Factly Monthly

Compilation

2026



For UPSC CSE Prelims Exam

October 2026

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Sengol

News: The new NCERT Class 9 Social Science textbook mentions the Sengol as a cultural marker of rulership and good governance.

About Sengol

- The Sengol is a **sacred sceptre** linked to **righteous governance** and the **cultural traditions of ancient Tamil civilisation.**
- **Naming:** The term Sengol is **derived from the Tamil word "Semmai", meaning "righteousness".**
- **Origin:** The tradition of using the Sengol as a symbol of righteous governance began more than a **thousand years ago during the Chola dynasty.**
- **Key Features:**
    - **Symbol of Authority:** Emperors carried the Sengol during ceremonial occasions **to represent their authority.**
    - **Succession:** The Chola tradition **involved handing over the Sengol from one king to another as a mark of succession and legitimacy.**
    - **Religious Blessing:** A **high priest or guru traditionally blessed the new king** and **conferred the Sengol.**
    - **Symbol of Independence:** In **1947**, it was used in a ceremony to **symbolize the transfer of power from the British to the first Prime Minister of India, Jawaharlal Nehru.**
        - The act **signified the beginning of self-governance** and the **transfer of power to the people of India.**
    - **Post-Independence:** After the ceremony, the **Sengol was kept at the Anand Bhavan Museum (Allahabad Museum) for over seven decades** before being relocated to New Delhi.
    - **Parliamentary Installation:** On **May 28, 2023, the Sengol was formally installed** in a dedicated glass enclosure **near the Speaker's chair** during the inauguration of the new Parliament building.
- **Making and Sanctification:** The **Sengol presented during the 1947 independence** ceremony was **handcrafted by Vummidi Bangaru Chetty** and **sanctified by the seers of the Thiruvaduthurai Adheenam.**

National Coastal Mission (NCM 2.0)

News: Environment Minister Bhupender Yadav launched guidelines for implementing National Coastal Mission (NCM) 2.0 in New Delhi.

About National Coastal Mission (NCM 2.0)

- **Administered By:** It is administered by the **Ministry of Environment, Forest and Climate Change (MoEFCC).**
- **Nature of Scheme:** It is a **Central Sector Scheme.**
- **Origin:** The **first phase, NCM 1.0, was implemented from 2021–22 to 2025–26.**
    - It is **now subsumed by NCM 2.0,** the second phase of the Mission.
- **Tenure:** NCM 2.0 will be **implemented from 2025–26 to 2030–31.**
- **Aim:** It aims to strengthen the **resilience and sustainability of India's coastal regions** and **unlock the potential of the Blue Economy.**
- **Financial Outlay:** The Mission has an **approved outlay of ₹767 crore.**
- **Key Features of National Coastal Mission (NCM 2.0)**
    - **Coastal Coverage:** It covers **all 9 coastal States and 4 coastal Union Territories.**

- **Integrated Spatial Planning:** It develops **Integrated Coastal Zone Management Plans (ICZMPs)** and **Coastal Marine Spatial Plans** across 1,**000 km of priority coastline.**
- **Ecosystem Restoration:** It supports the **restoration of coral reefs and mangroves**, including a **Centre of Excellence on Corals.**
- **Climate Resilience:** It promotes **coastal risk reduction and climate adaptation and mitigation measures.**
- **Blue Economy:** It promotes **sustainable Blue Economy activities**, including **sustainable tourism and green shoreline infrastructure**.
- **Coastal Pollution Management:** It focuses on **preventing, reducing and controlling pollution** in coastal and territorial marine waters.
- **Coastal Livelihoods:** It supports **diversified and resilient livelihood options for coastal communities.**

Green Energy Corridor Phase-III Scheme

News: The Union Cabinet approved GEC Phase-III on September 30 to enable evacuation of up to 135 GW of renewable energy across States and Union Territories.

About Green Energy Corridor Phase-III Scheme

- **Green Energy Corridors (GEC)** are dedicated **power transmission networks** developed **to evacuate and integrate renewable energy into the grid.**
- **Nodal Ministry:** Ministry of New and Renewable Energy (MNRE)
- **Objective:** The scheme aims to **strengthen the Intra-State Transmission System (InSTS), improve renewable energy evacuation and facilitate better grid integration.**
- **Different Phases**

Phase	Duration	Specific Features
GEC Phase-I	**Launched in 2015–16**	• It **Covered 8 renewable-rich states** (Gujarat, Andhra Pradesh, Karnataka, Himachal Pradesh, Maharashtra, Madhya Pradesh, Tamil Nadu, and Rajasthan.)and targeted **evacuation of about 24 GW of renewable energy.**
GEC Phase-II	**FY 2021–22 to FY 2025–26**	• It **covers 7 states** (Gujarat, Himachal Pradesh, Karnataka, Kerala, Rajasthan, Tamil Nadu and Uttar Pradesh) and **facilitates grid integration and power evacuation of approximately 20 GW of Renewable Energy.** • It **provides 33% Central Financial Assistance (CFA) for the project cost.**
GEC Phase-III	**Targeted for FY 2032–33**	• It strengthens the **Intra-State Transmission System (InSTS)** to enable **evacuation of up to 135 GW of Renewable Energy.** • For the **first time** under the Green Energy Corridor programme, it **includes 50 GWh of Battery Energy Storage Systems (BESS) to improve grid flexibility.**

- **Key Features of GEC Phase-III**
    - **Total Project Outlay:** It has a **total project outlay of ₹1,86,405 crore**.
        - It including ₹1,36,378 crore for **Intra-State Transmission System (InSTS)** and ₹50,000 **crore for Battery Energy Storage Systems (BESS).**
    - **Central Financial Assistance:** It provides **₹54,082 crore as Central Financial Assistance (CFA)** to offset intra-state transmission charges and keep power costs down.
    - **Project Implementation:** Greenfield projects will follow **Tariff Based Competitive Bidding (TBCB)**, while **brownfield upgradation and network strengthening** will **follow Cost Plus Basis (CPB).**
    - **Implementation Agencies: State Transmission Utilities will be the overall implementing agencies**, while **Transmission Service Providers** will participate **through a Build, Own, Operate and Maintain (BOOM) model.**
    - **Long-term Benefits:** The scheme **will support 900 GW installed non-fossil capacity by 2035**, strengthen energy security and promote sustainable growth.

Cardiff MoU

News: Leaders of Scotland, Wales and Northern Ireland signed an MoU in Cardiff, advocating constitutional change and affirming their nations' right to self-determination.

About Cardiff MoU



Source: CGTN

- **Signatories:** The Cardiff MoU is a **political statement and a non**-binding agreement signed by **Scotland, Wales, and Northern Ireland,** calling for **constitutional change and asserting the principle of self-determination.**
- **Key feature of the MoU**:
    - **Commitment to self-determination:** The **leaders of Scotland, Wales and Northern Ireland expressed a common commitment to greater autonomy**.
    - **Greater devolution of powers:** All three regions **share the demand for more powers to be transferred from Westminster** to their respective governments.

- **Right to decide their future:** The parties emphasise that **the people of each nation should have the opportunity to determine their own constitutional future** through democratic means.
- **Opposition to excessive centralisation:** The agreement represents **a collective demand for a less centralised UK and greater recognition of the distinct identities and aspirations** of its constituent nations.
- **Rejoining the European Union:** The three nations support **rejoining the European Union**, arguing that Brexit has harmed their economies and opportunities.

AASHVAST Labs

News: The Indian Army will soon operate six AASHVAST labs to inspect drones and, eventually, CCTV cameras for firmware-level vulnerabilities.

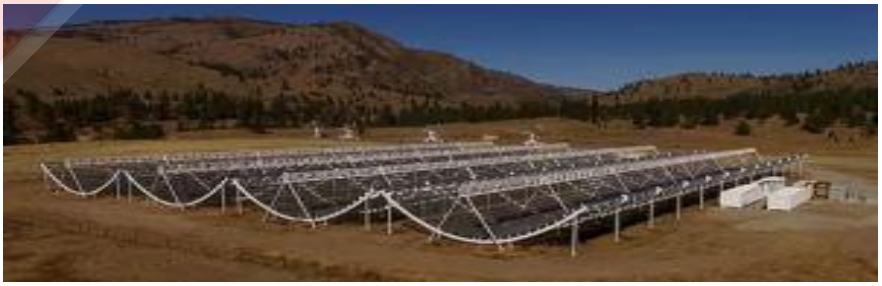
About AASHVAST Labs

- **AASHVAST** stands for **Assessment and Analysis of Electronic Systems Hardware for Vulnerabilities and Security Threats**.
- It is a **firmware analysis and validation suite** developed by **QuickPay Pvt. Ltd.** for the **Directorate General of Electronics and Mechanical Engineers (DG EME)**.
- **Objective:** To detect **firmware-level and embedded-system vulnerabilities** and identify **foreign-origin components** in defence electronic systems, including those that may be misrepresented in procurement records.
- The **Indian Army is establishing six AASHVAST labs** across India; one has been inaugurated in **Delhi**.
- **Initial focus: Army UAVs/drones**, with other electronic systems such as CCTV cameras potentially covered later.
- **Key capabilities:**
  - Detects **hidden passwords, embedded keys and remote-access tools**.
  - Identifies **foreign-origin components and proprietary protocols**.
  - Detects **geospatial and time-based vulnerabilities** that could affect drone operations.
  - Identifies **hidden or unused code** that could cause malfunction or premature termination.

Canadian Hydrogen Intensity Mapping Experiment (CHIME) Telescope

News: The CHIME telescope has made its first standalone detection of hydrogen's faint glow from when the universe was about five billion years old.

About Canadian Hydrogen Intensity Mapping Experiment (CHIME) Telescope



Source – TNIE

- The **Canadian Hydrogen Intensity Mapping Experiment (CHIME**) is a **radio telescope built in 2017.**
- **Location:** It is located in **British Columbia, Canada.**
- **Objective:** It was built to **map the distribution of hydrogen gas in the early universe** and study **cosmic expansion and dark energy.**
- **Working Mechanism:**
    - **Radio-wave collection:** Its **four** massive **parabolic antennas** collect **radio waves in the 400–800 MHz range**.
    - **Digital focusing:** It has **no moving parts**.
        - It uses **digital signal processing** to focus incoming radio signals and determine their direction.
    - **Data processing:** A powerful correlator **processes data at about 7 terabits per second.**
    - **Sky coverage:** As **Earth rotates, the telescope receives radio signals from half of the sky.**
- **Key Features:**
    - **Hydrogen mapping:** It maps the **combined radio glow of hydrogen** to study its **distribution and clustering.**
    - **Independent observations:** It can **study dark energy using its own data without relying on other** telescope results.
    - **Other capability:** It can **detect and study Fast Radio Bursts (FRBs) from distant galaxies.**

ASEAN-India Maritime Exercise (AIME-2026)

News: The Second Edition of AIME-2026 commenced at Subic Bay, Philippines, on 28 September 2026.

About ASEAN-India Maritime Exercise (AIME-2026)



Source – PIB

- **AIME-2026** is a **multilateral joint naval exercise.**
- **Participating Members:** It is between the **Indian Navy and maritime defence forces of ASEAN Member States.**
- **2026 Edition:** AIME-2026 is the **second edition** of the exercise.

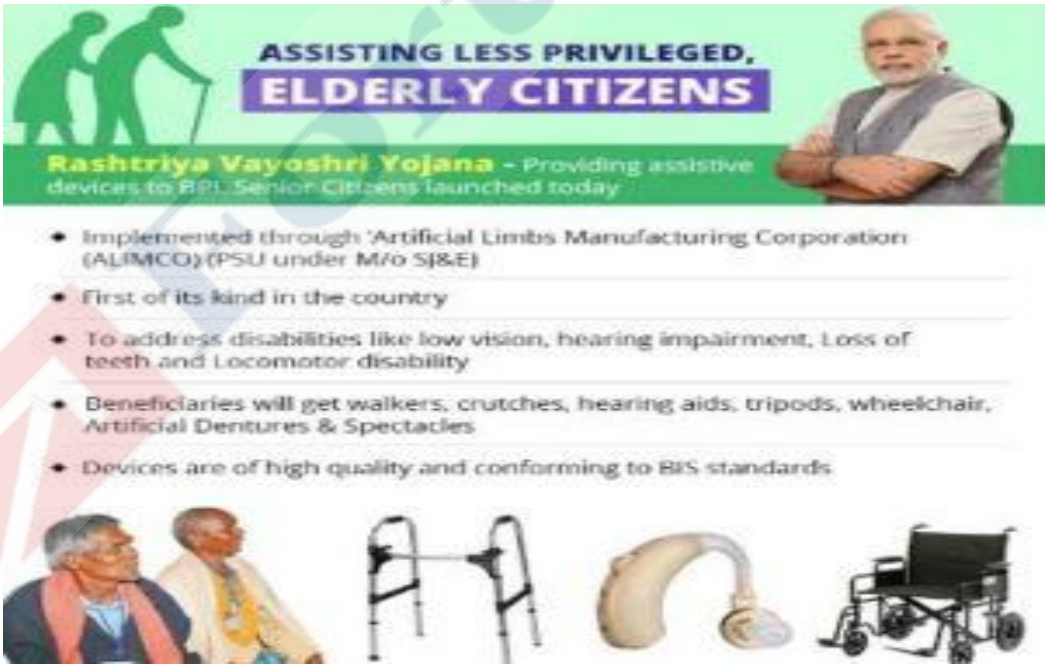
- The **inaugural** edition was hosted by **Singapore in May 2023.**

- **Location:** It is being **conducted at Subic Bay, Zambales, Philippines**, opening into the **South China Sea/West Philippine Sea.**
- **Theme:** The theme is "**Anchored in Trust, United at Sea.**"
- **Aim:** It aims to enhance **mutual trust, operational coordination, communication and interoperability** among participating maritime forces.
- **Key Features**
  - **Indian Naval Participation:** From the Indian side, **INS Sahyadri and INS Kulish** are participating in AIME-2026.
  - **Two-Phase Exercise:** It is conducted in two phases: the **Harbour Phase and the Sea Phase.**
    - **Harbour Phase:** It includes **Subject Matter Expert Exchanges, sporting and cultural activities, community engagement and Operational Synchronisation.**
    - **Sea Phase:** Participating maritime forces will **conduct coordinated maritime exercises and operational serials to strengthen practical cooperation at sea.**
  - **Professional Engagement:** It promotes **professional understanding, operational coordination and sharing of best practices.**
  - **Strategic Cooperation:** It supports **India's Act East Policy** and the **vision of MAHASAGAR (Mutual and Holistic Advancement for Security and Growth Across Regions).**

Rashtriya Vayoshri Yojana

News: The Ministry of Social Justice and Empowerment organised a distribution programme under RVY, providing 662 assistive devices to 114 senior citizens in Delhi-NCR.

About Rashtriya Vayoshri Yojana



Source – PIB

- The **Rashtriya Vayoshri Yojana** is first of its kind scheme in the country for **providing Physical Aids and Assisted-living Devices for Senior citizens belonging to BPL category.**
- It was launched on **April 1, 2017.**
- **Objective:** The scheme aims to **improve the mobility, independence, dignity and quality of life of eligible senior citizens by providing suitable assistive devices.**
- **Nodal Ministry:** Ministry of Social Justice and Empowerment (MoSJE)
- **Implementing Agency:** The scheme is implemented by Artificial Limbs Manufacturing Corporation **(ALIMCO),** a PSU under the Ministry of Social Justice and Empowerment.
- **Nature:** It is a **Central Sector Scheme, fully funded** by the Central Government.
- **Funding:** The expenditure is **met from the Senior Citizens' Welfare Fund.**
- **Eligibility: Senior citizens** belonging to the **BPL category** with **monthly** income **not more than Rs. 15000** and **suffering from age-related disability or infirmity** are eligible.
- **Assistive Devices:** Free **devices** include **walking sticks, hearing aids, wheelchairs, artificial dentures and spectacles,** based on the disability or infirmity.
- **Doorstep Support:** Senior **citizens aged 80 years or more receive devices at their doorstep.**

Jawahar Dweep Becomes India's First Plastic-free Oil Terminal

News: Mumbai Port Authority declared Jawahar Dweep Marine Oil Terminal plastic-free on 2 October 2026 during Swachhata Abhiyan 2026.

About Jawahar Dweep



Source – The Week

- The **Jawahar Dweep** is a **restricted offshore island terminal in Mumbai Harbour.**
    - It lies in the **Arabian Sea off Mumbai's eastern waterfront**, about **8.25 km northeast of the Gateway of India.**
- It is historically **known as Butcher Island.**
- **Ownership:** It is owned and operated by the **Mumbai Port Authority (MbPA).**
    - It **handles crude oil, LPG and petroleum products from ocean-going oil tankers.**
- **Geological Formation:** The island has **Deccan Traps basaltic bedrock.**
- **Island Formation:** It is a **submerged topographic high or continental island remnant** within **Mumbai's estuarine harbour basin.**

- **Recent Achievement**
  - **Mumbai Port Authority** declared **Jawahar Dweep Marine Oil Terminal plastic-free** on 2 October 2026 during Swachhata Abhiyan 2026.
  - Jawahar Dweep has become the **country's first oil terminal to completely eliminate single-use plastics.**

Buxa Tiger Reserve

News: A tigress was released in Buxa Tiger Reserve, West Bengal, marking the beginning of a phased Tiger Reintroduction Programme.

About Buxa Tiger Reserve



Source: Mongabay India

- **Buxa Tiger Reserve** is situated in the **Jalpaiguri District, West Bengal.**
  - It is located at the **confluence of three major bio-geographic zones:** The lower Gangetic plains, Central Himalayas and the Brahmaputra valley.
- **Corridor connectivity:** It has corridor connectivity **across the border with the forests of Bhutan in the North,** on the **East it has linkages with the Kochugaon forests, Manas Tiger Reserve** and **on the West with the Jaldapara National Park.**
  - **Important corridors** are Buxa-Chilapata Corridor, Buxa-Titi Corridor and Buxa-Ripu Corridor.
- **Establish year:** It was notified **under Project Tiger in 1983 as the 15th tiger reserve in India.**
- **Total Area:** 760.87 sq. km.
- **Associated River:** It is crossed by major rivers like the **Sankosh, Raidak, Jayanti, and Dima.**
- **Vegetation:** It is covered mainly by **moist tropical forests.**
- **Flora:** The forest is dominated by **Sal, Champa, Gamar and Simul trees.**
- **Fauna: Elephants, Tiger**, **Gaur, Sambar, Chital, Wild boar, Leopards, Clouded leopards, Dhole and Red jungle fowl** are found here..
  - Species such as the **Hill Myna, Crested Serpent Eagle, Black Francolin, Hornbills, and various species of waterfowl** are found in the reserve.

- **Tribes:** Various tribes such as **Rawas, Mechs, Santhals, Oraos and Garos** live around the region.

About Tiger Reintroduction Programme

- Under the **Phased Tiger Reintroduction Programme** initiation, a tigress was translocated from **Valmiki Tiger Reserve** to **Buxa Tiger Reserve**.
- **Aim:** It aimed **at restoring a viable and self-sustaining tiger population** in this historically important tiger landscape.
- **Objective:** Its objective is **to create the conditions in which a tiger population can establish,** breed and ultimately become viable and self-sustaining.
- **Nodal ministry:** Ministry of Environment, Forest and Climate Change
- The programme is being implemented in a **planned, phased and adaptive manner**, based on scientific assessments.

Kinnal Art and Bidriware

News: The Kinnal art and Bidriware pieces are part of Karnataka's collection showcased at the 8th edition of PM Mementos.

About Kinnal Art



Source – Deccan Herald

- **Kinnal art** is a **traditional wooden craft.**
- It is known for **handmade idols** with **vibrant colours and glossy finish.**
- **Location:** It originated **in Kinhal village of Koppal district in North Karnataka.**
- This art dates back to the **15th–16th centuries**.
- **Origin:** It originated during the rule of the **Vijayanagara Empire**.
- **Key Features:**
    - **Materials used:** The idols are **made from Ponki Marra wood,** which is **soft and lightweight,** making it **suitable for sculpting.**
    - **Process:** Each Kinnal idol is **entirely handmade,** and the process is laborious.

- **Artisans:** The traditional artisans are called **Chitragars**, whose ancestors worked on the **temples and palaces of Hampi**.
  - only 25 families in Kinhal village currently practice the art.
- **Subject:** The idols usually depict **gods, mythological characters and animals.**

- **GI Status:** Kinnal wooden idols have **been accorded GI Tag.**

About Bidriware



Source – Incredible India

- **Bidriware** is a **distinctive form of metal inlay work.**
- It is known for **silver, gold and brass** designs against a **dark background.**
- **Location:** Bidriware developed **at Bidar in Karnataka**.
- **Origin:** The art form **originated in Persia,** while its **development took place at Bidar.**
- **Bahmani period:** It is believed to have **developed under the Bahmani Sultanate in the 14th century** and reached its **zenith during the reign of Allauddin Ahmed Bahmani II.**
- **Key Features:**
  - **Material used:** The **base is made using a zinc-copper alloy, sometimes with tin**, while **silver, gold and brass are used for inlay work**.
  - **Process:** The craft involves **casting, engraving and inlaying,** followed by treatment with **special clay rich in saltpetre** to **create its black colour.**
  - **Design:** Its designs combine **Turkish, Arabic, Persian and Indian influences,** including **floral motifs, lotus, swastika, Quranic verses and the Persian rose.**
- **GI Status:** It has obtained a **Geographical Indications (GI) tag .**

Integrated Transport & Logistics Authority (ITLA)

News: The Union Cabinet approved ITLA as a Special Purpose Vehicle to improve coordination and multimodal integration in transport and logistics.

About Integrated Transport & Logistics Authority (ITLA)



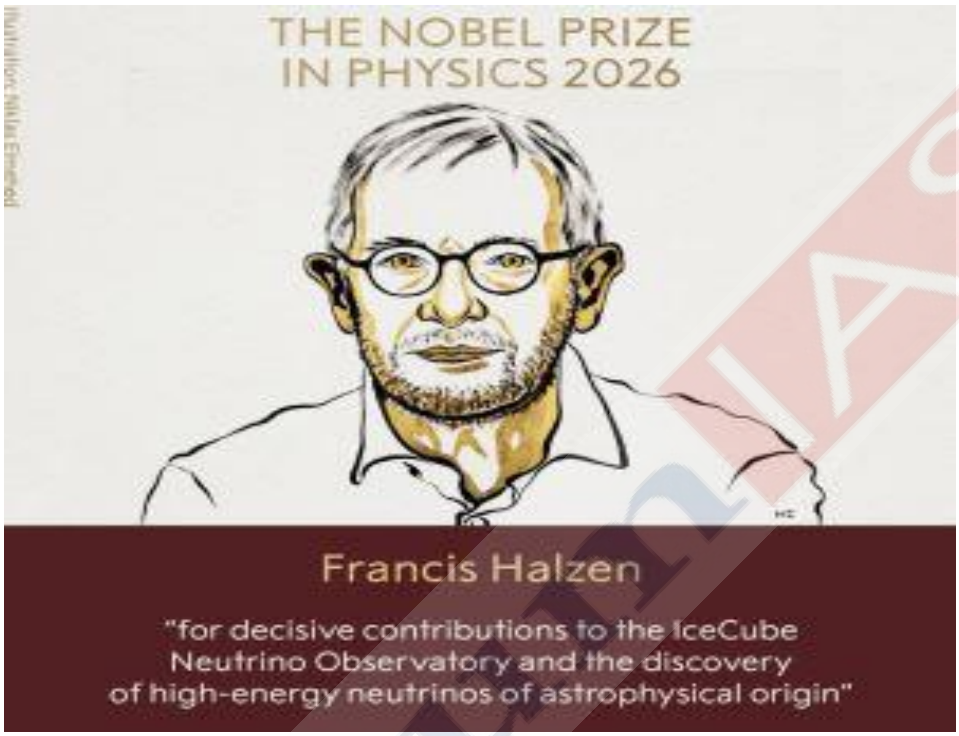
Source – PIB

- The **Integrated Transport & Logistics Authority (ITLA)** is a **Special Purpose Vehicle (SPV)** established **for the transportation and logistics sectors.**
- **Aim:** It aims to **address fragmented planning and implementation across transport-related ministries and agencies** through greater **coordination and multimodal integration**.
- **Nodal Agency:** It will be housed in the **Department for Promotion of Industry and Internal Trade (DPIIT).**
- **Key Role and Responsibilities**
    - It will function as the **apex body for integrated transport and logistics planning, research, project appraisal, monitoring, policy support and data analytics.**
    - It will prepare a **National Transport Master Plan with a planning horizon of 10 years or more**, covering major transport and logistics sectors.
    - It will evaluate **short-term sectoral and annual plans** of transport ministries **to ensure their alignment with the National Transport Master Plan.**
    - It will **undertake technical appraisal** of Government of India infrastructure **projects costing ₹500 crore or more.**
        - It will **also monitor their implementation, support issue resolution and conduct post-implementation impact assessment.**
    - It will **create a unified transport data repository** using datasets such as **GSTN e-way bills, FASTag, Vahan, GPS-based systems** and urban traffic management systems for planning and monitoring.

2026 Nobel Prize in Physics and IceCube Neutrino Detector

News: Francis Halzen won the 2026 Nobel Prize in Physics for contributions to IceCube and discovery of high-energy astrophysical neutrinos.

About 2026 Nobel Prize in Physics



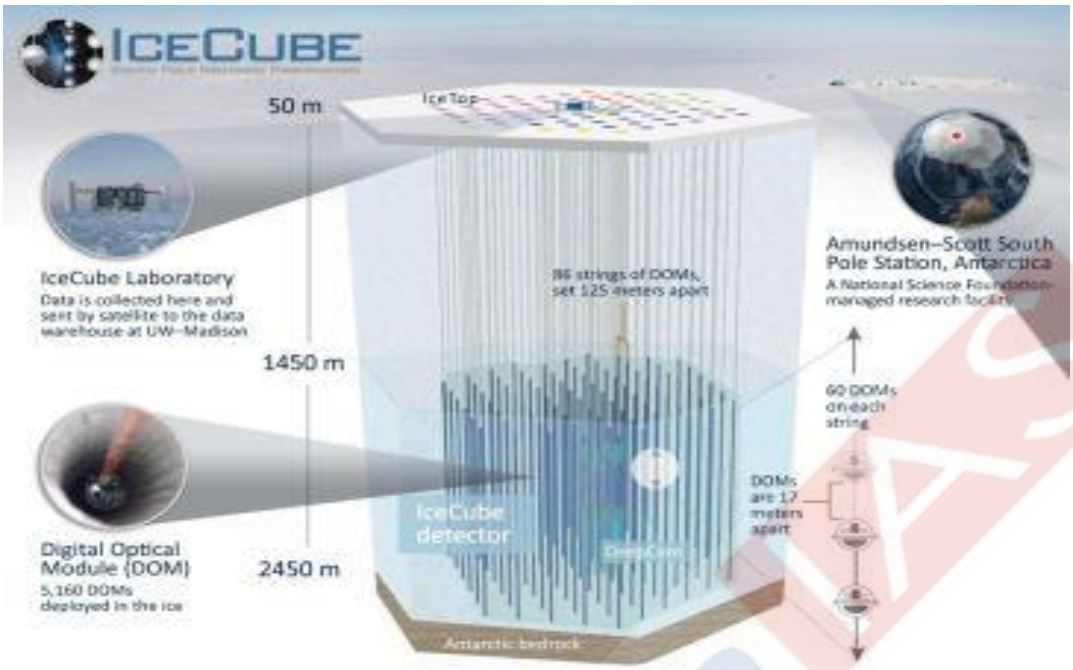
Source – Royal Swedish Academy

- **Winner:** The 2026 Nobel Prize in Physics was awarded to **Francis Halzen.**
  - He is from the **University of Wisconsin-Madison, United States.**
- **Awarded for:** It was awarded for contributions to **the IceCube Neutrino Observatory** and the **discovery of high-energy neutrinos of astrophysical origin.**
- **Key Contributions by Winner:**
  - **IceCube development:** In 1988, he **proposed an instrument to capture high-energy neutrinos at the South Pole.**
    - He later **led an international team** of researchers and engineers that **developed the IceCube detector.**
  - **Neutrino discovery:** IceCube enabled the **discovery of high-energy neutrinos originating outside the solar system.**

About Neutrinos

- **Neutrinos** are **tiny, almost massless** particles that **rarely interact with other particles and can pass through matter unnoticed.**
- They can **originate from natural particle accelerators in the universe** and **reach earth without changing direction or losing energy.**

About IceCube Neutrino Detector



Source – IceCube

- **Location:** It is located near the **Amundsen-Scott South Pole Station in Antarctica.**
- **Built by:** It was built and maintained by the **IceCube Collaboration, led by the University of Wisconsin-Madison.**
- **Aim:** It was **designed to observe neutrinos from the most violent astrophysical sources.**
- **Working Mechanism:**
    - **Detection:** A neutrino **occasionally collides with an atomic nucleus in the ice and produces charged particles.**
    - **Light production:** These **particles generate faint flashes of blue light.**
    - **Sensor detection:** 5,160 **optical sensors** embedded in about one cubic kilometre of ice **detect this light.**
    - **Analysis:** Scientists **use the radiation's properties to study the neutrino and understand its cosmic origin.**

Advanced High-Altitude Parachute (AHAP)

News: Defence Research and Development Organisation (DRDO) conducted the maiden live jump of the Advanced High-Altitude Parachute (AHAP) at one of the highest-altitude drop zones, Nyoma (Mudh DZ).

About Advanced High-Altitude Parachute (AHAP)



Source: CSR Journal

- The**Advanced High-Altitude Parachute (AHAP)** is a **static line parachute system** meant fo**r mass drop of paratroopers.**
- **Developed by:** It is designed and developed by the **Aerial Delivery Research and Development Establishment (ADRDE)** in Agra.
- **Manufactured by:** The system has been **manufactured by Ordnance Parachute Factory (OPF) Kanpur.**
- **Features:**
    - It offers **multiple deployment modes and has a wide operational altitude range** of up to 18,000 feet.
    - It has the **safest rate of descent especially suited for the tactical requirements of the Indian Defence Forces** for high-altitude terrains.
    - It has been **developed to meet the operational requirements of the Indian Defence Forces**, particularly in difficult high-altitude environments.
- **Defence Research and Development Organisation (DRDO) conducted the maiden live jump** of the AHAP at one of the **highest-altitude drop zones, Nyoma (Mudh DZ).**
    - Such extreme-altitude static-line jumps carry **risks from high opening shock and rapid descent** therefore it has been designed **to enhance safety and performance.**

SME Growth Fund

News: The Union Cabinet approved the Government of India's commitment of Rs.10,000 crore towards the establishment of the SME Growth Fund (SGF).

About SME Growth Fund



Source: PIB

- The SME Growth Fund is designed as a **direct equity investment fund.**
- **Announced by:** It has been announced by **Ministry of Finance.**
- **Fund allocation:** It will provide an **aggregate commitment of Rs.10,000 crore to the Alternative Investment Fund (AIF)** established under the SGF framework.
- **Aim:** It aimed at **catalysing growth-oriented capital for India's Small and Medium Enterprises (SMEs) and enabling the emergence of champion Indian enterprises** across manufacturing, services, technology, innovation-driven sectors, and strategic value chains.
- It will **provide patient equity capital to high-potential SMEs** with demonstrated business viability and scalability.
- **Strategic Focus of the Fund:**
    - **Manufacturing at the Core:** A major share of the **SME Growth Fund's allocations** will be directed towards **small and medium manufacturing-focused enterprises**.
        - It is intended to support firms seeking to expand **manufacturing capacity,** adopt **advanced technologies,** improve **productivity** and strengthen **export competitiveness**.
    - **Extending Growth to Industrial Clusters:** It will also consider SMEs operating in industrial clusters in **Tier-II and Tier-III cities**.
        - This is expected to support balanced **regional industrial development,** strengthen **local supply chains** and generate **quality employment opportunities**.
- It is expected **to improve scale, productivity, and strengthen export competitiveness** by enabling manufacturing enterprises to expand capacity, adopt advanced technologies and achieve greater scale.

Veerangana Durgavati Tiger Reserve

News: Two cheetahs, Vyom and Neera, were released in the reserve on October 7, 2026, expanding the cheetah conservation project in Madhya Pradesh.

About Veerangana Durgavati Tiger Reserve



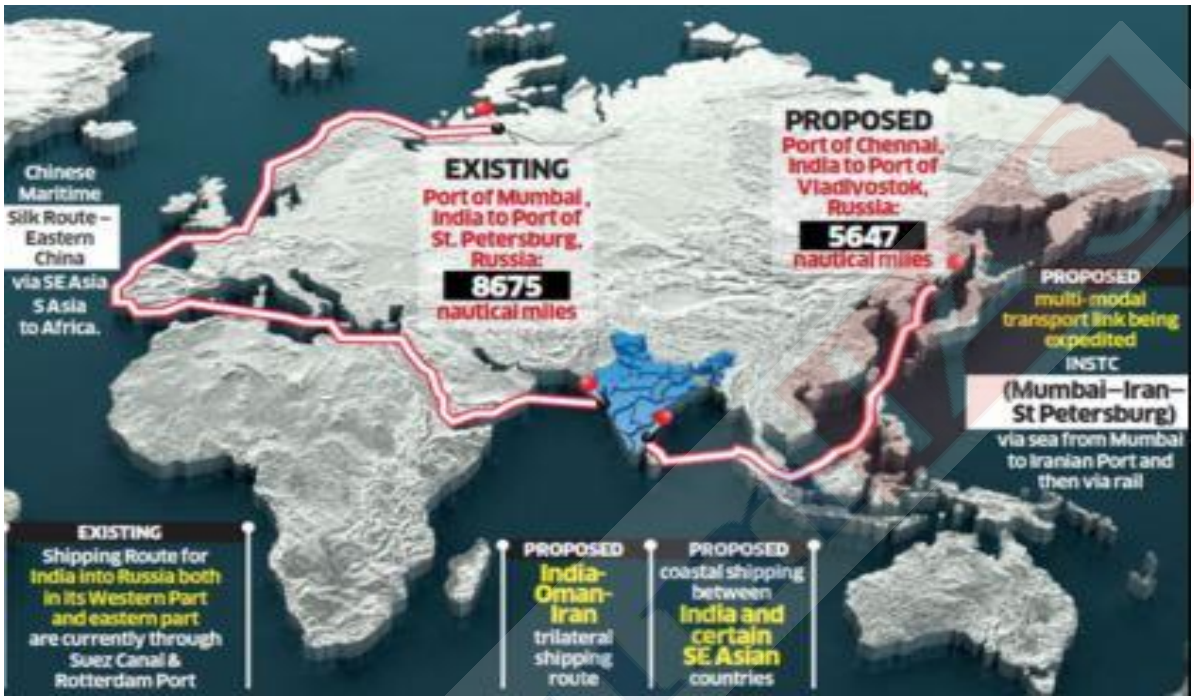
Source – ANI

- The **Veerangana Durgavati Tiger Reserve** is the **largest tiger reserve in Madhya Pradesh.**
  - It is spread across **Sagar, Damoh, and Narsinghpur districts of Madhya Pradesh.**
  - It covers parts of the **Bundelkhand and Mahakoshal regions.**
- **Comprised of:** The reserve was formed by **integrating the Nauradehi Wildlife Sanctuary** and **Veerangana Durgavati Wildlife Sanctuary.**
  - It was officially **notified as a Tiger Reserve in September 2023,** under Section 38V of the **Wildlife (Protection) Act, 1972.**
- **Landscape:** The reserve lies on a **plateau forming part of the Upper Vindhyan range** and has **hills, valleys, grasslands, rivers, streams, and waterfalls**.
- **Main rivers:** The **Kopra, Bamner, and Bearma rivers**, which are **tributaries of the Ken River,** flow through the reserve.
- **Vegetation:** The reserve mainly consists of **tropical dry deciduous vegetation**, with **teak-dominated forests, bamboo thickets, and grasslands.**
- **Flora:** Important plant species found in the reserve **include Teak, Saja, Dhaora, Ber, and Amla.**
- **Fauna:** The reserve supports **tigers**, leopards, wolves, jackals, Indian foxes, striped hyenas, Nilgai, Chinkara, Chital, Sambhar, Black Buck, Barking deer, Common Langur, and Rhesus Macaque.
  - It is one of the few places where the **critically endangered White-Rumped and Indian Vultures** are found.
- **Historical Significance:** The historic **Singorgarh Fort is located within the reserve.**

Eastern Maritime Corridor (EMC)

News: Geopolitical disruptions in the Strait of Hormuz and Red Sea have highlighted India's need for safer and diversified energy routes like Eastern Maritime Corridor (EMC).

About Eastern Maritime Corridor (EMC)



Source – TH

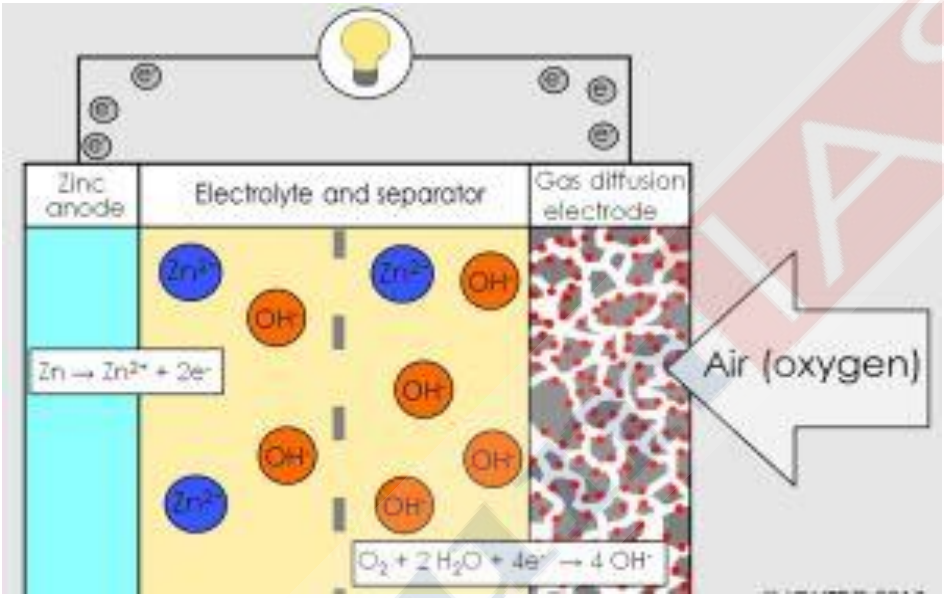
- The **Eastern Maritime Corridor (EMC)** is also called the **Chennai-Vladivostok Sea Route.**
  - It connects **South India with Russia's Far East.**
- **Origin:** It was **launched in 2019 by India and Russia** at the **Eastern Economic Forum in Vladivostok.**
- It passes through the **Sea of Japan, East China Sea, South China Sea, Malacca Strait, Andaman Sea and Bay of Bengal**.
  - It then **reaches Chennai** through the **Andaman and Nicobar archipelago.**
- **Key Features:**
  - **Shorter Distance:** The route covers about **5,647 nautical miles (10,458 km)**, **reducing** the distance by up to **40%** compared with the traditional route.
  - **Reduced Transit Time:** The EMC takes about **24 days**, compared with **40 days on** the traditional route, saving up to 16 days**.**
  - **Access to Russia's Far East:** The **Vladivostok Port** provides India with **access to the resource-rich Russian Far East**.
  - **Energy Security:** The EMC can help **reduce India's exposure to maritime chokepoints** by providing an **alternative route for trade and energy supplies from Russia.**
  - **Lower Freight Cost:** Ocean freight through the EMC is **expected to be more than 50% cheaper than the Suez route** because of its shorter distance and absence of canal transit charges.

- **Trade Potential:** India and Russia have linked the corridor with their goal of **achieving US$100 billion annual bilateral trade by 2030.**

Zn-air Batteries and TTT-DHTD Material

News: Scientists have developed TTT-DHTD, a metal-free material that performs nearly as well as platinum in zinc-air batteries.

About Zinc-air (Zn-air) Batteries



Source – ReserachGate

- A **zinc-air battery** is a **metal-air electrochemical cell** that **generates electricity** by **oxidizing zinc using oxygen** from the **surrounding air**.
- **Anode (Zinc):** A porous mass of **zinc** particles saturated with an alkaline electrolyte (usually potassium hydroxide, KOH).
- **Cathode (Air):** An open structure that **absorbs oxygen from the air**, using a catalyst (like manganese or carbon) to reduce the oxygen.
- **Working Mechanism:**
  - Oxygen from air reacts at the **electrode** through **oxygen reduction reaction (ORR)** to generate electricity.
  - The battery **uses oxygen directly from air,** so it does **not need to store an active cathode material.**
  - The **efficiency of the ORR strongly affects the battery's performance.**
- **Advantages:** They have the potential for **higher theoretical energy density, lower material cost, improved safety and greater sustainability than lithium-ion batteries.**
- **Challenges: Rechargeability, cycle life and oxygen reduction reaction (ORR) kinetics** remain major challenges.

About TTT-DHTD Material



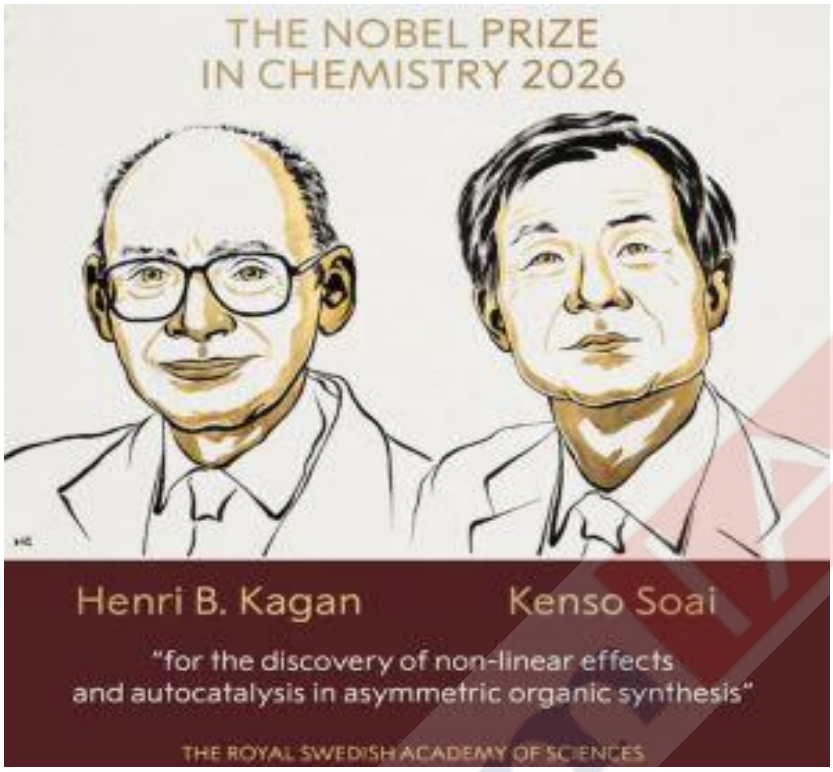
Source – DD News

- **TTT-DHTD** is a **metal-free organic porous material.**
- **Purpose:** It was **developed as an alternative to platinum-based oxygen reduction reaction (ORR) catalysts.**
- **Developed by:** It was developed collaboratively by researchers from the **S. N. Bose National Centre for Basic Sciences** (SNBNCBS), **Kolkata**; the **Institute of Nano Science and Technology** (INST), **Mohali**; and **SRM University, Amaravati.**
- **Composition:** It is made from **carbon, sulfur, nitrogen and hydrogen.**
- **Building blocks:** It is synthesized **using TTT** (2,4,6-tris(4-aminophenyl)-1,3,5-triazine) and **DHTD** (4,8-dioxo-4,8-dihydrobenzo[1,2-b:4,5-b']dithiophene-2,6-dicarbaldehyde) **linkers**.
- **Structure:** These linkers form an **ultra-porous, honeycomb-like covalent organic framework (COF).**
- **Key Features:**
    - **Performance:** In laboratory tests, TTT-DHTD **performed almost as well as platinum in helping oxygen react to generate electricity,** achieving about 96% of platinum's performance.
    - **Stability:** It maintained its performance after **120 hours of continuous operation.**
    - **Molecular Structure:** Its structure **creates favourable sites for oxygen molecules to attach and react.**
    - **Metal-free:** It works **without using precious metals.**
- **Applications:** TTT-DHTD could support **Zn-air cells, clean transportation, portable power systems and renewable-energy storage.**

2026 Nobel Prize in Chemistry

News: The 2026 Nobel Prize in Chemistry was awarded to Henri B. Kagan and Kenso Soai for discoveries explaining how homochirality can emerge spontaneously.

About 2026 Nobel Prize in Chemistry



Source – CNBC

- **Winners:**
  - **Henri B. Kagan** from France, and
  - **Kenso Soai** from Japan.
- **Awarded for:** The 2026 Nobel Prize in Chemistry is awarded for **discoveries of non-linear effects and autocatalysis in asymmetric organic synthesis.**
  - These discoveries **enabled chemists to control reactions and produce predominantly or exclusively one of two molecular mirror images, leading to homochirality.**
- **Homochirality:** Homochirality refers to the **state in which only one of two mirror-image forms of a molecule is present.**
  - In life's chemistry, for example, **amino acids exist as two mirror-image forms**, but **only one form is found in proteins.**

Key Contributions by Winners

- **Henri B. Kagan – Controlling Molecular Asymmetry:**
  - Kagan studied **how chemical reactions could be made to produce more of one mirror-image molecule than the other.**
  - He found that **changing the proportion of the two mirror-image forms in a reaction could produce a much different proportion** of the resulting products, **showing a non-linear effect.**
  - **In 1986**, he **developed a method to manipulate chemical reactions** so that they **produced a greater excess of one mirror-image form** than previously thought possible.
- **Kenso Soai – Achieving Homochirality:**
  - Building on Kagan's work, Soai searched for **non-linear, asymmetric reactions that could catalyse their own formation.**

- In **1995**, he designed the **first chemical reaction with the potential to become homochiral.**
- In **2003, he demonstrated a reaction that produced only one of the two possible mirror-image forms.**

Sasol Solar Challenge 2026

News: Team AgniRath from IIT Madras has secured 3rd Place overall at the prestigious Sasol Solar Challenge 2026 in South Africa.

About Sasol Solar Challenge 2026



Source: DD News

- **Sasol Solar Challenge 2026** is a **South Africa's competition** that brings together **local and international teams** to **design, build and race solar-powered vehicles.**
  - It tests their **technology, manufacturing and strategy**.
- **Frequency:** It has been conducted **biennially since 2008.**
- **Hosting Country:** It is hosted by **South Africa.**
- **Feature:**
  - During the competition, cars can operate only from **8 a.m. to 5 p.m. each day**.
  - The winner is the team that **covers the longest distance over eight days** and not the team that finishes first.
- **India's Performance:**
  - **Team AgniRath from IIT Madras secured 3rd place** overall at the **Challenge**.
    - It is the **first Indian team to participate in the challenge and win a trophy**.
    - Their solar-powered car **Aagneya covered 1,192.6 km in 8 days**, from **Johannesburg to Cape Town**, through difficult terrain and weather.

PRASHAST Platform

News: Over 60,000 schools participated in a nationwide screening of an orientation module on inclusive education through the PRASHAST portal.

About PRASHAST Platform



Source – PIB

- **PRASHAST** stands for **Pre-Assessment Holistic Screening Tool.**
- It is a **government initiative** that **helps identify, support, and track children with special educational needs**, from early screening to inclusive education.
- **Origin:** It was launched in **September 2022** and upgraded to **PRASHAST 2.0 in late 2025.**
- **Developed by:** It was developed by the **Central Institute of Educational Technology (CIET), NCERT.**
- **Enabling Acts and Policies:** It aligns with the **Rights of Persons with Disabilities (RPwD) Act, 2016,** and the **National Education Policy (NEP) 2020.**
- **Aim:** It **aims** to **identify children with probable disabilities** at an early stage, support timely referrals for **formal assessment, and promote inclusive education.**
- **Key Features:**
    - **Two-Part Screening:** Part I enables **regular teachers to screen students using observable indicators.**
        - **Part II** allows **special educators, counsellors, or school heads** to conduct **further screening and validate initial findings.**
    - **Coverage of Disabilities:** It provides **checklists for all 21 disability conditions** recognised under the RPwD Act, 2016.
    - **Digital Integration:** It integrates with **national data sources such as UDISE+, APAAR ID, and the Swavlamban Card Portal** to track enrolment, screening, and interventions.

- **Reporting and Referrals:** It generates **standardized school-level reports** to **document screening** and **support the formal disability certification process.**

Slaty Egret (Egretta vinaceigula)

News: Changes in the breeding sites of the Slaty Egret in Botswana's Okavango Delta have highlighted its role in monitoring ecosystem changes.

About Slaty Egret



Source – DTE

- The **Slaty Egret (Egretta vinaceigula)** is a **small, shy waterbird.**
- **Family:** It belongs to the **heron family.**
- **Habitat:** It inhabits **river floodplains, marshes and temporary shallow wetlands** with short, emergent vegetation.
  - It prefers **shallow water with a depth of less than 10 cm for feeding.**
- **Distribution:** It mainly occurs in northern **Botswana**, especially around the **Okavango Delta and the Linyanti-Chobe river system**.
  - It is also found in **Zambia, Namibia and Zimbabwe.**
- **Characteristics:**
  - **Appearance:** It is a **small, dark-coloured egret** with a distinctive **slaty-grey appearance.**
  - **Breeding Behaviour:** It usually breeds between **March and June,** often during high flood levels.
  - **Nesting Sites:** It nests in **small colonies on islands or in reedbeds surrounded by water**, which help reduce disturbances.
  - **Diet:** It feeds mainly on **young fish, amphibians and aquatic invertebrates.**
  - **Movement:** It is **mostly sedentary** but may **move between wetlands in response to rainfall and changing habitat conditions.**

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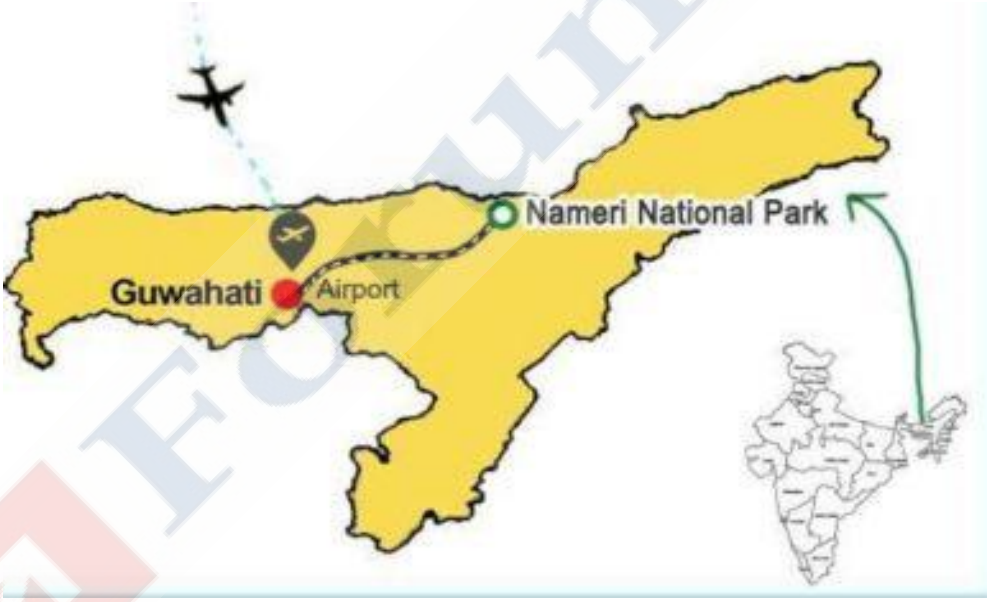
- **Ecological Indicator:** Changes in its distribution and breeding sites can help scientists **identify changes in water availability, vegetation and habitat conditions.**

- **Threats:**
  - Habitat loss
  - Water regulation and abstraction
  - Agricultural expansion
  - Dam construction, fires
  - Human disturbance
  - Invasive species
- **Conservation Status:**
  - **IUCN Status: Vulnerable**.
  - **International Agreement:** The species is covered by the **Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA).**

Nameri Tiger Reserve and Conservation Assured | Tiger Standards (CA|TS) Framework

News: Nameri Tiger Reserve in Assam has received CA|TS Approved status after meeting the required standards for tiger conservation and protected area management.

About Nameri Tiger Reserve



Source – ResearchGate

- **Location:** The **Nameri Tiger Reserve** is located in the **northern part of Sonitpur district, Assam.**
- **Borders:** It shares its northern boundary with **Pakke Tiger Reserve and Doimara Reserve Forest in Arunachal Pradesh.**
- **Established:** It was **declared a national park in 1998** and **notified as a tiger reserve in 2000.**
- **Compositions:** It is comprised of-
  - **Two protected areas – Nameri National Park and Sonai-Rupai Wildlife Sanctuary,** and
  - **Two reserve forests – Naduar Reserve Forest and Balipara Reserve Forest.**
- **Area :** It covers **464 sq. km**, including a **core area of 320 sq. km** and a **buffer area of 144 sq. km.**

- **Major Rivers:** The **Jia-Bhoroli** is the main river flowing through the reserve.
    - Its tributaries include the **Diji, Dinai, Doigurung, Nameri, Dikorai and Khari.**
    - The river is known for the **Golden Mahseer, a fish** popularly **called the "Tiger of Indian rivers."**
- **Vegetation:** The reserve has **tropical evergreen, semi-evergreen and moist deciduous forests**, along with **cane brakes and grasslands.**
- **Flora:** Important plant species include **Hollong, Nahor, Simul, orchids and medicinal plants.**
- **Fauna:** The reserve is home to the **Royal Bengal tiger, leopard, clouded leopard, wild dog and Asian elephant.**
    - It is also known for the **White-winged Wood Duck.**

About Conservation Assured | Tiger Standards (CA|TS) Framework

- **Conservation Assured | Tiger Standards (CA|TS) Framework** is a globally recognized **certification** system that **assesses the effectiveness of tiger conservation areas and promotes good management practices.**
- **Launching:** The framework was launched at the **first Asian Parks Congress in Japan in 2013.**
- **Implemented by:** The **Global Tiger Forum (GTF)** has supported its adoption and implementation across tiger landscapes.
- **Aim:** Its aim is to **secure safe habitats** where wild tigers can **live, breed and recover without threats.**
- **Structure:** The CA|TS framework consists of **seven pillars and 17 core elements, divided into two groups:**
    - **5 Conservation Assured (CA) Pillars:** These five pillars **cover general aspects** of conservation area management **– importance and status, management, community, tourism (optional) and protection.**
    - **2 Tiger Standards (TS) Pillars:** These two pillars **focus** specifically on **tiger conservation – habitat management and tiger populations.**
- **CA|TS Process:**
    - **Assessment:** It involves **self-assessment, national audits and international review** to evaluate management practices.
    - **Recognition:** Conservation areas can **receive Registered or Approved status based on the assessment.**
    - The **framework is voluntary** and helps identify gaps in management.
- **Framework Alignment:** CA|TS **aligns with the IUCN World Commission on Protected Areas (WCPA) Management Effectiveness Framework**.

Living Planet Report 2026

News: The Living Planet Index 2026 was been published recently by the World Wide Fund for Nature (WWF).

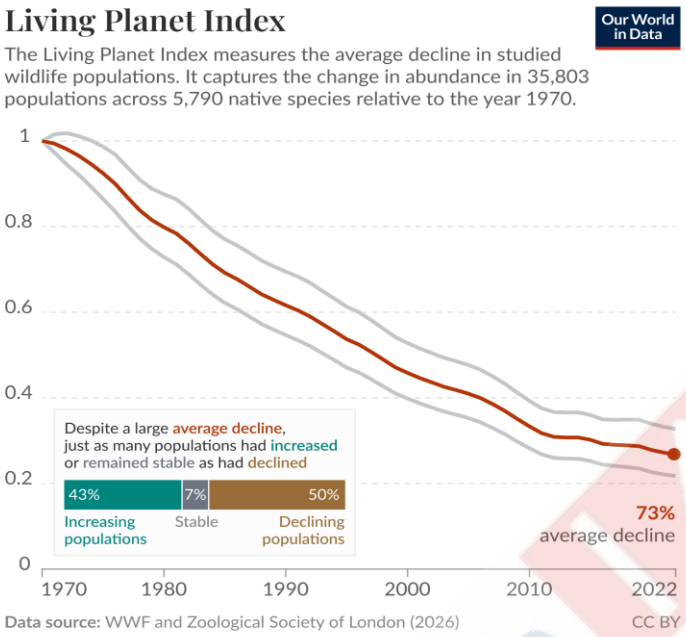
About Living Planet Report 2026



Source: WWF

- **Living Planet Report** is **a measure of the state of the world's biological diversity based on population trends of vertebrate species** from terrestrial, freshwater and marine habitats.
- **Released by:** It is released **by** **World Wide Fund for Nature (WWF)**.
- **Purpose:** It measures the **average rate of change in population size** across the species monitored.
- **Developed by:** It was **first developed in 1998 by WWF** to monitor the changing state of nature.
    - **Zoological Society of London (ZSL)** has been managing **the LPI in a collaborative partnership with WWF since 2006.**
- It was adopted by **the Convention of Biological Diversity (CBD) as an indicator of progress towards its 2011-2020 targets** and it is now **an indicator in the post-2020 Kunming-Montreal Global Biodiversity Framework.**

Key Findings of the Living Planet Report 2026



Source: WWF and Zoological Society of London (2026)

- **Global Wildlife Decline:** The average size of monitored **vertebrate populations declined 73%** over 52 years between 1970 and 2022.
    - This is **based on scientific monitoring data from 35,803 populations and 5,790 species of amphibians**, birds, fishes, mammals and reptiles.
- **Decline in ecosystems:** The **strongest declines were seen in freshwater ecosystems** with average **population sizes plunging 85%, followed by terrestrial ecosystems, at 69% and marine ecosystems at 59%.**
- **Regional Variation:** At a regional level, the **steepest declines since 1970 have been recorded in Latin America and the Caribbean (-95%), Africa (-80%), and Asia and the Pacific (-49%).**
- **Evidence of Wildlife Recovery:** The report highlights **recoveries in populations of green turtles, bluefin tuna, tigers and southern African elephants.**
    - It demonstrates **that targeted conservation interventions** can deliver proven results.
    - The **report noted rise in global wild tiger numbers between 2010 and 2025, from 3,200 to around 5,700 individuals.**
- **Causes of wildlife decline: Habitat loss and degradation, overexploitation of resources, climate change, impact of invasive species, pollution and disease** are some of the dominant drivers of changes across ecosystems and wildlife populations.
- **Suggestions:**
    - Countries should implement the goals of the **Kunming-Montreal Global Biodiversity Framework and Paris Agreement** to drive systemic change.
    - Upcoming **UN biodiversity and climate conferences** provide an opportunity to move from **ambition to implementation**.

SAREX-2026

News: Raksha Rajya Mantri Shri Sanjay Seth inaugurated the Multinational Search and Rescue Exercise (SAREX-2026) .

About SAREX-2026



Source: Bharat Shakti

- **Multinational Search and Rescue Exercise (SAREX-2026)** is a **multi-agency exercise** to **test operational preparedness, joint response mechanisms and international interoperability.**
    - It promotes **exchange of best practices**, with **preservation of life at sea** as the paramount objective.
- **Location:** It is to be conducted **off Paradip, Odisha on October 08, 2026.**
- **Hosted by**: It is being conducted by the **Indian Coast Guard.**
- **Participants:** The exercise will have participation and observation of **32 delegates from 30 foreign friendly nations.**
    - **Assets Deployed:** The assets deployed included **15 Coast Guard ships, three Dornier aircraft, three Advanced Light Helicopters, one Chetak helicopter, IAF C-130J and Mi-17 aircraft, two Indian Navy ships,** along with civil and state resources and shore-based support units.
- **Theme:** SAREX-2026 theme is **"Leveraging Technology to Strengthen SAR Preparedness and Maritime Safety."**
- **2026 Edition:** This is the **12th edition of National Maritime Search and Rescue Exercise.**
    - The **first edition** was conducted in **2003.**
- **Features:**

- The exercise **brought together maritime and aeronautical agencies** to **demonstrate operational readiness, interoperability and coordinated response** to mass rescue operations at sea.
- **Activities conducted:** It simulated a **Mass Rescue Operation** involving simultaneous **aeronautical and maritime emergencies**.
    - The scenario involved a passenger aircraft carrying **228 persons ditching at sea and colliding with the container vessel MV Zumba**.
    - The exercise involved activation of the **Incident Command Post**, **firefighting operations, helicopter evacuations, deployment of life rafts and air-droppable life rafts**, **Jason Cradle and Gemini recovery**, rescue basket operations, and **scramble net procedures**.
    - The exercise also included a demonstration of **Remotely Operated Vehicle (ROV) capability**.

ASW-SWC Mangrol

News: The third Anti-Submarine Warfare Shallow Water Craft, Mangrol, is scheduled to be commissioned into the Indian Navy on 12 October 2026.

About ASW-SWC Mangrol



Source – Indian Navy

- **Mangrol** is the **3rd Anti-Submarine Warfare Shallow Water Craft (ASW-SWC)** of Indian Navy.
- **Built by:** It was built by **Cochin Shipyard Limited (CSL), Kochi.**
- **Naming:** It is named after **Mangrol, a coastal town and prominent fishing harbour in Gujarat's Junagadh district.**
    - The name also continues the legacy of the erstwhile **INS Mangrol (M85), a minesweeper that served the Navy until 7 April 2004.**
- **Aim:** It is designed to **detect and counter underwater threats in coastal and shallow waters.**
- **Key Features:**

- It is built with over **80% indigenous content** under the **Government of India's Make in India and Aatmanirbhar Bharat initiatives.**
- **Armaments and Sensors:** It carries the **Abhay Hull-Mounted Sonar, lightweight torpedoes**, an indigenous **anti-submarine rocket launcher** and the **Maareech Advanced Torpedo Decoy System**.
- **Propulsion:** It uses **three diesel engines** with **waterjet propulsion,** which provide high manoeuvrability in shallow waters.

- **Significance**
  - It can conduct **underwater surveillance, Low-Intensity Maritime Operations** and **mine warfare-related tasks.**
  - It can operate alongside **maritime patrol aircraft, helicopters** and other **warships to counter submarine threats.**
  - It will strengthen the **Navy's anti-submarine warfare capabilities** and help **protect ports, harbours and coastal approaches.**

'Utkalmani' Gopabandhu Das

News: Odisha paid tributes to Gopabandhu Das on his 149th birth anniversary, recognising his contributions to the freedom struggle, social reform, journalism and Odia literature.

About 'Utkalmani' Gopabandhu Das



Source – NOA

- **Gopabandhu Das** was a **freedom fighter, social reformer, educationist, journalist and poet** from Odisha.
- **Early Life:**
  - **Birth:** He was born on **9 October 1877** in Suando village near Sakshigopal in **Puri district, Odisha.**
  - **Early Activism:** While studying at **Ravenshaw College**, he established the **Kartavya Bodhini Samiti** to promote **social service, duty and national awareness among students.**

    - **Career:** He **gave up his legal practice** to devote himself to the **freedom struggle and social reform.**
- **Title:** He received the **title 'Utkalmani', meaning 'Gem of Odisha', from Prafulla Chandra Roy** for his selfless service to the people of Odisha.
- **Influenced By:**
    - **Vande Mataram Group:** During his stay in Calcutta, he came into contact with the Vande Mataram group, which **inspired him with the spirit of Swadeshi.**
    - **Lala Lajpat Rai:** At his request, Gopabandhu Das joined the **Servants of the People Society** and worked to implement its programmes.
- **Major Contributions:**
    - **Freedom Movement:** He actively participated in the **freedom struggle and promoted the Non-Cooperation Movement in Odisha.**
        - He encouraged people to join the national movement and helped **spread the message of the charkha and other constructive programmes of the Congress.**
    - **Politics:** He became the **first President of the Congress party in Odisha in 1920** and continued in the position until 1928.
        - He also **worked for the creation of a separate Odisha province.**
    - **Education:** He founded **Satyabadi Bana Vidyalaya in 1909** in Puri district to **promote education and develop moral values** among students.
    - **Journalism:** He founded the **Odia newspaper The Samaja in 1919**.
    - **Social Service:** He established the **Puri Seva Samiti to help cholera victims.**
        - He also campaigned **against untouchability** and supported **widow rehabilitation.**
    - **Literary Work:** He wrote several works in Odia, including **Abakasha Chinta, Dharmapada, Kara Kabita and Bandira Atmakatha.**
- **Death:** He died on **17 June 1928,** following illness, at the age of 50.

Laver Cup

News: The ninth edition of the Laver Cup was held at the O2 Arena in London, where Team Europe defeated Team World 13–5 to reclaim the trophy.

About Laver Cup



Source – TH

- Th **Laver Cup** is an **annual man's team tennis tournament.**

- It features **two teams,** with **six players representing Europe** and **six players representing the rest of the world.**
- **Origin:** The idea was **developed by Roger Federer** and his **business partner Tony Godsick in 2014.**
    - Their management company, **Team 8, organised the first edition in Prague in 2017.**
    - **2026 Edition:** The **ninth edition of the Laver Cup** was held from 25 to 27 September 2026 **at the O2 Arena in London.**
- **Inspired By:** It was inspired by the **Ryder Cup in golf.**
- **Naming:** It was **named after Rod Laver**, an **Australian tennis player.**
    - He was the **only player to complete the calendar-year Grand Slam twice, in 1962 and 1969.**
- **Host:** The host **location alternates between Europe and other parts of the world.**
- **Key Features:**
    - **Team Structure:** The tournament features **two teams,** Team **Europe and Team World**, each consisting of **six players**.
        - The **top three players from each region** are selected based on **Association of Tennis Professionals (ATP) rankings**, while the **captains choose the remaining three players.**
    - The teams are **led by captains.**
    - **Match Format:** The competition **runs for three days,** with **three singles matches** and **one doubles match** scheduled each day.
        - Matches are **played in the best-of-three-sets format.**
    - **Scoring System:** Matches on **Day 1 are worth 1 point, Day 2 are worth 2 points, and Day 3 are worth 3 points.**
    - **Winning Criteria:** The **first team to reach 13 points wins the tournament.**

Sarus Crane and All-India Sarus Crane Survey

News: The Bombay Natural History Society (BNHS) has announced a nationwide survey to estimate the Sarus Crane population on October 9 and 10, 2026.

About Sarus Crane



Source – DTE

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- The **Sarus Crane (Antigone antigone)** is the **world's tallest flying bird**.
    - It is **India's only resident breeding crane species.**
- **Habitat:** It inhabits **wetlands, marshes, shallow water bodies, grasslands and agricultural landscapes**, including flooded paddy fields.
- **Distribution:** It is found across parts of **Southeast Asia, northern India and northern Australia.**
    - In India, it is largely restricted to **Uttar Pradesh, Gujarat, Rajasthan, Madhya Pradesh and Haryana**, with isolated populations in **Maharashtra**.
- **Characteritics:**
    - **Appearance:** It has **grey plumage, a bare red head and upper neck**, and **reddish legs.**
        - It stands about **1.5 m tall.**
    - **Social Behaviour:** It is usually **found in pairs or small groups of three or four birds.**
    - **Breeding:** It is **monogamous** and is **known to mate for life**.
        - It builds **nests in natural wetlands and flooded paddy fields.**
    - **Ecological Importance:** Its presence **indicates the health of wetland and agricultural ecosystems.**
- **Threats:**
    - Wetland degradation
    - Changes in agricultural land use
    - Pesticides
    - Power-line collisions, electrocution
    - Human disturbance, poaching
    - Predation by wild and free-ranging dogs.
- **Status:**
    - **IUCN Red List: Vulnerable**
    - **CITES: Appendix II**
    - **Wild Life (Protection) Act, 1972: Schedule I**

About All-India Sarus Crane Survey



Source – PIB

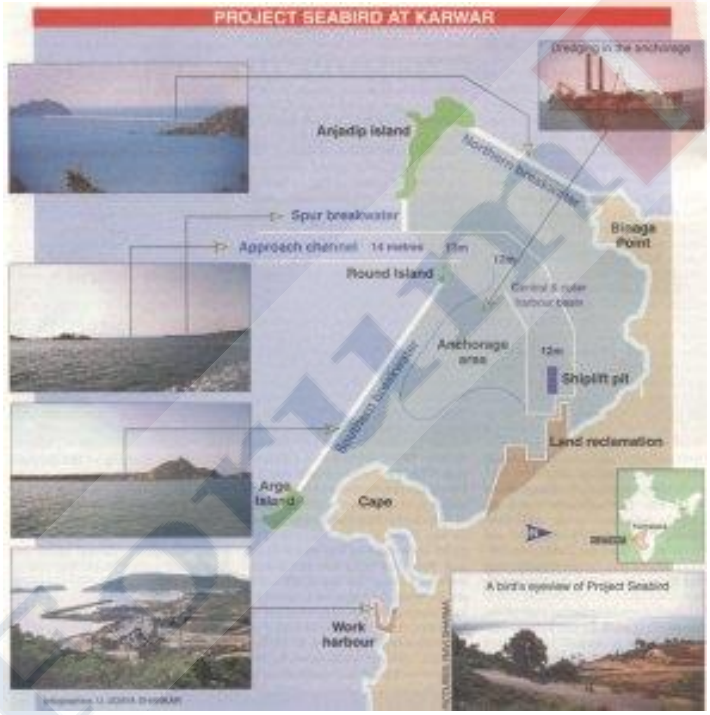
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- The **All-India Sarus Crane Survey** is a nationwide initiative to **establish a scientific baseline for the Sarus Crane population in India.**
- **Organised by:** It is organized by the **Bombay Natural History Society (BNHS).**
- **Objective:** It aims to **estimate population numbers**, **identify important habitats**, **map breeding and feeding sites**, and **guide targeted conservation measures.**
- **Participants: State forest departments, research institutions, conservation organisations, local communities, farmers, educational institutions and citizen** scientists have been invited.

PROJECT SEABIRD

News: Residential accommodation for Senior Sailors and Defence Civilians of Indian Navy along with critical trunk utility and amenity infrastructure was inaugrated as part of Project Seabird Phase IIA.

About PROJECT SEABIRD



Source: Bharat Rakshak

- **Project Seabird** is a **strategic naval infrastructure project** of the **Indian Navy.**
- It is the **largest naval infrastructure project** for India.
- **Location:** It is loacted at **Karwar, Karnataka, on the western coast of India.**
- **Aim:** To **establish a state-of-the-art naval base** to support India's maritime security and operational readiness.
- **Phases of Development:** It has been **developed in two phases:**
    - **Phase I** focused on **creation of berthing, docking, and basic logistic facilities for naval ships.**
    - **Phase IIA (Ongoing)** aims to **support ships and submarines** through a Naval Air Station, a full-fledged Naval Dockyard and logistics facilities.
- **Strategic Importance:**

- It strengthens **India's maritime security posture** in the **Arabian Sea**.
- It provides **strategic depth to the Western Naval Command.**
- It **reduces congestion at Mumbai naval dockyard** and enhances fleet dispersal and survivability.

Robotics for Good Youth Challenge India 2026–2027

News: The Robotics for Good Youth Challenge India 2026–2027 concluded in New Delhi, with two winning teams selected to represent India at the global finale.

About Robotics for Good Youth Challenge India 2026–2027



Source – DD India

- The **Robotics for Good Youth Challenge** is a **UN-based global robotics championship** organised by the **International Telecommunication Union (ITU).**
- **Organised by:** The Indian national event was organised by **ITU and IIT Delhi's I-Hub Foundation for Cobotics (IHFC)**, with support from the Department of Telecommunications (**DoT**), Ministry of Communications.
- **Origin:** The Indian **edition began in 2024** during the **World Telecommunication Standardization Assembly hosted by India.**
  - The subsequent **editions were held at India Mobile Congress in 2025 and 2026.**
- **Focus:** The competition **focuses on addressing health emergencies through robotics.**
- **Eligibility:** Students **aged 10–18 years participated in junior and senior categories.**
- **Objective:** The challenge aims to **develop problem-solving, teamwork and STEM skills among young innovators through practical robotics activities.**
- **Key Features:**
  - **Participation:** The competition brought **together 57 teams and around 300 students and mentors from 14 states.**
  - **Robotic Tasks:** Participants **designed, built and programmed autonomous robots for sample delivery, quarantine-zone construction, medical-kit distribution and medical triage.**
  - **Open Technology:** The competition promotes **free and open-source software and hardware, enabling participants to assemble and programme robots.**

- **National Winners: Team Singularity from Karnataka won the junior title**, while **Team Ferrum Incubators from Noida won the senior title.**
- **Global Opportunity: Both winning teams will represent India** at the global finale during the **AI for Good Global Summit in Geneva in June 2027.**

Next-Generation Offshore Patrol Vessel 'Shreyas'

News: Garden Reach Shipbuilders & Engineers Ltd. (GRSE) launched 'Shreyas', the third of four Next-Generation Offshore Patrol Vessels built for the Indian Navy.

About Next-Generation Offshore Patrol Vessel 'Shreyas'



Source – IDRW

- **Classification:** It is the **third of four** Next-Generation Offshore Patrol Vessels **(NGOPVs).**
  - The NGOPVs form part of the **Indian Navy's 11-ship NGOPV programme.**
  - The **first vessel, Sanghmitra**, was launched in May 2026, and the **second, Shruti**, in August 2026.
- **Built by:** Garden Reach Shipbuilders & Engineers Ltd. **(GRSE)**
- **Naming:** The name **'Shreyas' comes from Sanskrit and means 'Best' or 'Most Excellent'.**
- **Key Features:**
  - **Dimensions:** The vessel is **113 m long, 14.6 m wide** and has a displacement of **3,000 tonnes**.
  - **Speed:** It can achieve a **maximum speed of 23 knots.**
  - **Endurance:** It can **cover 8,500 nautical miles at a cruising speed of 14 knots.**
  - **Maritime Security:** It is designed for **coastal and offshore asset protection, maritime interdiction, surveillance, and mine warfare.**
  - **Special Operations:** It can undertake **special operations, anti-piracy missions, counter-infiltration, and visit, board, search and seizure (VBSS) operations.**
  - **Additional Roles:** The vessel can support **humanitarian assistance and disaster relief (HADR), search and rescue missions**, and Out of Area Contingency Operations.

Katchatheevu Island

News: Sri Lankan President Anura Kumara Dissanayake said India had acknowledged Katchatheevu as part of Sri Lanka before the Supreme Court.

About Katchatheevu Island



Source – IE

- **Location: Katchatheevu** is a small, **uninhabited** island located in the **Palk Strait between India and Sri Lanka.**
    - It lies **33 km northeast of Rameswaram** and **62 km southwest of Jaffna.**
- **Geographical Features:**
    - **Formation:** It was formed through **volcanic activity during the 14th century.**
    - **Water Availability:** The island has **no source of drinking water,** making it unsuitable for permanent settlement.
- **Historical Background:**
    - **Historical Control:** The **Jaffna kingdom governed** it during the **early medieval period.**
        - By the **17th century, control shifted to the Raja of Ramnad,** and it later became **part of the Madras Presidency.**
    - **Colonial Dispute:** In **1921, British India and Sri Lanka both claimed** the island while determining fishing boundaries.
- **Maritime Dispute:**
    - **International Maritime Boundary Line (IMBL):** The maritime boundary between India and Sri Lanka was **delineated through the 1974 agreement.**
        - It **determines the limits of their maritime zones**, including territorial waters and Exclusive Economic Zones (EEZs).

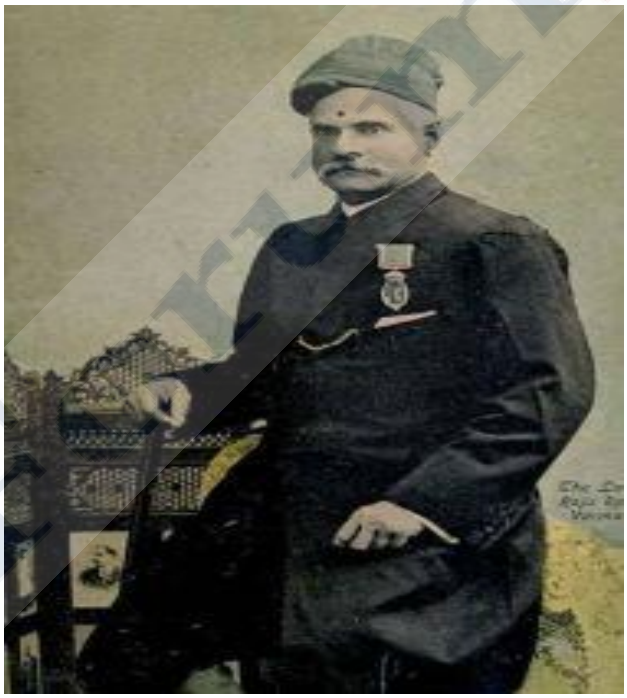
- **1974 Agreement:** Prime Ministers **Indira Gandhi and Sirima R. D. Bandaranaike signed an agreement** recognising **Katchatheevu as part of Sri Lankan territory.**
- **Access Rights:** Indian **fishermen could visit the island to rest, dry their nets and visit St. Anthony's Church.**
  - However, the **agreement did not settle fishing rights.**
- **1976 Agreement:** A subsequent treaty **restricted fishermen from both countries from fishing in each other's EEZs,** leaving fishing rights a continuing source of uncertainty.

- **Current Position:** Sri Lankan President Anura Kumara Dissanayake said India had **acknowledged before the Supreme Court that Katchatheevu belongs to Sri Lanka.**
  - He also reiterated that **Sri Lanka would not allow its airspace, land or sea to be used in a manner that threatens India.**

Raja Ravi Varma

News: Radhikaraje Gaekwad, Maharani of Baroda and custodian of one of the world's largest private collections of Raja Ravi Varma's original paintings, announced that the paintings will be exhibited across India and abroad in the future.

About Raja Ravi Varma



Source – Past India

- **Raja Ravi Varma** was an **Indian painter** celebrated for **blending Hindu themes** with **European realism and naturalism**.
- **Birth:** He was born to an **aristocratic family in Travancore (Kerala) in 1848.**
- **Early life:** He began training in **painting, particularly water colours, in the Travancore palace at 14** under court artist Rama Swami Naidu.
  - He later picked up **oil painting techniques by observing British painter Theodore Jenson at the Travancore court.**

- **Patronized by:** He was patronized by **Ayilyam Thirunal, the then ruler of Travancore.**
- **Artistic Style:** He blended **Indian mythology and themes with European techniques,** particularly **oil painting, realism and three-dimensional effects.**
    - He painted **portraits and scenes from the Mahabharata and Ramayana,** depicting dramatic episodes from Indian mythology.
    - His works, such as **Harischandra in Distress, Jatayu Vadha and Shri Rama Vanquishing the Sea, realistically portrayed Hindu deities** and epic characters.
- **Famous works:** Damayanti Talking to a Swan, **Shakuntala Looking for Dushyanta,** Nair Lady Adorning Her Hair, **Shantanu and Matsyagandha and Yashoda and Krishna** are his famous works.
- **Contributions:**
    - He was among the **first Indian artists to use oil paints** and **master lithographic reproduction.**
    - In **1873**, the **painting of Nair Lady Adorning Her Hair** won the Governor's Gold Medal when it was presented in the Madras Presidency.
    - His **idealised paintings of women wearing saris and jewellery** earned him **gold medals at the World's Columbian Exposition in Chicago in 1893.**
    - In **1894,** he established the **Raja Ravi Varma Fine Art Lithographic Press in Bombay** to produce affordable prints of paintings depicting Indian gods and goddesses.
    - His prints of **mythological figures, political leaders such as Bal Gangadhar Tilak, and historical figures such as Chhatrapati Shivaji** helped create **shared visual symbols of Indian identity.**
    - In **1904,** the British colonial government awarded **Varma with the Kaiser-i-Hind Gold Medal.**
    - According to art historians, **Raja Ravi Varma's dramatic history paintings influenced** the pioneers of Indian cinema like **Dadasaheb Phadke and Baburao Painter.**
    - In **2013,** a **crater on the planet Mercury** was **named in his honour.**
- **Legacy:** He died in **1906**.
    - He is **remembered for giving Indians their western, classical representations of Hindu gods** and goddesses.

Aldabra Giant Tortoise

News: Recent study published showed that, Jonathan, the world's oldest known known living Aldabra Giant Tortoise at 194 years, has 287 unique gene variants that may slow ageing.

About Aldabra Giant Tortoise



Source: popsci

Aspects	Details
About	1. It is the **world's second-largest land tortoise species**, after the Galapagos giant tortoise. 2. These tortoise **have descended from ancestors of Aldabrachelys abrupta**, one of two giant tortoises that lived in Madagascar for 15 million years.
Scientific Name	Its scientific name is **Aldabrachelys gigantea.**
Habitat	1. These tortoises **live on land and inhabit diverse environments** such as scrub forests, mangrove swamps, and coastal dunes and beaches. 2. Grasslands **named "platins" harbour** the largest populations of tortoises.
Distribution	These are **endemic to the Aldabra Atoll** in the Seychelles, an archipelago in the **western Indian Ocean.**
Physical Characteristics	1. They are **dark gray to black with a strongly domed, thick shell.** 2. Aldabra tortoises **show sexual dimorphism.** 3. **Males are much bigger than females** and have longer, thicker tails.

Lifespan	It has a lifespan of **about 100 years.**
Diet	1. They are primarily **herbivores.** 2. They eat **grasses, leaves, woody plant stems, and fruits.**
Behaviour	1. They are **found both individually and in herds**. 2. They are **most active in the morning**. 3. They **dig wallows, hide under shade trees or in small caves,** as well as **submerge themselves in pools** to keep cool during the heat of the day.
Conservation Status	● **IUCN-** Vulnerable ● **CITES-** Appendix II
Significance	1. They are vital in keeping the ecological balance in a **habitat mosaic (a place where different habitats exist side by side).** 2. They **consume fruits and then spread the seeds through their dung,** aiding in megafauna-dependent germination. This facilitates the growth of forests, woodlands, shrublands, and grasslands.

Yenisei River

News: The Yenisei River was mentioned in reports about rising bear attacks in Podtesovo, a settlement on its right bank.

About Yenisei River



Source – FreeWorldMap

- The **Yenisei** river is one of the major **Siberian rivers.**
- **Origin:** It is formed by the **confluence** of the **Great Yenisei** and **Little Yenisei rivers** at **Kyzyl in Russia.**
    - The **Great Yenisei** rises in the **Eastern Sayan Mountains**, while the **Little Yenisei** rises in **Mongolia.**
- **Course:** It flows mainly northwards through **Russia** and empties into the **Kara Sea,** part of the **Arctic Ocean.**
- **Basin:** Its basin is the **fifth largest** in the **world,** and it is the **largest** among the major **Siberian rivers.**
- **Major Tributaries:** The **Angara, Stony Tunguska and Lower Tunguska** are important tributaries that contribute substantially to the river's flow.
- **Ecological Significance:** Its waters support **fishes** such as **Siberian sturgeon, sterlet and Arctic char**.
    - Its lower reaches and delta also provide **habitats for ducks, geese, swans and muskrats.**
    - The **upper basin** is connected to **Lake Baikal,** the world's deepest and oldest lake.
- **Environmental Pollution: Industrial activities and river regulation contribute to pollution**, making the lower reaches among the **most polluted Arctic river sections.**

Bharat Rice

News: The Indian Army launched 'Bharat Rice' on October 12, 2026, to improve ration quality and strengthen military logistics.

About Bharat Rice



Source – TH

- The **Indian Army** launched the **Bharat Rice initiative** in New Delhi.
- **Agencies involved:** The **Directorate General of Supplies and Transport** is **leading** the initiative with support from the Food Corporation of India **(FCI),** National Agricultural Cooperative Marketing Federation of India Limited **(NAFED)** and the **Department of Food and Public Distribution.**
- **Objective:** It aims to **improve ration quality** based on sustained feedback from Army personnel.
- The rice will be **milled to prescribed defence specifications** and **supplied through** the National Agricultural Cooperative Marketing Federation of India (**NAFED**) during the financial year 2026-27.
- It will contain **minimal broken, damaged and discoloured rice grains**, with **no foreign matter or admixtures**.
- Rice will **reach Army Supply Depots directly, including those in Ladakh and the North East,** reducing the need to collect supplies from local FCI facilities.

Mount Mukut

News: An Indian Coast Guard mountaineering team successfully scaled Mount Mukut on October 7, 2026, as part of its preparation for the 2027 Mount Everest expedition.

About Mount Mukut



Source – ICG

- **Mount Mukut** is a prominent **Himalayas mountain peak.**
- It is also known as **Mukut Parbat.**
- **Location:** It is located in **Uttarakhand, India**.

- It lies in the **Garhwal Himalaya, northeast of Badrinath, near the Indo-China border.**
- **Mountain Range:** It lies in the **Zaskar Range, near Mount Kamet.**
- **Ranking:** It is the **96th highest** peak in the **world** and the **20th highest mountain** located entirely **within India.**
- **Key Features:**
  - **Two Summits:** The **main summit** reaches **7,242 m,** while **Mukut Parbat East** reaches **7,130 m.**
  - **Neighbouring Peaks:** The mountain is surrounded by **three principal neighbouring peaks –**
    - **Abi Gamin (7,355 m), Kamet (7,756 m) and Chamrao Parbat (6,910 m).**
  - **Glaciers:** The **West Kamet Glacier** has branches originating on the western slopes of **Kamet, Abi Gamin and Mukut Parbat.**

Global Innovation Index 2026

News: The Global Innovation Index (GII) 2026 has been released by World Intellectual Property Organization (WIPO).

About Global Innovation Index 2026



Source: WIPO

- **Global Innovation Index 2026** has been released by **World Intellectual Property Organization (WIPO).**
- **2026 Edition:** This is the **19th edition of the GII.**
- **Coverage:** It ranked the **innovation performance of 139 economies, maps the world's top 100 innovation clusters, and tracks the main global innovation trends.**
- **Findings of the Index:**
  - **Switzerland** is the most innovative economy in 2026 followed by **Sweden** and the **United States**.

- The leading economies remain **largely the same as in 2025, with no new economy entering the top 15.**
- **Europe once again has the largest share of innovation leaders,** accounting for 14 of the 25 leading economies.
- Asia also maintains **a strong presence among the top 25 innovation economies,** with five economies, **Republic of Korea, Singapore, China, Japan and Hong Kong, China in the list.**
- **Switzerland, China, India and Rwanda** lead their **respective income groups.**
- **Thailand strengthens** its position **among upper-middle-income economies.**
- **Kazakhstan, Bhutan and Saudi Arabia lead their respective regions.**
- **Top Innovation Clusters:** The **Shenzhen–Hong Kong–Guangzhou** cluster emerged as the world's most innovative cluster overall.
  - **Tokyo–Yokohama** ranked **second**, followed by **San Jose–San Francisco** at **No. 3**, which topped the index for innovation intensity.
  - **Bengaluru** and **Delhi** were ranked at **No. 25** and **No. 27** in the list, respectively.

- **India's Performance in the Index**
  - **India** ranks **38th** among the 139 economies featured in the GII 2026.
  - India ranks **1st among the 36 Lower middle-income group economies** and among the **11 economies in Central and Southern Asia.**
  - India ranks **49th in innovation inputs and 25th in innovation outputs.**

About Global Innovation Index

- **Global Innovation Index** tracks and ranks **science and technology hubs across the globe.**
- It is considered as the w**orld's leading reference for measuring innovation.**
  - The **UN and other member states** use the index as a **key reference for shaping science and technology policies** across the globe.
- **Released by:** It is released by **World Intellectual Property Organization (WIPO).**
- **First edition:** It was published in in **2007.**
- **Aim**: It aims **to provide an innovation ranking and rich analysis referencing around 140 economies.**
- It has two sub-indices: **the Innovation Input Sub-Index** and the **Innovation Output Sub-Index.** It has seven pillars:
  - **Innovation Input Sub-Index:** It has **five pillars** which cover the economic conditions that enable innovation. They are **Institutions, Human Capital and Research, Infrastructure, Market Sophistication and Business Sophistication.**
  - **Innovation Output Sub-Index:** It has **two pillars** capture the results of innovative activity in the economy. They are **Knowledge and Technology Outputs and Creative Outputs.**
  - These both have equally weighted.
  - **Overall GII score:** It is the **simple average of the Input and Output Sub-Indices,** from which the GII economy rankings are derived.

India-Brazil-South Africa Maritime (IBSAMAR) Exercise 2026

News: Indian Naval Ship Tarkash is on an overseas deployment to South Africa to participate in the India-Brazil-South Africa Maritime (IBSAMAR) Exercise 2026.

About India-Brazil-South Africa Maritime (IBSAMAR) Exercise 2026



Source: PIB

- **India-Brazil-South Africa Maritime (IBSAMAR) Exercise 2026** is **a trilateral maritime exercise** between **India, Brazil and South Africa.**
- **Aim:** It aims **to enhance interoperability, strengthen maritime cooperation and promote mutual understanding** amongst the participating forces.
- **Frequency**: It has been conducted **biennially.**
- **First edition:** The first edition of the exercise was **conducted in 2008.**
- **2026 Edition:**
    - This is **ninth edition** of the exercise.
    - **Hosted by:** It has been hosted by **South Africa.**
    - **Location:** It is being conducted at **Simon's Town**, Western Cape, **South Africa** from **October 8 to October 19, 2026.**
    - **Theme:** The theme is **Stronger Together Towards a Shared Future in the Maritime Domain.**
    - **Aim**: It aims to **promote collective maritime security and preparedness** to address maritime challenges.
    - **Participants:**
        - The **South African Navy** will participate with **SAS Amatola, SAS King Sekhukhune I and SAS Adam Kok III,** along with **SAS Manthatisi submarine.**
        - **Brazil** will participate with **BNS Barroso, embarked with one integral Lynx helicopter.**
        - The **Indian Navy** is represented by **INS Tarkash** embarked with one **integral Chetak helicopter.**
    - **Features:**
        - The exercise **encompasses a broad spectrum of maritime operations,** including surface warfare, anti-air warfare, anti-submarine warfare, naval air operations, maritime interdiction, and Visit, Board, Search and Seizure (VBSS).
        - It also **includes anti-piracy operations, Search and Rescue (SAR), damage control and firefighting,** along with professional interactions.

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About INS Tarkash



Source: PIB

- INS Tarkash is a **guided missile stealth frigate** of the **Indian Navy.**
  - It is the **second of three Talwar-class guided missile frigates.**
- **Built by:** It was built by **Yantar Shipyard at Kaliningrad, Russia.**
- It was commissioned into **Indian Navy in 2012.**
- The ship is **part of the Indian Navy's Western Fleet** based at Mumbai under the Western Naval Command.
- **Features:**
  - It is **equipped with a versatile range of weapons and sensors capable** of addressing threats from air, sea and underwater.
  - **Displacement:** It displaces **3,850 tonnes.**
  - **Speed and Range:** It can travel at **speeds exceeding 30 knots and has a range of 4,500 nautical miles** or can operate for 30 days.
  - **Weapons:** It carries **surface-to-air missiles, 100 mm guns, close-range guns, torpedoes and rocket launchers.**
  - The ship **incorporates the latest stealth features** such as reduced radar, infra-red, acoustic, and magnetic signatures, thus making it difficult to detect at sea.

Soybean Cultivation in India

News: On the occasion of Soybean Harvest Day, the yield potential of the improved soybean Varieties NRC 268 and NRC 270 was assessed.

About Soybean Cultivation in India



Source: Britannica

- **Soybean (*Glycine max*)** is a significant **legume in the pea family (Fabaceae).**
- It is known for its **nitrogenfixing ability through symbiosis with soil bacteria**
- Soybean is a **nutritionally rich and industrially valuable crop, used in food, feed, and biobased industries**
- **Geographical condition for its growth:**
    - **Temperature:** It is **highly sensitive to temperature** throughout its life cycle. Optimum growth happens **between 20°C and 35°C (with ideal ranges around 26.5°C to 30°C).**
    - **Climate:** It grows **well in warm and moist climate.**
    - **Rainfall: It is highly sensitive to water stress,** particularly during critical growth phases such as flowering, pod development, and seed filling.
    - **Soil: A well drained, sandy loam to clayey soils with medium water holding capacity, rich in organic carbon is** ideal.
        - It requires **pH between 6.0 and 7.5.**

Soybean Production in India

- It is primarily grown as a **Kharif crop in India**.
- **Soybean Producing states:** It Is cultivated in **Madhya Pradesh, Maharashtra, and Rajasthan, Uttar Pradesh, Gujarat, Andhra Pradesh, and Karnataka.**
- At present, the average **soybean productivity** in India is approximately **10–11 quintals per hectare.**
- **Scope of Improved Varieties: Improved soybean Varieties NRC 268 and NRC 270** are being devised by the ICAR for better yield.
    - Research and trials conducted across the country indicate that **yields of 15–20 quintals per hectare can be achieved by adopting improved varieties** and appropriate production technologies.
    - Under favourable conditions, yields **may potentially reach approximately 22–25 quintals per hectare.**

Shipbuilding Project Credit Risk Insurance Policy (SbPCP) and Business Credit Shield Policy–Shipbuilders (BCSPS)

News: During the 21st Meeting of Maritime State Development Council, Shipbuilding Project Credit Risk Insurance Policy (SbPCP), and Business Credit Shield Policy–Shipbuilders (BCSPS), credit risk insurance products have been launched to support India's shipbuilding industry.

About Shipbuilding Project Credit Risk Insurance Policy (SbPCP) and Business Credit Shield Policy–Shipbuilders (BCSPS)



Source: BW Businessworld

- **Shipbuilding Project Credit Risk Insurance Policy (SbPCP) and Business Credit Shield Policy–Shipbuilders (BCSPS)** are the **first-of-their-kind insurance policies.**
- **Aim:** They aim **to reduce financial stress in large-scale ship manufacturing.**
  - It aligns with **the National Shipbuilding Mission.**
- **Nodal Ministry:** Ministry of **Ports, Shipping and Waterways**
- The central government **will subsidize insurance premiums and provide direct support to insurers in case shipyards file claims.**

About Shipbuilding Project Credit Risk Insurance Policy (SbPCP)

- **Developed by:** It has been developed by **ECGC Ltd.**
- It has been developed under the **Shipbuilding Development Scheme (SbDS).**
- **Coverage:** It will cover **export-oriented projects from financial stress.**

About Business Credit Shield Policy–Shipbuilders (BCSPS)

- It is a **specialized credit risk insurance product**.
- **Developed by:** It has been developed by **New India Assurance Co. Ltd. (NIACL).**

- **Coverage:** It will **protect domestic projects from financial stress.**

About Maritime State Development Council (NSDC)

- **Maritime State Development Council (MSDC)** is a **statutory consultative body.**
- **Notified under:** It has been notified as **statutory consultative body** under the **Indian Ports Act, 2025 in 2026.**
- **Establishment year:** It was **originally constituted in 1997.**
- **Mandate:** Its mandate is to **promote integrated maritime growth**, coordinated policy formulation, and planned development of maritime infrastructure.
- **Nodal Ministry:** The nodal ministry for the MSDC is the **Ministry of Ports, Shipping and Waterways.**
- **Chaired by:** It is chaired by the **Union Minister for Ports, Shipping and Waterways.**

Samarthak Vessel

News: The Indian Navy will commission Samarthak Vessel, the first of four Multi-Purpose Vessels being inducted into its fleet, at Naval Base Karwarat Naval Base Karwar.

About Samarthak Vessel



Source: PIB

- The **Samarthak vessel** is the **first of four Multi-Purpose Vessels** being inducted into **Indian Navy.**
- **Developed by:** It has been built by **Larsen & Toubro under the Make in India initiative.**
- **Commission year:** It has been commissioned in **2026**.
- **Motto:** Its motto, **"विजयार्थम् एकनिष्ठता", means "Victory is Our Sole Aim".**
    - Its **crest** depicts an **Indian elephant emerging from the waves**, symbolizing **strength, intelligence and agility**.
- **Purpose:** It has been designed primarily for **maritime surveillance and patrol.**
    - It can also **undertake low-intensity maritime operations** and serve as **a platform for target deployment and trials.**
- **Features:**

- **Size**: It is **107 meters in length** with a width of 18.6 meters.
- **Displacement:** It has a **displacement of over 3,750 tonnes.**
- **Operability:** It is equipped to **serve multiple roles.** It can **operate as a mothership for unmanned and autonomous systems, support humanitarian assistance and disaster relief,** and be **converted into a limited hospital ship.**
    - It also has **capabilities for salvage-related operations.**
- It combine**s cutting-edge capabilities with exceptional operational versatility.**
- For precision control during **complex marine manoeuvres, it is equipped with state-of-the-art Dynamic Positioning System.**
- **Weapons:** Its integrated combat suite **combines indigenous sensors, weapons and electronic systems optimised for challenging maritime conditions.**

EXERCISE INDRA-2026

News: Indian Naval Ship Sahyadri arrived at Vladivostok, Russia to participate in Exercise INDRA 2026.

About EXERCISE INDRA-2026



Source: PIB

- **Exercise INDRA-2026** is **a bilateral exercise** between the **Indian Navy and the Russian Federation Navy (RuFN).**
- **Aim:** It **aimed** at enhancing **mutual understanding, operational coordination and interoperability** between the two navies.
- **First edition:** The **first edition** of this exercise was conducted in **2003.**
- **Frequency:** It is **biennial** exercise.
- **About 2026 edition:**
    - **Edition:** This is the **15th edition of this exercise.**

- **Duration:** It is **scheduled from 13 to 18 Oct 2026.**
- **Hosted by:** It is being hosted by **Russia.**
- **Participation from India: Indian Naval Ship Sahyadri** will be participating in the exercise.

- **Features:**
  - **Phases:** It involves exercise at **Vladivostok that is Harbour Phase** and the **adjacent waters of the Sea of Japan which involves Sea Phase.**
    - It will **comprise engagements during the harbour phase followed by coordinated operational activities at sea.**
  - It will include **a range of professional interactions and maritime evolutions**.
  - It also includes **social and cultural interactions, that will provide opportunities for personnel of both navies to interact and foster camaraderie** and **people-to-people connections.**

About Indian Naval Ship Sahyadri



Source: Deccan Herald.

- INS Sahyadri is a **Shivalik-class Guided Missile Stealth Frigate** of the Indian Navy.
  - It is the **third ship** of the class, designed for **multi-role operations** including surface, air, and sub-surface warfare.
- **It is indigenously designed and built** in India, representing the nation's growing **defence self-reliance**.
- It was commissioned in **2012.**
- It features **stealth technology** to reduce radar and infrared signatures.
- It is equipped with **advanced weapon systems, sensors, and integrated combat suites** for multi-dimensional warfare.

Bekal Fort

News: HAL, NCF and ASI signed an MoA for undertaking heritage conservation and development works at three prominent heritage sites- Hampi in Karnataka, the Taj Mahal in Agra, Uttar Pradesh, and Bekal Fort in Kerala.

About Bekal Fort



Source – Outlook Traveller

- **Location:** The **Bekal Fort** is located in **Kasargod district, Kerala**.
- It is the **largest fort in Kerala**.
- It was **built** in the **17th century** by **Shivappa Nayaka of the Keladi dynasty**.
- The fort has seen **rise and fall** of several dynasties and later **came under the control of the Kingdom of Mysore.**
- **Structural features:**
    - The fort **appears to emerge from the sea**.
    - Almost **three-quarters** of its **exterior** is in **contact with water**.
    - An **important feature** of the fort is the **water-tank** and the **flight of steps** leading to an **observation tower built by Tipu Sultan**.
    - The fort's **zigzag entrance** and surrounding **trenches** reveal its **defensive strategy**.
    - **Holes** on the **outer walls** are designed to **defend the fort** effectively from **naval attacks**.
    - The **upper holes** are meant for **aiming** at the **farthest targets**; **lower holes** below for **striking as enemy nearer** and the **lowest holes** to **attacking enemy closest** to the fort.
    - The fort's **solid construction resembles** the **Thalassery Fort** and the **St. Angelo Fort** at **Kannur built by the Dutch**.

Southern Indian Ocean Fisheries Agreement (SIOFA)

News: Central Government has approved India's accession to the Southern Indian Ocean Fisheries Agreement (SIOFA).

About Southern Indian Ocean Fisheries Agreement (SIOFA)

- The **Southern Indian Ocean Fisheries Agreement (SIOFA)** is a **regional framework for managing fisheries resources** in its area of jurisdiction in the high seas.
- It is **one of two major Regional Fisheries Management Organisations (RFMOs)** in the Indian Ocean. The other is the **Indian Ocean Tuna Commission (IOTC).**

- **Aim:** It aims **to conserve and sustainably use fishery resources through cooperation among Contracting Parties** and **promote fisheries development,** especially in least developed and small-island developing States bordering the Area.
- **Coverage:** It **covers fish, molluscs, crustaceans and other sedentary species,** while **excluding highly migratory species listed in Annex I of the United Nations Convention on the Law of the Sea (UNCLOS)** and **sedentary species falling under the fishing jurisdiction of coastal states.**
- **Signing year:** It was signed in **Rome the 7th July 2006** and **entered into force in June 2012.**
- **Parties to the agreement:**
    - **Contracting Parties:** To date, SIOFA has ten contracting parties including Australia, China, Taiwan, Japan, South Korea, Spain and France and **India (2026).**
    - **Participating fishing entity:** Chinese Taipei
    - **Cooperating non-Contracting Parties:** Comoros
    - **Kenya, Madagascar, Mozambique and New Zealand** are also **signatories** to this Agreement but have **not ratified it.**
- **Benefits of accession to SIOFA for India:**
    - It would allow India to participate fully in key bodies such as the **Scientific Committee and the Compliance Committee and gain access to scientific data, research programmes and stock assessments under the agreement.**
    - It would also **give Indian-flagged fishing vessels and enterprises the opportunity to undertake authorised fishing** within SIOFA's jurisdiction.
    - It could **create opportunities for Indian fishers and entrepreneurs to access marine resources beyond their existing operating areas.**
    - India will be able to contribute more effectively to **preventing illegal, unreported and unregulated (IUU) fishing.**
    - **Participation in SIOFA's High Seas Boarding and Inspection (HSBI) Scheme** will help **advance India's regional strategic interests and strengthen coastal security.**

About Indian Ocean Tuna Commission (IOTC)

Specifications	Details
Type	Intergovernmental Organization
Established in	**1993** (came into force in 1996)
Secretariat	Victoria, Seychelles
Aim	• It is **responsible for the management of tuna and tuna-like species** in the Indian Ocean. • It **seeks to do this by promoting cooperation among its Contracting Parties (Members) and Cooperating Non-Contracting Parties** in order **to ensure the conservation and appropriate utilisation of fish stocks** and encouraging the sustainable development of fisheries.

Members	• **There are 30 contracting parties to it**. • **Liberia** is a **Cooperating Non-Contracting Party.** • **India** has been a **contracting party since 1996.**
Binding decisions	The decisions taken by commission are **binding on all Members and non-Contracting Parties.**

SPARK 5.0 and CCRAS Ayurshodh 2026

News: The Chairperson of National Commission for Indian System of Medicine (NCISM) launched CCRAS SPARK 5.0 and CCRAS Ayurshodh 2026 (2nd circular) of the Central Council for Research in Ayurvedic Sciences (CCRAS).

About SPARK 5.0



Source: CCRAS

- The **Central Council for Research in Ayurvedic Sciences (CCRAS) Studentship Program for Ayurveda Research Ken (SPARK) 5.0** for 2026-27 is the **fifth edition of the programme**.

- The **first edition of this programme was launched in 2022.**

- **Launched by:** It has been launched by **National Commission for Indian System of Medicine (NCISM).**
- **Nodal Ministry:** Ministry of Ayush
- **Objective:** It seeks **to introduce undergraduate Ayurveda students to research methodology and techniques through short-term independent research projects,** and to foster research aptitude, analytical thinking and early interest in research as a career among BAMS students.
- **Coverage:** A total of **300 studentships** are being offered, with a **studentship amount of ₹50,000.**
- **Eligibility: BAMS students** in their **third/fourth/professional years** studying in NCISM/Government of India-recognized colleges or universities are eligible.

About CCRAS Ayurshodh 2026

- The CCRAS Ayurshodh 2026 national recognition and research initiative was launched by the **Central Council for Research in Ayurvedic Sciences (CCRAS).**
- **Aim:** It aims to **strengthen Ayurveda research and innovation.**
- **Categories:** It **provides a platform to recognize and encourage research contributions in Ayurveda** across **three categories:**
  - **CCRAS-Prabodh 3MT:** It involves **communication of research** through **three-minute thesis presentations.**
  - **CCRAS-Prakash:** It involves **recognition of scholarly achievements** through **publications based on original research.**
  - **CCRAS-Navonmesha:** It involves **recognition of innovative prototypes, novel solutions, process innovations and transformative research methodologies.**
- The **prize money** is sponsored by **Shree Dhootapapeshwar Limited.**

Note: Both the initiatives are intended **to nurture emerging research talent, promote effective research communication, encourage quality scholarly publications and foster innovative approaches to advancing Ayurveda research.**

African wild dogs (Lycaon pictus)

News: Three African wild dogs travelled over 4,000 kilometres to find mates, offering hope for the survival of this endangered species.

About African wild dogs (Lycaon pictus)



Source: DTE

- The **African wild dogs** are the **largest wild canine in Africa,** and the **only extant members of the genus *Lycaon.***
    - They are one of the **world's most endangered large carnivores.**
- **Scientific name:** Their scientific name is **Lycaon pictus.**
- **Habitat:** They are found in **grasslands, savannahs and open woodlands.**
- **Distribution:** They are **native to sub-Saharan Africa.**
    - The majority of the species' population occurs in **Southern Africa and southern East Africa.**
- **Characteristic features:**
    - **Appearance:**
        - They have **stiff bristle hairs without underfur** and **gradually lose their fur with age.**
        - Their **coat varies geographically,** ranging from **mostly black with small white and yellow patches** in the northeast to brown, black, and white in the south.
        - Their **muzzle is usually black,** fading into brown on the cheeks and forehead.
        - A **black line extends up the forehead and becomes blackish-brown behind the ears.**
        - Some have brown, teardrop-shaped marks below the eyes.
        - The **back of the head and neck are brown or yellow.**
        - A **white patch may appear behind the forelegs,** and some have entirely white forelegs, chests, and throats.
        - Their **tail is usually white at the tip,** black in the middle, and brown at the base.
    - **Diet:** They are **carnivores that hunt** antelopes, gazelles, warthogs, wildebeest calves, ostriches, buffalo calves, and smaller animals like hares, birds, and rats.
    - **Behaviour:** They are very **social animals, living in packs** with separate dominance hierarchies for males and females.
- **Threats:**
    - Habitat fragmentation
    - Human persecution
    - Disease outbreaks
    - Competition with larger predators
- **Conservation status:**
    - **IUCN: Endangered**

Renaming of National Social Assistance Programme (NSAP)

News: The Union Cabinet has approved the proposal of the Department of Rural Development for Continuation of the National Social Assistance Programme (NSAP) with renamed as Pradhan Mantri Samajik Sahayata Yojana.

About National Social Assistance Programme (NSAP)

- The National Social Assistance Programme (NSAP) was **launched on 15th August, 1995.**
- **Nature of Scheme:** It is a **centrally Sponsored Scheme.**
- **Nodal Ministry:** The nodal ministry for the scheme is **Ministry of Rural Development.**
- It is aligned with the **Directive Principles of State Policy under the Constitution of India,** particularly **Article 41.**

- The **intention in providing 100 per cent central assistance** is to ensure that assistance to the beneficiaries everywhere in the country is uniformly available.

- **Objectives**
  - To ensure a **minimum level of social security** to vulnerable sections of society, elderly, widows, and persons with disabilities (Divyangjan).
  - To provide **financial and food assistance** to families living below the poverty line.

Renaming of NSAP

- The **National Social Assistance Programme (NSAP)** has been renamed as **Pradhan Mantri Samajik Sahayata Yojana.**
- **Budgetary outlay:** Total outlay is of **Rs. 53,428 crore.**
- **Duration:** It is for **five years** from **2026-27 to 2030-31.**
- **Beneficiary:** A **total of 3.20 crore beneficiaries a**cross all the 36 States/UTs will benefit from this approval.
- **Revised provisions of the scheme**:
  I. Renaming of the scheme & sub-schemes
  II. Revision in eligibility criteria, coverage and rate of assistance for divyangjan pension and
  III. Continuation of pension schemes for old aged & widows and family benefit scheme in its existing form.

I. Renaming of the sub-schemes: Renamed Components of National Social Assistance Programme (NSAP) are as follow:

Previous components name	**Renamed componets**	**Feature**
Indira Gandhi National Old Age Pension Scheme (**IGNOAPS**)	Pradhan Mantri Vridhavastha Pension Yojana	It provides monthly pension to elderly individuals **aged 60 years and above** living below the poverty line.
Indira Gandhi National Widow Pension Scheme (**IGNWPS**)	Pradhan Mantri Vidhawa Pension Yojana	It offers monthly pension to widows **aged 40–59 years** from BPL households.
Indira Gandhi National Disability Pension Scheme (**IGNDPS**)	Pradhan Mantri Divyangjan Pension Yojana	It etends pension support to persons with **severe or multiple disabilities (40%)** from BPL families, aged **18–79 years**.
National Family Benefit Scheme (**NFBS**)	Pradhan Mantri Parivar Labh Yojana	It grants a **one-time lump sum** to BPL families on the death of the primary breadwinner aged **18–59 years**.

II. Revision in eligibility criteria, coverage and rate of assistance for divyangjan pension:

- **Eligibility criteria:** The **criteria for benchmark disability under the scheme will be 40% against 80% at present.**
  - **Minimum age criterion for the disability pension will now be since birth.**

- **Coverage and rate of assistance for divyangjan pension:** Amount of assistance **under divyangjan pension scheme will now be Rs.375/- for the age group of 0-79 yrs and Rs.625/- for 80 yrs and above.**

III. Pension schemes for old aged & widows and family benefit scheme will continue in its existing form.

Income Tax Appellate Tribunal (ITAT)

News: Maruti Suzuki India received a favourable ITAT order in tax matters covering eight financial years, with an estimated tax impact of ₹13,000 crore, including interest.

About Income Tax Appellate Tribunal (ITAT)



Source – ITAT

- The **Income Tax Appellate Tribunal (ITAT)** is a **quasi-judicial institution** that **hears appeals under direct tax laws.**
- **Establishment:** It was established in **January 1941 under Section 5A of the Income Tax Act, 1922.**
  - It is known as **the 'Mother Tribunal'** because it is the **oldest tribunal in the country.**
- **Nodal Ministry:** It functions under the **Ministry of Law and Justice.**
- **Initial Benches:** Initially, it had **three Benches in Delhi, Kolkata and Mumbai.**
- **Present Structure:** ITAT currently has **63 Benches across 27 cities, covering almost all cities with a High Court.**
- **Composition:**
  - **President:** The **President constitutes Benches** from **among ITAT members.**
  - **Regular Benches:** Each Bench has **one judicial member and one accountant member.**
  - **Special Benches:** A Special Bench with **three or more members may be formed to decide tax appeals.**
- **Functions:**
  - **Hearing Appeals:** It hears **appeals against orders passed by income-tax authorities.**
  - **Dispute Resolution:** It **provides a platform** for **taxpayers and income-tax authorities** to resolve tax disputes.
  - **Final Fact-Finding Body:** It **examines facts related to tax disputes.**
- **Power:** An **appeal against an ITAT order can** be filed **before the High Court only when a substantial question of law arises for determination.**

GSAT-7C Satellite

News: The Ministry of Defence signed a ₹2,563-crore contract with NewSpace India Limited for the acquisition of GSAT-7C on October 15, 2026.

About GSAT-7C Satellite



Source – ZEE News

- **GSAT-7C (Geosynchronous Satellite 7C)** is a **planned Indian military communication satellite** designed to **strengthen the Indian Air Force's secure communication network.**
- **Developed by:** The satellite is **indigenously designed, developed and manufactured** by **Space India Limited (NSIL), Bengaluru**, the commercial arm of the Indian Space Research Organisation **(ISRO).**
- **Aim:** The satellite aims to provide **secure, resilient and seamless communication** among **Indian Air Force assets and support communication beyond the line of sight.**
- **Expected Timeline:** The satellite is **expected to become operational by 2030.**
- **Key Features:**
    - **Dedicated Communication Network:** Unlike GSAT-7A, which also supports the Indian Army, **GSAT-7C will serve the Indian Air Force exclusively.**
    - **Beyond-Line-of-Sight Communication:** It will **help aircraft and ground stations communicate over long distances** when conventional radio links are unavailable or unreliable.
    - **Software-Defined Radios (SDRs):** The **satellite will support secure communication through SDRs,** whose functions can be modified using software.
    - **Indigenous Development:** The satellite is **indigenously designed, developed and manufactured**, supporting the government's **Make in India and Aatmanirbhar Bharat initiatives.**

Varunastra Heavy Weight Torpedoes

News: The Ministry of Defence signed a contract worth ₹1,543 crore with Bharat Dynamics Limited for additional Varunastra Heavy Weight Torpedoes.

About Varunastra



Source – TNIE

- **Varunastra** is an indigenously developed **heavy-weight torpedo** launched **from ships to target enemy submarines.**
- It is **powered by electricity.**
- **Developed by:** It was developed by the **Naval Science and Technological Laboratory (NSTL)**, Visakhapatnam, which works under the Defence Research and Development Organisation **(DRDO).**
- **Objective:** It aims to strengthen the **Indian Navy's anti-submarine warfare capability** by engaging enemy submarines at long ranges.
- **Key Features:**
    - **Operational Capability:** It can target quiet submarines in **deep and shallow waters, even in an environment with intense countermeasures.**
    - **Speed and Range:** It can achieve **speeds exceeding 40 knots and has a range of 40 km.**
    - **Operating Depth and Warhead:** It can operate at **depths of up to 600 metres and carry a 250 kg high-explosive warhead.**
    - **Guidance System:** It uses **active-passive acoustic homing, wire guidance, and GPS/NavIC satellite guidance to locate and engage targets.**
    - **Maneuverability:** Its advanced maneuvering capabilities help it **engage enemy submarines over long distances.**

CT Scanners

News: The Technology Development Board has signed an agreement with Panacea Medical Technologies to develop and commercialise an indigenous 32-slice CT scanner.

About CT Scanners



Source – Echelon Health

- A **Computed Tomography (CT) Scanner** uses **X-rays and computer processing** to produce detailed **cross-sectional images of internal body structures.**
- **Working Mechanism**
  - The scanner **takes X-ray pictures from multiple angles** as it rotates around the patient.
  - **Different body tissues absorb X-rays at different rates**, helping distinguish bones, soft tissues and air.
  - A **computer processes the collected data** to create cross-sectional images and **three-dimensional views of internal structures.**
  - Doctors may use contrast material to make specific tissues, organs or blood vessels easier to see.
- **Applications**
  - **Disease Diagnosis:** CT scans help **identify tumours, lung diseases, strokes and other internal disorders.**
  - **Emergency Care:** They help detect **internal bleeding, fractures and organ damage.**
- **Safety Concerns:** CT scans involve **exposure to ionising radiation,** while contrast materials **may cause side effects** in some patients.

About Indigenous 32-Slice CT Scanner

- A **32-slice CT scanner** is a type of CT scanner **designed to capture 32 image slices in a single rotation, enabling detailed imaging of internal body structures.**
- **Aim:** The project aims to **strengthen India's domestic manufacturing capabilities in advanced medical devices and reduce dependence on imported technologies.**

Sukhna Wetland (Chandigarh)

News: Recently, India has added Sukhna Wetland (Chandigarh) and Sauj Jheel to the List of Wetlands of International Importance.

About Sukhna Wetland (Chandigarh)



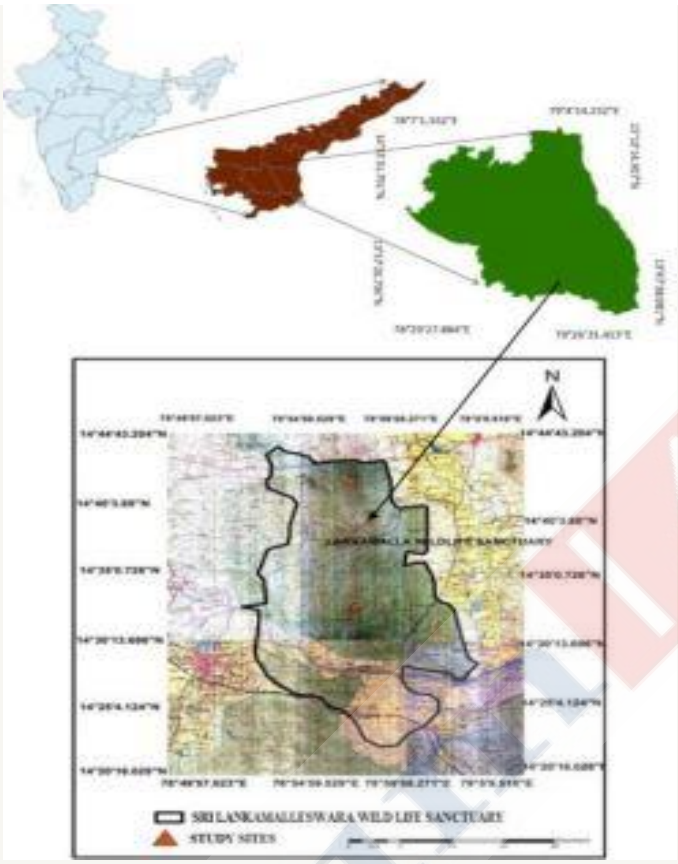
Source – ResearchGate

- **Sukhna Wetland** is located at the **edge of the city of Chandigarh and at the base of the Outer Himalayas.**
- It is a **peri-urban reservoir** that plays an important role in regulating sediment and water flows from the surrounding catchment.
- **Ecosystem:** It experiences **seasonal fluctuations in water levels and supports a range of habitats**, from **open water to littoral vegetation, scrub and forest, providing habitat for diverse species.**
- **Notable species:** It include the **vulnerable common pochard (*Aythya ferina*) and the endangered Pallas's fish eagle (*Haliaeetus leucoryphus*).**
    - **Reptile:** The shallow littoral habitats also **support reptiles such as the endangered black pond turtle (*Geoclemys hamiltonii*).**
    - It is **particularly important for resident waterbirds and others migrating along the Central Asian Flyway**, providing **feeding, breeding, roosting and wintering habitats.**
- It serves as an **important recreational and educational resource for Chandigarh's** residents, offering a natural refuge close to the urban landscape.

Lankamala Wildlife Sanctuary

News: Camera traps used during the tiger census in Lankamala Wildlife Sanctuary have recorded diverse wildlife, including bears, leopards, wild boars and peafowl, highlighting the need for habitat conservation.

About Lankamala Wildlife Sanctuary



Source – ResearchGate

- **Location:** It is a wildlife sanctuary located in **Kadapa, Andhra Pradesh, India**.
- It is **officially** known as the **Sri Lankamalleswara Wildlife Sanctuary.**
- **Rivers**: The sanctuary serves as the catchment area for the **Pennar River**.
    - The **Telugu Ganga Canal** flows into the eastern flank of the sanctuary, eventually **draining into the Pennar River**.
- **Vegetation**: It consists of **Southern tropical dry deciduous forest** in the hills, scrub forest in the plains, Southern dry mixed deciduous forest, **Tropical thorn forests** and Tropical dry evergreen forest.
- **Flora:** The area is home to rare and endangered plant species such as **Red Sanders and Sandalwood**. The riparian vegetation is highly rich in floristic diversity, featuring **Terminalia species, Syzygium species (Jamun),** Wild Mangoes, Anogeissus latifolia, Phoenix species, Bamboo, Hardwickia binata, and more.
- **Fauna:** It has good representation of species like **Common toad, Bullfrog, Common Indian skink**, Green vine snake etc. Endangered mammals like Panther, Jackal, Chinkara, Chowsingha, Sloth bear, etc; make this Sanctuary their home. It is the only home and hope for the rare and endangered bird the **Jerdons courser**.

Atacama Desert

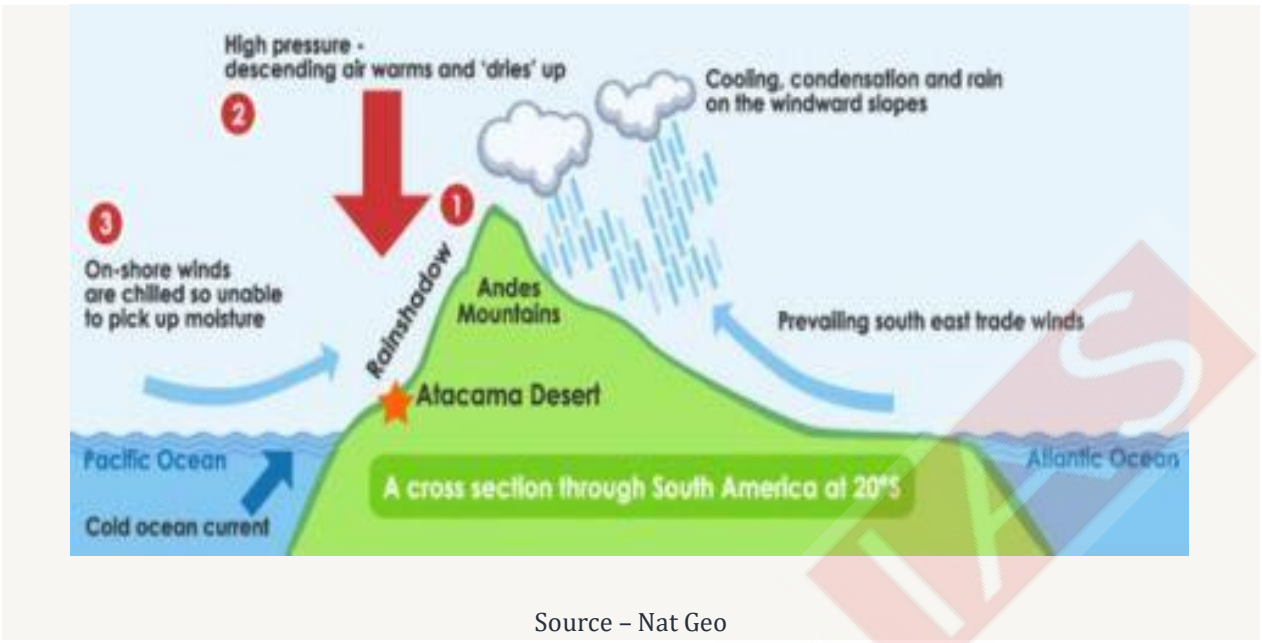
News: Indian researchers have identified geological sites in Tamil Nadu and Chile's Atacama Desert that share mineralogical and environmental characteristics with Mars.

About Atacama Desert



Source – Britannica

- **Location:** The **Atacama Desert** is located in **northern Chile**, near the **borders of Peru, Bolivia and Argentina** in **South America**.
- It **stretches** along the **Pacific coast** for about **1,000 km,** flanked by the towering **Andes Mountains** to the **east** and the **Chilean Pacific Ocean coast** range to the **west**.
- It is the **driest non-polar desert** in the world and the **largest fog desert** on Earth.
    - A **fog desert** is a type of desert where **fog drip supplies the majority of moisture** needed by animal and plant life.
- **Climate:** The Atacama has a **cold desert climate** (in the Köppen climate classification, **BWk**) with generally **mild temperatures year-round** and **only slight temperature differences** across seasons.
    - The **average rainfall** is about **15 mm per year**, although some locations receive **only 1 to 3 mm** in a year.
- **Three different reasons** contribute to the **Atacama Desert being the driest place on earth. These are-**



Source – Nat Geo

- The **desert** sits on the **wrong side of the Andes** with regards to prevailing winds.
    - The **prevailing south-east trade winds** carrying **moist air** are **forced to rise**. The **moisture condenses**, and falls on the **opposite side** of the Andes to the Atacama. This is commonly known as a **rain shadow**.
- The **second reason** is **high air pressure**. Essentially, **descending air warms up**, meaning that any moisture within turns to water vapour (gas, not liquid) as opposed to rain.
- Finally, the last reason is the **cold Humboldt Current** from the Pacific Ocean. Any **onshore winds are chilled** so they are **unable to pick up moisture** from the ocean.

Terrain: The wider Atacama region includes **closed drainage basins, salt flats, volcanic landscapes** and **high-altitude lagoons** along the Andes.

Biological diversity: The species diversity of the Atacama Desert is **highly restricted.**

Resources: The Desert contains the **world's largest supply of sodium nitrate.**

- It is also rich in **metallic mineral resources** such as **copper, gold, silver and iron**, as well as **non-metallic minerals** including important deposits of **boron, lithium, sodium nitrate, and potassium salts.**

The Atacama is a globally **important centre for astronomy** because it combines **very dry air, high elevation, clear skies and low atmospheric water vapour** at suitable sites.

- A major facility is the **Atacama Large Millimeter/submillimeter Array (ALMA)**.

Conference on Interaction and Confidence Building Measures in Asia (CICA)

News: India has called on member states of the Conference on Interaction and Confidence Building Measures in Asia (CICA) to unite against all forms of terrorism.

About Conference on Interaction and Confidence Building Measures in Asia (CICA)



Source – CICA

- Conference on Interaction and Confidence Building Measures in Asia (**CICA**) is a **multinational forum** for **strengthening cooperation** towards **promoting peace, security and stability in Asia**.
- **Founded by:** The idea of convening CICA was **first proposed** by the **First President of the Republic of Kazakhstan** – H.E. Mr. **Nursultan** Nazarbayev, on **5 October 1992.**
- **First Summit and Meeting:** The **Almaty Act**, serving as the **charter** of CICA, was adopted at the First CICA Summit in **Almaty, Kazakhstan in 2022.**
- **Secretariat: Almaty** (Kazakhstan)
- **Administration:** The **highest decision making** organ of CICA is the **Council of the CICA Heads of State or Government (Summit).**
    - All **decisions** within CICA framework are taken by **consensus**.
- **Summits and Meetings:** The **CICA Summit** is convened **every four years** in order to conduct consultations, review the progress of, and set priorities for CICA activities.
    - The **Meeting of the Ministers of Foreign Affairs** is required to be **held once every two years.**
- **Members:** To be a member of CICA, a **state must have at least a part of its territory in Asia.**
    - CICA currently has **twenty-eight Member States** accounting for nearly **ninety percent of the territory and population of Asia**.

- **Ten countries** and **five multi-national organizations**, including the **United Nations**, have **observer status**.

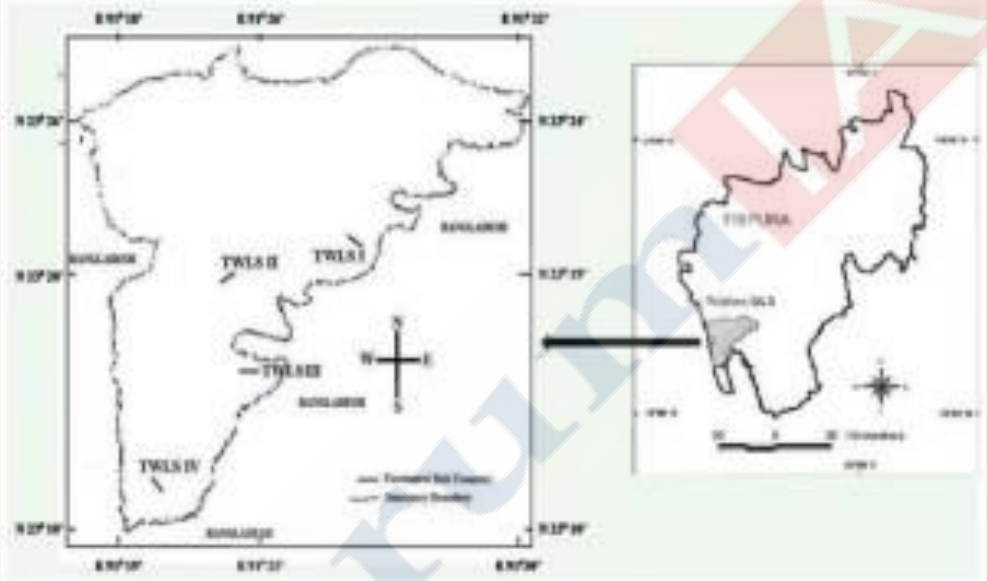
- **Participation of India: India** is one of the **founding members of CICA.**

Note: The **Seventh Summit (2026)** of the Conference on Interaction and Confidence Building Measures in Asia (CICA) will be **held in Baku** under the **Chairmanship of the Republic of Azerbaijan.**

Trishna Wildlife Sanctuary

News: A rare sighting of Phayre's Leaf Monkeys has been captured on camera at Trishna Wildlife Sanctuary in South Tripura.

About Trishna Wildlife Sanctuary



Source: Research Gate

- The **Trishna Wildlife Sanctuary** is located in **Tripura.**
  - It is **bounded by the international border with Bangladesh** on both its **eastern and western sides**.
- **Established in:** It was established in **1988.**
- **Area:** It has an area of **194.708 sq. km.**
- **Vegetation:** It is dominate by **Tropical Semi evergreen Forest, Moist Mixed Deciduous Forest, and Savanah woodland.**
  - It has a **number of perennial water rivulets, water bodies, and grass land.**
- **Flora:** Trees such as **Sal, Gurjan, Asan, Toon, Safed Siris, bamboo, sedges, tall grasses, and shrubs such as Phalsa, Siam weed and Lantana.**
  - It is home to several important **medicinal plants, including Kurchi, Tulsi (Holy Basil), Vasaka, Sarpagandha, Rudraksha and Bael.**
- **Fauna:** Animals such as **Indian Gaur (Bison), Deers, Hollock Gibbon, Golden Langur, Capped Langur, Pheasant and many other reptiles and birds** are found in the sanctuary.
  - **Phayre's Leaf Monkeys** has recently been captured on camera at the Sanctuary.

Exercise Cambrian Patrol 2026

News: Soldiers of the Indian Army's Assam Regiment have won a gold medal at Exercise Cambrian Patrol 2026.

About Exercise Cambrian Patrol 2026

- The **Exercise Cambrian Patrol 2026** is the **premier patrolling event of the British Army**.
  - It is widely known as the **"Olympics of Military Patrolling.**
- It is a **mission focused and scenario-based exercise**.
- **Aim:** It aim **to assess operational effectiveness, physical endurance and tactical skills** under realistic battlefield conditions.
- **Frequency:** It is conducted **annually.**
- **First edition:** It began in **1959 as a field-training exercise** devised by **Welsh Territorial Army soldiers** to test basic soldiering skills, including endurance, leadership, navigation, teamwork and marksmanship.
  - It has been **running for over 60 years** and is the **British Army's principal All Arms Patrol Exercise.**
- It is the **British Army's principal All Arms Patrol Exercise** and is **open to all three Services (Regular and Reserve)** and **international participants** are encouraged to take part.
- **Assessment Criteria:** It is **not a competition,** although patrol performance is assessed throughout based on **Battlecraft Syllabus (BCS)** and **Individual Training Requirement (ITR).**
- **Team Composition:** Each patrol typically consists of **eight** personnel who cover around **60 km** while carrying loads of up to **32 kg per person.**
- **Activities:**
  - Teams undertake **reconnaissance, navigation, casualty evacuation, tactical decision-making and combat drills.**
  - The exercise includes **obstacle and minefield crossings, intelligence gathering, communication procedures, artillery targeting and responses** to chemical, biological, radiological and nuclear (CBRN) threats.
  - **Modern Warfare Scenarios:** Recent editions have incorporated scenarios i**nvolving drones, persistent surveillance and other emerging threats,** while continuing to emphasize navigation, intelligence gathering and mission execution under pressure.
- **Prizes: Patrols are evaluated against established military training standards, with gold, silver and bronze medals awarded** according to their level of achievement.
  - Teams that complete the exercise but fall below the medal thresholds receive a completion award.

About Exercise Cambrian Patrol 2026

- The Exercise was conducted from **2nd to 12th October 2026.**
- **Location:** It is held in **Wales, United Kingdom.**
- **Hosted by:** It is hosted by **Headquarters 160th (Welsh) Brigade.**
- **Hosting nation: Wales, United Kingdom (British Army)**
- **Phases and duration:** The Exercise is currently **made up of eight phases, each of 48 hours, over 10 days.**
  - Teams operate for **approximately 48 hours in difficult mountainous terrain** while completing various military tasks under strict time limits.
- **Indian Army Participation and achievement:**

- The Indian team competed against more than 100 teams from across the world and was **among the 10 teams awarded gold medals** in one of the **most demanding military patrolling exercises anywhere.**
- Soldiers of the **Indian Army's Assam Regiment** have won a **gold medal at Exercise Cambrian Patrol 2026,**

Martian Moons eXploration (MMX) Mission

News: Japan is set to launch the Martian Moons eXploration (MMX) mission to study Mars's moons and bring back samples from Phobos.

About Martian Moons eXploration (MMX) Mission



Source – Space

- **MMX** is a **Japanese space mission** to study the **moons of Mars i.e. Phobos and Deimos and return a sample from Phobos to Earth.**
- **Led by:** Japan Aerospace Exploration Agency **(JAXA)**
- **Partnership:** The mission involves **NASA, the French space agency (CNES), the German Aerospace Center (DLR), and the European Space Agency (ESA).**
- **Launched From:** It is scheduled to **launch aboard Japan's H-3 rocket.**
- **Aim:** The mission aims to **study the formation and composition of Mars's moons and explore their history.**
- **Timeline:** The spacecraft is planned for **launch on 19 October 2026.**
  - It will **reach the Mars region after about one year**, **study Phobos for three years** and **return to Earth in 2031.**
- **Key Features:**
  - **Sample Collection:** The mission aims to collect **at least 10 grams of soil from Phobos using two sampling methods.**
  - **Scientific Instruments:** The spacecraft **will carry 13 instruments, including a rover** jointly developed by France and Germany.

- **NASA's Technological Support:** The **MEGANE (Mars-moon Exploration with GAmma rays and NEutrons) instrument** will help identify the elements present on Phobos.
  - NASA is also providing a **pneumatic sampler that uses high-pressure nitrogen gas to collect surface particles.**
- **Three Modules:** The spacecraft consists of **propulsion, exploration and return modules.**
- **Deimos Observation:** The mission will **also fly by Deimos and collect observations.**
- **Future Exploration:** The mission will **develop technologies for round-trip missions to Mars** and support future human exploration.

India's Nutrient-Rich Purple Potato

News: The development of nutrient-rich purple potato varieties in India highlights efforts to improve nutritional quality and address hidden hunger.

About India's Nutrient-Rich Purple Potato



Source – PIB

- The **Indian Council of Agricultural Research–Central Potato Research Institute (ICAR-CPRI)** has developed **three coloured potato varieties** through biofortification.
  - **Kufri Neelkanth (2018)**

- **Kufri Manik (2021)**
- **Kufri Jamunia (2024)**

- **Aim:** This type of biofortification aims **to improve the nutrient content of crops through plant breeding and strengthen long-term nutritional security.**
- **Different varieties developed are:**
  - **Kufri Jamunia (2024):**
    - **Appearance:** It has **dark-purple skin and flesh, oblong tubers, shallow eyes and a mealy texture.**
    - **Nutritional Value:** It contains higher levels of **ascorbic acid, anthocyanin and carotenoids than Kufri Manik and Kufri Neelkanth.**
    - **Mineral Content:** Its **flesh** contains **22.77 ppm zinc** and **32.23 ppm iron.**
    - **Yield and Storage:** It produces **32–35 tonnes per hectare** under recommended cultivation practices.
      - It also has **good storage quality, with low rottage and minimal weight loss.**
    - **Cultivation Suitability:** It has shown stable performance in **multi-location trials and is recommended for cultivation in the North Indian plains.**
    - **Uses:** It can be used to **prepare curries, parathas, halwa and dosa.**
      - It is also suitable for making **processed food products.**
  - **Kufri Neelkanth (2018):**
    - It was the **first purple-skinned specialty potato variety.**
    - **Nutritional Value:** It has a **high antioxidant content.**
    - **Cultivation:** It is suitable for **Punjab, Haryana, Uttar Pradesh, Uttarakhand, Bihar, Madhya Pradesh and Chhattisgarh.**
    - **Suitability:** It is **suitable for people of all age groups.**
  - **Kufri Manik (2021):**
    - **Appearance:** It produces **round, deep-red tubers with yellow flesh and medium-sized eyes.**
    - **Nutritional Value:** It contains **high levels of anthocyanin, zinc and iron.**

Melanterite and Gypsum

News: Researchers identified two hydrous sulphate minerals, melanterite and gypsum, at sites in Tamil Nadu and Chile that resemble Martian environments.

About Melanterite



Source: Wikimedia Common

- **Melanterite** is a **hydrated iron sulphate.**
- It is **formed** through the **oxidative weathering and decomposition of primary iron sulfide minerals,** most commonly **pyrite (FeS_2)** or its unstable **polymorph marcasite**.
- It is often **found in mines as a post-mining formation on mine walls.**
- **Properties:**
    - **Colour:** It is **colorless** to **white or green**, also **greenish-blue to blue** with **increased copper content** and **colourless to pale green in transmitted light.**
        - Melanterite has **conchoidal fracture** and displays **cleavage in two directions.**
    - It is **highly soluble in water.**
    - **Formula:** $Fe^{2+}(H_2O)_6(SO_4) \cdot H_2O$
- **Recent findings:** Melanterite has been detected in Neyveli, Tamil Nadu.
    - It forms under **temporary wet, acidic and oxidising conditions** and **provides evidence of short-lived water activity relevant to understanding Mars' geological history**.

About Gypsum



Source: Wikimedia Commons

- **Gypsum** is a **common sulfate mineral.**
- It is **found in large beds along with other evaporite minerals,** especially in Permian and Triassic sedimentary formations.
    - It is also **found in salt pans and saline lakes** and **is a key part of cap rock on salt domes.**
- **Properties:**
    - **Forms:** It appears in **various forms, including selenite (well-developed crystals), satin spar (fibrous, silky, and opalescent), alabaster (fine-grained and massive), and gypsite (earthy and pulverulent).**
    - **Composition: It is composed of hydrated calcium sulfate.**
    - **Colour:** It is **colourless to white,** often tinged other hues due to impurities and **colourless in transmitted light.**
    - **Formulae:** $CaSO_4 \cdot 2H_2O$
- **Applications:** It is used as a **fluxing agent, fertilizer, filler, and retarder in portland cement**.
    - When **calcined, it becomes plaster of Paris,** used in building materials.
- **Leading Producers:** Its deposits occur in many countries, but **Spain, Thailand, the United States, Turkey, and Russia are among the leading producers.**
- **Recent findings:** Gypsum is **one of the two hydrous sulphate minerals** identified in the **Atacama Desert in Chile and the Tiruchirappalli Badlands, a semi-arid geological and palaeoclimatic region in Tamil Nadu.**

- It **records past water activity and can preserve potential biosignatures within its mineral structure,** making it significant for astrobiological investigations.

Fund for Improvement of S&T Infrastructure (FIST) Programme

News: Researchers used a Raman spectrometer supported by the DST-Fund for Improvement of S&T Infrastructure (FIST) Programme to identify Mars-analogue minerals in Tamil Nadu and Chile.

About Fund for Improvement of S&T Infrastructure (FIST) Programme



Source: Department of Science & Technology (DST)

- The Fund for Improvement of S&T Infrastructure (**FIST) programme** is a flagship research and development programme to **upgrade research and teaching facilities in Indian universities, PG colleges, and scientific institutions.**
- **Aim:** It is intended **to provide basic infrastructure and enabling facilities for promoting R&D activities in new and emerging areas** and **attracting fresh talents in universities & other educational institutions.**
  - It is considered as **complimentary support for enabling Departments/ Centres/ Schools/ Colleges** to pursue research activities more effectively and efficiently.
- **Nodal Department: Department of Science & Technology (DST)** is the nodal ministry.
  - It is also the **funding Agency.**
- **Focus Area:** All Science Disciplines
- **Features:**
  - **Focus of the research:** The **synergy and focus of research** may **preferably be aligned to National Missions/ priorities.**
  - **Duration**: The duration of support for **each FIST Project will be for a period of 5 years.**

- It **provide optimal infrastructure for postgraduate and higher research** through renovation and modernization of existing laboratories, cold rooms, equipment, and research facilities, without undertaking new construction.
- It also **supports upgradation of research support facilities,** including networking and computational resources, software and databases, scientific and technical books (excluding journals), and maintenance and refurbishment of existing and new facilities.
- The facilities provided under the program are **intended to support the efforts of the Department** as a **whole or a number of faculty members in the Department.**
- **Proposal towards individual R&D support** would **not be accepted** under this Scheme.

- **Types of Support under the FIST Programme**
  - **Level A (Academic-PGC): Up to ₹1.5 crore for 5 years** to establish research facilities in eligible active postgraduate colleges.
  - **Level B (Basic R&D Departments): Up to ₹3 crore for 5 years** to strengthen research facilities in eligible postgraduate S&T departments of universities and academic institutions.
  - **Level C (Contemporary R&D Departments): Up to ₹10 crore for 5 years** to support established S&T departments in acquiring advanced equipment and developing laboratories for internationally competitive research.
  - **FIST-SHAKTI: Institutional-level funding** to develop advanced, high-end technological facilities with active users from both the host institution and external organizations.

Seahorse Species

News: Scientists have identified a new seahorse species in Indian waters, resolving a long-standing confusion over the identity of spiny seahorses.

About Seahorse Species



Source – Mongabay

- **Seahorses** are **marine fish.**

- They belong to the **family Syngnathidae,** which also includes **pipefishes and seadragons.**
- They belong to the **genus Hippocampus.**
    - The name **Hippocampus is derived from two Greek words: hippos, meaning 'horse'**, and **kampos, meaning 'sea monster'.**
- **Habitat:** Seahorses inhabit **marine ecosystems, including seagrass beds, mangroves, coral reefs and estuaries.**
- **Key Features of Seahorses**
    - **Body Structure:** Seahorses have a **horse-shaped head, an upright body and a curled tail** that helps them grip marine vegetation.
    - **Body Covering:** They **lack scales and have bony plates** covering their bodies.
    - **Camouflage:** They **can change colour and adjust their body spines** to blend with their surroundings.
    - **Reproduction: Males carry eggs in a pouch** and **give birth to live young, not females.**
    - **Ecological Role:** They **act as predators in seagrass beds, mangroves, coral reefs and estuaries.**
- **Threats: Bottom trawling and accidental capture** in fishing nets threaten seahorses.
    - **Illegal trade** also puts pressure on their populations.
- **Taxonomic Classification:** The study **identified three separate species:**
    - **Hippocampus histrix**
        - **Distribution:** It is **distributed in the Pacific Ocean.**
        - **IUCN Status:** It is classified as **Vulnerable**.
    - **Hippocampus jayakari**
        - **Distribution:** It is found in the **Arabian region.**
        - **Key Feature:** It is a **poorly known species.**
        - Its **distribution boundary with Hippocampus amandavincentae** requires further investigation.
    - **Hippocampus amandavincentae**
        - **Distribution:** It is distributed in the **Indian Ocean,** with evidence of its presence in **Madagascar, Mozambique and the Seychelles.**
        - **Key Features:** It has a **shorter snout, five spines on its crown and stronger spines along its trunk and tail**.
            - Genetic analysis **revealed a 6–7% difference from the Pacific species.**
            - Its **population remains unknown.**

Blackbuck (Antilope cervicapra)

News: A recent report highlighted the blackbuck's dependence on grassland habitats and its importance as an indicator of grassland conservation.

About Blackbuck (Antilope cervicapra)



Source – Mongabay

- The **Blackbuck (Antilope cervicapra)** is a **medium-sized antelope.**
- It is the **sole living member** of its genus **Antilope.**
- **Recognition:** The blackbuck is the state **animal of Punjab, Haryana and Andhra Pradesh.**
- **Habitat:** It mainly lives in **open grasslands, dry scrub areas and thinly forested areas.**
- **Distribution:** It is mainly found in **India and Nepal.**
    - It is **extinct in the wild** in **Pakistan and Bangladesh.**
- **Key Features:**
    - **Physical Appearance: Males** have **dark coats and long, spiralling horns**, while **females** have **lighter coats and usually lack horns.**
    - **Speed and Vision:** It has **excellent eyesight and can run very fast** to escape predators.
    - **Social Behaviour:** It **lives in herds**, usually consisting of 5 to 50 individuals.
    - **Breeding Behaviour:** During the mating season, **males** establish **display territories called leks to attract females.**
    - **Grassland Indicator:** It is a **key indicator of the importance of grasslands** for supporting grassland species.
- **Threats: Habitat loss due to agriculture, infrastructure projects and invasive plants is a major threat.**
    - **Feral dogs** also kill blackbucks.
- **Conservation Status:**
    - **IUCN status : Least Concern.**
    - **Wildlife (Protection) Act, 1972: Schedule I**

Akhand Prahar-II

News: The Indian Army conducted Akhand Prahar-II in Jaisalmer, Rajasthan, to strengthen combat readiness and improve coordination among military units.

About Akhand Prahar-II



Source – ETV Bharat

- The **Akhand Prahar-II** is a **military exercise** aimed at **preparing the Indian Army for future combat scenarios.**
- **Conducted By:** The exercise was **jointly conducted by the Army's Black Mace Brigade and Battle Axe Division.**
- **Location:** The exercise was **conducted in Jaisalmer, in the desert region of Rajasthan.**
- **Origin:** The exercise followed the success of **Akhand Prahar-I,** during which the **Army demonstrated its combat readiness through joint military operations.**
- **Key Features**
    - **Combat Procedures and Modern Equipment:** The Army tested various combat procedures **using next-generation military equipment, modern assets, and force-multiplier assets to improve combat effectiveness.**
    - **Multi-Dimensional Operations:** The exercise assessed the **Army's ability to take swift and precise action under changing battlefield conditions.**
    - **Technology Integration:** It focused on **combining modern technology with conventional military capabilities** to improve operational precision and coordination among military units.

Abyei Region

News: South Sudanese officials reported that Sudanese military drone strikes on a market in the disputed Abyei region killed over 150 people, amid escalating cross-border violence.

About Abyei Region



Source: Britannica

- The **Abyei region** is a **disputed territory located along the border between Sudan and South Sudan**.
    - It **borders Sudan's Kordofan region,** which has become a major centre of fighting in the war.
- **Administered by: It is jointly administered by**and Sudan.
- **Strategic significance:** It is significant strategically because **it is an oil-bearing area located along the contested border between Sudan and South Sudan.**
- **Conflict:** South Sudan declared independence from Sudan in 2011. Since then, both countries have staked a claim to oil-rich Abyei.

Agri Welfare Portal

News: Union Agriculture Minister recently launched an upgraded agri welfare portal to provide farmers across the country with direct, easy access to government schemes, financial assistance and reliable agricultural information on their mobile phones.

About Agri Welfare Portal



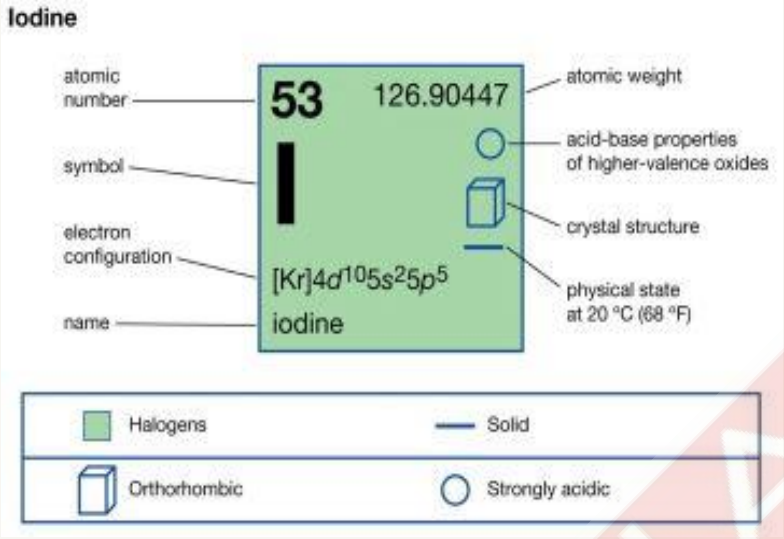
Source – SarkariTel

- The **Agri Welfare Portal** is a platform that will **provide farmers with all information about the government schemes.**
- **Nodal Ministry:** This portal has been launched by **Ministry of Agriculture & Farmers Welfare.**
- **Aim:** It aims to **provide farmers across the country with direct, easy access to government schemes, financial assistance and reliable agricultural information on their mobile phones,** eliminating procedural hurdles and the role of intermediaries.
- **Features and benefits:**
    - **Single-Window Scheme Access:** It serve as a **single-window gateway to major government initiatives, including PM-KISAN, AgriStack and the Pradhan Mantri Fasal Bima Yojana,** making it easier for farmers to access relevant services and information through a common interface.
    - **All services in one place:** Information on the **Ministry's schemes, subsidies, rules and digital services will be available on a single portal,** reducing the time and effort farmers spend navigating multiple platforms.
    - **Greater transparency and fewer intermediaries: Online eligibility checks, direct application facilities and the transfer of financial assistance through Direct Benefit Transfer (DBT)** will make processes more transparent and reduce the role of intermediaries.
    - **Designed for rural connectivity:** It is **lightweight and user-friendly,** enabling smooth operation on basic smartphones and in areas with weak internet connectivity.
    - **Timely and reliable agricultural information**: Farmers will be **able to access authentic information on weather conditions, scientific farming practices, the availability of seeds and fertilisers, and prevailing market prices for agricultural produce.**
    - **Accessible to persons with disabilities:** It **supports screen readers and simple navigation**, enabling visually impaired users and other persons with disabilities to access its services more easily.
    - It will **bring together Farmer Producer Organisations, Primary Agricultural Credit Societies, agricultural scientists, researchers and startups,** creating a **common digital platform for the wider agricultural ecosystem.**
    - A **special training campaign will be conducted through Krishi Vigyan Kendras** across the country to help farmers make effective use of the portal and other digital tools.

Iodine

News: On World Iodine Deficiency Day, the Ministry of Health and FamilyWelfare advised citizens to choose iodised salt and use it in moderation.

About Iodine



Source – ResearchGate

- **Iodine** is an **essential micronutrient** required **for healthy thyroid function, brain development and overall growth.**
- **Properties:** Iodine is a chemical element with the **symbol I** and **atomic number 53.**
  - It belongs to **Group 17 (halogens) and Period 5 of the periodic table.**
  - It is a **lustrous, blue-black solid at room temperature and exists as a diatomicmolecule (I_2).**
  - On **heating,it sublimes directly into violet vapour** without first becoming liquid.
- **Uses:** Iodine **helps produce thyroid hormones**, which regulate **metabolism, growth and development.**
  - It is also used in **antiseptics, medical treatments and industrial processes.**
- **Deficiency:** Iodine deficiency is the most common **cause of preventable intellectual disability worldwide.**
  - It can **cause goitre, hypothyroidism, cretinism, miscarriage, stillbirth and impaired mental development.**
  - Severe **deficiency during pregnancy and earlyinfancy** can cause **irreversible developmental effects.**
- **Sources:** Iodine can be obtained from **iodised salt, seaweed, fish, shrimp and dairy products.**
- **Government Initiatives:**
  - The **Government launched the National Goitre ControlProgramme (NGCP) in1962.**
    - It was renamed the **National Iodine Deficiency DisordersControl Programme (NIDDCP) in 1992** to cover wider disorders across all States and Union Territories.
  - **India made salt iodisation mandatory for** direct human **consumption in 1992.**
  - The **Supreme Court mandated universal iodisation in 2011.**
  - **Jeevan Bindi, aniodine patch,** was introduced to **help one lakh tribal women in north-west Maharashtra.**
- **Global Efforts:** The **WHO and UNICEF have promoted universal salt iodisation since1993.**

SUVIKALP Initiative, PRISM Platform and SKOCHAwards

News: The Coal Controller Organisation (CCO) received the SKOCH Gold Award 2026 for its SUVIKALPInitiative on 26 September 2026.

About SUVIKALP Initiative



Source – PIB

- **SUVIKALP Initiative** is **an in-house Mine Repurposing Tool.**
- **Developed by:** It is developed by the **Coal Controller Organisation (CCO) under the Ministry of Coal.**
- **Aim:** It aims to **support scientific mine closure** and the **sustainable repurposing of post-mining land** through **structured and data-driven decision-making.**
- **Key Features**
    - **Project Selection:** SUVIKALP **evaluates and ranks mine repurposing projects** using technical, environmental, social and economic criteria to support structured, data-driven decision-making.
    - **Implementation:** The users can use the **Post-Mining Repurposing Implementation Strategy Model (PRISM)** which **explore implementation pathways after selecting a suitable project.**
        - **PRISM provides** project concepts, implementation approaches, case studies, sample Detailed Project Reports (DPRs), tender documents and information on agencies working in similar sectors.

- These initiatives **support environmental restoration, livelihood generation, community development and economic diversification**, moving beyond regulatory compliance towards productive use of closed mines.

About SKOCH Awards

- The **SKOCH Awards** were instituted in **2003 by SKOCH Consultancy Services.**
- **Award:** The SKOCH Awards **recognize individuals, projects and institutions** for their **extraordinary contributions to society and their efforts to make India a better nation.**
- **Nature:** The awards are **conferred by an independent organisation**.
- **Focus:** The awards recognize **excellence in governance, technology, innovation, digital, financial and social inclusion, and transformational initiatives that deliver public value.**

Gitchak nakana and Rakthamichthys anchi

News: Researchers have found two new subterranean fish species, Gitchak nakana and Rakthamichthys anchi, from wells in Assam.

About Gitchak nakana and Rakthamichthys anchi

- **Gitchak nakana and Rakthamichthys anchi** are **blind, subterranean fish species found in groundwater environments.**
- **Found in:** Both species **were discovered in wells in Goalpara district, Assam**, in areas **dominated by alluvial deposits.**

About Gitchak nakana



Source – Mongabay

- **Gitchak nakana** is a **blind freshwater fish (loach).**
- **Distribution:** It was discovered in **Goalpara, Assam.**
  - It marks the **first record of a groundwater-dwelling fish in Northeast India.**

- **Similar subterranean fishes** were previously known mainly from the **lateritic lowlands of the Western Ghats.**

- **Family:** It belonging to a **new genus within the family Cobitidae**.
- **Naming:** The name comes from the **Garo language**.
  - **Gitchak refers to its striking red colour,** while **nakana refers to a blind fish.**
- **Key Features:**
  - **Size:** It is a tiny fish measuring about **2 centimetres in length.**
  - **Appearance:** Its **transparent body** allows **its blood and internal organs to give it a blood-red appearance.**
  - **Skull Structure:** It has **no skull roof, leaving an opening covered only by skin.**
- **Threats:** People may **mistake it for a worm or a harmful creature and kill it**.
  - **Pollution, groundwater extraction and possible exploitation** also threaten such species.

About Rakthamichthys anchi



Source – Mongabay

- **Rakthamichthys anchi** is a newly described **phreatobiotic synbranchid eel** belonging to the **family Synbranchidae (swamp eel family).**
- It is the **second species of this genus** recorded **from Northeast India, after Rakthamichthys rongsaw of Meghalaya.**
- **Naming: 'Anchi' and 'Raktham' mean blood in Garo and Malayalam, respectively,** while '**ichthys' means fish in Greek**.
- **Distribution:** It is **endemic to India.**
  - It was **discovered in Goalpara district, Assam.**
- **Habitat:** It inhabits **groundwater aquifers in alluvial deposits**.
- **Key Features:**
  - **Size:** It is measures **approximately 310 mm in length.**
  - **Appearance:** It has a **slender, eel-like body** and **shares characteristics with Gitchak nakana.**

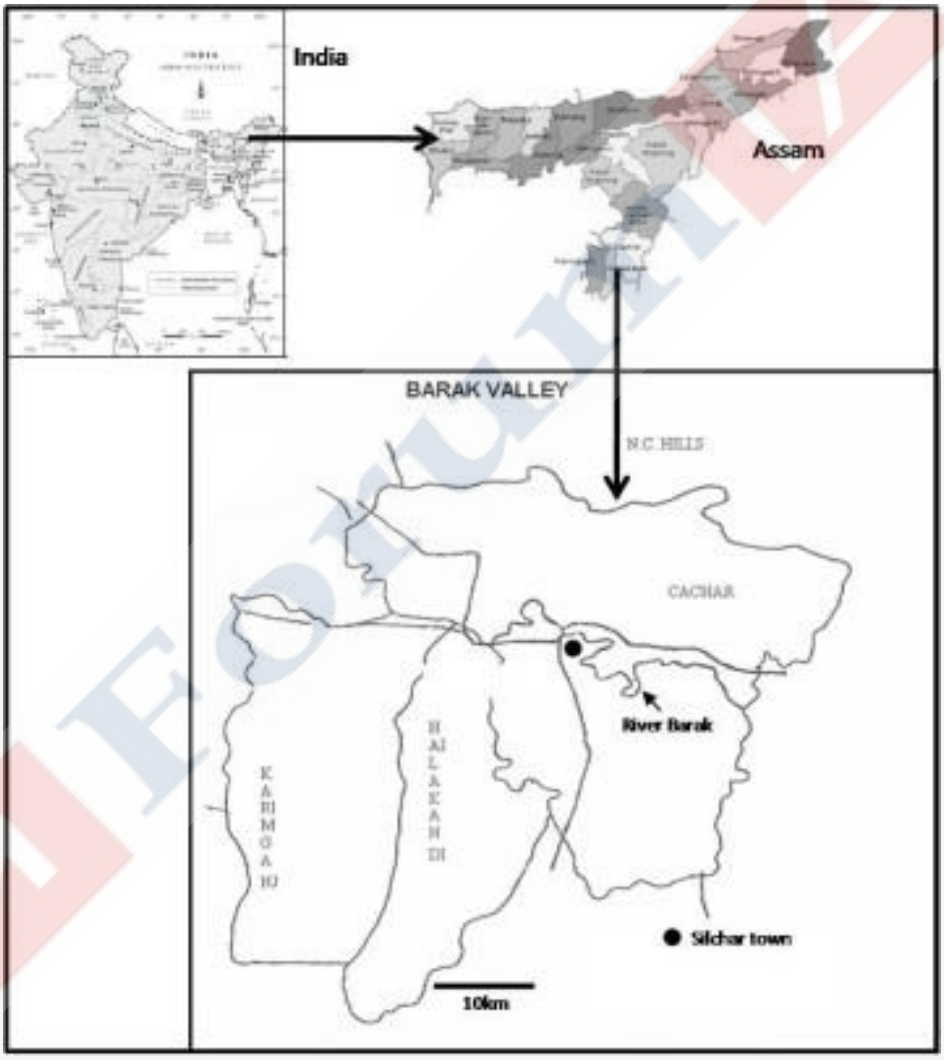
- **Adaptation:** These fishes have a **low metabolic rate** and can **survive for months without food after feeding.**
- **Phreatobiotic:** It **lives exclusively within the groundwater zone of aquifers**, particularly in underground, water-filled spaces.

- **Threats: Pollution, groundwater extraction and human killing** due to lack of awareness pose risks to this species.

Barak River

News: Two Bangladeshi nationals were arrested after allegedly jumping into the Barak River to evade police during an operation in Assam's Cachar district, raising border security concerns.

About Barak River



Source: Research Gate

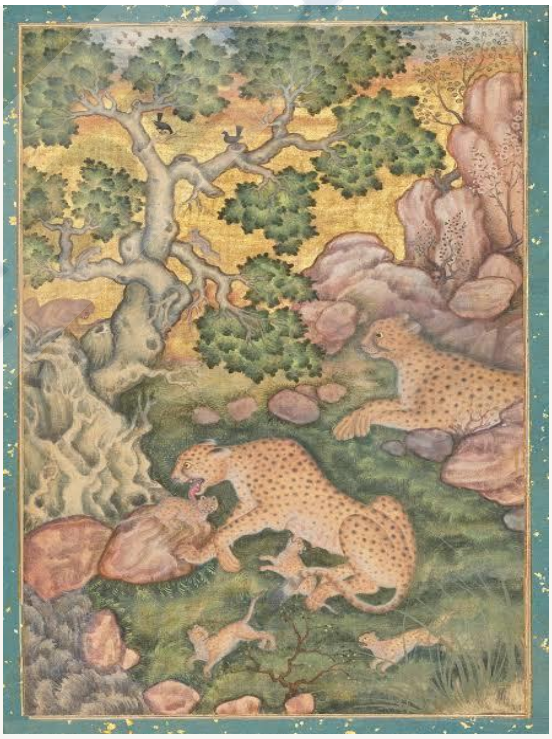
- The **Barak River** is a major **trans-boundary** river in **Northeast India and Bangladesh.**
  - It is the **second largest river system** in the **North-Eastern region of India.**
- **Origin:** It **rises in the Manipur Hills**, south of Mao in **Senapati district, Manipur.**

- **Course of the river:** It flows through the **hills of Manipur, along parts of the Manipur–Nagaland and Manipur–Mizoram boundaries**, and **across Assam before entering Bangladesh.**
    - There, it **splits into the Surma and Kushiyara rivers,** which merge into the **Meghna River system and eventually drain into the Bay of Bengal.**
- **States covered:** In India, its basin is spreads over **states of Meghalaya, Manipur, Mizoram, Assam, Tripura and Nagaland.**
    - It is bounded by the **Barail range separating it from the Brahmaputra basin on the north**, by the **Naga and Lushai hills on the east** and by **Mizo Hills** and territory of **Bangladesh** on the south and west.
    - In Assam, the **Barak Valley** is **named** after the Barak River.
- **Tributaries:** The key tributaries of the Barak River are **Jiri, Chiri, Modhura, Jatinga, Harang, Kalain, Gumra, Dhaleswari, Singla, Longai, Sonai, and Katakhal.**
- **Length:** The total length of the Barak River in India is **564 km** and **121-km stretch** of the river between **Lakhipur and Bhanga in Assam** was declared as **National Waterway 16** by the Government of India.
- **Dams situated on river:** There are **four major dams** situated on river and its basin namely **Khoupum Dam, Mawphlang Dam, Gumti Hydro Dam and Myntdu-Leshka Dam.**

Basawan

News: A Mughal painting of a cheetah family, created by Basawan around 1575 under Akbar, sold for nearly ₹120 crore in London.

About Basawan



Source: TOI

- **Basavan** was an **renowned Mughal painter.**
- He **flourished during 16th century.** He was a **leading painters in Emperor Akbar's court.**
- **Painting style:** His **work is largely associated with innovation and expressive figures.**
    - He was highly regarded for his skill as a **designer, colourist, and observer of human nature.**
- His work appears in numerous **significant manuscripts, including the *Akbar-nāmeh*, the *Razm-nāmeh* (a Persian version of the *Mahabharata*), and the *Tīmūr-nāmeh* (a chronicle of the Mughal ancestor Timur).**
- **Famous work:** One of his most celebrated work is **"A Family of Cheetahs in a Rocky Landscape"** which is a Mughal painting **created around 1575–80 during Emperor Akbar's reign.**
    - It was **painted on cloth** and **depicts a family of cheetahs in their natural surroundings,** reflecting the Mughal interest in wildlife and realistic animal studies.
    - His works **later became part of notable art collections,** including that of Prince Sadruddin Aga Khan and Princess Catherine Aga Khan.
    - The painting has been **sold at Christie's in London for £10.245 million** from the private collection of Prince Sadruddin Aga Khan.

AgriVoltaics World Conference 2026

News: The 7th AgriVoltaics World Conference commenced at Bharat Mandapam, New Delhi, bringing together global stakeholders in agriculture and renewable energy.

About AgriVoltaics World Conference 2026



Source – NOA

- The **AgriVoltaics World Conference** is a **global platform** for **scientific exchange and technology collaboration.**
- It promotes **discussions on combining agriculture with solar energy.**
- **Origin:** It was **first launched in 2020.**
    - The **2026 conference is its 7th edition.**

About AgriVoltaics World Conference 2026

- **2026 Theme:** The theme of the **7th edition is "Powering the Global South."**
- **Hosted by:** The **Ministry of New and Renewable Energy (MNRE) is hosting the 7th edition** of the conference with **support from Germany's BMUV.**
    - The conference is **organised in partnership with Conexio-PSE.**
- **Aim:** The conference aims to **promote international cooperation** and scale agrivoltaics solutions to **support farmer incomes, food security and clean energy development.**
- **Key Features:**
    - **Global Participation:** The conference has over 1,200 delegates, including 150+foreign participants.
    - **Scientific Discussions:** The programme includes a **dedicated India Focus Track** and **two scientific tracks** covering **crop productivity, climate resilience, technology deployment and policy frameworks.**
    - **Knowledge Resources: T**he conference **launched three resources:**
        - the India Agrivoltaics Alliance's Decision-MakingTool,
        - IWMI's Book of Abstracts and
        - MNRE's AgriPV Policy Handbook.
    - **Startup and Innovation Platform:** The **AgriVoltaics Pitch Hub** showcases technological solutions and **connects start-ups, investors and industry leaders.**
    - **Sustainable Agriculture:** Agrivoltaics **promotes the dual use of land for food production and clean energy**, while **supporting rural entrepreneurship and sustainable livelihoods.**

Key Facts about Poland

News: India and Poland announced four initiatives on trade, defence, counter-terrorism and disaster resilience during Polish Prime Minister Donald Tusk's visit to India.

Key Facts about Poland



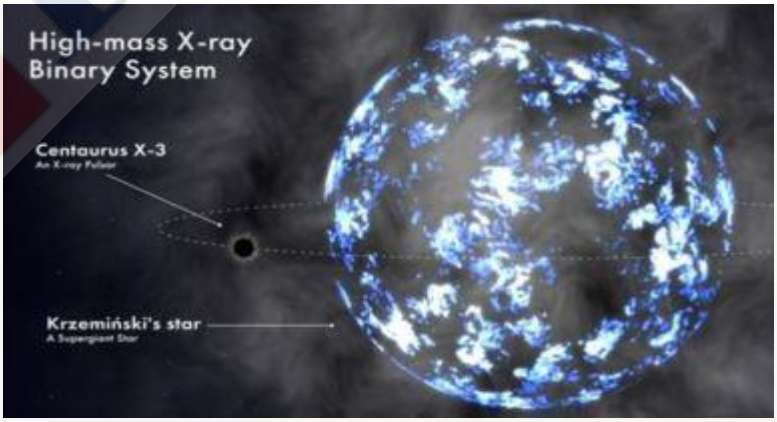
Source – Britannica

- **Poland** is a **country** located in the **physical centre of the European continent.**
- **Boundaries:** It is bordered **bordered by 7 nations:**
    - **Russia and Lithuania** in the northeast,
    - **Belarus andUkraine** in the east,
    - **Slovakia and the Czech Republic** in the south, and
    - **Germany** in the west.
    - **Water Bodies:** It is bordered by the **Baltic Sea in the north.**
- **Climate:** It has a **transitional maritime and continental climate**, with highly **variable weather and six distinct seasons.**
- **Key Features**
    - **Terrain:** Poland consists **mainly of lowlands within the North European Plain.**
    - **Mountain Ranges:** The **Carpathian and Sudeten Mountains** lie along Poland's southern border.
        - **Mount Rysy (2,501 metres), in the Carpathians**, is Poland's **highest peak.**
    - **Hydrology: Almost the entire** country **drains into the Baltic Sea.**
        - The **Vistula (Wisła), Oder (Odra) and Elbe are major rivers**.
        - It has **more than 1,300 lakes** throughout the country.
    - **Vegetation:** Poland **mainly lies in the mixed forest zone.**
        - The northeast has **patches of eastern European subtaiga,** while the **southeast has some forest-steppe vegetation.**
    - **Flora:** Poland's forests include **beech, fir, oak and spruce trees.**
        - The Polish **larch (Larix polonica) and Ojców birch (Betula oycoviensis)**are examples of **endemic species.**
    - **Fauna:** Poland's wildlife includes wild **boar, European bison(wisent), brown bears, wild horses, chamois, Eurasian lynxesand gray wolves**.

Centaurus X-3

News: Scientists found that Centaurus X-3 draws material through an accretion disk, a rare process in high-mass X-ray binaries.

About Centaurus X-3



Source – PIB

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- **Centaurus X-3** is **one of the brightest X-ray pulsars.**
- It is also one of the **most widely studied binary pulsars.**
- **Type:** It is a **high-mass X-ray binary (HMXB)** with a companion star **more than 10 times the Sun's mass.**
- **Location:** It lies **about 24,000 light-years from earth**, in the **constellation Centaurus.**
- **Key Features of Centaurus X-3**
    - **Binary System:** It contains a **highly magnetized neutron star and an O-star companion.**
    - The pulsar **rotates once every 4.84 seconds** and **completes an orbit in 2.087 days.**
    - It **gathers material through a disk, an unusual process in high-mass X-ray binaries,** where stellar wind capture is more common.
    - A **stream transfers matter from the disk towards the pulsar, which guides it towards its magnetic poles.**
    - **Secondary radiation** occurs when **surrounding structures absorb and re-emit radiation from the pulsar.**
        - Studying this radiation **helps scientists understand the system's physical properties, such as its orientation and magneticfield strength, and improve models of binary pulsars.**

About Pulsars

- **Pulsars** are **rapidly spinning, highly magnetized neutron stars.**
- **Formation:** They form when **massive stars collapse and explode as supernovae, leaving behind dense cores.**
- **Radiations:** They release **radiation from their magnetic poles,** creating powerful beams of light.
- **Regular Pulses:** Their **radiation** reaches observers at **regular intervals**, ranging from milliseconds to seconds.
- **Observation:** Scientists have mainly **observed pulsars at radio wavelengths.**

SIMBEX-2026

News: The 33rd edition of the Singapore-India Maritime Bilateral Exercise (SIMBEX-2026) is being held at Visakhapatnam.

About SIMBEX-2026



Source: PIB

- It is a **Singapore-India Maritime Bilateral Exercise.**
- **Location:** It is **being held from 21 to 26 Oct 2026 at Visakhapatnam.**
- **Hosted by:** It is being hosted by India**.**
- **Edition:** This is the **33rd edition of the exercise**
    - The **first edition of the exercise** was conducted in **1994.**
- **Frequency:** It is conducted **annually.**
- **Aim:** It aims **to strengthen professional ties, mutual understanding and operational interoperability** between the two Navies.
- **Participants:** It is bilateral maritime engagement between the **Indian Navy and the Republic of Singapore Navy (RSN).**
    - It involves participation of the **Republic of Singapore Navy (RSN) ship RSS Supreme and Indian Navy ships INS Nilgiri and INS Kamorta.**
- **Phases of the exercise:** It will be conducted in two phases.
    - **Harbour Phase** which will include professional interactions, Subject Matter Expert Exchanges (SMEEs), cross-deck visits, sporting engagements, and planning conferences.
    - **Sea Phase in the Bay of Bengal** will feature maritime operations and tactical exercises, including Anti-Submarine Warfare (ASW), anti-surface and anti-air warfare drills, seamanship evolutions, and tactical manoeuvres.
- **Other exercise with Singapore:**
    - **Bold Kurukshetra**
    - **Agni Warrior**

Sirpur Cultural and Archaeological Landscape in Chhattisgarh

News: Sirpur Cultural and Archaeological Landscape in Chhattisgarh has been added to UNESCO's World Heritage Tentative List.

About Sirpur Cultural and Archaeological Landscape in Chhattisgarh

- **Location:** Sirpur Village is **located in the Mahasamund district of Chhattisgarh.**

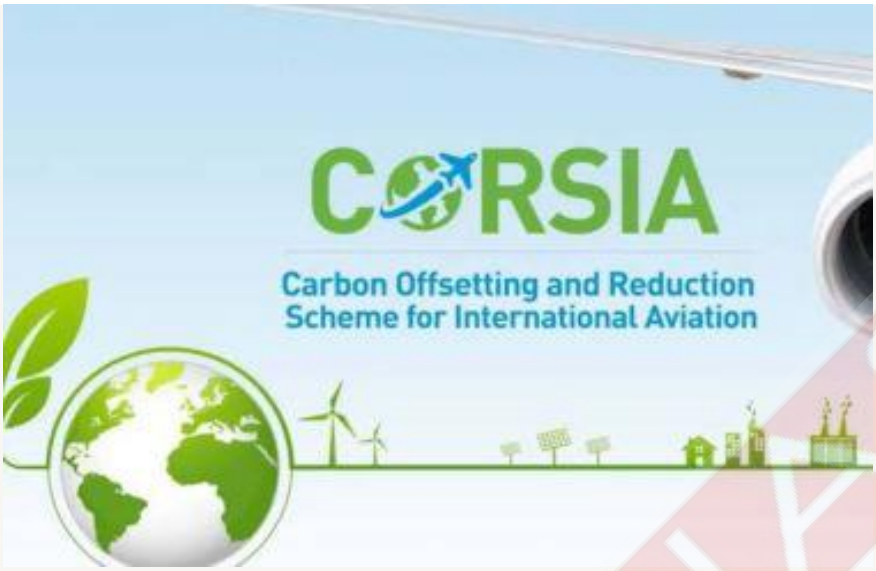
- It is situated on the eastern banks of the **Mahanadi River**.

- **Architectural Features:**
  - It was an important **settlement between the 5th and 12th centuries.**
  - **Its remains include Hindu temples, Buddhist monasteries and Jain structures,** making it an important site for understanding the region's religious and cultural history.
    - The site has **22 Shiva temples, five Vaishnava temples, 10 Buddhist viharas and three Jain viharas.**
    - **The Lakshmana Temple (dedicated to Lord Vishnu)** is one of the **finest brick temples** in India, built around the **7th century**.
    - Apart from being a multi-religious urban centre, it was once a flourishing **capital of Dakshina Kosala** under the **Panduvanshi** and later, the **Somavamshi kings.**
    - It has remains of **palace complexes, market structures, residential quarters, brick and stone temples along with Viharas, stupas, meditation cells and water management systems.**
    - Its distinctive feature is the c**ombination of a riverine trade centre, a multi-faith religious landscape and an extensive archaeological urban complex** within a single site.
    - The town naturally forms **four thematic clusters** — Buddhist monastic, Hindu temple, civic–administrative and Riverine Sacred Landscape**.**
  - **Present-Day Landscape:** The area **includes around 300 houses and nearly 1,500 people.**
    - The **buffer zone is home to tribal communities** such as the **Gond and Baiga.**
    - **Barnawapara Wildlife Sanctuary, located within the property's buffer zone,** further highlights the coexistence of nature, historical heritage and traditional communities.

Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and International Civil Aviation Organization (ICAO)

News: India is expected to mandate 1% Sustainable Aviation Fuel (SAF) blending for international flights from 2027 under CORSIA.

About Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)



Source – GreenAir News

- **CORSIA** is a **global market-based mechanism** to **reduce carbon emissions from international flights.**
- It is the **first global market-based measure for any sector** and **represents a cooperative approach.**
- **Adopted in:** The **International Civil Aviation Organization (ICAO)** adopted CORSIA in **2016.**
- **Aim:** It aims to **stabilize net carbon emissions from international flights at 2020 levels.**
    - It requires airlines to **offset eligible emission growth through carbon credits or eligible fuels.**
- **Phased Implementation Timeline**
    - **Pilot Phase (2021–2023):** It was **voluntary** for participating states.
    - **First Phase (2024–2026):** It continues on a **voluntary** basis.
    - **Second Phase (2027–2035):** It becomes **mandatory for ICAO member states**, subject to **exemptions**.
    - **India** has decided **not to participate** in the **voluntary phases of CORSIA.**
- **Key Features**

- **Emission Offsetting:** Airlines purchase eligible carbon credits to compensate for emissions **above the established baseline of 85% of 2019 emission levels.**
- **Monitoring and Reporting:** Airlines **must monitor, report and verify** their international flight emissions.
- **Applicability:** CORSIA **applies only to international flights between participating states.**
- **Environmental Integrity:** The **ICAO Council approves eligible emission unit programmes** to ensure credible carbon offsets.
- **Financial Responsibility: Individual airlines bear offsetting costs** based on their international operations.

About International Civil Aviation Organization (ICAO)



Source – UN

- **ICAO** is a **specialized** agency of the **United Nations (UN).**
- It was established in **1944 under** the **Convention on International Civil Aviation,** known as the **Chicago Convention.**
- **Aim:** It aims to **develop safe and efficient international air transport** for peaceful purposes.
- **Member Countries:** It has **193 Member States.**

- **Headquarters: Montreal, Canada**
- **Functions:** It provides expert **technical and diplomatic guidance** to build **safe, secure, sustainable, harmonized, and gender-inclusive international civil aviation**, and supports **standards, policies, and regulation**.
- **Governance**
    - **ICAO Assembly:**
        - It is a **sovereign body of all 193 member States.**
        - It meets **every three years,**
        - It reviews the work of ICAO, sets policy for the coming years, and votes a triennial budget.
    - **ICAO Council:** ICAO Assembly elects a **36-member Council** for a **three-year term**.
        - It gives continuing direction to ICAO's work and adopts Standards and Recommended Practices (SARPs) as Annexes to the Chicago Convention.
    - **Secretariat:** It is headed by a **Secretary General.**
    - **Standards:** ICAO Standards **do not prevent States from adopting more stringent national standards** than those in an Annex**.**

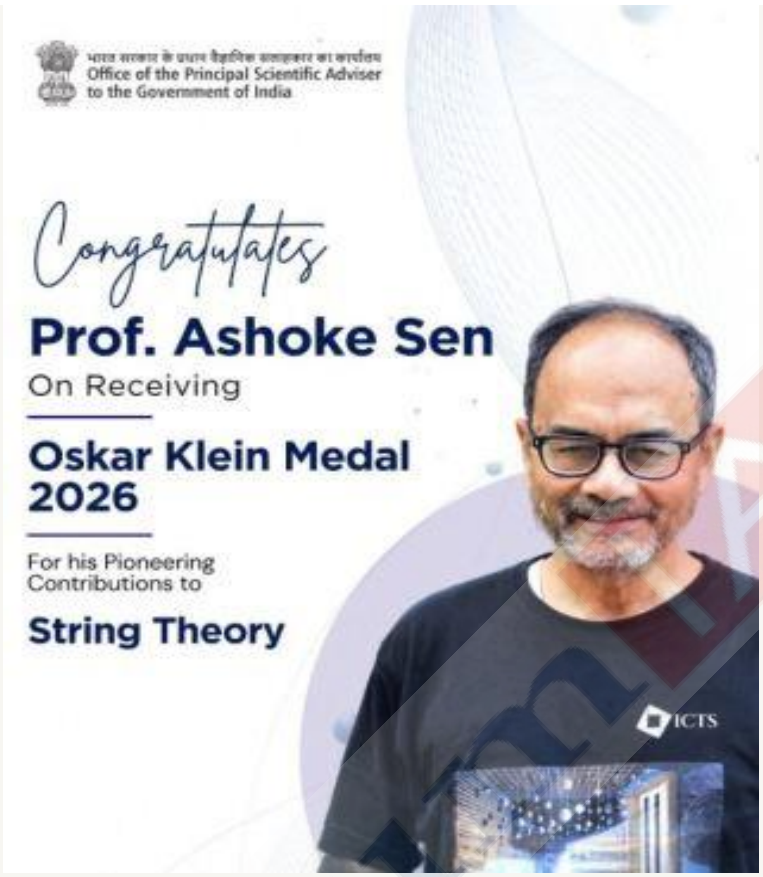
ICAO and India

- **India** is a **founding member** of ICAO since **1944**.
- It has been **re-elected** to **Part II of the ICAO Council** (States contributing most to international air navigation facilities) for the **2025–2028 term.**

Professor Ashoke Sen Becomes First Indian to Receive Oskar Klein Medal

News: Renowned Indian theoretical physicist Ashoke Sen has received the Oskar Klein Medal 2026, becoming the first Indian to win this international honour.

About Oskar Klein Medal



Source – NOA

- The **Oskar Klein Medal** is an **international** award that recognizes **distinguished contributions to physics.**
- **Awarded by:** The medal is **awarded annually** by **Stockholm University** and the **Nobel Committee for Physics of the Royal Swedish Academy of Sciences.**
- **Origin:** The award was **established in 1988.**
    - It is **named after Swedish theoretical physicist Oskar Klein.**
- **2026 Winner:**
    - **Winner:** Professor **Ashoke Sen, a renowned Indian theoretical physicist**, received the Oskar Klein Medal 2026.
    - **Key Contributions:** He received the medal for his pioneering **contributions to string theory, black hole entropy and string field theory.**

- His research on **S-duality and the precision counting of black hole entropy** has helped shape modern string theory.
- His work has **contributed to understanding the fundamental nature of gravity and black holes.**
- **Recognition:** He is the **first Indian to receive this medal.**
  - He has **also received the Dirac Medal** and the **Breakthrough Prize in Fundamental Physics**.

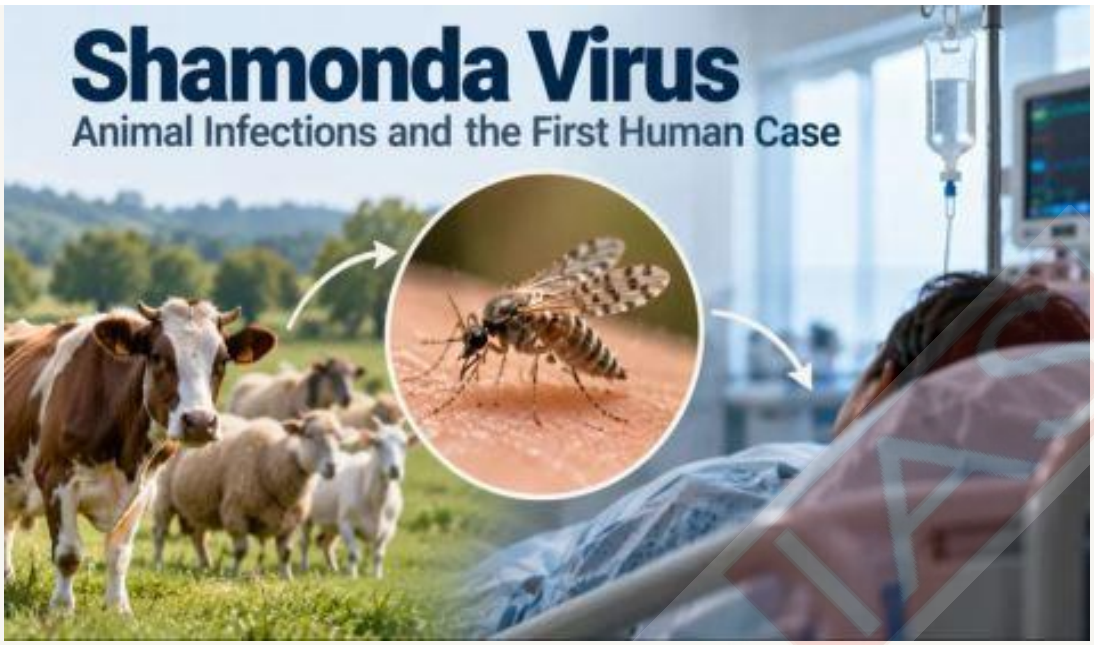
About String Theory

- **String theory** proposes that the **fundamental building blocks of the universe are tiny, one-dimensional vibrating strings rather than point-like particles.**
- **Basic Idea: Different vibration patterns** of these strings **produce particles with different properties, such as mass and charge.**
- **Main Objective:** It attempts to unite **quantum mechanics and Einstein's general theory of relativity,** which explain the behaviour of very **small and very large objects**, respectively.
- **Unified Framework:** It aims to **incorporate all four fundamental forces (gravity, electromagnetism, strong force, and weak force) of nature** and **all types of matter within a single framework.**
- **Scientific Importance:** It offers a possible **approach to explaining particles, gravity and the fundamental nature of the universe.**

Shamonda Virus

News: France has reported the first documented human infection with the Shamonda virus in a seriously ill patient who died in October 2026.

About Shamonda Virus



Source – Realmedvision

- **Shamonda virus** is a **vector-borne virus.**
- It belongs to the **genus Orthobunyavirus** and **the family Peribunyaviridae.**
- **Origin:** The virus was **first isolated** from cattle in **Nigeria in 1965**.
    - It has been reported in animals across parts of **Africa, Asia and Europe.**
- **First Human Infection:** It was **not previously recognized as a cause of human disease.**
    - In **October 2026, France reported the first known human infection** in a seriously ill patient in their sixties.
- **Transmission:** The virus is mainly **transmitted between animals through the bites of Culicoides midges, which are small, fly-like insects.**
    - **Direct animal-to-animal** transmission is **not known**, **except during pregnancy,** when an infected animal can transmit it to the foetus.
    - The **exact transmission routes require further study.**
    - It **mainly affects cattle but also infects sheep, goats, horses and alpacas.**
- **Symptoms:** In **animals**, symptoms include **fever, diarrhoea, reduced milk production, abortions and foetal malformations.**

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- In the **reported human case**, the patient **experienced blindness, confusion and coma.**
- **The long-term impact of the virus remains unclear.**

- **Treatment: No specific treatment or vaccine is currently available** for the virus.
- **Prevention:** Risk reduction measures include **using fine mesh screens, eliminating vector-breeding sites, and conducting vector surveillance and control.**
  - Other measures include **using insect repellents during animal transport and transporting animals during periods of low vector activity.**

DZIP3 – Viral Alarm Switch

News: CSIR-CCMB researchers discovered how human cells detect viruses and activate immune defences before pathogens multiply.

About DZIP3 – Viral Alarm Switch



Source – DD India

- The **DZIP3 (DAZ Interacting Zinc Finger Protein 3**) is a **protein found in human cells.**
- It detects **viral RNA** and **activates cellular immune defences.**
- **Working Mechanism:**

- **Viral Detection:** When **DZIP3 encounters viral RNA** inside a cell, **it changes shape and becomes active.**
- **Movement:** The **activated protein moves to the mitochondria,** the cell's energy-producing structures.
- **Protein Activation: DZIP3 tags and activates major immune defence proteins** there.
- **Immune Alarm:** This **triggers Type-I interferons,** defensive molecules that help stop viruses from multiplying.

- **Application:**
  - **Drug Development:** Researchers are developing **small-molecule drug candidates to boost DZIP3 activity** and strengthen the **body's natural antiviral immunity.**
  - **Broad-Spectrum Therapies:** Targeting DZIP3 could help **develop broad-spectrum antiviral therapies against emerging viral threats.**
  - **Viral Protection:** The discovered pathway **offers protection against several disease-causing viruses, including SARS-CoV-2, chikungunya and Japanese encephalitis viruses.**

Exercise "Rummy"

News: French and British air forces have staged a joint exercise simulating a nuclear strike codenamed exercise "Rummy" for the first time.

About Exercise "Rummy"

- **Exercise "Rummy"** is a **joint nuclear strike simulation exercise** by **French and British air forces.**
- **Aim**: It is aimed at **enhancing coordination between western Europe's two nuclear powers.**
- **Countries involved:** The two countries involved were **France and the United Kingdom (U.K.).**
  - The exercise involved **RAF Typhoon fighter jets alongside French Rafale aircraft** over the **Mediterranean Sea.**
- The exercise was **conducted in compliance with security procedures, and did not involve any actual nuclear weapons.**
- The exercise demonstrated that **France and United Kingdom (U.K.) can cooperate in nuclear deterrence** while maintaining their separate nuclear capabilities.

Exercise "Keen Sword 27"

News: The United States and Japan are conducting their largest joint military exercise, involving around 56,000 personnel, through October 29.

About Exercise "Keen Sword 27"



Source – PACOM

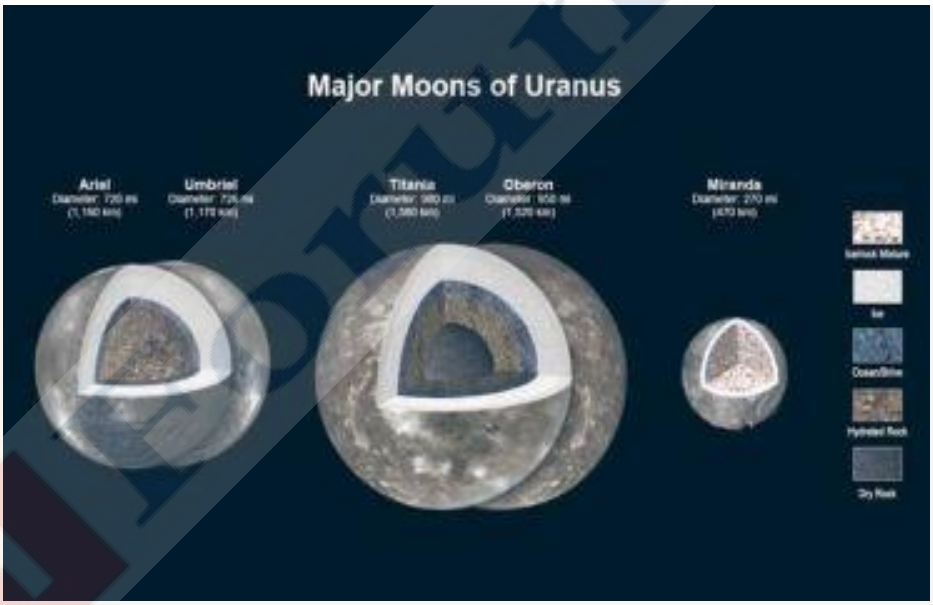
- **Origin:** The **Exercise "Keen Sword 27"** was established in **1986** between the **United States and Japan.**
- **Nature:** It is a major **biennial, multi-domain joint field training exercise (FTX).**
- **Members:** The exercise involves the **Japan Self-Defense Forces (JSDF) and the US Armed Forces.**
- **Key Features of Exercise "Keen Sword 27"**
  - **Host: Japan is hosting the 27th edition** of the exercise.
  - **Scale:** The exercise involves around 56,000 personnel, 40 vessels and 260 aircraft.
  - **Invited Participants: Australia** is invited alongside **Canada, France, Germany, New Zealand, the Netherlands and the Philippines.**
  - **Defence Training:** It focuses on **defending Japan's south-western islands**, responding to regional crises and keeping sea lanes open.

- **Missile Deployment: US and Japanese** forces have positioned advanced **anti-ship missile systems on Yonaguni and nearby Ishigaki islands** for the **first time** in these exercises.
- **Advanced Capabilities:** The exercise includes trilateral experiments on **autonomous systems, underwater acoustic communications and command-and-control approaches.**
- **Interoperability:** It strengthens **coordination among Australia, Japan and the US**, including cooperation in **maritime, air, space and cyber capabilities.**

Ariel and Umbriel

News: October 24 marks the discovery anniversary of Ariel and Umbriel, two major inner moons of Uranus, discovered in 1851.

About Ariel and Umbriel



Source – Sci News

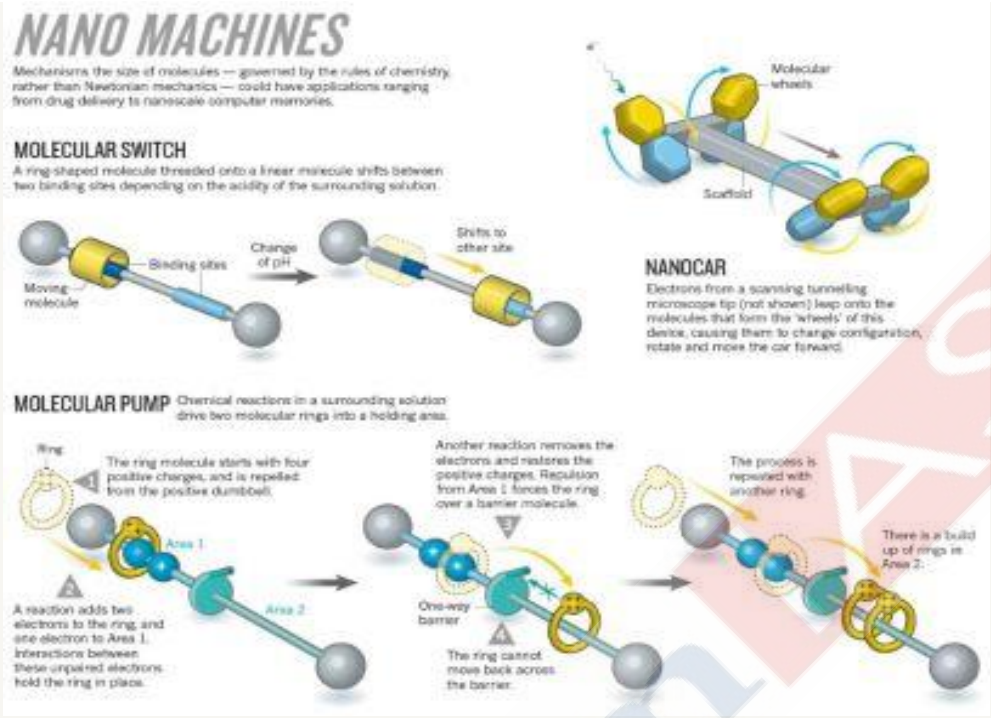
- **Ariel and Umbriel** are two of the **major inner moons of Uranus,** which **had 29 officially recognised moons as of August 2026.**
- **Discovery:** British astronomer **William Lassell** discovered both moons on October 24, 1851.

- **Naming:**
    - **Ariel:** It is the name for a **character in both Shakespeare's "The Tempest"** and **Alexander Pope's poem "The Rape of the Lock."**
    - **Umbriel:** It is named for a malevolent **spirit in English poet Alexander Pope's 18th century poem "Rape of the Lock."**
- **Key Features**
    - **Ariel:**
        - **Size:** Ariel is the **fourth-largest moon of Uranus.**
        - **Composition:** It mainly consists of **roughly equal amounts of water ice and silicate rock.**
            - **Carbon dioxide has also been detected.**
        - **Surface:** It has the **brightest and youngest-looking surface among Uranus' five largest moons.**
        - **Orbit:** Like Earth's Moon, **Ariel keeps the same face towards Uranus as it orbits the planet.**
    - **Umbriel:**
        - **Size:** It is the **third-largest moon of Uranus.**
        - **Surface:** It is the **darkest of Uranus' five major moons** and has many old, large craters.
        - **Reflectivity:** It **reflects only 16% of the light striking** its surface.
        - **Bright Ring:** It has a **mysterious bright ring about 140 km in diameter on its dark surface**.

Molecular Machines

News: Researchers developed a corkscrew-shaped molecular machine that changes its states in response to the direction of electric current.

About Molecular Machines



Source – Nature

- **Molecular machines, or nanomachines**, are **combinations of molecular components** that produce **mechanical movements (output) in response to specific stimuli (input).**
- They **convert energy into motion to perform specific tasks.**
- **Mechanism:**
    - **Stimulus:** Molecular machines **respond to inputs such as light, temperature, electric current or chemical reactions.**
    - **Movement:** They produce mechanical movements, including **rotation and changes between stable states.**
    - **Recent Example:** Researchers developed a **corkscrew-shaped molecule** that **cycles through different states when electric current flows** in one direction and reverses its sequence when the current flows in the opposite direction.
- **Scale:** These machines **operate at the nanoscale** and are **about 1,000 times thinner than a human hair.**
- **Core Architecture**

- **Molecular Components:** They contain **movable parts connected through mechanical bonds.**
- **Energy Input:** They **require energy,** such as **light or electricity, to produce movement.**
- **Coordination:** Random heat and unwanted molecular movements **make controlled movement and coordination difficult.**

- **Applications:**
  - **Cellular Transport:** The **kinesin protein transports minerals inside body cells** along microscopic tracks.
  - **Muscle Contraction:** The **myosin protein helps muscles contract.**
  - **Disease Detection:** They could help **detect diseases before symptoms appear.**
  - **Material Development:** They could **help assemble tiny peptides and produce more-resilient plastics.**
  - **Sensors and Energy:** They could **support microscopic sensors and tiny energy-storage mechanisms.**
- **Nobel Prize:** The **Nobel Prize in Chemistry 2016** was awarded to **Jean-Pierre Sauvage, Sir J. Fraser Stoddart and Bernard L. Feringafor** the design and synthesis of **molecular machines.**

Integrated Atmospheric Chemistry and Aerosol Toxicity Analysis Laboratory (AATAL)

News: Union Minister of State (Independent Charge) for Science and Technology and Earth Sciences inaugurated the Integrated Atmospheric Chemistry and Aerosol Toxicity Analysis Laboratory (AATAL).

About Integrated Atmospheric Chemistry and Aerosol Toxicity Analysis Laboratory (AATAL)



Source – PIB

- **Integrated Atmospheric Chemistry and Aerosol Toxicity Analysis Laboratory (AATAL)** is an **integrated facility** that combines **advanced atmospheric measurements, chemical analysis, pollution-source identification and decision-support capabilities.**
    - It is the **World's First-of-its-Kind Facility.**
    - It is integrated with **IITM's AIRWISE (Air Quality Warning and Integrated Decision Support System for Emissions),** which combines air-quality forecasts, observations and source-apportionment information.
- The initiative **promotes coordination among scientific institutions, environmental authorities, pollution-control agencies** and disaster-management stakeholders.
- **Location:** The laboratory is **established at IITM's Delhi Branch** to address the serious concern of air pollution in Delhi-NCR.
- **Established Under:** The laboratory has been **established under Mission Mausam.**
- **Functions:**
    - **Identification of Pollution Sources:** It helps identify the **major sources of air pollution,** including **Vehicular emissions, Industrial activities, Biomass and crop-residue burning, Construction and road dust and pollutants transported from surrounding regions,**
    - **Real-Time Source Apportionment:** It estimates the **relative contribution of different pollution sources** to the overall pollution level, helping authorities identify the major causes of poor air quality at a particular time.
    - **Advanced Chemical Analysis:** The laboratory **analyses atmospheric gases and aerosols**, including **PM2.5**, metals, toxic elements and other pollutants.
    - **Health Implications:** It helps scientists understand the **composition and potential toxicity of pollutants,** supporting the assessment of their possible effects on public health.
    - **Support for Government Agencies:** The **facility will provide scientific evidence to the Commission for Air Quality Management (CAQM) and other implementing agencies** to identify major pollution sources and plan targeted interventions.
    - **Support for GRAP:** Its findings, **combined with AIRWISE forecasts, can strengthen decisions regarding preventive measures and responses under the Graded Response Action Plan (GRAP).**

28th Charles Correa Gold Medal

News: Radhakrishnan M.S., a Kochi-based architecture student, won the 28th Charles Correa Gold Medal for his undergraduate thesis project.

About 28th Charles Correa Gold Medal



Source – Charles Correa Foundation

- **Initiation: Indian architect and urbanist Charles Correa** initiated the **Charles Correa Gold Medal** award **in 1998.**
- **Initial Coverage:** The award was **initially open to architecture colleges in Mumbai and Goa.**
- **Expansion:** Since **2022,** the award has **invited colleges across India.**
- **Organised by:** The **Charles Correa Foundation (CCF) organises the Gold Medal annually.**
- **Purpose:** It promotes **quality and talent among young architecture students.**
- **Eligibility:**
    - **Students: Final-year students pursuing an undergraduate** professional degree **in architecture are eligible.**
    - **Institutions: Colleges must be located in India** and **approved by the Council of Architecture (COA).**
- **Selection Process:**

- **Nomination:** Participating colleges **nominate one student's individual thesis project.**
- **Authorship:** The **student must be the sole author. Group projects are not permitted.**
- **Evaluation:** A jury of eminent practising and academic architects reviews the submissions.
- **Selection:** The jury identifies an outstanding student for the medal.

28th Edition

- **Theme:** The Gold Medal focuses on '**Equitability through Design' for the period 2025–2027.**
- **Venue:** The award ceremony for the 28th edition **was held at Tarq Gallery in Mumbai.**
- **Winner: Radhakrishnan M.S.**, a student of **architecture at SEED APJ Abdul School of Environmental Design, Kochi, won the 28th Charles Correa Gold Medal.**
- **Contribution** of the 28th Edition Winner:
  - **Thesis Project:** Radhakrishnan M.S. **developed Energy Commons: Reimagining Energy Infrastructure as a Place for Civic Engagement.**
  - **Energy Infrastructure:** His project **reimagined essential energy infrastructure as a civic resource.**

Fund for Responding to Loss and Damage (FRLD)

News: The Fund for Responding to Loss and Damage (FRLD) has provisionally set aside $21.6 million for Nepal's August 2026 floods.

About Fund for Responding to Loss and Damage (FRLD)



Source: FRLD

- The **Fund for Responding to Loss and Damage (FRLD)** is f**inancial mechanism** of the United Nations Framework Convention on Climate Change (**UNFCCC**) to **help vulnerable developing countries** deal with the **economic and non-economic losses caused by climate change.**
    - It is the **only multilateral fund explicitly mandated to address non-economic loss and damage** alongside economic impacts.
- **Established at:** It has been **established at COP27 (2022), Egypt, and operationalised at COP28 (2023), Dubai.**
    - It functions under the financial mechanism of the **UNFCCC Loss and Damage Fund and Paris Agreement.**
- **Core Objective**: Its objective is **to promote country-led recovery guided by local priorities,** while enhancing climate support for developing nations and climate financing for vulnerable countries.
- **Institutional Structure**
    - **Governing Board:** It comprises 26 members, including 12 representatives from developed countries and 14 from developing countries.

- **Host Country:** The Philippines hosts the Board.
- **World Bank acts as the interim trustee** and provides Secretariat support under mutually agreed arrangements.

- **Significance:**
  - It addresses the growing needs of vulnerable communities in developing countries facing the irreversible impacts of climate change.
  - It empowers communities to rebuild and adapt, by financing recovery initiatives from climate-related losses and damage.
  - It integrates response to loss and damage as a core pillar of climate action, alongside mitigation and adaptation, acknowledging complementarities with existing systems and promoting coordination amongst actors.
  - The Fund mobilizes financial resources through government contributions, private sector partnerships and innovative financing mechanisms, ensuring a robust and sustainable approach to addressing climate-induced loss and damage.
- **First emergency allocation: Nepal's allocation marks the beginning of the implementation** of the fund.
  - **Limited financial assistance: Nepal faces estimated recovery and reconstruction costs of $4.75 billion**, making the $20 million allocation insufficient to meet its actual needs.

Badr Memorandum of Understanding (MoU)

News: Turkey, Pakistan, Qatar and Indonesia signed the Badr MoU on October 21 to deepen defence cooperation and strengthen military capabilities.

About Badr Memorandum of Understanding (MoU)



Source – Jakrata Times

- The **Badr Memorandum of Understanding (MoU)** is a **multilateral defence-industrial cooperation** agreement among **Pakistan, Turkey, Qatar and Indonesia**.
- **Naming: Badr means "full moon"**, symbolizing the **complementary capabilities** of the four participating nations.
    - **Origin of Name:** The name refers to the **Battle of Badr (624),** an early battle in Islamic history.
- **Governance Structure**
    - **Executive Board:** It will **develop plans for joint production.**
    - **Strategic Board:** It will **make final decisions on budgets and production locations.**
- **Aim:** The agreement aims to **strengthen defence capabilities and promote modern defence industries.**

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- **Key Features**
    - **Complementary Capabilities: Turkey contributes** advanced defence manufacturing capabilities, while **Pakistan offers** industrial capacity, a skilled workforce and defence manufacturing experience.
    - **Investment and Market: Qatar offers** financial resources and potential investment, while **Indonesia provides** technological expertise and a sizeable domestic market.
    - **Joint Cooperation:** The agreement promotes **integrated supply chains, joint production facilities, technical defence training, research and development, and technology cooperation.**
    - **Joint Facilities: Turkey** is the **expected location for joint production facilities.**

Ranthambore Tiger Reserve

News: Tigress T-2403 was spotted with three cubs in Ranthambore Tiger Reserve in Sawai Madhopur, though forest officials said the number of cubs was yet to be officially confirmed.

About Ranthambore Tiger Reserve



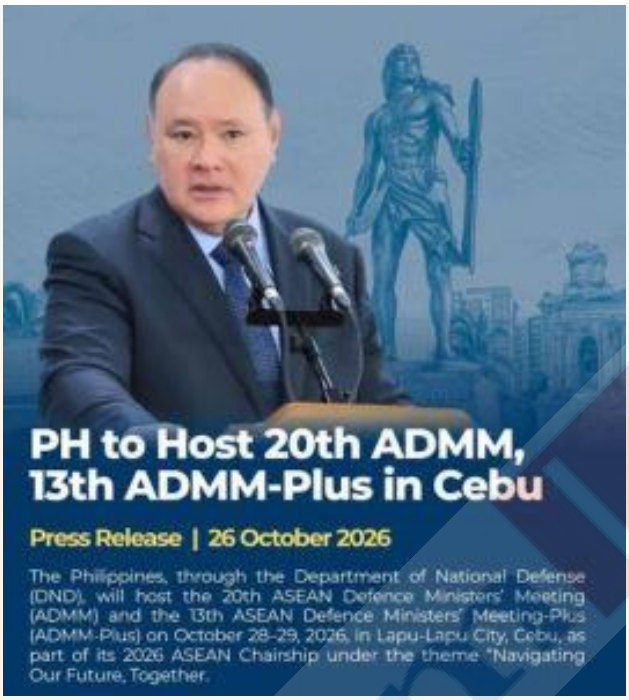
Source – ResearchGate

- **Location:** The Ranthambore Tiger Reserve is located in the **Sawai Madhopur district of Rajasthan.**
- **Establishment:** It was established as the **Sawai Madhopur Game Sanctuary in 1955** by the Government of India.
    - It was **declared** one of the **Project Tiger reserves in 1973** and became a **national park in 1980**.
    - It is now a **part of the larger Ranthambore Tiger Reserve**, which includes the nearby **Kailadevi Sanctuary and Sawai Mansingh Sanctuary**.
- **Area:** It spans an area of around **1,334 sq. km.** with the core zone comprising about **392 sq. km**.
- The park is situated at the **junction** of the **Aravalli and Vindhya hill ranges**.
- **Landscape:** The park landscape is combination of **rugged hills and plateaus**, with open **grasslands, dense forests, lakes, and rivers.**
- Its rich topography, including the famous **Ranthambore Fort (a UNESCO World Heritage Site)** enhances its appeal to visitors.
- **Rivers:** The Reserve is bounded by the **Banas River** to the north and the **Chambal River** to the south, with **smaller interior water bodies** like the **Chakal River**.
- **Lakes: Padam Talab, Raj Bagh Talab, and Malik Talab**
- **Flora:** The park is known for its **diverse ecosystem**, which includes dry deciduous forests, grasslands, and scrublands.
    - Some of the dominant tree species in Ranthambore include the **dhok (Anogeissus pendula), banyan, pipal,** and various species of **acacia**.
- **Fauna:** Bengal **tiger** is the primary attractio. Ranthambore is home to a variety of other wildlife including Mammals such as **Leopards, sloth bears, striped hyenas, sambar deer, chital, nilgai, wild boar, and Indian foxes**.

13th ASEAN Defence Ministers' Meeting (ADMM)-Plus 2026

News: Defence Minister Rajnath Singh will lead the Indian delegation to the 13th ADMM-Plus in the Philippines on October 28–29, 2026.

About 13th Association of Southeast Asian Nations (ASEAN) Defence Ministers' Meeting (ADMM)-Plus 2026



Source – ASEAN

- **Host: Philippines** is hosting the **13th ADMM-Plus 2026.**
    - The meeting will be **held in Lapu-Lapu City, Cebu, Philippines.**
- **Theme:** The 2026 edition's theme **is "Navigating Our Future, Together."**
- **Participants:** The meeting brings together **11 ASEAN member states** and **eight dialogue partners**, including **India, the US, China, Russia, Japan, South Korea, Australia and New Zealand.**
- **Key Features:**
    - **Indian Delegation: Defence Minister Rajnath Singh will lead the Indian delegation** and address regional and international security issues.
    - **Bilateral Meetings:** India will **review ongoing defence ties with participating countries** and **explore ways to strengthen strategic partnerships.**
    - **India's Role: India is co-chairing the Experts Working Group on Counter-Terrorism** with Malaysia for **the 2024–2027 cycle.**
    - **Regional Engagement:** India's participation reflects its growing defence **engagement with Southeast Asia under the Act East policy.**

About ADMM-Plus

- The **ASEAN Defence Ministers' Meeting Plus (ADMM-Plus)** serves as a **key platform to promote peace, stability, and sustainable development across the region.**
- **Origin:** The inaugural **ADMM-Plus was convened in Hanoi, Vietnam, on 12 October 2010.**
- **Members:** It comprises **11 ASEAN member states** (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor Leste and Vietnam) and **8 dialogue partners** (India, US, China, Russia, Japan, South Korea, Australia and New Zealand), **making 19 participating countries.**
- **Chairmanship:** The chairmanship **rotates annually** and is **held by the host of the ASEAN Summit.**
- **Meeting Frequency:** Defence ministers have **met annually since 2017 to strengthen defence cooperation.**
- **Objectives:** The ADMM-Plus **seeks to:**
    - Build **ASEAN's capacity to address shared security challenges.**
    - Promote **mutual trust and transparency** among defence establishments.
    - **Enhance regional peace and stability** through defence cooperation.
    - **Support the ASEAN Security Community's vision** of peace, stability, and prosperity.
    - **Advance the Vientiane Action Programme** for a secure and outward-looking ASEAN.
- **Focus areas:** It currently focuses on **seven areas of practical cooperation** – Counter-Terrorism, Maritime Security, Humanitarian Assistance and Disaster Management, Peacekeeping Operations, Military Medicine, Humanitarian Mine Action and Cyber Security.

Key Facts about Liechtenstein

News: Prince Alois of Liechtenstein visited India to strengthen bilateral ties and economic cooperation following the India–EFTA TEPA's operationalization.

Key Facts about Liechtenstein



Source – Britannica

- **Location:** Liechtenstein is a **small principality in Western Europe.**
    - It is a **doubly landlocked** country located **between Switzerland and Austria.**
- **Polity:** Liechtenstein is a **constitutional monarchy** headed by a **hereditary prince.**
    - It's **capital is Vaduz.**
- **Climate:** The **climate is mild** and influenced by the **warm southerly foehn wind.**
- **Terrain:** The country has **rugged mountains in the east** and **lowlands in the west.**
- **Mountain:** The **Rhätikon Mountains, part of the Alps, cover much of the eastern region.**
    - The **Grauspitz,** at 2,599 m, is the **highest peak.**
- **River:** The **Samina River** drains the mountain region, while the **Rhine river** occupies the western section.
- **Vegetation:** It has **mixed woodlands in its forests**, along with **alpine vegetation.**
- **Flora:** It mainly **contain copper beech, Norway maple, sycamore, linden, elm and ash trees.**
- **Fauna:** Wildlife includes **red deer, chamois, marmots, foxes, badgers and pheasants.**
- **Economy:** Liechtenstein has **one of the world's highest GDP per capita levels.**
    - It traditionally benefited from its **tax-haven status** but has taken steps to become a legitimate financial centre.

National Startup Awards 6.0

News: The Department for Promotion of Industry and Internal Trade (DPIIT) launched the 6th Edition of the National Startup Awards on 27 October 2026.

About National Startup Awards 6.0



Source – ZEE Business

- It is a flagship initiative under **Startup India Initiative**.
- It recognizes **startups for innovation, scalability, sustainability and socio-economic impact.**
- **Launched by:** It is launched by the **Department for Promotion of Industry and Internal Trade (DPIIT),** Ministry of Commerce and Industry.
- **Origin:**
    - **Startup India:** It was **launched in January 2016** to **build a strong, inclusive and innovation-driven entrepreneurial ecosystem**.
    - **National Startup Awards:** The **awards began in 2019** to recognize **entrepreneurial excellence and showcase innovative solutions.**
- **Evaluation Process:** Applications undergo multi-stage evaluation, including eligibility and compliance screening, sectoral evaluation, shortlisting, a pitching event and **final evaluation by a National Jury Panel.**
- **Institutional Participation:** The process involves **Ministries, incubators, Alternative Investment Funds (AIFs), banks and financial institutions.**
    - The National Jury Panel includes government, industry and domain experts.
- **National Startup Awards 6.0 Categories:**

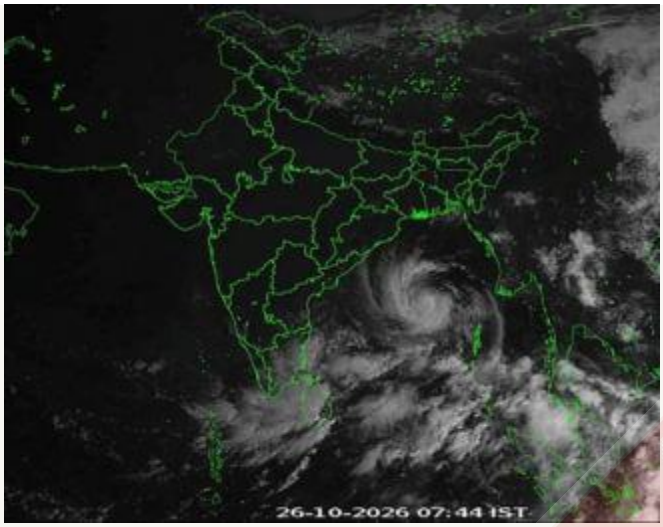
- **Sectoral categories:** The awards **cover 20 sectoral categories.**
- **Special categories:** The awards include **3 special categories:**
  - Women-Led Startup of the Year
  - North-East Startup Excellence
  - Student Innovator / Aspiring Entrepreneur Award

- **Key Features:**
  - **New categories:** This edition **introduces 12 new sectoral categories**, including Biomanufacturing, Defence & Security and Space-Tech.
  - **Student award:** It promotes **entrepreneurship among school and college students across all 36 States and Union Territories.**
  - **Prize Money:** Winners in the **20 sectoral categories and two startup-focused special categories are eligible for ₹25 lakh per category,** subject to applicable guidelines.
    - The **student award carries a total prize pool of ₹25 lakh** across four sub-categories.
  - **Inclusive outreach:** DPIIT encourages **participation from Tier-2 and Tier-3 cities** and engages governments, incubators, academic institutions and financial institutions.

Cyclone Arnab

News: Severe Cyclone Arnab made landfall on the Andhra Pradesh coast between Kakinada and Yanam, bringing destructive winds and heavy rain.

About Cyclones



Source – TNIE

- **Cyclones** are a **fast inward air movement around a low-pressure area**.
- In the **Northern Hemisphere, the air circulates anticlockwise**, while in the **Southern Hemisphere, it moves clockwise.**
- Cyclones are typically **associated with intense storms and severe weather.**
- There are **two types of cyclones:**
    - **Tropical cyclones-**These **form over warm ocean waters in tropical and subtropical regions**.
        - They are characterized by **low pressure, high winds, and heavy rain.**
    - **Extra Tropical cyclones-** They are also **known as wave cyclones**, **mid-latitude cyclones, or temperate cyclones**.
        - They **develop in the mid and high latitudes, outside the tropics.**
        - They are less intense than tropical cyclones.

About Cyclone Arnab

- **Cyclone Arnab:**It was a **tropical cyclone** that **formed over the North Indian Ocean.**
    - It was classified as a **severe cyclonic storm.**
    - It made **landfall between Kakinada (Andhra Pradesh) and Yanam (Puducherry)** before weakening.
- **Origin of the Name "Arnab"**

- **Proposed by: Bangladesh** proposed the **name Arnab for tropical cyclones in the North Indian Ocean.**
- **Meaning:** Arnab is associated with the **Bengali word for "ocean" or "sea"** and is **pronounced "Ornob".**

Cyclone Naming Process

- **Coordinating Bodies:** The **World Meteorological Organisation (WMO)** and the **United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)** coordinate the naming system.
- **Participating Countries: 13 countries** (Bangladesh, India, Iran, the Maldives, Myanmar, Oman, Pakistan, Qatar, Saudi Arabia, Sri Lanka, Thailand, the United Arab Emirates and Yemen) contributed **names to the list adopted in 2020.**
- **Total Names: Each country contributed 13 names**, making a **total of 169 names.**
- **Naming Sequence:** Names are **used in a pre-decided sequence** for tropical cyclones **forming over the North Indian Ocean, including the Bay of Bengal and the Arabian Sea.**
- **Naming Guidelines:**
  - **Neutrality:** Names must remain **neutral towards politics, political figures, religious beliefs, cultures and gender.**
    - They **must not hurt the sentiments of any group.**
  - **Language and Length:** Names **must be short, easy to pronounce, non-offensive and not rude or cruel.**
    - They must contain a **maximum of eight letters.**
  - **Non-Repetition:** A cyclone name **cannot be reused once it has been used.**

Cyclones in the Arabian Sea vs. Bay of Bengal

- Cyclones occur **less frequently in the Arabian Sea than in the Bay of Bengal**, mainly due to **variations in sea surface temperature, wind patterns, and geographical conditions.**
- The **Bay of Bengal has more favorable conditions for cyclone formation**, such as warm waters and low vertical wind shear.

Next Generation Offshore Patrol Vessel (NGOPV) Srishti

News: The Indian Navy's Next Generation Offshore Patrol Vessel (NGOPV) Srishti was launched at Goa Shipyard Limited on 27 October 2026.

About Next Generation Offshore Patrol Vessel (NGOPV) Srishti



Source – DD India

- The **NGOPV Srishti** is an **indigenously designed and built vessel for the Indian Navy.**
- It is the **5th** vessel launched out of the **11 planned ships** under the **Next Generation Offshore Patrol Vessel (NGOPV) programme.**
- **Builder:** The vessel is built by **Goa Shipyard Limited (GSL),** a Defence Public Sector Undertaking under the Ministry of Defence.
- **Naming:** The ship is named Srishti, which **means 'Creation' or 'Act of Creating' in Sanskrit.**
- **Objectives:** These ships aim to **strengthen maritime capabilities through maritime surveillance, protection of offshore assets, Search and Rescue, Humanitarian Assistance and Disaster Relief (HADR), and anti-piracy missions.**
- **Key Features:**
    - **Indigenous Construction:** These ships are **indigenously designed and built** to strengthen domestic defence manufacturing.
    - **Multi-domain Operations:** They will **support multi-domain operations** and maritime security missions.
    - **Self-reliance:** The programme **aligns with Aatmanirbhar Bharat and Make in India initiatives** and supports the domestic industrial ecosystem.

About NGOPV Programme

- **Total Fleet:** The **Indian Navy plans to build 11 vessels** under the **NGOPV project.**
- **Builders: Goa Shipyard Limited (GSL), Goa, is building 7 vessels**, while **Garden Reach Shipbuilders & Engineers (GRSE), Kolkata, is building 4** vessels.

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- **Key Roles:** The vessels will support maritime surveillance, Search and Rescue, protection of offshore assets, Humanitarian Assistance and Disaster Relief (HADR), and anti-piracy missions.
- **Recent Launches: 5 out of 11 planned vessels** have been launched under the NGOPV programme, namely **INS Shachi, NGOPV Sanghmitra, NGOPV Shruti, NGOPV Shreyas and INS Srishti.**

Exercise GARUDA SHAKTI 2026

News: The 11th edition of the India-Indonesia Joint Special Forces Exercise GARUDA SHAKTI has commenced in Indonesia.

About Exercise GARUDA SHAKTI 2026



Source – BW Defence

- The **Exercise GARUDA SHAKTI 2026** is a **bilateral military exercise** between the Special Forces of **India and Indonesia.**
- **Host:** The **11th edition** of Exercise GARUDA SHAKTI 2026 is hosted by **Indonesia at Banyuwangi.**
- **Contingents:** The **Indian** contingent comprises troops from the **Parachute Regiment (Special Forces)**, while the **Indonesian** contingent comprises personnel from the **Indonesian Special Forces.**
- **Origin:** The **first** edition was conducted in **2012 in India.**
- **Frequency:** The exercise is **conducted on a reciprocal basis, alternately in India and Indonesia.**
- **Objective:** The exercise **aims** to strengthen mutual **understanding, cooperation and interoperability** between the Special Forces of both nations.
- **Key Features**
    - **Jungle Warfare Training:** The training focuses on special operations in jungle environments.

- **Training Activities:** It includes **obstacle crossing, combat marksmanship, mountaineering, air assault training and combat-hardening sessions.**
- **Knowledge Exchange:** The exercise promotes the **exchange of expertise and information on weapons, equipment and operational practices.**

- **Other Exercises:** India and Indonesia also conduct **Samudra Shakti (bilateral naval exercise)** and **IND-INDO CORPAT(coordinated naval patrol).**

1st Civilisational Dialogue Forum

News: India will host the Shanghai Cooperation Organisation's (SCO) 1st Civilisational Dialogue Forum at Purana Qila in New Delhi.

About 1st Civilisational Dialogue Forum



Source – DD India

- 1st SCO Civilisational Dialogue Forum is **an inaugural cultural and diplomatic initiative.**
- **Duration:** It is scheduled to be held **from 20 November to 22 November 2026 at Purana Qila in New Delhi.**
- **Aim:** The initiative aims **to strengthen cultural ties, promote mutual understanding and deepen engagement among SCO member states.**
- It also aims **to showcase the shared art, literature and traditions of the region's ancient civilisations.**
- **Organised by: The Ministry of Culture is partnering with the Ministry of External Affairs** to organise the event.

- **Proposed by:** This initiative **was proposed by Prime Minister Modi** at the SCO leaders' summit in Tianjin in 2025 and was subsequently adopted by the grouping.
- **Hosted by:** It is being hosted by **India** under the **framework of the Shanghai Cooperation Organisation (SCO)**.
- **Participants:** Culture ministers from **all 10 SCO member states** have been invited, along with **representatives from observer countries and dialogue partners.**
- The **full members** are **China, Russia, India, Pakistan, Iran, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan and Belarus.**
- **Themes of discussions:** Discussions are expected to cover **civilisational links, cultural diplomacy and cooperation** in areas including heritage, education and traditional knowledge systems.

Khelo India Sports Goods Manufacturing Scheme

News: The Union Cabinet has approved the Khelo India Sports Goods Manufacturing Scheme to strengthen India's sports goods manufacturing sector.

About Khelo India Sports Goods Manufacturing Scheme



Source – PIB

- The **Khelo India Sports Goods Manufacturing Scheme** is a scheme **to strengthen India's sports goods manufacturing base** through support for **investment, technology, research, skills and market development.**
- It **seeks to promote manufacturing, innovation and exports** and strengthen **India's position in the global sports goods sector.**
- **Duration:** The scheme will run from **2026 to 2033-34.**
- **Scheme Components:** The scheme has **two parts –**
    - **Incentives that support manufacturing**
    - **Interventions that build the wider ecosystem**
- **Key Features**
    - **Developing Manufacturing Zones:** It will develop **integrated Sports Goods Manufacturing Zones** with manufacturers, suppliers, testing facilities, design and prototyping centres, and ancillary enterprises through convergence with the **BHAVYA Scheme** and **National Industrial Corridor Development Corporation (NICDC) Industrial Parks.**
    - **Attracting Investment:** It allocates **₹1,130 crore** for **Anchor Investment Support** and **Turnover Linked Support** to promote investment, production and capacity expansion.
    - **Supporting MSMEs: Existing clusters will receive support for upgrading common facilities** and shared infrastructure through cost-sharing with States.
    - **International Certification:** An allocation of **₹105 crore will help manufacturers obtain and renew certifications** from International Sports Federations.
    - **Research and Innovation: Centres of Excellence will promote research**, while **DPIIT-registered sports start-ups can receive grants up to ₹20 lakh.**
    - **Skill Development:** Training will be **undertaken with the Ministry of Skill Development and Entrepreneurship and industry stakeholders.**
    - **Global Market Access:** The **Export Promotion Mission will support branding, outreach and market development** to expand international reach.

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Pradhan Mantri Viksit Gram Swaraj Yojana (PM VGSY)

News: The Union Cabinet, chaired by Prime Minister Narendra Modi, approved the Pradhan Mantri Viksit Gram Swaraj Yojana on 28 October 2026.

About Pradhan Mantri Viksit Gram Swaraj Yojana (PM VGSY)



Source – PIB

- **Type:** It is a **Centrally Sponsored Scheme (CSS).**
- **Nodal Ministry: Ministry of Panchayati Raj**
- **Aim:** The scheme aims to **transform Panchayats into empowered, self-reliant, accountable and high-performing institutions of local self-government.**
- **Duration:** It will operate from **2026–27 to 2030–31,** co-terminus with the **Sixteenth Finance Commission period.**
- **Financial outlay:** The scheme outlay is **Rs.7,395.55 crore**, comprising a **Central Share of Rs.4,869.48 crore** and a **State Share of Rs.2,526.07 crore**.
- **States/districts covered:** The scheme will extend to **all States/UTs**, **including** institutions of rural local government (traditional local bodies) in **non-Part IX areas where Panchayats do not exist.**

- **Implementation Process**
    - **Annual Action Plans: State Governments and UT Administrations will submit plans** specifying activities, priorities and requirements.
    - **Approval Mechanism:** The designated **Central Empowered Committee will appraise and approve** these plans under applicable procedures and norms.
- **Targets**
    - **Holistic Planning:** The scheme will support **preparation of 2.55 lakh Gram Panchayat Development Plans (GPDPs) annually on eGramSwaraj.**
    - **Citizen Awareness:** Each awareness-generation episode will **reach at least 1 crore citizens.**
    - **Capacity Building:** Around **32 lakh governance stakeholders will receive annual support.**
    - **Financial Accountability:** The scheme will **support at least 2.55 lakh online audit plans annually**, with timely completion of corresponding **audits through AuditOnline.**
- **Six Holistic Pillars**
    - **Local Governance:** Gram Panchayats will **act as hubs of local governance** by coordinating village priorities, government interventions and available resources.
    - **Holistic Planning:** The scheme will **integrate Central and State departmental planning** on a common digital platform to prepare **Gram Panchayat Development Plans (GPDPs)** and **identify development gaps.**
    - **Digital Governance:** Building **on eGramSwaraj and existing e-Panchayat systems**, a common platform will provide **information on schemes, beneficiaries, benefits, community assets and available resources.**
    - **Connecting National Priorities with Local Needs:** PANCHAM **(Panchayat Assistance and Messaging Chatbot), an AI-enabled platform in 17 Indian languages**, will support accessible communication and informed discussions through Gram Sabhas and Panchayat forums.
    - **Capacity Building:** Training will **strengthen representatives' and functionaries'** skills in digital platforms, planning, resource management and citizen communication.

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- **Resource Utilisation:** Improved **accounting, auditing, public disclosure and Own Source Revenue (OSR)** mobilisation will promote transparency and financial self-reliance.

International Convention against Doping in Sport

News: India chaired third formal meeting of the COP10 Bureau and the fourth formal meeting of the Fund's Approval Committee for 2026–27 under the UNESCO International Convention against Doping in Sport in New Delhi.

About International Convention against Doping in Sport



Source: PIB

- The **International Convention against Doping in Sport** is a **multilateral treaty** through which **States agree to adopt national and international measures** designed to prevent and eliminate doping in sport.
- It serves as the **only international legal instrument** that commits governments **to align their policies with the principles of the World Anti-Doping Code.**
- **Objective:** To **harmonize anti-doping legislation, guidelines, regulations, and rules at the global level** in order to ensure a fair and safe competitive environment for all athletes.
- **Adoption:** UNESCO's General Conference **adopted the Convention on 19 October 2005 during its 33rd session,** and it entered into **force on 1 February 2007.**
- **Parties to convention:** There are presently **192 States Parties to the Convention,** making it the second most widely ratified treaty under UNESCO.
- It **offers a global platform for collaboration among public and private stakeholders** within the sport integrity ecosystem.

- **Mission of the Convention:**
    - The Convention provides **States Parties with a legal framework** intended **to encourage international cooperation** to safeguard athletes and uphold sporting ethics.
    - It **aims to limit the availability of prohibited substances and methods** while combating trafficking activities.
    - It **assists in facilitating doping controls and supports national testing programmes.**
    - It **encourages producers and distributors of nutritional supplements** to adopt best practices in labelling, marketing, and distribution of products that might contain prohibited substances.
    - It **supports the implementation of anti-doping education programmes.**
    - It **promotes research related to anti-doping measures.**
- **Implementation Approach:** The Convention functions **through a positive implementation approach** that **involves providing guidance, financial support, skill development, and capacity-building** to strengthen compliance efforts by States Parties.
- **Governance Structure:** The Conference of Parties (COP) acts as the **sovereign body of the Convention and convenes in ordinary session every two years.**
- **Function:** COP functions include **promoting the Convention's purpose**, addressing its relationship with the World Anti-Doping Agency, adopting plans concerning the Fund for the Elimination of Doping in Sport, **evaluating States Parties' compliance efforts,** and examining or adopting necessary amendments to the Convention.
- **Monitoring Mechanism:** The Convention supports governments in **enhancing national frameworks that protect sport values, ethics, and integrity.**
    - Its monitoring mechanism **assists States Parties in identifying implementation gaps and developing targeted remedial actions.**
    - Monitoring is facilitated through key tools and frameworks, including the **Operational Guidelines and Framework for the Strengthening of the Implementation of the Convention (OG/FSIC), the Model Strategic Framework (MSF),** and specialized capacity-building programmes provided by the Secretariat.

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Kartarpur Corridor

News: Rajya Sabha member Vikramjit Singh Sahney said that he has urged the Union government to reopen the Kartarpur corridor ahead of Guru Nanak Jayanti next month.

About Kartarpur Corridor



Source – IE

- The **Kartarpur Corridor** is a **4 km long corridor** comprising **border gates, road and a bridge** to **link Dera Baba Nanak gurdwara in Gurdaspur district in India** to **Gurdwara Darbar Sahib Kartarpur in Pakistan**.
- The gurdwara in Kartarpur stands on the **bank of River Ravi**, about **120 km northeast of Lahore**.
- The corridor is **aimed** at allowing the **easy movement of Sikh pilgrims** to the Kartarpur gurdwara.
- It is **revered** as **Guru Nanak's final resting place**.

Significance of the Gurdwara

- The **Gurdwara Darbar Sahib** was **built** to **commemorate** the **place** where the **Sikh founder Guru Nanak settled** after **completing his missionary works**.
- He **lived** at the site for **around 18 years till his death in 1539**.
- The shrine is **built** where **Guru Nanak is said to have died**.

Rani Abbakka Chowta

News: Rani Abbakka Chowta is remembered for her resistance against the Portuguese and efforts to honour her contributions.

About Rani Abbakka Chowta



Source – Hindu Jagruti

- **Rani Abbakka Chowta** was a courageous **queen of Ullal in the 16th century.**
- **Dynasty:** She belonged to the **Chowta dynasty,** which followed the **Tuluvu community's traditions**.
- **Region:** She ruled Ullal, a prosperous **port in Tulunadu, near Mangaluru, Karnataka.**
- **Matrilineal System:** The Chowtas followed a **matrilineal tradition,** in which **inheritance and authority usually passed through the female line.**
- **Religion:** She followed **Jainism,** but **her administration included Hindus and Muslims.**
- **Title:** She is popularly known as **Abbakka Mahadevi or Rani Abbakka.**
- **Key Contributions:**
    - **Early Resistance to Colonial Expansion:** She was **one of India's earliest freedom fighters** who **resisted Portuguese expansion** and defended her kingdom.
    - **Military Courage and Skill:** She demonstrated **exceptional military skills in archery and sword fighting** and **repeatedly repulsed Portuguese** attacks on Ullal.
    - **Guerrilla Counterattack:** In 1567, she **escaped during the Portuguese attack on Ullal** and **took shelter in a mosque**. That night, **she launched a counterattack with 200 soldiers**, **killing General Joao Peixoto and 70 Portuguese soldiers.**

- **Religious and Social Unity:** Her administration and army included **Hindus, Muslims and people from different castes**, including the **Moggaveeras, a fisherfolk community.**
- **Strategic Alliances:** In 1570, **she allied with Bijapur, Ahmednagar and the Zamorin of Calicut to resist the Portuguese.**
- **Resistance and Sacrifice:** She continued fighting despite repeated attacks and **betrayal by her estranged husband**, who shared her military strategies with the Portuguese.
  - After her arrest, **she revolted in prison and died fighting.**

- **Modern Recognition:**
  - **Museum:** The **Tulu Baduku Museum in Bantwal Taluk, Karnataka,** is named after her.
  - **Indian Navy:** The Indian Navy named an **Inshore Patrol Vessel (ICGS Rani Abbakka) after her to honour her contributions.**
  - **Award: The Veera Rani Abbakka Prashasti is awarded to distinguished women.**

National Social Security Board for Unorganised Workers and Gig & Platform Workers

News: The Ministry of Labour and Employment has notified the official constitution of the National Social Security Board for unorganised, gig and platform workers.

About National Social Security Board for Unorganised Workers and Gig & Platform Workers



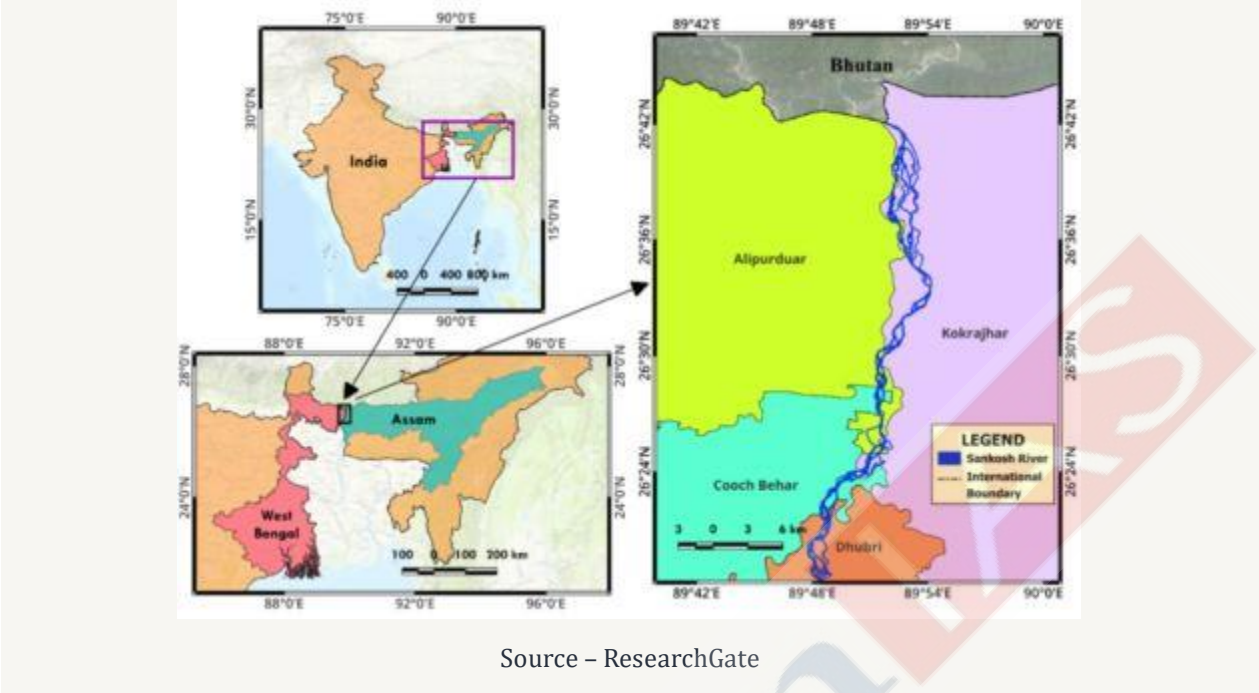
Source – PTI

- The **National Social Security Board** aims **to support social security for unorganized workers, gig workers and platform workers** through **welfare schemes.**
- **Nodal Ministry:** The **Ministry of Labour and Employment** is the nodal ministry.
- **Legality:** The Board is established under the **Code on Social Security.**
- **Governance Structure:**
    - **Chairperson:** The **Union Minister for Labour and Employment** presides over the Board.
    - **Representation:** The Board includes **representatives from Central and State Governments, aggregator companies, employers, civil society organisations, workers' unions and gig and platform associations.**
    - **Meetings:** The Board **shall meet at least three times a year**.
- **Key Features:**
    - **Welfare Schemes:** The Board **recommends suitable schemes** for different sections of unorganized, gig and platform workers.
    - **Policy Advice:** It **advises the Central Government** on matters related to the **administration of the Code.**
    - **Monitoring:** It **monitors Central Government social welfare schemes** for these workers.
    - **Review:** It **reviews State-level record-keeping functions and expenditure from the fund and account.**
    - **Additional Functions:** It performs **other functions assigned by the Central Government.**

Sankosh River

News: A glacial lake outburst flood (GLOF) in Bhutan raised flood concerns along the Sankosh River, leading to evacuations in parts of northern West Bengal.

About Sankosh River



Source – ResearchGate

- The **Sankosh River** is a major **north-bank tributary of the Brahmaputra River** that **flows through Bhutan and India.**
- **Origin:** The river originates in the **snow-clad Greater Himalayan ranges of Tibet.**
- **Formation:** It is formed by the **confluence of two major tributaries –** the **Pochu from the east** and **Panakh or Mo-chu from the west**.
- **Course:** The Sankosh River **flows through Bhutan.**
    - **Near Wangdue Phodrang,** it is **joined by the Tang Chuu** and then **flows through a steep gorge.**
    - It then **flows towards the Indo-Bhutan border and enters India.**
    - It forms the **boundary between Assam and West Bengal.**
    - It finally **joins the Brahmaputra River in Assam**, which **drains into the Bay of Bengal.**
- **Length:** The river covers a total length of **321 km,** including **214 km in Bhutan** and **107 km in India**.
- **Major Tributaries:** The **Mo Chhu and Pho Chhu are its two largest tributaries**.
    - The **Tang Chuu, Hara Chhu and Daga Chhu** are other tributaries.
- **Flood Vulnerability:** The **upper reaches of the Pho Chhu are prone to ice blockages and glacial lake outburst floods (GLOFs).**

- **Cultural Significance:** The **Punakha Dzong**, a historic fortress, stands **just above the confluence of the Mo Chhu and Pho Chhu rivers in Bhutan.**
    - **Punakha Dzong**, officially known as **Pungthang Dechen Phodrang Dzong,** means the **Palace of Great Happiness or Bliss.**
    - It is the **second-oldest and second-largest fortress-monastery in Bhutan.**

Snow Trout (Schizothorax richardsonii)

News: Scientists from Kumaun University launched a captive-breeding programme to revive the snow trout (Schizothorax richardsonii) in Naini Lake, Uttarakhand, in April 2026. However, the death of more than half of the released fingerlings has raised concerns about water pollution, rising temperatures and habitat degradation.

About Snow Trout (Schizothorax richardsonii)



Source: Wikimedia Common

- The **Snow Trout** is a **native cold-water Himalayan fish**
    - It is native to the **Himalayan and sub-Himalayan regions.** It is also **known as "Asala", or "Asela" by the locals.**
- It is a species **belong to the class of ray-finned fishes.**
- **Scientific name:** Its scieintific name is **Schizothorax richardsonii.**

Habitat and Distribution

- **Habitat:** It can thrive in a **wide range of temperatures (8-22°C)** and is distributed well in the **shallow pools, deep pools, rapids, and riffles of rivers** and **stagnant waters of lakes and reservoirs.**
    - It needs **cold, pristine, well-oxygenated water to survive**.

- **Distribution:** It is widely distributed in the Himalayan waters of **Afghanistan, Pakistan, India, Nepal, and Bhutan**.
    - It is found across the **Himalayan belt, from Jammu and Kashmir to Assam and Sikkim.**

Characteristics

- **Appearance:**
    - It has **streamlined body with smooth and soft skin** covered in small scales to assist cutaneous respiration.
    - It has **short blunt head** with **broad and flat interorbital space**.
    - The **upper jaw is longer than the lower part** (inferior mouth) with a **strip of hard papillated structure at chin called the adhesive organ; two pairs of barbels** which are smaller than eye diameter.
    - The **keratinized lips help this species scraping off algae from the substrate** as well as providing sturdy grip on the rocks in fast-flowing waters of Himalaya.
    - The **dorsal fin originates near the snout tip.**
    - The **dorsal spine is bony, strong and serrated at the hind part**; originate at the anterior part of pelvic fins.
    - The pectoral fins are **shorter than head;** and **pelvic fins do not reach vent.**
    - There is **tiled row of scales forming a sheath on either side of vent and anal fin,** with lateral line complete and is arched.
    - **Length and weight**: It can grow up to **60.0 cm in length** and **4.0 kg in weight in the Himalayan rivers.**
- **Behaviour:** It prefers to live in **Himalayan streams and rivers especially rivers with moderate flow speed.**
    - It has **territoriality behavior** and also **chase intruders to defend the limited food resource and available shelter.**
    - It **takes more than three years t**o reach full maturity and reproduce.
    - **Diet:** It is **herbivorous and feeds on algae and detritus** from the rocky substrate.

Threats

- Habitat fragmentation
- Slow growth

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- Poor disease resistance
- Low survival rates

Conservation status

- **IUCN Red List: Vulnerable**

Orange Oakleaf (Kallima inachus)

News: Chhattisgarh is set to get its first official state butterfly, with the Orange Oakleaf (Kallima inachus) emerging as the winner of a public online poll.

About Orange Oakleaf (Kallima inachus)



Source: New Indian Express

- The **Kallima inachus** is a **nymphalid butterfly**.
    - It is also known **as the orange oakleaf, Indian oakleaf or dead leaf.**
- **Scientific name:** Its scientific name is **Kallima inachus.**
- **Habitat:** They **usually flies in dense forests with good rainfall,** amongst **undergrowth and along stream beds.**
- **Distribution:** They are found in **India, Nepal, Bhutan, Bangladesh, Pakistan and Myanmar, down to Tenasserim Hills.** In Southeast Asia it occurs in s**outhern China, Thailand, Laos, Taiwan, and Vietnam.**

- In **India**, the butterfly is widely distributed across the **Himalayas, central India, and the Western and Eastern Ghats.**

- **Characteristics:**
  - **Appearance:** The butterfly wings are **shaped like a leaf when in the closed position.**
    - When the **wings are closed, only the cryptic underside markings are visible,** which consists of **irregular patterns and striations in many shades of biscuit, buff, browns, yellow, and black.**
    - The **veins are darkened and resemble the veins of a leaf.**
    - The **resemblance to a dried leaf**, a **masquerade,** is extremely realistic and gives the genus its common names, the **oakleaf or dead leaf.**
    - When it spreads its wings, **it reveals bright orange, jet-black and deep velvety blue colours.**
    - There are **two white oculi, one along the margin of the apical black band,** and the other bordering the orange and deep blue areas.
    - The **hindwing is more uniformly blue** but diffused with brown patches along the termen.
    - **Wingsize:** The wingspan of the butterfly ranges **from 85 to 110 mm (3.3 to 4.3 in).**
  - **Behaviour:**
    - **They are powerful flier.**
    - The are **attracted to tree sap and over-ripe fruit,** and is also known **to mud-puddle.**
  - **Diet:** The larvae are **polyphagous**, meaning **they feed on a variety of plants** belonging to different families.
- **Conservation:** They are generally classified as **"not rare"** in India (though considered "rare" in parts of China).

Worth a Journey's' 2026 World's 100 Best Museums list and Bihar Museum

News: Bihar Museum in Patna has secured the ninth position globally and the first position in Asia in Worth a Journey's 2026 ranking.

About Worth a Journey's 2026 World's 100 Best Museums List



Source – IE 2

- **Published by:** It is published by **Worth a Journey, a Germany-based travel guide and digital magazine**.
- **Coverage:** It publishes rankings **covering 3,800 venues across 142 countries.**
    - These rankings **include museums, libraries, parks, palaces and hotels.**
- **Selection Process:** It uses an **algorithm to analyse** millions of data points, **followed by in-person visits** and **adjustments based on on-ground assessments.**
- **Key Highlights:**
    - **World Ranking: Mexico's Museo Nacional de Antropología secured the first position**, followed by **Spain's Museo del Prado.**
    - **India Ranking: Bihar Museum secured the 9th position** globally and **ranked first in Asia.**
        - It was the **only Indian museum featured among the 100** museums **on the 2026 list.**
    - **International Recognition:** It **ranked ahead of New York's Metropolitan Museum of Art (10th) and Paris's Louvre (31st).**

About Bihar Museum

- **Location:** It is **located in Patna.**
    - It is spread across **more than 13 acres.**

- **Architecture: Japanese architect Fumihiko Maki**, in collaboration with **Mumbai-based Opolis Architec**ts, designed the museum.
- **Inauguration:** It was **inaugurated in 2015.**
- **Collections:** It **displays sculptures, coins, manuscripts, archaeological materials, and traditional, folk and contemporary art.**
- **Galleries:** Its galleries **trace Bihar's history** across different periods.
    - It also **houses a Children's Gallery and a Diaspora Gallery.**

Kendriya Grihmantri Dakshata Padak

News: The 'Kendriya Grihmantri Dakshata Padak' has been awarded to 490 personnel of various States/Union Territories (UTs)/Central Armed Police Forces (CAPFs)/Central Police Organisations (CPOs) for the year 2026.

About Kendriya Grihmantri Dakshata Padak



Source: IPS Gov

- The **Kendriya Grihmantri Dakshata Padak** are medals given **to recognize excellent work, promote high professional standards and boost the morale of the concerned official/officer.**
- **Instituted by:** It has been instituted by the **Ministry of Home Affairs in 2024.**
- **Creation:** They are created by **merging the 4 previously existing MHA awards** –
    - The Special Operation Medal,
    - The Medal for Excellence in Investigation,

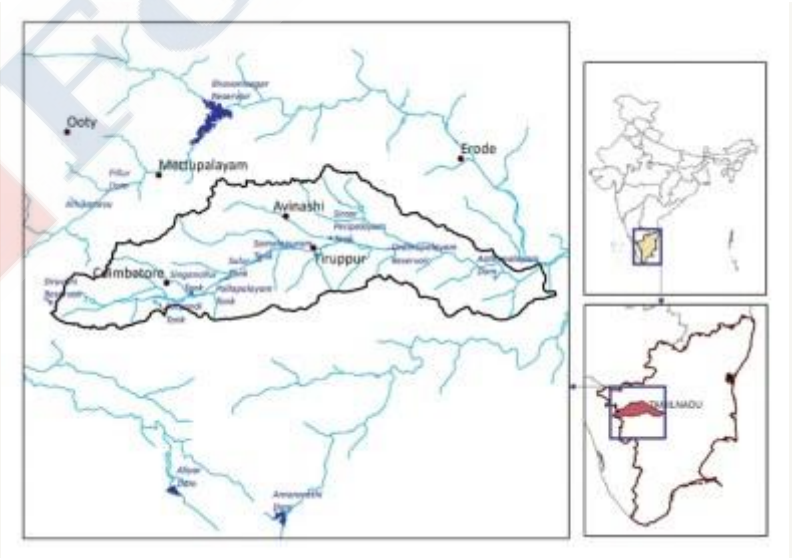
- The Exceptional Intelligence Efficiency Medal, and
- The Union Home Minister's Award for Meritorious Service.

- **Eligible Personnel:** It is awarded to **members of Police Forces, Security Organisations, Intelligence Wings, CPOs, CAPFs, NSG, Assam Rifles, and Central/State/UT Forensic Science departments across India.**
- **Basis for Conferment:** It recognises **excellence in operations, outstanding investigation, exceptional performance, daring intelligence service, and meritorious contributions** by serving government scientists in forensic science.
- **Frequency and date of announcement:** The medal is **announced on 31st of October every year,** on the occasion of the Birth Anniversary of Sardar Vallabhbhai Patel.
- Kendriya Grihmantri Dakshata Padak **2026** has been **awarded to 490 personnel of various States/Union Territories (UTs)/Central Armed Police Forces (CAPFs)/Central Police Organisations (CPOs) for the year 2026.**

Noyyal River

News: Tamil Nadu Environment Minister V.K. Rajeev's remark that soap and shampoo used by the public may contribute to excessive foaming in the Noyyal River in Tiruppur district has drawn criticism.

About Noyyal River



Source: Research Gate

- **Noyyal River** is a **seasonal river in Tamil Nadu.**
- **Origin:** It originates from **Vellingiri hills in the Western Ghats of Coimbatore district.**
- It is a **sacred river in Hindu-Tamil history,** originally known as the **"Kanchi Nadi."**
    - It was later **renamed on the place where it meets the Cauvery river.**
- **Course of river:** It flows through **Coimbatore, Erode and Karur districts** and finally **joins the Cauvery River near Noyyal village.**
- **Total distance:** It flows over a distance of **175 km.**
- **Catchment area:** The catchment area of the river is **3.49 lakh hectares**
- **Tributary of:** It is tributary of the **Cauvery River.**
- **Tributaries:** It has two main tributaries – **Cheyyar River (Chadiaar River) and Kanchimanadhi river.**
- The Noyyal watershed is **connected with a series of 32 tanks, 14 major canals, 23 Anicuts and 55 check dams.**
    - Most of these **check dams and Anicuts were constructed by the Chola Kings** who ruled the region, in the **9th to 12th centuries**, to augment irrigation and control floods downstream.
- **Dams: Aathupalayam Dam and Orathuppalayam Dam** are situated on the river.
- **Concern:** The **River and its interconnected tanks are major sources of drinking water and irrigation** but now, it is **polluted** due to **industrial waste, sewage, and effluents from dyeing and bleaching units.**

NVS-03 Satellite

News: The Indian Space Research Organisation (ISRO) has successfully launched its next-generation navigation satellite, NVS-03, marking a significant step towards strengthening the country's indigenous satellite navigation capabilities.

About NVS-03 Satellite



Source – ISRO

- **NVS-03** is the **3rd satellite in ISRO's second-generation navigation satellite series.**
    - Its predecessors, **NVS-01 and NVS-02, carried the other two indigenous atomic clocks.**
- **Developed and launched by:**Indian Space Research Organisation **(ISRO)**
- **Launch Vehicle: GSLV-F18** (Geosynchronous Satellite Launch Vehicle)
- It has been **launched as part of India's Regional Navigation Satellite System,** which **aims** to **provide navigation services** across the country and up to **1,500 km** beyond its borders.
- **Purpose:** It is designed **to ensure continuity and improve the availability of navigation services** under the **Navigation with Indian Constellation (NavIC),** India's indigenous regional navigation system.
- **Features:**
    - NVS-03 mission **carries multiple atomic clocks,** featuring **one indigenously developed Rubidium atomic clock** alongside a set of procured atomic clocks.
    - It also **introduces the L1 frequency band, in addition to the existing L5 and S bands,** enhancing the capabilities of the navigation system.
    - **Weight:** The satellite weighs **approximately 2,232 kilograms.**
    - **Placement:** It had been precisely injected into its intended transfer orbit.
- **Significance:** It is expected to **strengthen India's independent positioning, navigation and timing capabilities for civilian, strategic and security applications.**

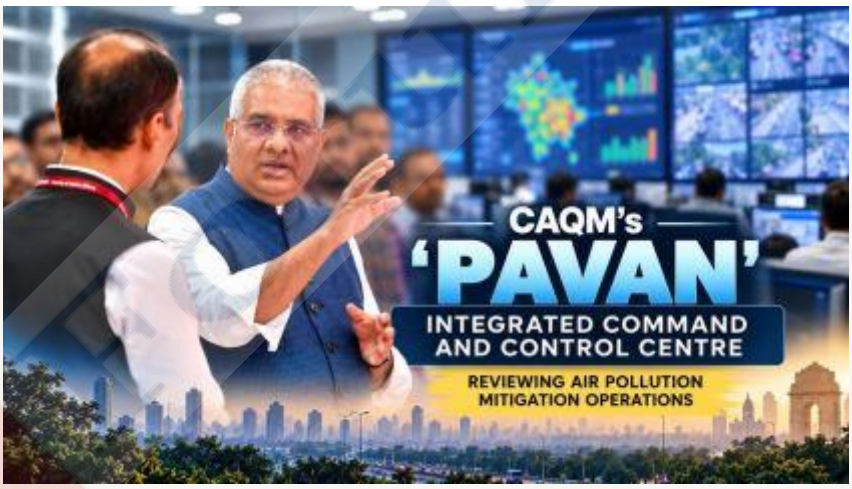
About Atomic Clock

- **Atomic Clock:** An atomic clock is a **highly accurate timekeeping device** that measures time using the natural vibration frequency of atoms, commonly **Caesium-133.**
- **Working:** Satellites **calculate a user's position** by **measuring the time taken by radio signals to travel from multiple satellites to a receiver**.
    - Even a **nanosecond error** can cause a **positional error of about 300 m.**
- **Importance:** It provides precise and stable timing, essential for satellite navigation systems such as **NavIC**.

PAVAN-I3C

News: Union Environment Minister Bhupender Yadav reviewed CAQM's newly developed PAVAN-I3C in New Delhi.

About PAVAN-I3C



Source – MoEFCC

- **PAVAN** stands for '**Platform for Air Quality Vigilance and Analytics for NCR'**, while **I3C** stands for **'Integrated Command and Control Centre'.**
- It is a **single-window digital centre developed in New Delhi** .
- **Aim:** It aims to **improve pollution monitoring, inter-agency coordination, compliance tracking and timely action against pollution sources.**
- **Established by:** It is developed by the **Commission for Air Quality Management (CAQM).**

- **Operating Principle:** It follows the principle of **'Detect, Analyse, Act'** to identify pollution sources and **support timely intervention.**
- **Key Features:**
    - **API and Data Integration:** It integrates **30+ Application Programming Interfaces (APIs)** and **data streams from multiple agencies**, including air quality, emissions, weather, satellite, camera, mobility, complaints and compliance data.
    - **Air Quality Monitoring:** It uses **data from 111 Continuous Ambient Air Quality Monitoring Stations (CAAQMS)**installed by the Central Pollution Control Board (CPCB), India Meteorological Department (IMD) and State Pollution Control Boards (SPCBs) for real-time monitoring and comparison with historical data.
    - **Industrial Emission Monitoring:** It uses **Online Continuous Emission Monitoring Systems (OCEMS) to identify emission deviations** and generate alerts for necessary action.
    - **Camera and Sensor-Based Monitoring:** It provides **live camera feeds and Particulate Matter (PM) sensor data** from construction and demolition sites and landfill sites to identify possible violations.
    - **Multi-Sector Monitoring:** It **monitors 12 areas**, including **crop residue burning, weather, vehicular pollution, citizen grievances, Mechanical Road Sweeping Machines (MRSMs), brick kilns and industrial emissions.**

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