DAILY CURRENT AFFAIRS 28-10-2025

GS-1

1. **Gomti River**
2. **Cyclone Montha**

GS-3

3. **Benzene**
4. **Chowna Buku Chulu**
5. **Blue Flag Certification**

Gomti River

Syllabus: GS-1; Geography-Rivers

Context

- Uttar Pradesh Chief Minister recently launched the **'Gomti Rejuvenation Mission'** to restore the river's natural flow and ecological health.

Objective

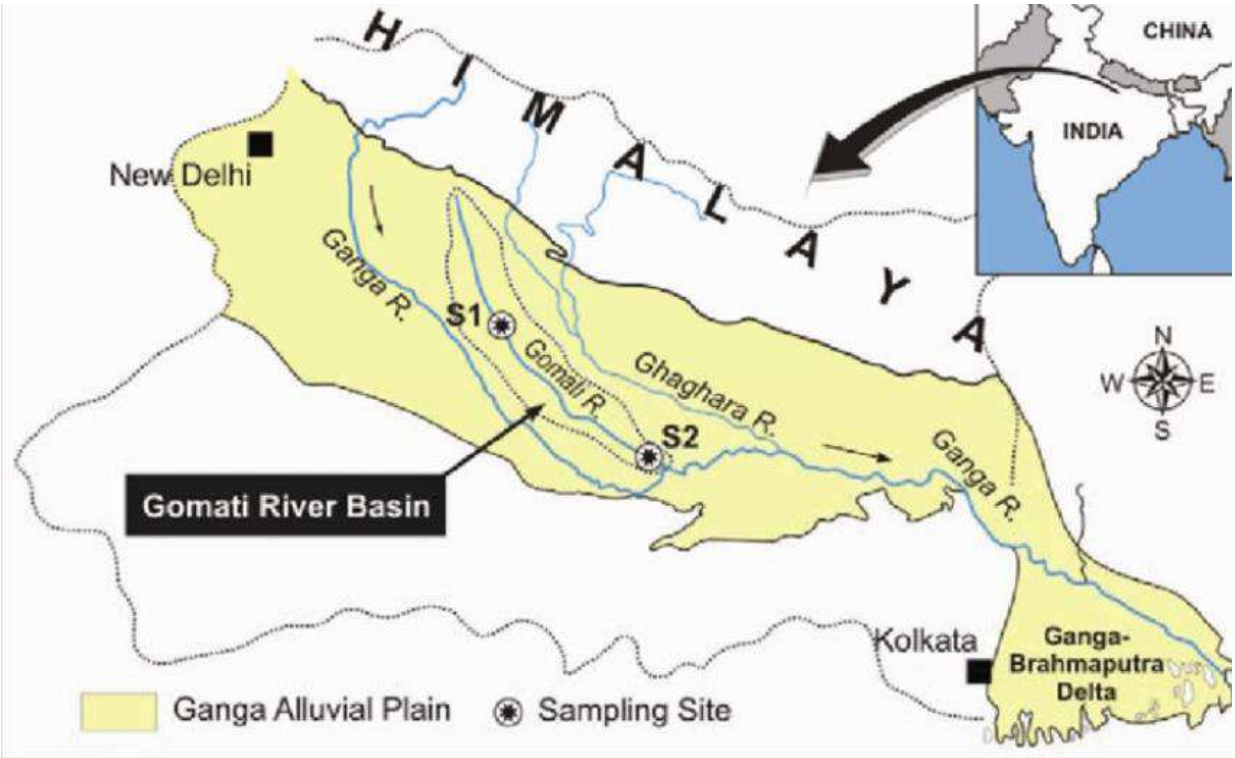
- To intercept **95% of urban sewage** entering the Gomti River, ensuring **uninterrupted and clean flow**.

Measures

- Construction and upgradation of **sewage treatment plants (STPs)**.
- **Desilting and channel deepening** in critical stretches.
- Development of **green buffer zones** and riverfront areas.
- **Community participation** and awareness drives to curb pollution.

About Gomti River

- **Tributary of:** Ganga River
- **Other Names:** Gumti / Gomati
- **Origin:** *Gomat Taal (Fulhaar Jheel)* in **Pilibhit District**, Uttar Pradesh
- **Course:**
  - Flows entirely within Uttar Pradesh.
  - Passes through **Lucknow, Barabanki, Sultanpur, Faizabad, Jaunpur**.
  - Joins the **Ganga River** after a course of about **900 km**.
- **Basin Area:** ~18,750 sq km
- **Geology:**
  - Entire basin underlain by **Quaternary alluvial sediments** (boulders, sand, silt, clay, kankar).
  - Divided into **younger alluvium** (flood plains) and **older alluvium** (doab regions).
- **Flow Type:** *Perennial* but sluggish except during monsoon.
- **Major Tributaries:** Sai, Chowka, Kathina, and Saryu Rivers.
- **Major Cities on Banks:** Lucknow, Sultanpur, Jaunpur, Lakhimpur Kheri.
- **Concern:** One of the **most polluted rivers** in Uttar Pradesh due to untreated urban and industrial discharge.



Cyclone Montha

Syllabus: GS-1: Physical Geography.

Context:

The India Meteorological Department has issued a high alert for Andhra Pradesh and Odisha as Cyclone Montha is set to make landfall between Machilipatnam and Kalingapatnam near Kakinada.

Cyclone Montha

Type: Severe Cyclonic Storm (forecasted)

Region: Southeast & West-Central Bay of Bengal

Expected Landfall: Between Machilipatnam and Kalingapatnam, near Kakinada, Andhra Pradesh (evening/night of 28 Oct 2025)

Affected States: Andhra Pradesh, Odisha, Tamil Nadu, Telangana

Formation and Development

- **Origin:** Well-marked low-pressure area formed over the **southeast Bay of Bengal** on **24 October 2025**.
- **Intensification:**
  - 26 Oct – Deep Depression (80–100 km/h winds)
  - 27 Oct – Cyclonic Storm "Montha"
  - Expected to reach **Severe Cyclonic Storm** category before landfall.
- **Favourable Conditions:**
  - Warm sea surface temperatures (>28°C)
  - Low vertical wind shear
  - Abundant moisture inflow

Location & Trajectory

- **As of 27 Oct:**
  - Located ~350 km southeast of Kakinada.
  - Moving **north-northwest** at ~14 km/h.
- **Projected Path:** Towards Andhra coast — between Machilipatnam and Kalingapatnam.
- **Wind Speed:** Sustained winds 90–100 km/h; gusts up to 110 km/h.
- **Sea Condition:** "Very rough to high" with 1 m storm surge risk.

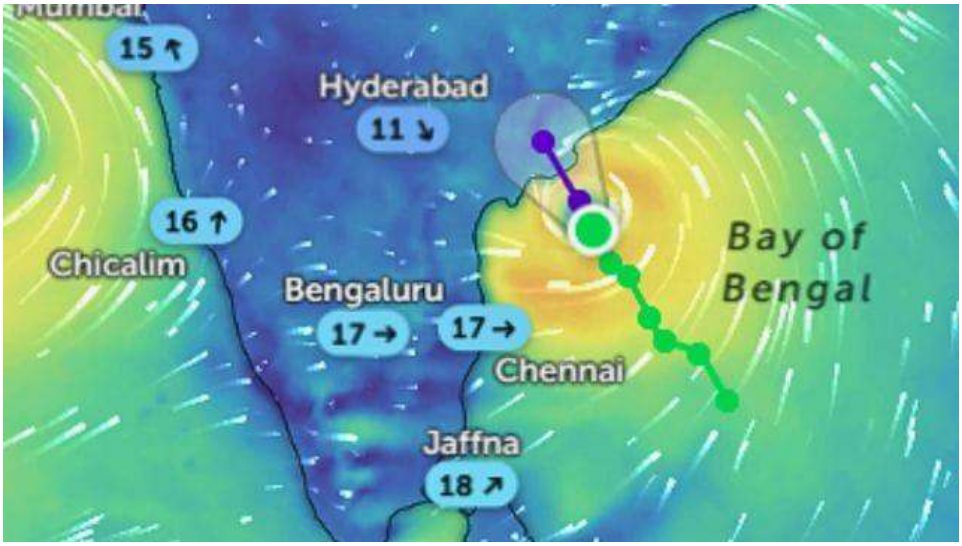
Naming of Cyclone Montha

- **Proposed by:***Thailand* (via WMO Regional Committee).
- **Meaning:** "Fragrant/beautiful flower" in Thai.
- **Purpose of Naming:**
  - Easy identification and communication
  - Avoid confusion when multiple systems are active

Vulnerable Zones

Highly Exposed:

- Coastal Andhra Pradesh (Godavari Delta, Konaseema, West Godavari, Krishna, Bapatla, Prakasam, Nellore)
- Interior Rayalaseema (landslide & flash flood risk)
- Low-lying fishing and agricultural communities



Challenges:

- High population density
- Poor local infrastructure in remote mandals
- Past data shows flash floods (>210 mm rainfall in 24 hrs)

Response & Preparedness Measures

Government & Agency Action

- **IMD:** Regular bulletins and red/orange/yellow alerts.
- **Andhra Pradesh Govt:**
  - Evacuations, PDS stockpiling, emergency shelters ready
  - Pregnant women, elderly relocated
  - Schools closed till 31 Oct
- **NDRF & Coast Guard:**
  - 900+ fishing vessels brought ashore
  - Rescue teams deployed across high-risk zones
- **Inter-state Coordination:** Odisha, Tamil Nadu, Telangana on alert.
- **Public Advisory:**
  - Avoid travel and sea activities
  - Follow district-level instructions and updates

Expected Impacts

Parameter	Expected Impact
Rainfall	Heavy to extremely heavy (≥21 cm/24 hrs) in coastal AP, Odisha
Wind	Sustained 90–100 km/h; gusts up to 110 km/h
Storm Surge	Up to 1 m above astronomical tide in low-lying coastal zones
Agriculture	Crop flooding, saline water intrusion
Power & Communication	Likely disruption due to uprooted trees, snapped lines
Marine & Fisheries	Fishing banned 26–29 Oct; livelihood impact

Significance of Cyclone Montha

- **First major landfalling cyclone of 2025** on Indian mainland.
- **Test for disaster management systems** – coordination between IMD, NDMA, NDRF, and state machinery.
- **Reinforces climate concerns** – increasing frequency & intensity of Bay of Bengal cyclones.
- **Highlights need for:**
    - Strengthening coastal infrastructure & early warning dissemination
    - Ecosystem-based adaptation (mangroves, wetlands)
    - Building resilience in fisheries & agriculture sectors

Conclusion

Cyclone Montha underscores India's growing exposure to climate-driven extreme events. While improved forecasting and coordination have reduced casualty risks, the challenge lies in long-term coastal resilience — sustainable infrastructure, livelihood diversification, and community-based preparedness.

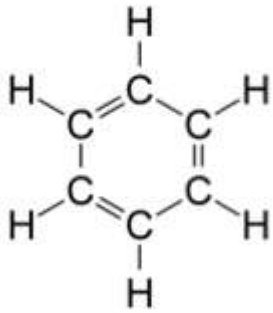
Benzene

Syllabus: GS-3: General Science.

Context:

Two centuries after its discovery, **benzene (C_6H_6)** continues to shape modern chemistry and industry. However, it remains a **double-edged molecule** — the foundation of countless innovations but also a significant **health and environmental hazard**.

Benzene: C_6H_6



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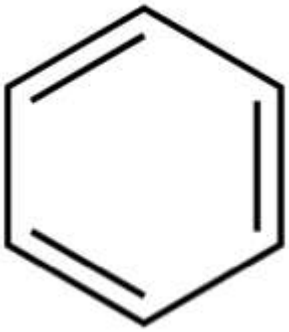
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What is Benzene?

- **Chemical Nature:**Benzene is a **colorless, volatile, aromatic hydrocarbon** with molecular formula **C_6H_6**.
- **Structure:**
  Characterized by a **cyclic hexagonal ring** with delocalized π-electrons — the hallmark of **aromaticity**.
- **Significance:**
  Forms the **structural foundation of aromatic chemistry** and serves as a precursor for numerous industrial compounds.

Discovery and Structural Elucidation

- **Discovered by:**Michael Faraday (1825) — isolated from oily residue of illuminating gas in London.
- **Structure proposed by:**August Kekulé (1865) — introduced the concept of a **cyclic hexagonal ring**, a landmark in organic chemistry.

Key Characteristics

- **Chemical Stability:**Despite its unsaturation, benzene is **remarkably stable** due to **resonance delocalization** of π-electrons.
- **Physical Properties:**

- Colorless, sweet-smelling, highly flammable liquid.
- **Insoluble in water**, but **miscible with organic solvents**.

- **Industrial Derivatives:**Acts as a **building block** for compounds like **styrene, phenol, cyclohexane, nylon, and polystyrene**.

Limitations and Risks

- **Toxicity:**
  - Classified as a **Group 1 carcinogen (IARC)**.
  - Prolonged exposure causes **leukaemia, bone marrow suppression, and immune disorders**.
- **Environmental Persistence:**
  - Volatile and resistant to degradation → **air and groundwater contamination**.
- **Occupational Hazards:**
  - Historical exposure in **refineries and chemical plants** led to industrial diseases.
  - Triggered **global regulatory frameworks** (e.g., OSHA limits, REACH norms).

Major Industrial and Technological Applications

- **Petrochemical Industry:**
  - Key feedstock in **BTX group (Benzene, Toluene, Xylene)** for **plastics, rubber, and fibers**.
- **Pharmaceuticals:**
  - Precursor for **aspirin, sulfa drugs, and antihistamines**.
- **Synthetic Materials:**
  - Basis for **nylon, resins, and polymers** used in automobiles, textiles, and electronics.
- **Dyes and Detergents:**
  - Crucial in synthesis of **aromatic intermediates** for colorants and surfactants.
- **Modern Electronics:**
  - Used in **conducting polymers, OLEDs**, and **nanomaterials** — extending its relevance to advanced material science.

Conclusion

Benzene remains a **symbol of chemical ingenuity** — from the birth of organic chemistry to the evolution of advanced materials.

However, its **toxic legacy and environmental footprint** underscore the need for **sustainable and safer alternatives** in industrial chemistry.

Chowna Buku Chulu

Syllabus: GS-3; Wildlife- new species

Context

- Arunachal Pradesh scientists have recently discovered a **new species of Begonia** in **Basar**, located in the **Leparada district** of the state.
- The species, known for its **striking red foliage**, has been named **"Chowna Buku Chulu (Aryarakta)"**, which translates to *"Noble Red."*

About Chowna Buku Chulu

- **Scientific Context:** A newly discovered **Begonia species** native to the natural habitats of Basar.
- **Name Meaning:** "Aryarakta" means *Noble Red*, referencing its distinctive bright red leaves.
- **Significance:** The discovery highlights Arunachal Pradesh's **rich botanical diversity** and underscores the need for continued conservation of its **unique ecosystems**.

Key Facts about the Begonia Genus

- **Family:** Begoniaceae
- **Type:** Perennial flowering plants
- **Species Count:** Over **1,800 known species** worldwide
- **Native Regions:** Moist **subtropical and tropical climates**
- **Cultivation:**
  - Grown as **ornamental plants** for their colourful leaves and flowers.
  - In **cooler climates**, often cultivated indoors as **houseplants** or outdoors during summer.
- **Flowers:** Characteristically have **sepals but no petals**, contributing to their unique appearance.

Significance

- This discovery adds to India's expanding list of endemic flora, reflecting the **biodiversity richness of Northeast India**.
- It can be cited in topics under **"Flora of India," "Endemic Species,"** or **"Conservation of Biodiversity."**

Blue Flag Certification

Syllabus: GS-3; Environmental Conservations

Context

- Recently, **five beaches in Maharashtra** have received the **international Blue Flag certification**, joining the global network of eco-friendly and sustainable beaches.

About Blue Flag Certification

- **Administered by:** Foundation for Environment Education (FEE), Denmark
- **Type:** International eco-label
- **Launched:**
  - **In France:** 1985
  - **Outside Europe:** 2001

Purpose

- The **Blue Flag** serves as a **global symbol of environmental excellence**, recognizing beaches, marinas, and sustainable boating tourism operators that meet stringent standards of environmental management, safety, and water quality.

Key Features

- **Total Criteria:** 33 parameters
- **Major Focus Areas:**
  - **Water Quality**
  - **Environmental Management**
  - **Environmental Education**
  - **Safety and Services**

Mission

- To promote sustainability in the tourism sector through environmental education, protection, and responsible development practices.

Blue Flag Beaches in India

India now has several Blue Flag certified beaches, including:

- **Shivrajpur** – Gujarat
- **Ghoghla** – Diu
- **Kasarkod** and **Padubidri** – Karnataka
- **Kappad** – Kerala
- **Rushikonda** – Andhra Pradesh
- **Golden Beach** – Odisha
- **Radhanagar Beach** – Andaman & Nicobar Islands
- **Kovalam Beach** – Tamil Nadu
- **Eden Beach** – Puducherry
- **Minicoy Thundi Beach** and **Kadmat Beach** – Lakshadweep
- **(Newly Added)** Five beaches in **Maharashtra** (2025)
  - Shrivardhan Beach (Raigad)
  - Nagaon Beach (Raigad)
  - Parnaka Beach (Palghar)
  - Guhagar Beach (Ratnagiri)
  - Ladghar Beach (Ratnagiri)