DAILY CURRENT AFFAIRS 15-01-2026

Mapping Perspective

1. **Bannerghatta National Park**

Prelims Perspective

2. **Aerosols**
3. **Bargi Dam**

Mains Perspective

4. **Why Article 6 is a powerful tool for India**
5. **India-Germany Relations**

Bannerghatta National Park

Syllabus: GS-3; Environment, Biodiversity, Conservation

Context

The **Central Empowered Committee** has recommended restoring the **Ecologically Sensitive Zone (ESZ)** around Bannerghatta National Park to its original 2016 extent.

About Bannerghatta National Park

- **Location:** Anekal Range, near Bengaluru, Karnataka
- **Declared:** National Park in 1974
- **Special Feature:** India's first butterfly enclosure (2006)
- **Water Source:** Suvarnamukhi stream flows through the park

Vegetation Types

- Dry Deciduous Scrub Forests
- Southern Tropical Dry Deciduous Forests
- Southern Tropical Moist Mixed Forests

Flora

Narcissus latifolia, Schleichera oleosa, Sandalwood, Neem, Tamarind, Bamboo, Eucalyptus

Fauna

Asian Elephant (endangered), Indian Gaur, Tiger, Leopard, Sambar deer, Spotted deer, Wild dog, Wild pig, Sloth bear

Ecologically Sensitive Zones (ESZs)

- Act as **buffer zones** to protect fragile ecosystems
- Minimise anthropogenic pressure around protected areas
- Notified under the **Environment (Protection) Act, 1986** by MoEFCC

Aerosols

Syllabus: GS-3; Environment, Climate Change, Pollution

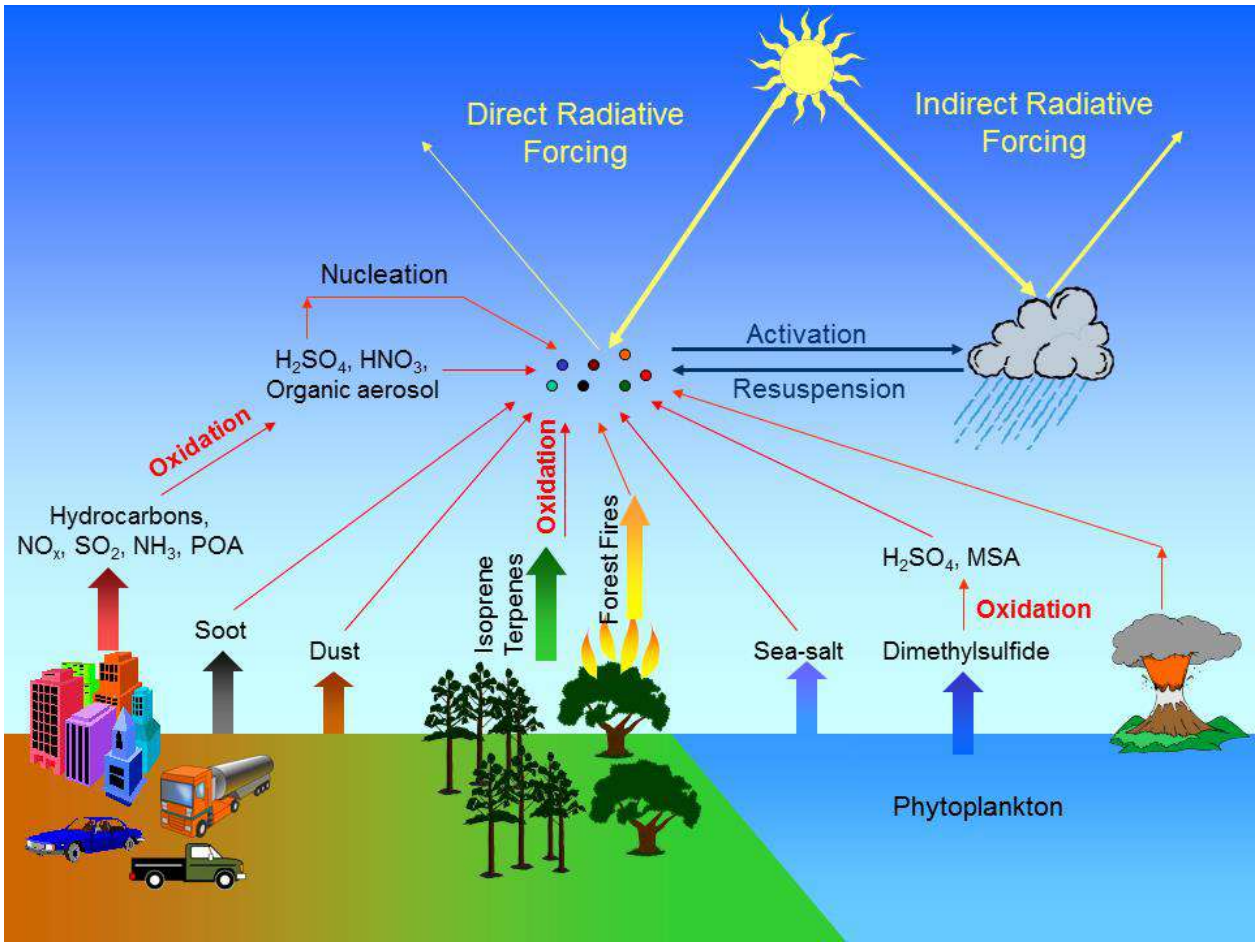
Context

An **IIT Madras–led study** published in *Science Advances* finds that air pollution aerosols are intensifying and prolonging winter fog over northern India.

What are Aerosols?

- Tiny solid or liquid particles suspended in the atmosphere
- Though often invisible, they significantly affect **air quality, weather, and climate**

Sources



- **Natural:** Desert dust, sea spray, volcanic ash, forest fires

- **Anthropogenic:** Vehicle emissions, industrial pollution, biomass burning, coal and diesel combustion
- **Types:**
  - Primary aerosols (directly emitted)
  - Secondary aerosols (formed from gases like sulphur dioxide and nitrogen oxides)

Key Characteristics

- Extremely small size allows deep penetration into lungs
- Remain suspended for days to weeks and travel long distances
- Act as **condensation nuclei** for fog and cloud formation
- Scatter or absorb solar radiation

Impacts

- **Health:** Worsen asthma, respiratory and cardiovascular diseases
- **Weather:** Increase fog thickness and persistence
- **Climate:**
  - Cooling through reflection of sunlight
  - Warming due to black carbon absorption
- **Rainfall:** Modify cloud properties and precipitation patterns

Bargi Dam

Syllabus: GS-3; Infrastructure, Disaster Management

Context

The **National Dam Safety Authority (NDSA)** has issued a show-cause notice to the **Narmada Valley Development Authority** regarding safety concerns at the Bargi Dam.

About Bargi Dam

- **River:** Narmada
- **Location:** Madhya Pradesh
- **Type:** Multipurpose dam for irrigation, water supply, and power generation
- One of the **first completed** major dams among 30 projects on the Narmada River
- **Construction period:**
  - Started: 1974
  - Completed: 1990
- Part of the **Narmada Valley Development Project**
- **Safety Category:** Category III (Minor deficiencies) during pre- and post-monsoon inspections

National Dam Safety Authority (NDSA)

- **Established under:** Dam Safety Act, 2021
- **Nature:** Statutory body under the Central Government
- **Headquarters:** New Delhi
- **Composition:**
  - Chairman
  - Five members heading five wings:
    - Policy & Research
    - Technical
    - Regulation
    - Disaster & Resilience
    - Administration & Finance

Functions

- Implements policies of the **National Committee on Dam Safety**
- Resolves disputes involving State Dam Safety Organisations or dam owners
- Frames regulations for dam inspection and investigation
- Accredits agencies involved in dam design, construction, and alteration

Why Article 6 is a powerful tool for India

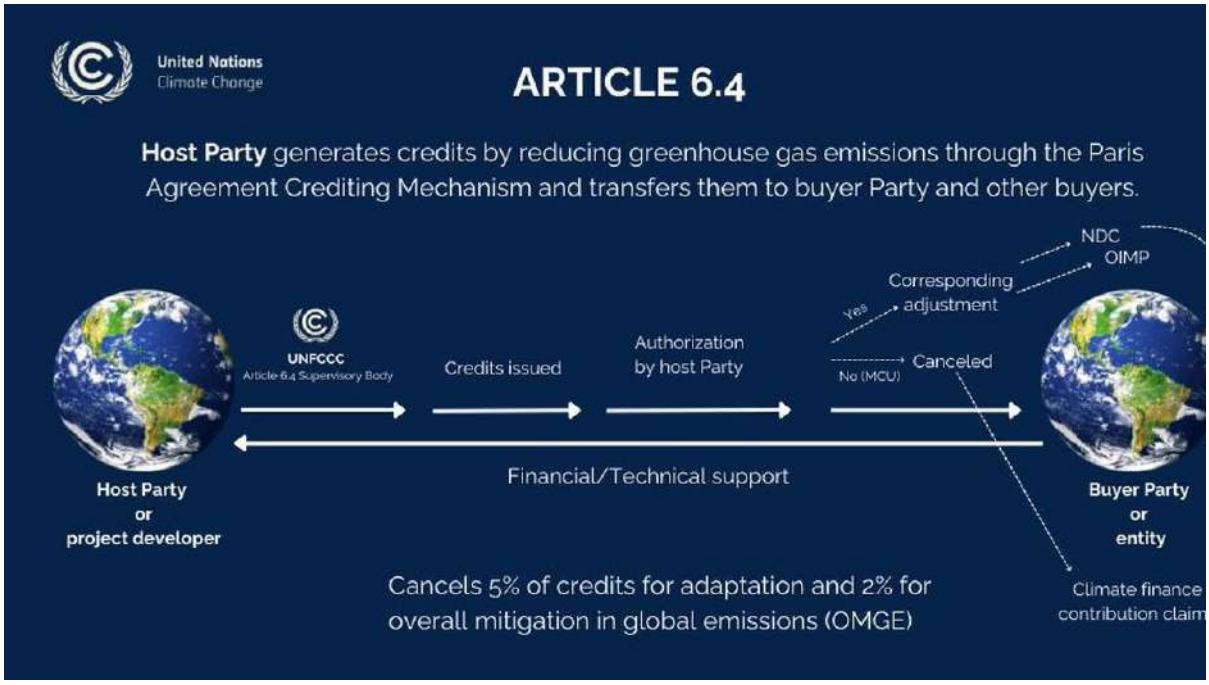
Syllabus: GS-3: Environment – Climate Finance.

Context:

To strengthen the delivery and efficiency of climate finance, the carbon markets under Article 6 (A6) of the Paris Agreement were made fully operational at COP29.

Introduction:

The operationalisation of **Article 6 of the Paris Agreement** at COP29 marks a decisive shift from climate pledges to **market-enabled climate action**. By enabling cooperative approaches and international carbon markets, Article 6 offers India a strategic pathway to reconcile **developmental imperatives with decarbonisation goals**.



Understanding Article 6: A New Climate Architecture

Core Mechanisms

- **Article 6.2**
  - Enables **bilateral and plurilateral trading** of Internationally Transferred Mitigation Outcomes (ITMOs)
  - Based on **country-to-country cooperation** with corresponding adjustments to avoid double counting
- **Article 6.4**
  - Establishes the **Paris Agreement Crediting Mechanism (PACM)**
  - Replaces the Clean Development Mechanism (CDM)
  - Ensures **higher environmental integrity, transparency, and global standardisation**

Global Momentum

- 89 cooperation arrangements across 58 countries
- Signals a shift from isolated national action to **collaborative mitigation pathways**

- Enhances confidence of investors and technology providers

Strategic Significance of Article 6 for India

a) Entry into Global Carbon Markets

- India operationalised Article 6.2 in **August 2025** through the **Joint Crediting Mechanism (JCM) with Japan**
- Marks a transition from **aid-based climate finance to market-based cooperation**

b) Access to Advanced Technology and Finance

- Facilitates:
  - Technology transfer
  - Climate-aligned FDI
  - Joint R&D and innovation ecosystems
- Reduces cost of transition for **hard-to-abate sectors**

c) Industrial Competitiveness in a Carbon-Constrained World

- Helps Indian industry adapt to:
  - Carbon Border Adjustment Mechanisms (CBAMs)
  - Green trade standards
- Positions India as a **low-carbon manufacturing hub**

Alignment with India's Domestic Priorities

Identified Priority Technologies (13 sectors)

- **Energy**:
  - Offshore wind
  - Renewable energy with storage
  - Solar thermal power
- **Clean Fuels**:
  - Green hydrogen
  - Compressed biogas
  - Sustainable aviation fuel
- **Industry & Transport**:
  - High-efficiency industrial systems
  - Fuel-cell mobility

- Carbon capture technologies

Strategic Outcomes

- Supports **coal diversification** without abrupt disruption
- Enables deep decarbonisation of steel, cement, and chemicals
- Enhances **energy security and system resilience**

Article 6 as a Catalyst for Structural Transformation

- Moves beyond carbon credit trading to:
  - Industrial modernisation
  - Supply chain greening
  - Skill and capacity development
- Aligns **climate action with long-term economic growth**
- Reinforces India's Nationally Determined Contributions (NDCs)

Implementation Challenges and Way Forward

a) Strengthening Domestic Governance

- Need clarity on:
  - Authorisation procedures
  - Corresponding adjustments
  - Legal status of carbon credits
- Strengthen the role of the **Designated National Authority**

b) Accelerating Project Approvals

- Current challenges:
  - Lengthy validation processes
  - Fragmented clearances
- Suggested reform:
  - **Single-window clearance system**
  - Cabinet-level steering committee

c) Building a Carbon Removals Market

- Rising global demand for removals for net-zero targets
- India's opportunity:

- Biochar
- Enhanced rock weathering

- Positions India as a **supplier of high-integrity removal credits**

d) Strengthening South–South Cooperation

- India can:
  - Share MRV frameworks
  - Build digital carbon infrastructure
  - Support developing countries' market participation
- Enhances **equity and leadership in global climate governance**

Conclusion

Article 6 provides India with more than a carbon market—it offers a **strategic lever for green industrialisation**, access to frontier technologies, and deeper international partnerships. With robust domestic frameworks and faster implementation, Article 6 can accelerate India's transition toward **resilient, competitive, and low-carbon development**, reinforcing its role as a leader in the emerging global climate order.

India-Germany Relations

Syllabus: GS-2: International Relations –Bilateral Relations.

Context:

- **Friedrich Merz** undertook his **first visit to India and Asia**, coinciding with:
  - **25 years** of India–Germany Strategic Partnership
  - **75 years** of diplomatic relations
- Visit precedes:
  - EU leaders' participation in **India's Republic Day**
  - Upcoming **India–EU Summit**
- **Outcome-driven diplomacy**: **19 agreements/MoUs signed**, reflecting strategic, economic and geopolitical convergence.

Key Outcomes of the Visit

- **19 bilateral pacts** covering:
  - Defence industrial cooperation
  - Higher education and global skills
  - Critical minerals and semiconductors
  - Indo-Pacific dialogue
  - Renewable energy and green hydrogen
- **Visa-free transit regime** for Indian passport holders transiting through German airports.
- Launch of a **new bilateral Indo-Pacific consultation mechanism**.

Major Areas of Cooperation

Strategic and Defence Cooperation

Key Developments

- **Joint Declaration of Intent (JDoI)** on a **Defence Industrial Cooperation Roadmap**.
- Focus on:
  - Co-development and co-production
  - Technology partnerships
  - Faster German defence export clearances
- Ongoing cooperation:
  - Submarines, obstacle avoidance systems for helicopters
  - Counter-Unmanned Aerial Systems (C-UAS)

- Joint Air Force & Naval exercises, port visits
- New security consultation formats

Strategic Significance

- Supports **Atmanirbhar Bharat**, defence indigenisation and strategic autonomy.
- Reduces dependence on Russia.
- Leverages:
  - India's skilled workforce and cost advantages
  - Germany's advanced technology and capital

Higher Education & Global Skills Partnership

- Alignment with **NEP 2020** and India's demographic dividend.
- **Comprehensive roadmap on higher education**:
  - Invitation to German universities to open campuses in India.
- **Global Skills Partnership (JDoI)**:
  - Mobility of healthcare professionals.
- Expansion of **German language teaching** in:
  - Schools, universities and vocational institutions.
- New initiative:
  - **Indo-German Centre of Excellence for Skilling in Renewable Energy**
    - Curriculum development
    - Industry collaboration
    - Job-market-oriented training

Economic and Trade Relations

- Focus on:
  - Supply chain resilience
  - Trade diversification
  - FTA diplomacy
- **Bilateral trade**:
  - Crossed **USD 50 billion (2024)**
  - Over **25% of India–EU trade**

- Strong two-way investments:
    - SMEs, startups, AI, digitalisation and innovation
- Institutional mechanism:
    - **German–Indian CEO Forum**
- **FTA Push**:
    - Strong support for concluding the **India–EU Free Trade Agreement** as a key EU–India Summit deliverable.

Critical & Emerging Technologies

Focus Areas

- Semiconductors
- Critical minerals
- Telecommunications
- Digitalisation, AI, health and bioeconomy

Institutional Steps

- JDoI on **Semiconductor Ecosystem Partnership**
- JDoI on **Critical Minerals Cooperation**
- **Indo-German Digital Dialogue Work Plan (2026–27)**
- JDoI on **Telecommunications**

Strategic Importance

- Trusted supply chains and digital sovereignty.
- Reduces dependence on China-dominated supply chains.
- Supports India's ambitions in:
    - Electronics manufacturing
    - Industry 4.0

Climate, Energy & Sustainability

- Establishment of **India–Germany Centre of Excellence in Renewable Energy**.
- Joint projects in:
    - Climate action
    - Urban development and mobility
    - **Green hydrogen (mega project)**

- Strategic alignment on:
  - Clean energy transition
  - Climate finance and technology transfer
  - Long-term energy security

Indo-Pacific & Global Geopolitics

- Reaffirmed commitment to:
  - Free and Open Indo-Pacific
  - **UNCLOS** and international law
- Germany's growing engagement under the **Indo-Pacific Oceans Initiative (IPOI)** (co-led by India & Germany).

Global Issues Discussed

- Ukraine war: Support for a just and lasting peace under the UN Charter.
- Gaza conflict: Support for a negotiated two-state solution.
- Strong condemnation of terrorist attacks in Pahalgam and Delhi.

Multilateral Cooperation

- Renewed push for **UNSC reforms**.
- Continued coordination through **G4** (India, Germany, Japan, Brazil).

Current State of India–Germany Relations

Institutional Architecture

- **Inter-Governmental Consultations (IGC)**:
  - Used by Germany with very few partners.
  - Makes India–Germany ties among the **most institutionalised** in Europe–India relations.

Trade & Investment

- Over **2,000 German companies** in India.
- Support **~4 lakh jobs**.
- Indian investments in Germany exceed **€6.5 billion**.

Defence: Submarine Cooperation

- **Project 75I**:
  - AIP-enabled submarines

- Over **60% indigenisation**
- Major technology transfer
- Central to Indian Ocean deterrence amid China's naval expansion

Science & Technology

- **50 years of formal S&T cooperation (2024)**.
- Scaling up to:
  - Quantum technologies
  - Cybersecurity
  - Biotechnology
  - Artificial Intelligence

Green Financing

- Under **Green and Sustainable Development Partnership (2022)**:
  - Germany committed **€10 billion till 2030** for India's green transition.

Mobility & Migration

- **Comprehensive Migration and Mobility Partnership (2022)**.
- Germany's Skilled Immigration Act:
  - **~2.8 lakh Indians** residing in Germany (2025)
  - India is the **largest source of international students** (42,000+)
  - Focus on healthcare, STEM and technical professionals

Challenges and Way Forward

- **No concrete breakthrough on submarine deal**:
  - Operationalise defence roadmap with flagship co-production projects.
- **Geopolitical divergences persist**:
  - Deepen Indo-Pacific coordination amid great power rivalry.
- **MoUs to implementation gap**:
  - Institutionalise semiconductor and critical minerals cooperation.
- **EU regulatory standards vs Indian realities**:
  - Fast-track India–EU FTA.
- **Slow education & skills outcomes**:

- Expand German educational presence under NEP 2020.
- Ensure ethical and mutually beneficial skill mobility.

Conclusion

- The **Merz–Modi summit** marks a **qualitative upgrade** of the India–Germany Strategic Partnership, moving beyond trade into strategic domains such as defence manufacturing.
- In a rapidly realigning global order, India and Germany emerge as **natural partners**, anchored in:
  - Shared democratic values
  - Economic complementarities
  - Commitment to a rules-based international order
- The partnership is set to become a **key pillar of India's Europe and Indo-Pacific strategy**.

Practice Qs:

Q. "India–Germany relations have moved from a predominantly economicpartnership to a comprehensive strategic partnership in the context of changing global geopolitics." Examine this statement in the light of recent developments. Discuss the opportunities and challenges for India in deepening strategic cooperation with Germany. (15 marks / 250 words)