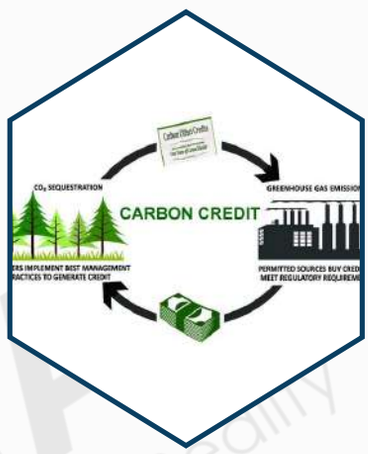
JULY 1ST WEEK CA COMPILATION

1. Carbon Credit Trading Scheme

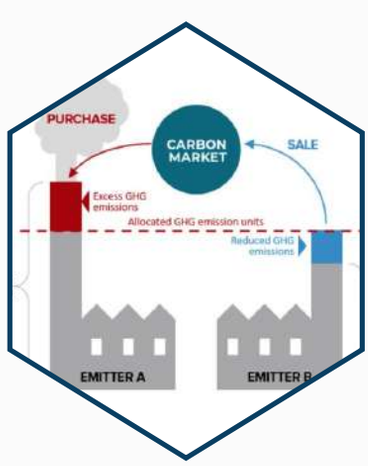


- Climate change is one of the most pressing challenges of our time.
- To combat global warming and reduce greenhouse gas (GHG) emissions, market-based mechanisms like the **Carbon Credit Trading Scheme (CCTS)** have emerged as effective tools.
- These schemes incentivize emissions reduction by assigning a monetary value to carbon emissions.

Carbon Credits

A **carbon credit** is a tradable certificate or permit that gives the holder the right to emit one metric ton of carbon dioxide (CO_2) or an equivalent amount of another greenhouse gas.

- **1 carbon credit = 1 tonne of CO_2 equivalent (tCO_2e)**
- Entities that reduce emissions below a set limit can sell their surplus credits.
- Entities exceeding their emission limits must buy credits to comply with regulations.



Carbon Trading in India

India launched a **Carbon Credit Trading Scheme (CCTS)** in **June 2023**, under the **Energy Conservation (Amendment) Act, 2022**. Key features include:

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- **Regulator**: Bureau of Energy Efficiency (BEE) under the Ministry of Power.
- **Platform**: Carbon trading platform to be developed by the **Central Electricity Regulatory Commission (CERC)**.
- **Sectors Covered**: Initially includes energy-intensive industries such as power, steel, cement, and later expands to transport and agriculture.
- **Domestic Focus**: Initially targets domestic trading, with plans for integration with international markets.

Key Market Mechanisms

- Reduces Specific Energy Consumption (SEC) in energy-intensive industries.
- Renewable Energy Certificates (REC) Trading certificates to help meet Renewable Purchase Obligation.
- Rate-based Emissions Trading System towards performance- based emissions trading.

2. Strategy To Mobilize Private Capital For Sustainable Development

Mobilizing private capital for sustainable development is critical to achieving global goals such as the UN Sustainable Development Goals (SDGs) and climate targets. Here's a **7-point strategy** to mobilize such capital effectively:

1. De-risk Investments with Public Finance

Use public finance tools—such as guarantees, first-loss capital, and insurance—to reduce the perceived risk of investing in sustainable development, especially in emerging markets.

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- **Tools**: Blended finance, concessional loans, political risk insurance (e.g., MIGA).
- **Impact**: Encourages private investors to enter high-risk or underdeveloped markets.

2. Strengthen Regulatory and Policy Frameworks

Establish clear, transparent, and stable policies that promote sustainable investment and align incentives with long-term development.

- **Focus Areas**: Carbon pricing, mandatory ESG disclosures, green taxonomy.
- **Impact**: Provides certainty and guidance to investors.

3. Develop Sustainable Investment Pipelines

Identify, prepare, and package sustainable projects to meet investor requirements in terms of scale, return, and risk.

- **Initiatives:** Project preparation facilities, standardized documentation.
- **Impact:** Improves bankability and visibility of investment opportunities.

4. Leverage Capital Markets for Sustainability

Expand the use of green, social, and sustainability-linked bonds and other innovative financial instruments.

- **Instruments:** Green bonds, ESG-linked loans, transition bonds.
- **Impact:** Channels institutional and retail investor funds into sustainable sectors.

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5. Promote ESG Integration and Impact Measurement

Encourage integration of Environmental, Social, and Governance (ESG) criteria into investment decision-making and reporting.

- **Mechanisms:** ESG ratings, impact metrics (e.g., IRIS+, SDG Impact Standards).
- **Impact:** Aligns private investment goals with sustainable outcomes.

6. Foster Public-Private Partnerships (PPPs)

Create structured collaboration between governments, DFIs (development finance institutions), and private investors.

- **Sectors:** Infrastructure, clean energy, health, education.
- **Impact:** Shares resources, knowledge, and risk among stakeholders.

7. Build Capacity and Awareness

Train stakeholders across the finance ecosystem—including investors, governments, and SMEs—on sustainable finance principles and practices.

- **Tools:** Investor education, technical assistance, toolkits.
- **Impact:** Expands the market and deepens investor engagement in sustainable development.

3.WaveX

- WAVEX (WAVES Xcelerator/Startup Accelerator) is a flagship platform under the World Audio-Visual Entertainment Summit (WAVES) 2025, launched by the Ministry of Information & Broadcasting (MIB). It aims to catalyze innovation and investment in
- India's media and entertainment (M&E) and media-tech sectors

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Significance

- **Economic Growth & Diversity:** Media-tech contributes to economic diversification with creative industries expected to grow
- **Innovation & Tech Adoption:** Strong push for emerging tech—AI, XR, gaming, metaverse—supports India's global creative competitiveness.
- **Skill Development & Entrepreneurship:** Focus on early-stage mentorship cultivates talent and leadership in the creative economy.
- **Inclusive Ecosystem:** Program addresses gender parity (noting women-led startups), and provides affordable solutions through open-source, scalable models.

4. Terbium

- **Critical mineral in energy transition:** Integral to green technologies like EVs and renewable energy; classified as "critical" globally.
- **Supply & geopolitics:** Mining majorly in China, India, Australia, and the USA; potential for supply-chain vulnerabilities.

Applications

- **Phosphors & Lighting**-Crucial for trichromatic lighting (green phosphor) in energy-efficient bulbs
- **Magnets & Sensors-** used in magnetostrictive actuators and naval sonar systems.

Sustainable Development and Issues

- **Environmental concerns:** Mining involves open-pit operations, radioactive tailings, high water use and chemical pollution.

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- **Remediation & circular economy:** Emphasis on recycling from e-waste, bio-leaching, green mining practices, and regulatory oversight.
- **Strategic measures:** Diversify supply (allied countries), invest in R&D for recycling & substitutes, and maintain environmental safeguards.

Importance for India

- **Resource potential**: India holds terbium in its REE reserves—mineral policy inclusion and extraction could aid supply security.
- **Tech leverage**: Support Make-in-India in green tech industries – EVs, renewables, defence sensors.
- **Environmental balance**: Regulations needed to ensure sustainable mining and community welfare.

5. Critical Mineral Initiative By Quad

- The Quad Critical Minerals Initiative (QCMI) is a landmark effort announced at the Quad Foreign Ministers' of United States, Japan, Australia, and India.
- It's designed to enhance economic security and supply chain resilience by collaborating on critical mineral supply chains, including mining, processing, refining, recycling, and e-waste recovery.

Objectives

1.Diversify and Secure Supply Chains

- Reduce dependency on any single source—especially China, which dominates >90% in rare earth refining and ~66% in wider critical mineral processing

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- Encourage investment and infrastructure in upstream (mining), midstream (refining), and downstream (manufacturing, recycling) sectors.

2.Promote Recycling and E-Waste Recovery

- Support initiatives for recovering critical elements from electronics and investing in re-processing capabilities.

3.Attract Private Sector Investment

- Collaborate with industries to mobilize funding for critical mineral projects.

4.Foster Technology Transfer & Regulatory Coordination

- Share best practices, harmonize regulations and build capacity across Indo-Pacific regions.

Geostrategic & Economic Significance

- Acts as a **geo-economic counterbalance** to China's export restrictions and supply chain dominance
- Enhances **India's Atmanirbhar Bharat** goals—supporting India's National Critical Minerals Mission membership in the Minerals Security Partnership, and overseas mineral acquisitions
- Aligns with global efforts like the **G-7 rare earth action plan** to diversify supply chains

6. Financial Fraud Risk Indicators

- Financial fraud risk indicators are signals or patterns that suggest a heightened potential for fraudulent activity.
- These indicators can be broadly categorized into those related to individuals, organizations, and transactions.
- The Financial Fraud Risk Indicator (FRI), a recent initiative by India's Department of Telecommunications (DoT), classifies mobile 6numbers based on their risk of involvement in financial fraud, categorizing them as Medium, High, or Very High.

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Other Industry Collaboration to reduce financial fraud

- Leading UPI platforms—**PhonePe, Paytm and Google Pay,** who collectively account for over 90% of UPI transactions, have begun integrating Digital Intelligence Platform (DIP) alerts into their systems.

For instance

- One of the leading UPI platforms has introduced transaction delays, with alerts and needing user confirmations.
- Other banks are also actively using the data for mitigating cyber frauds.
- With UPI being the most preferred payment method across India, this intervention could save millions of citizens from falling prey to cyber fraud.
- The FRI allows for swift, targeted, and collaborative action against suspected frauds in both telecom and financial domains.
- DoT is committed to prevent misuse of telecom resources by implementing national level technology driven solutions and collaborating with stakeholders, thus ensuring a secure and safe telecom ecosystem for all citizens.

7. Polar Anticyclone

A Polar Anticyclone is a large, high-pressure system that forms over the Earth's polar regions, especially during winter. It is characterized by very cold, dense, and stable air descending in the atmosphere, which leads to calm, dry, and clear weather conditions.

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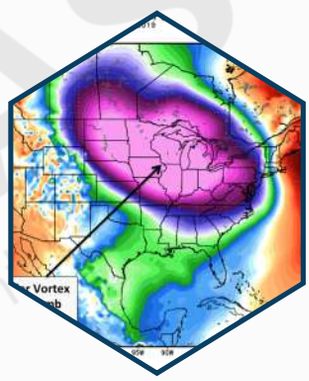
Formation

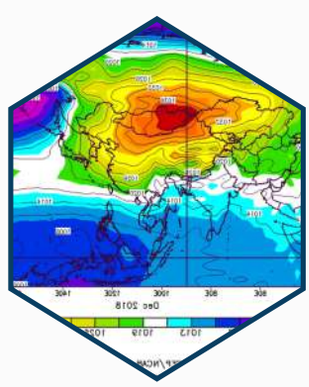
- **Location:** Over the Arctic and Antarctic regions.
- **Cause:** In winter, polar regions receive little to no sunlight, causing extreme surface cooling.
- **Result:** Dense, cold air sinks → increases surface pressure → forms a high-pressure system (anticyclone).

Role in Global Climate



- Helps **maintain the polar front** by interacting with subpolar low-pressure systems (e.g., Icelandic & Aleutian Lows).
- Influences mid-latitude weather, especially in winter (cold waves, jet stream deflections).
- Associated with **polar vortex stability** — when the vortex weakens, cold air can spill into lower latitudes

Examples



- **Siberian High (Asia):** One of the strongest polar anticyclones, responsible for severe winters in Russia, China, and parts of India (e.g., Western Disturbances).

- **Antarctic High:** Dominates the Southern Hemisphere polar region; more symmetrical due to absence of land-ocean contrast.

8.A New World Order In Global South Rising

- The term **"Global South"** refers to countries primarily in Asia, Africa, and Latin America that have historically been marginalized in global decision-making.

- The Global South has emerged as a significant force in shaping the **new multipolar world order**, challenging the dominance of the Global North (developed Western nations).

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- With the redistribution of economic power, demographic advantage, technological growth, and geopolitical assertiveness, the rise of the Global South is reshaping international institutions, trade patterns, climate action, and global governance.

- Within this transformation, **India stands out as a pivotal player**, leveraging its growing global stature, strategic autonomy, and commitment to inclusive development.

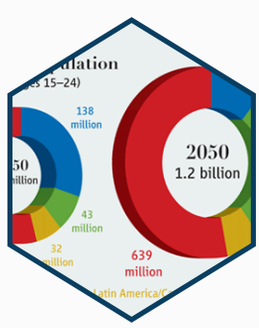
The Changing Global Order: Key Shifts

Multipolarity

The rise of **China, India, Brazil, South Africa,** and others has resulted in a **multipolar world,** where no single nation can dictate terms unilaterally.

Global South as a Driver of Growth

Countries of the Global South now account for **over 50% of global GDP** & **India and China** alone are expected to contribute nearly **half of global economic .**



Shift in Demographics and Innovation

The Global South, particularly **India and Africa**, is witnessing a **youth bulge,** offering demographic dividends with Innovation in technologies, fintech (e.g., India's UPI), and renewable energy is increasingly coming from the Global South.

India's Role in the Rise of the Global South

India has emerged as a natural leader in the Global South, combining the strengths of a stable democracy, a fast-growing economy, and a commitment to multilateralism.

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1. Voice of the Global South

- In 2023, India hosted the **"Voice of Global South Summit"**, bringing together 125 countries to amplify their concerns on debt distress, vaccine equity, and climate justice.
- India acted as a **bridge between developing nations and the G20,** ensuring their interests were included in global economic governance.

2. Champion of Climate Justice

- Through initiatives like the **International Solar Alliance (ISA)** and **Coalition for Disaster Resilient Infrastructure (CDRI).**
- India is leading the Global South's push for sustainable and equitable development.

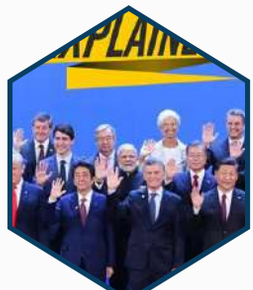
3. Strategic Autonomy and Balanced Diplomacy

- India's foreign policy reflects **non-alignment**,maintaining good relations with the **US, Russia, China,** and the **EU** while engaging actively with the Global South.
- India's leadership in **BRICS, IBSA, Shanghai Cooperation Organization (SCO),**and the **Global South Summit** reflects this balanced diplomacy.

4. Economic Leadership

- India is now the **5th largest economy** and is expected to become the **3rd largest by 2030.**
- Its **Digital Public Infrastructure (DPI)** model (e.g., Aadhaar, UPI) is being exported to other Global South nations.

5. Global Governance Reforms



- As a **G20 President in 2023**, India successfully brought the African Union into the G20, showcasing its commitment to inclusive multilateralism.

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9. C-FLOOD: A Unified Inundation Forecasting System

- The increasing frequency and intensity of **urban floods**, especially in rapidly urbanizing regions like India, there is an urgent need for accurate and real-time **flood forecasting and early warning systems**.

- Ministry of Earth Sciences (MoES), through its agencies like the **India Meteorological Department (IMD)** and **National Centre for Medium Range Weather Forecasting (NCMRWF)**, has launched **C-FLOOD** — a **Unified Inundation Forecasting System** for urban flood management.

What is C-FLOOD?

C-FLOOD stands for **Comprehensive Flood Forecasting and Inundation Modeling System.** It is a **unified, high-resolution, city-specific flood forecasting platform** designed to provide real-time predictions of urban flooding due to heavy rainfall, cyclones, and river overflows.

Key Objectives:

·Provide accurate and early **inundation forecasts** at the **city and sub-city (ward or street) level**

·Assist **urban planners, disaster managers,** and **citizens** in making timely decisions

·Minimize **loss of life, infrastructure damage,** and **economic disruption**

·Initially launched for Mumbai, Chennai, and Kolkata, C-FLOOD is being expanded to other flood-prone metro cities such as: Delhi, Bengaluru, Hyderabad, Guwahati.

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Importance for India

» Urban Flood Resilience

·India's major cities like Mumbai, Chennai, and Bengaluru face **annual flood disruptions** due to poor drainage and intense monsoon events.

·C-FLOOD enables city authorities to prepare **flood contingency plans**, including traffic redirection, pumping operations, and emergency services.

» Integrated Disaster Management

·Complements **NDMA** and **SDMA** efforts in real-time risk assessment.

·Enhances India's capacity to meet **Sendai Framework** targets on disaster risk reduction.

» Tech-Driven Governance

·Reflects the use of **AI, GIS, remote sensing,** and **numerical weather modeling** in public infrastructure planning.

·Aligns with India's broader **Digital India** and **Smart Cities Mission** goals