DAILY CURRENT AFFAIRS 12-02-2025

GS-1

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GS-3

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Fort William

Syllabus: GS-1; Modern Indian History

Context

- Fort William in Kolkata, a historic and strategically significant site, has recently been renamed **Vijay Durg**.
- This change reflects its enduring importance in India's military history and its role as the headquarters of the Eastern Army Command.

About Fort William

- **Construction**: The current Fort William was built by the British in 1773 and named after King William III of England.
- **Location**: Situated on the eastern bank of the Hooghly River in Kolkata, West Bengal.
- **Ownership**: Today, it is owned by the Indian Army and serves as the headquarters of the Eastern Command.

Fort William History

- **Original Fort**: The first Fort William was constructed by the English East India Company in 1696. It included a notorious prison known as the **"Black Hole of Calcutta,"** where many prisoners died in 1756.

- **Attack by Siraj-ud-Daulah**: In 1756, the Nawab of Bengal, Siraj-ud-Daulah, attacked and captured Calcutta, leading to the fort's destruction.
- **Rebuilding**: After the British victory in the **Battle of Plassey (1757)**, Robert Clive initiated the construction of a new fort, which was completed in 1773. This is the Fort William that stands today.

Fort William Architecture

- **Design**: The fort is **octagonal** in shape and built with brick and mortar.
- **Size**: It spans **70.9 acres** and features hundreds of arched windows overlooking lush gardens.
- **Aesthetic**: The structure is adorned with intricate stonework, showcasing the architectural prowess of the time.

Renaming to Vijay Durg

- The recent renaming to **Vijay Durg** (meaning "Victory Fort") symbolizes the fort's historical and strategic significance in India's military history. It underscores its role as a symbol of strength and resilience.
- Fort William, now Vijay Durg, remains a testament to Kolkata's colonial past and its continued importance in India's defense architecture.

Indrayani River

Syllabus: GS-1; Geography- Rivers, GS-3; Water pollution

Context

- The **Indrayani River** in Pune district has once again been in the news due to the formation of a **thick layer of white toxic foam** on its surface.

More about the news

- This recurring issue has raised concerns about **water pollution** and its impact on public health and the environment. The foam is believed to be caused by the discharge of **untreated industrial effluents and sewage** into the river, which contains high levels of **phosphates and surfactants**. These chemicals, when mixed with water, create the toxic foam.

- The situation has become particularly alarming amid rising cases of **Guillain-Barre Syndrome (GBS)** in the region, with some experts linking the disease to **water contamination**. While no direct correlation has been confirmed, the presence of toxic foam has heightened fears about the river's water quality and its potential health hazards.

Key Concerns:

1. **Environmental Impact**: The toxic foam harms aquatic life and disrupts the river's ecosystem.
2. **Health Risks**: The contaminated water poses risks to locals who rely on the river for irrigation, drinking, and religious activities.
3. **Religious Significance**: The river holds immense religious importance, and the pollution has sparked outrage among devotees and environmental activists.

About Indrayani River

- **Location**: Maharashtra, India.
- **Origin**: Western Ghats near Lonavala.
- **Length**: 103.5 km.

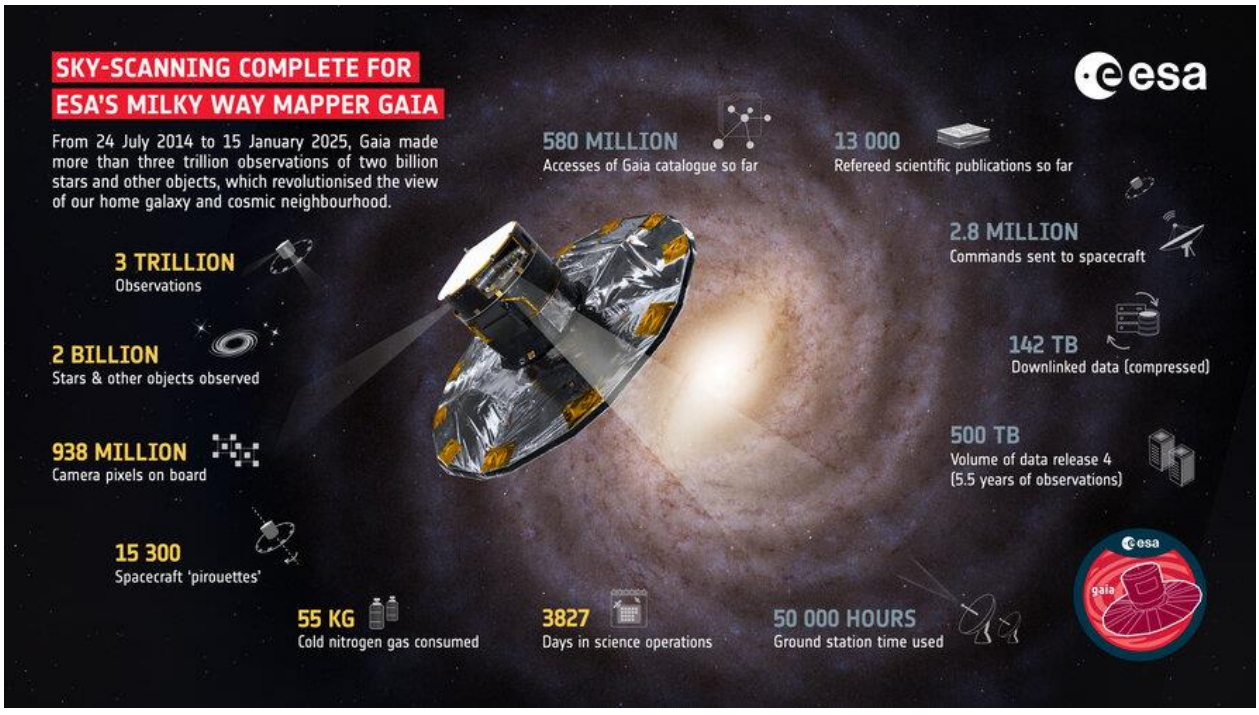
- **Course**: Flows through Pune district and merges into the Bhima River, a tributary of the Krishna River.
- **Religious Significance**: The river is considered sacred, with the towns of **Alandi** (home to Saint Dnyaneshwar's samadhi) and **Dehu** (associated with Saint Tukaram) located on its banks.
- **Industrial Impact**: The river passes through the industrial hub of **Pimpri-Chinchwad**, where untreated effluents are often discharged into it.
- **Economic Role**: The river supports irrigation, agriculture, and hydroelectric power generation through the **Valvan Dam** at Kamshet.

Gaia Mission

Syllabus: GS-3; Science & Tech

Context

- The recent discovery of **Gaia BH3**, a massive black hole located relatively close to Earth, is one of the mission's most exciting findings.
- This black hole is the third of its kind detected using Gaia's precise astrometric data, showcasing the mission's ability to uncover hidden cosmic objects through their gravitational influence on nearby stars.



Key Highlights of the Gaia Mission:

1. **Discovery of Gaia BH3**:
    - Gaia BH3 is a stellar-mass black hole, formed from the collapse of a massive star.
    - It was detected by observing the wobble in the motion of a nearby star, caused by the black hole's gravitational pull.
    - This discovery highlights Gaia's ability to identify previously unknown black holes, contributing to our understanding of their formation and distribution in the galaxy.
2. **Mission Objectives**:
    - Gaia aims to create the most detailed 3D map of the Milky Way, surveying approximately **1 billion stars** (about 1% of the galaxy's stellar population).
    - It measures the positions, distances, motions, and physical properties of stars with unprecedented precision.
3. **Technological Marvel**:
    - Gaia is equipped with two telescopes that observe stars from slightly different angles, allowing for precise parallax measurements to determine distances.
    - Its instruments can detect tiny changes in stellar positions, enabling the discovery of exoplanets, asteroids, and other celestial objects.
4. **Scientific Contributions**:
    - **Exoplanet Detection**: Gaia identifies exoplanets by detecting subtle changes in a star's motion caused by orbiting planets.
    - **Asteroid Mapping**: The mission has mapped thousands of Solar System objects, including main belt asteroids and Near-Earth Objects (NEOs).
    - **Stellar Census**: Gaia's data provides insights into the formation, structure, and evolution of the Milky Way.
5. **Location and Operations**:
    - Gaia operates from the **Lagrange Point 2 (L2)**, located about 1.5 million kilometers from Earth. This position offers a stable environment for observations, free from the interference of Earth's atmosphere and the Sun's glare.
    - The spacecraft scans the entire sky every two months, continuously collecting data.

6. **Impact on Astronomy**:
    - Gaia's data has led to numerous discoveries, including the detection of new star clusters, the mapping of the Milky Way's spiral arms, and the identification of rare stellar phenomena.
    - The mission's dataset is publicly available, enabling astronomers worldwide to conduct groundbreaking research.

Future Prospects:

- Gaia's mission is expected to continue until at least 2025, with the potential for further extensions.
- The data collected will be analyzed for years to come, providing new insights into the dynamics of our galaxy and the universe.

The discovery of Gaia BH3 is a testament to the mission's capabilities and its role in advancing our understanding of the cosmos. As Gaia continues its survey, we can expect even more exciting discoveries that will reshape our knowledge of the Milky Way and beyond.

Iskander-M

Syllabus: GS-3; Science & Tech

Context

- **Russia is reportedly poised to begin serial production of a new derivative of the Iskander-M tactical ballistic missile with a range of 1,000 km.**

About Iskander-M

- The Iskander-M (Western reporting name: SS-26 Stone) is a road-mobile short-range ballistic missile system developed by Russia. Designed for tactical strikes on high-value land targets, it entered Russian service in 2006 and was first used in combat during the 2008 conflict with Georgia. This system is capable of launching multiple types of missiles.

Key Features

- **Dimensions & Weight:**
  - Length: 7.3 meters
  - Diameter: 0.92 meters
  - Launch weight: 3,750 kilograms
- **Range & Payload:**
  - Maximum range: 500 km
  - Payload capacity: 480–700 kg
  - Can carry both conventional and nuclear warheads
- **Speed & Maneuverability:**
  - Maximum speed: Mach 7
  - Altitude: Over 30 miles
  - Uses a **maneuverable reentry vehicle (MaRV)** and decoys to evade missile defense systems
  - Equipped with in-flight correction and self-targeting capabilities

Variants of Iskander-M

- **Iskander-E** – Export version with a reduced range of 280 km
- **Iskander-K** – Introduced in 2007, features the R-500 cruise missile with a range of up to 280 km

Application & Significance

- **Military Applications:**
  - Precision strikes against high-value enemy targets such as command centers, air defense installations, and logistical hubs
  - Capability to neutralize heavily defended positions with minimal response time
  - Effective in modern warfare due to its advanced maneuverability and speed

- **Strategic Significance:**
  - Enhances **Russia's tactical nuclear deterrence** with the ability to carry nuclear warheads
  - Strengthens **battlefield dominance** by countering enemy missile defense systems
  - Plays a crucial role in **regional conflicts** where precision strikes can alter the course of engagement
  - Serves as a **psychological deterrent**, discouraging potential adversaries from engaging in direct military confrontation

Dibru Saikhowa National Park

Syllabus: GS-3; Biodiversity

Context

- The **Environment Ministry's Forest Advisory Committee (FAC)** recently recommended the approval of an **R&D proposal** involving **Extended Reach Drilling (ERD) technology** within the **Dibru Saikhowa National Park**.

About Dibru Saikhowa National Park:

Location:

- Situated on the **south bank of the Brahmaputra River** in the **extreme east of Assam, India**.
- Bounded by the **Brahmaputra and Lohit Rivers** in the north and the **Dibru River** in the south.

Ecological Significance:

- It is both a **National Park** and a **Biosphere Reserve**.
- Home to the **largest Salix swamp forest** in northeastern India.
- Features a **tropical monsoon climate**, with hot, wet summers and cool, dry winters.

Vegetation:

- Dominated by **moist mixed semi-evergreen forests** and **moist mixed deciduous forests**.
- Key flora includes **Dillenia indica**, **Bischofia javanica**, **Bombax ceiba**, and **Lagerstroemia parviflora**.

Fauna:

- Rich biodiversity, including species like **Tigers**, **Elephants**, **Leopards**, **Jungle Cats**, **Bears**, **Small Indian Civets**, **Squirrels**, **Gangetic Dolphins**, **Slow Loris**, and **Assamese Macaques**.
- The park is also an **Important Bird Area (IBA)**, hosting over **382 bird species**, such as the **Greater Adjutant Stork**, **Lesser Adjutant Stork**, and **Greater Crested Grebe**.

Concerns and Conservation:

- The recent recommendation for ERD technology has raised concerns about potential disturbances to the park's fragile ecosystem.
- Conservationists argue that even research activities could disrupt wildlife habitats, particularly for endangered species like the **Gangetic Dolphin** and **Greater Adjutant Stork**.
- The park's swamp forests and riverine ecosystems are highly sensitive to external interventions.
- Stakeholders are calling for **strict monitoring** and **transparency** in the implementation of the research project to ensure that the park's ecological integrity is not compromised.
- The decision highlights the ongoing challenge of balancing **scientific research** with **conservation priorities** in ecologically sensitive areas.

Conclusion:

- Dibru Saikhowa National Park remains a critical biodiversity hotspot in India, and any activity within its boundaries must be carefully evaluated to minimize environmental impact. The FAC's conditional approval for ERD technology underscores the need for responsible research practices that prioritize conservation.