DAILY CURRENT AFFAIRS 29-03-2025

GS-1

1. **Vikramshila university**

GS-3

2. **Silvaguard**
3. **Gaia Space Observatory**
4. **Nag Missile System (NAMIS)**
5. **Kasungu National Park**

Vikramshila university

Syllabus: GS-1; Art & Culture

Context

- A decade after Nalanda University came up in the foothills of Rajgir, work is on to revive another ancient centre of learning in Bihar — Vikramshila.

About

- Vikramashila University was an ancient Buddhist learning center established in the late 8th or early 9th century by **Pala King Dharmapala** (c. 783–820 CE) in present-day Bhagalpur, Bihar, India.
- It was one of the **two most important centers of Buddhist learning** in India, the other being **Nalanda University**.
- The university flourished until the **12th century**, when it was destroyed by **Bakhtiyar Khilji in 1193 CE**.

Location

- Situated on the banks of the **Ganga River** in the present-day **Bhagalpur district of Bihar**.

Structure and Facilities

- The university had a large **central monastery** with **108 smaller monasteries** surrounding it.
- It had a **six-gate entrance**, each guarded by scholars who examined students before granting admission.
- The main temple featured a **huge stupa**, libraries, and lecture halls.

Subjects and Courses

- Vikramashila specialized in **Tantric Buddhism (Vajrayana)** but also taught:
  - **Vedic texts**
  - **Logic (Tarka Shastra)**
  - **Philosophy**
  - **Grammar (Vyakarana)**
  - **Medicine (Ayurveda)**
  - **Astronomy (Jyotisha)**

Famous Scholars

- **Atisha Dipankara (982–1054 CE)**, a prominent Buddhist scholar, studied and later taught here before spreading Buddhism to Tibet.
- Many Tibetan monks came to Vikramashila to study and carry knowledge back to Tibet.

Destruction

- The university was destroyed around **1193 CE** by **Bakhtiyar Khilji**, a general of the Delhi Sultanate, marking the decline of Buddhism in India.

Silvaguard

Syllabus: GS-3: Science and Technology – Artificial Intelligence and Drones.

Context:

Dryad Networks has unveiled Silvaguard, an AI-powered autonomous drone system capable of detecting and suppressing wildfires, offering a vital solution amid rising wildfire threats.

Overview

Silvaguard is an AI-driven, drone-based wildfire detection and suppression system developed by **Dryad Networks**, a Berlin-based climate-tech company.

It is designed to autonomously detect and suppress early-stage wildfires, minimizing fire damage and preventing large-scale CO_2 emissions.

Key Features

- **Integration with Silvanet**
  - Works in tandem with **Silvanet**, Dryad Networks' IoT-based forest sensor network.
  - Detects fires at an early stage, even before visible flames appear.
- **Autonomous Launch & Deployment**
  - Drones are **automatically deployed** from **solar-powered hangars** upon fire detection.
  - Ensures rapid response without human intervention.
- **Advanced Imaging & Fire Location**
  - Equipped with **thermal cameras, infrared sensors, and obstacle avoidance systems**.
  - Provides **real-time imaging** for accurate fire tracking and suppression.
- **Fire Suppression Capability***(Future Development)*
  - Planned integration of **sonic wave technology** to **extinguish fires using sound frequencies**.

Significance of Silvaguard

- **Rapid Response:** Reduces fire spread by detecting and acting at an early stage.
- **Climate Impact Mitigation:** Prevents **massive CO_2 emissions** from wildfires.
- **Autonomous & Sustainable:** Solar-powered and AI-driven, reducing reliance on traditional firefighting methods.

Gaia Space Observatory

Syllabus: GS-3: Science and Technology –Space.

Context:

The European Space Agency's (ESA) Gaia space observatory concluded its scientific observations on January 15, 2025, after more than a decade of service.

About Gaia

The **Gaia Space Observatory**, operated by the **European Space Agency (ESA)**, has been one of the most transformative astronomical missions, revolutionizing our understanding of the **Milky Way**. Here's a concise overview of its contributions and legacy:

Key Details About Gaia

- **Launch & Operations**:
  - Launched in **December 2013**, began full operations in **July 2014**.
  - Officially retired after nearly a decade of groundbreaking observations.
- **Primary Mission**:
  - Create the **most precise 3D map of the Milky Way**.
  - Track **positions, distances, and motions of over 2 billion stars** (~1% of the galaxy's stars).
  - Study the galaxy's **formation, evolution, and future shape**.

Major Discoveries & Achievements

3D Galactic Structure:

- Revealed the Milky Way's **warped, wobbling disc** and details of its **spiral arms and central bar**.

Black Hole Detection:

- Discovered **"dark" black holes** (invisible in light) solely through their gravitational effects.

Galactic Collisions:

- Confirmed past mergers (e.g., with the **Gaia-Enceladus galaxy**) that shaped the Milky Way and may have influenced the **Sun's formation**.

Asteroid Tracking:

- Catalogued **150,000+ asteroids**, improving Earth's planetary defense.

Stellar & Exoplanet Data:

- Identified **thousands of exoplanets**, binary stars, and stellar explosions.

Legacy & Future Impact

- **Only 2% of the Milky Way mapped**, but Gaia's data (released in batches) will fuel discoveries for **decades**.
- Future missions (e.g., **ESA's *Lisa*** for gravitational waves) will build on Gaia's precision astrometry.

Nag Missile System (NAMIS)

Syllabus: GS-3: Science and Technology – Defence.

Context:

- The government has signed deals worth Rs 2,500 crore to procure the Nag Missile System (NAMIS) tracked version of an anti-tank weapon and around 5,000 light vehicles for the armed forces.

Nag Missile System (NAMIS)

- The **Nag Missile System (NAMIS)**, particularly its tracked version (**NAMICA-based**), is a significant indigenous development under India's **Aatmanirbhar Bharat** initiative. Here's a concise breakdown:

Key Details of NAMIS (Nag ATGM System)

- **Type**:
  - **3rd-generation**, **fire-and-forget** anti-tank guided missile (ATGM).
  - **Nag Mark 2** is the upgraded variant with enhanced capabilities.
- **Developer**:
  - **DRDO** (Defence Research and Development Organisation).
  - Production via **Armoured Vehicles Nigam Limited (AVNL)**.

- **Features**:
  - **Fire-and-Forget**: Uses imaging infrared (IIR) seeker for autonomous targeting post-launch.
  - **ERA Penetration**: Defeats modern tanks with **Explosive Reactive Armour**.
  - **Mobility**: Integrated with **NAMICA** (Nag Missile Carrier), a BMP-2-derived tracked platform for all-terrain deployment.
  - **Range**: ~4 km (land version); **Helina** (helicopter-launched variant extends to 7–8 km).
- **Procurement &Make in India**:
  - **Category**: **Buy (Indian-IDDM)** – Indigenously Designed, Developed, and Manufactured.
  - **Aatmanirbhar Impact**:
    - Boosts **MSMEs** through localized component production.
    - Generates **direct/indirect employment** in defence manufacturing.
- **Strategic Importance**:
  - Reduces reliance on imports (e.g., replacement for older Konkurs ATGMs).
  - Strengthens Indian Army's **anti-armor capabilities** in desert/rugged terrains.

Kasungu National Park

Syllabus: GS-3; Biodiversity

Context

Kasungu National Park is in the spotlight as communities along the Malawi-Zambia border have taken legal action against the International Fund for Animal Welfare (IFAW), alleging increased human-elephant conflicts after the relocation of 263 elephants to the park.

About

Kasungu National Park is one of Malawi's largest national parks, located in the central region of the country. It is significant for its biodiversity, conservation efforts, and ecological importance.

Location & Geography

- Situated in **central Malawi**, near the border with **Zambia**.
- Covers an area of **2,316 sq. km**, making it the **second-largest** national park in Malawi.
- The park consists of **miombo woodlands, grasslands, and river valleys**, with the **Dwanga River** being a key water source.

Flora & Fauna

- **Flora:** Dominated by **miombo woodland**, along with patches of grassland and marshy areas.
- **Fauna:**
  - Once had a large **elephant population**, but numbers have declined due to poaching.
  - Home to **buffalo, zebras, leopards, hyenas, hippos**, and various **antelope species**.
  - **Birdlife** includes over **300 species**, making it important for avian biodiversity.

Conservation Challenges & Efforts

- **Poaching** has severely affected elephant and predator populations.
- **Deforestation** due to human encroachment and illegal activities.
- Malawi's government and international organizations have been working on **anti-poaching patrols, reforestation programs, and wildlife monitoring** to restore its ecological balance.