DAILY CURRENT AFFAIRS 09-04-2025

GS-3

1. **River Blindness**

2. **Biomass Satellite Mission**

3. **Cauvery Wildlife Sanctuary**

4. **COP-29 and Climate Finance**

5. **Digital Threat Report 2024**

River Blindness

Syllabus: GS-3; Environment and Ecology

Context

➢ A **Zoological Survey of India (ZSI) study (2024)** used DNA barcoding to accurately identify **blackfly species (genus Simulium)** in the central Himalayas.

➢ This helps target vector control more effectively, as blackflies transmit the **parasitic worm Onchocerca volvulus.**

Why is this study significant?

➢ Precision in identification: **DNA barcoding** distinguishes between blackfly species that may look similar but differ in disease-spreading potential.

➢ Eco-sensitive regions: The central Himalayas are a high-risk zone; better vector tracking aids localized interventions.

➢ Global implications: Could improve surveillance in other endemic areas (e.g., Africa, Latin America).

What is river blindness?

➢ A **neglected tropical disease (NTD)** caused by the parasite Onchocerca volvulus.

➢ Spread via bites of infected blackflies breeding near fast-flowing rivers.

➢ Symptoms: Severe itching, skin nodules, and eventual blindness if untreated.

Where is it prevalent?

➢ **Most cases:** Sub-Saharan Africa (99% of global cases).

➢ **Other regions**: Yemen, Brazil, Venezuela.

➢ **Eliminated in:** Colombia (2013), Ecuador (2014), Mexico (2015), Guatemala (2016), and Niger (2025)—the first African country to eradicate it.

How is it treated and controlled?

➢ **Mass Drug Administration (MDA):** Ivermectin (donated by Merck as Mectizan®) kills parasite larvae. Requires 80%+ coverage to break transmission.

➢ **Vector control:** Insecticide spraying near breeding sites (less common now due to environmental concerns).

What challenges remain?

➢ **"Ivermectin resistance":** Emerging in some parasite strains.

➢ **Remote populations:** Hard-to-reach communities hinder MDA efforts.

➢ **Co-infections**: Overlap with lymphatic filariasis in some regions.

How does the ZSI study help future efforts?

➢ Enables species-specific interventions (e.g., targeting only disease-carrying blackflies).

➢ Supports ecological monitoring to predict outbreaks.

➢ Could integrate with WHO's 2030 NTD Roadmap for elimination.
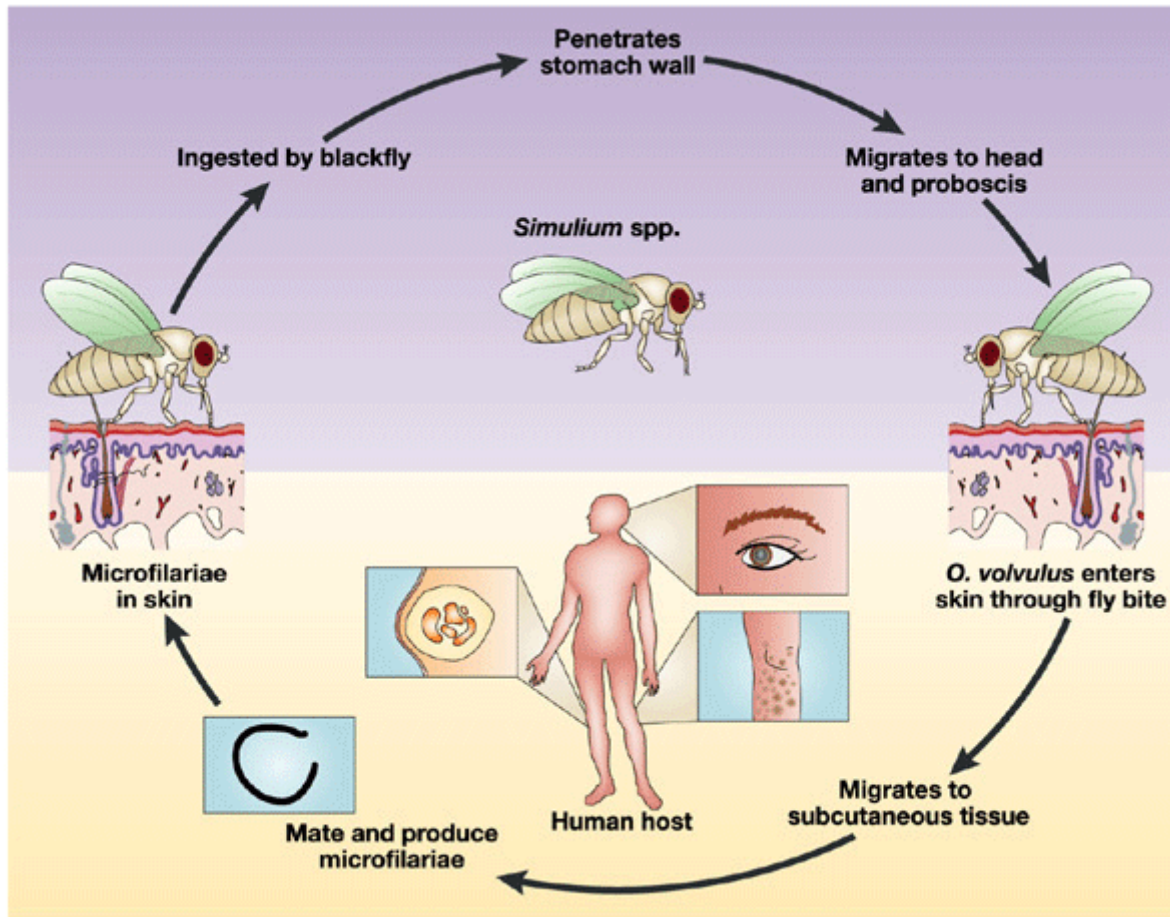
Biomass Satellite Mission

Syllabus: GS-3: Science and Technology – Satellites & Environment.

Context:

➢ Biomass is the **7th Earth Explorer satellite mission** under ESA's **Climate and Earth Systems Programme**.

➤ It is designed to **map global forests**, **measure carbon levels**, and **assess forest health**, focusing on forests' roles in the **carbon cycle**.

Organisation Involved

➤ **Led by**: European Space Agency (ESA)

➤ **Launch Vehicle**: Vega C rocket

➤ **Launch Site**: French Guiana

➤ **Collaboration**: Researchers across Europe

Aim of the Mission

➤ To **quantify forest biomass and carbon content** from space using advanced radar.

➤ To create **accurate 3D models** of global forest structures.

➤ To **monitor changes in forest biomass** over time and enhance understanding of carbon sinks and sources.

Key Features of the Biomass Mission

➤ **P-band SAR Technology**:

  o First satellite to use **P-band Synthetic Aperture Radar** (wavelength: 70 cm).

  o Allows deep penetration into dense forest canopies and ground-level biomass structures.

➤ **12-metre Radar Antenna**:

  o A **large deployable antenna** to conduct wide-area scanning of forests.

➤ **Carbon Flow Monitoring**:

  o Tracks **carbon absorption and release**, helping model **climate feedback loops**.

➤ **Global Coverage**:

  o Targets **tropical and boreal forests**.

  o Also supports **terrain mapping** and **ice sheet monitoring**.

➤ **Sun-Synchronous Orbit**:

  o Operates at **666 km altitude**.

  o Ensures consistent lighting for more **uniform and accurate measurements**.

About ESA's Earth Explorer Programme

➤ A **research-driven satellite initiative** to study Earth's natural systems.

- First Mission:
  - **GOCE** (Gravity field and steady-state Ocean Circulation Explorer) – Launched in **2009**, operated till **2013**.
- Most Recent Mission:
  - **EarthCARE** (Earth Cloud Aerosol and Radiation Explorer) – Launched in **May 2024**.

Cauvery Wildlife Sanctuary

Syllabus: GS-3: Protected Areas – Wildlife Sanctuary.

Context:

Bear dies in Cauvery Wildlife Sanctuary after consuming explosive

Cauvery Wildlife Sanctuary – Overview

Feature	Description
Location	Spread across **Chamarajanagar**, **Ramanagara**, and **Mandya** districts in **Karnataka**
Established	**1987** under the Wildlife Protection Act, 1972
Area	Approx. **1,027.5 sq. km**
Governing Body	Karnataka Forest Department
Eco-region	**Deccan Plateau dry deciduous forests**
Rivers	**Cauvery River** forms the lifeline of the sanctuary

Geography & Ecosystem

- Located in the **Eastern Ghats**.
- Altitude ranges from **100 m to 1,200 m**.
- **Cauvery River** flows through the sanctuary for over **100 km**, creating rich riverine ecosystems.
- Notified as an **Important Bird Area (IBA)** and potential **Elephant Reserve**.

Flora

- ➢ **Dry deciduous and riparian forest types**
- ➢ Dominant species include:
  - o **Terminalia arjuna**
  - o **Albizia amara**
  - o **Sandalwood**
  - o **Bamboo** thickets
  - o **Indian gooseberry (Amla)**

Fauna

Mammals:

- ➢ **Grizzled Giant Squirrel** (endangered)
- ➢ **Indian Elephant** (migratory corridor)
- ➢ **Leopard**
- ➢ **Sloth Bear**
- ➢ **Sambar deer**
- ➢ **Four-horned Antelope**
- ➢ **Wild Boar**

Aquatic Species:

- ➢ **Mahseer Fish** (critically endangered) – Sanctuary is famous for Mahseer conservation.
- ➢ **Otters**, **Crocodiles**

Birds:

- ➢ Over **280 species**, including:
  - o **White-bellied Drongo**
  - o **Eurasian Spoonbill**
  - o **Great Indian Horned Owl**
  - o **Painted Stork**

Conservation Importance

- ➢ Forms a vital link in the **elephant migration corridor** between Tamil Nadu and Karnataka.
- ➢ **Grizzled Giant Squirrel Reserve** proposal under consideration.

➢ Rich in **riparian and dry deciduous forest ecosystems**, highly sensitive to climate change.

Threats

➢ **Poaching**, especially of Mahseer and elephants

➢ **Sand mining**

➢ **Forest fires**

➢ **Encroachment** and human-wildlife conflict

➢ **Pollution** and declining river flow due to upstream damming

Tourism & Accessibility

➢ Popular tourist spots within the sanctuary:

   o **Mekedatu**, **Sangama**, and **Muthathi**

➢ Activities: **Eco-tourism**, **Coracle rides**, **Fishing (banned for conservation)**

➢ Nearest city: **Bengaluru (~100 km)**

COP-29 and Climate Finance

Syllabus: GS-3: Climate Finance.

Context:

➢ The **29th Conference of Parties (COP-29)** to the UNFCCC highlighted the urgency to scale up **climate finance**, especially for adaptation and mitigation in the **Global South**.

➢ Shift in discourse:

   o From climate finance as a **developed country obligation**.

   o To a **strategic economic opportunity** for developing countries like India to pursue **low-carbon, resilient growth**.

Global Carbon Market: Divided Priorities

Carbon Credits:

➢ Tradable permits representing **emissions reductions**.

➢ Central to international climate negotiations.

Key Disagreements:

- ➢ **Developed Countries**:
  - o Focus on **quality assurance**, **environmental integrity**, and strict verification to avoid "hot air" credits.
- ➢ **Developing Countries** (India-led):
  - o Emphasize **equity**, **developmental needs**, and **historical responsibilities**.

Challenges:

- ➢ Absence of a **unified global carbon governance** framework.
- ➢ Tension between **voluntary** and **compliance-based markets**.

India's Domestic Carbon Credit Architecture

Legal Foundation:

- ➢ **Energy Conservation (Amendment) Act, 2022** introduced the **Carbon Credit Trading Scheme (CCTS)**.
- ➢ Aligns with India's **Nationally Determined Contributions (NDCs)** under the Paris Agreement.
- ➢ **Bureau of Energy Efficiency (BEE)** designated as the regulatory authority.

Objectives:

- ➢ Internalize the **cost of emissions** to promote sustainable behavior.
- ➢ Encourage **green innovation**, attract **domestic and foreign investments**.
- ➢ Support India's **net-zero by 2070** target.

Climate Finance & Economic Co-Benefits

Sectors Likely to Benefit:

- ➢ **Renewables & Energy Efficiency**:
  - o Scaling up of **solar**, **wind**, and **energy-efficient technologies**.
- ➢ **Agroforestry & Natural Carbon Sinks**:
  - o **Carbon farming**, **agroecology**, and **scientific reforestation** in rural areas.
- ➢ **Sustainable Businesses**:
  - o Use of **carbon pricing** to align with net-zero strategies and resource optimization.

Developmental Benefits:

- ➢ Supports **climate-resilient infrastructure**.
- ➢ Promotes **livelihoods** and **adaptation** in vulnerable regions.

Risks to Carbon Market Credibility

Threats:

➢ **Low-integrity carbon credits** can result in **greenwashing** (false environmental claims).

➢ Forestry projects in **Voluntary Carbon Market (VCM)** often lack:

  o Scientific baselines.

  o Monitoring & verification.

  o Real sequestration impact.

Concerns:

➢ India's **Green Credit Programme (GCP)** criticized for **non-scientific plantations**.

Solutions Needed:

➢ Centralized and **public carbon registry**.

➢ Strict **Monitoring, Reporting & Verification (MRV)** protocols.

➢ Align with international standards (e.g., **Gold Standard**, **Verra**, **IETA**).

International Linkages: Article 6 of Paris Agreement

Key Provision:

➢ **Article 6.2** enables **bilateral trade of carbon credits** (ITMOs) to meet NDCs.

India's Priorities:

➢ Ensure **domestic credits are internationally recognized**.

➢ Harmonize MRV with global frameworks.

➢ Follow **Article 6 Rulebook** (COP-26):

  o Avoid **double-counting**.

  o Ensure **additionality** and **environmental integrity**.

Significance:

➢ Boosts **investor confidence**.

➢ Facilitates India's integration into **global climate finance flows**.

Ensuring Transparency and Compliance

Measures Needed:

➢ Create a **central disclosure platform**:

  o Track project details, methods, and verification.

- ➢ Appoint **BEE-accredited third-party auditors** for independent oversight.
- ➢ Enable **real-time tracking** of credits and transactions.

Model to Follow:

- ➢ **Voluntary Carbon Markets Integrity Initiative (VCMI)**:
  - o Provides **tiered ratings** to ensure high-integrity claims.

Way Forward

1. Regulatory Scaling

- ➢ Build a **robust national registry**.
- ➢ Strengthen institutions for **verification and audits**.

2. Inclusivity for Small Projects

- ➢ Simplify MRV for **small-scale** and **community-based projects**.
- ➢ Promote carbon projects in **forestry**, **agriculture**, **wetlands**.

3. Technological Modernization

- ➢ Use **blockchain** for secure transactions.
- ➢ Apply **AI analytics** for fraud detection and automation.

4. Market Integrity & Feedback

- ➢ Continuously revise protocols with **stakeholder feedback**.
- ➢ Set up **grievance redressal** and **quality assurance** systems.

Conclusion

- ➢ **COP-29** reaffirmed the critical role of **climate finance** in global climate action.
- ➢ India's structured and transparent **carbon market** reflects its **climate leadership**.
- ➢ If rooted in **integrity**, **equity**, and **innovation**, India's carbon market can:
  - o Drive **sustainable development**.
  - o Make a **significant contribution** to the global fight against climate change.

Digital Threat Report 2024

Syllabus: GS-3: Internal Security –Cybersecurity.

Context:

➤ The Government of India launched the **Digital Threat Report 2024** to enhance cybersecurity in the **Banking, Financial Services, and Insurance (BFSI)** sector.

About the Digital Threat Report 2024:

➤ **What is it?** A **sector-specific cybersecurity assessment report** focused on the BFSI industry.

➤ **Purpose:**

- o Evaluates **existing security vulnerabilities**
- o Tracks **evolving threat vectors**
- o Suggests **best practices** for cyber defence

Published By:

Jointly developed by:

➤ **CERT-In** (Indian Computer Emergency Response Team)

➤ **CSIRT-Fin** (Financial Sector Incident Response Team)

➤ **SISA** (Cybersecurity solutions provider)

Aims of the Report:

➤ Strengthen **cyber resilience** in the BFSI sector

➤ Enable **proactive threat management**

➤ Build a **unified cybersecurity framework** at both national and sectoral levels

Key Insights from the Report:

➤ **Systemic Risks:**

- o Highlights risks stemming from **interconnectivity** within the financial ecosystem.

➤ **AI-Driven Threats:**

- o Warns of **AI-based attack tools** being used for phishing, fraud, and malware creation.

➤ **Compliance Risks:**

- o Emphasizes **increased complexity** in adhering to diverse national and international compliance frameworks.

- ➢ **Sophisticated Fraud Techniques:**
  - o Identifies use of **advanced social engineering, deepfakes, and synthetic identity fraud**.

- ➢ **Recommendations:**
  - o Offers **actionable steps** across the domains of **people, processes, and technology**.
  - o Stresses the importance of **collaborative intelligence-sharing** to avoid **cascading cyber failures**.

About SISA:

- ➢ A **global cybersecurity company** specializing in the **digital payments industry**.
- ➢ Offers:
  - o **Preventive**, **detective**, and **corrective** cybersecurity solutions.
  - o Focus on **forensics-driven** cyber defence to improve organizational security posture.

Significance:

- ➢ A crucial step toward **fortifying India's financial infrastructure** against emerging cyber threats.
- ➢ Encourages **multi-stakeholder collaboration** and adoption of **zero-trust architectures**.