural Hazards:** In May 2025, the Swiss village of Blatten was nearly destroyed by a **massive landslide triggered by Birch glacier collapse**, highlighting the increasing instability in alpine regions.
    - **Glacial Lake Outburst Floods (GLOFs):** More than 15 million people globally are at high risk from GLOFs, with countries like India, Pakistan, Peru, and China facing the greatest dangers.
- **Inevitable Loss**: Even if global warming is limited to **1.5°C**, nearly **40%** of the world's glaciers are projected to disappear.
    - If temperatures rise by **2.7°C**, up to **75%** could be lost, significantly impacting sea levels and freshwater availability.
- **Rising Sea Levels and Flood Risks:** The melt of glaciers between 2000-2023 contributed about **18 mm to global sea-level rise** during that period.
    - Glacier melting is now the **second-largest contributor** to global sea-level rise, after ocean warming.
- **Geopolitical and Resource Tensions:** As glacial water resources dwindle, transboundary tensions may rise, especially in regions where rivers cross national borders (e.g., the Hindu Kush-Himalayan region).
    - Competition for shrinking water supplies could exacerbate political disputes between countries sharing glacial rivers.

Initiatives Taken For Glacier Preservation

India's Initiatives

- **National Mission for Sustaining the Himalayan Ecosystem (NMSHE):** A vital component of India's National Action Plan on Climate Change (NAPCC), focusing on protecting the fragile Himalayan environment.
- **Centre for Cryosphere and Climate Change Studies:** Established to monitor glaciers and related changes in the Indian Himalayan Region.
- **Disaster Preparedness Measures:** Includes initiatives like mapping areas prone to Glacial Lake Outburst Floods (GLOFs) to reduce disaster risks.

Global Initiatives

- **International Year & Decade for Glaciers Preservation:** UNESCO and WMO have declared 2025 as the *International Year of Glaciers Preservation* and 2025–2034 as the *Decade of Action for Cryospheric Sciences*.
    - For the **1st time 'International Day of the Glacier'** was celebrated on **21st March 2025.**
- **Paris Agreement (2015):** Aims to limit global temperature rise to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels, to protect glaciers and climate systems.
- **International Centre for Integrated Mountain Development (ICIMOD):** A regional intergovernmental body working to conserve the Hindu Kush Himalaya (HKH) region and its cryosphere.

Way Forward

- **Aggressively Reduce Greenhouse Gas Emissions:** Limiting global warming to the Paris Agreement target of **1.5°C** is crucial.
- **Explore Innovative Geoengineering Solutions:** New engineering solutions are being developed to slow down glacier melt.
    - These include **underwater curtains** (to block warm ocean currents from reaching glaciers) and **albedo enhancement** (through the application of reflective materials like glass microspheres to glacier surfaces).
- **Implement Localized Adaptation and Ecosystem Restoration:** Communities are adopting innovative measures such as **Ice Stupas** in Ladakh, India, which are artificial glaciers that store winter water for dry seasons.
    - Additionally, **reforestation and ecosystem restoration** in glacial watersheds can stabilize local climates, slow ice loss, and enhance carbon sequestration.
- **Enhance Monitoring, Research, and Data Preservation:** Advanced technologies like **remote sensing** (satellite imagery and deep learning) are improving glacier mapping and change detection.
    - Projects like the **Ice Memory initiative** are vital for archiving ice cores from endangered glaciers, preserving invaluable climate records for future scientific research.
- **Strengthen Global Policy and International Collaboration:** Advocate for and participate in international efforts that prioritize glacier preservation (initiatives such as the **International Year of Glaciers' Preservation (2025).**

Source: PIB