

SANSKRITI IAS DAILY CURRENT AFFAIRS

01-10-2026

Vasundhara Lake – Glacial Lake Early Warning System

 The Indian Express

Uttarakhand's first glacial lake early-warning system: What it will monitor, why it matters

After a series of disasters in the Himalayas, most recently the Nepal floods, the state is moving from mapping vulnerable glacial lakes to...



Why in News

- **Uttarakhand** is installing its first **early-warning system** at Vasundhara Tal in **Chamoli district** for real-time monitoring of the high-altitude glacial lake.

Geographical Profile

- **Vasundhara Lake** is a high-altitude glacial lake located at about **4,795 metres** in the **Raikana Valley**.
- It originates from the **Raikana Glacier** and serves as the source of the **Dhauliganga River**, a tributary of the **Alaknanda**.
- The **National Disaster Management Authority (NDMA)** has classified it as a **Category A, highest-risk lake**.



Monitoring Architecture

- The system will monitor **water level, weather, snow conditions, water flow and movement** around the lake.
- **Water-level sensors** will detect fluctuations and abnormal changes.
- An **Automatic Weather Station** will record temperature, humidity, rainfall, wind speed and direction, atmospheric pressure and light intensity.
- **Snow-depth and sub-surface temperature sensors** will monitor changes in snow conditions.

Disaster-Management Technology

- **Tilt and accelerometer sensors** will detect ground movement and vibrations, while a **water-flow sensor** will monitor discharge.
- A **data logger and monitoring dashboard** will generate alerts when predefined thresholds are crossed.
- The system will use **solar energy** and **satellite communication** because conventional mobile networks are unavailable in the remote region.

Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY)

 DD India

Government pushes aquaculture insurance with 40% premium incentive

India's rapidly expanding aquaculture sector is increasingly confronting a challenge that can undermine years of investment in a single crop...



Why in News

- The government is seeking to make **insurance an integral component of aquaculture risk management** under the **Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY)**.

Scheme Framework

- **PM-MKSSY** is a **Central Sector Sub-scheme** under the **Pradhan Mantri Matsya Sampada Yojana (PMMSY)** launched in **2024**.
- It has an investment of over **₹6,000 crore** and is implemented for **FY 2023-24 to FY 2026-27** across all States and UTs.
- It focuses on **formalisation of fisheries** and support for fisheries **micro and small enterprises**.

Beneficiary Groups

- Beneficiaries include **fishers, aquaculture farmers, fish workers and fish vendors** involved in the fisheries value chain.
- Eligible entities include **micro and small enterprises, cooperatives, federations, SHGs, Fish Farmers Producer Organizations (FFPOs) and FPOs**.
- Other targeted beneficiaries may be included by the **Department of Fisheries, Government of India**.

Implementation Mechanism

- **Component 1-A** provides for formalisation through the **National Fisheries Digital Platform (NFDP)**.
- **Component 1-B** facilitates aquaculture insurance and targets coverage of at least **1 lakh hectares of aquaculture farms** during the project period.

Major Objectives

- The scheme seeks to gradually formalise the **unorganised fisheries sector** and facilitate institutional finance for fisheries enterprises.
- It provides a **one-time incentive for purchasing aquaculture insurance**.
- It provides **performance grants** to fisheries and aquaculture microenterprises.
- It promotes adoption and expansion of **fish and fishery product safety and quality assurance systems**.

- **SC, ST and women beneficiaries** receive an additional **10% incentive** over the incentive available to the general category.
- Other components cover **microenterprise value-chain efficiency, fish-product safety and quality assurance, and project management and monitoring.**
- **Project Management Units (PMUs)** have been established for implementation, monitoring and evaluation.

FAO Committee on Forestry



India showcases Forest and Landscape Restoration Initiatives at COFO 28, in Rome

International Cooperation must support Country-driven Implementation, Capacity Development, Technology Transfer and Measurable Outcomes on...



Why in News

- India showcased its **forest and landscape restoration** initiatives at the **28th Session of the FAO Committee on Forestry (COFO 28)** in Rome.

Institutional Framework

- The **FAO Committee on Forestry (COFO)** is the **highest global intergovernmental body on forestry** within the Food and Agriculture Organization.
- It was established by the **FAO Conference at its 16th Session in 1971.**
- It promotes international cooperation, policy dialogue and technical guidance on forestry.



Governance Structure

- COFO reports to the **FAO Council** on programmes and budgets and to the **FAO Conference** on policy and regulatory matters.
- Its work is informed by **six Regional Forestry Commissions.**
- It meets **biennially** at FAO headquarters in **Rome, Italy**, and brings together **128 members.**

Core Functions

- COFO reviews FAO forestry programmes and international forestry problems to facilitate coordinated action by member nations.
- It oversees the **Working Group on Dryland Forests and Agrosilvopastoral Systems.**

PM-DHARA Scheme

ThePrint

Rs 1.86 lakh crore PM DHARA scheme for India's renewable energy grid gets Cabinet nod

New Delhi: The Union Cabinet on Wednesday cleared the Prime Minister Developing Harmony and Accelerating Renewable Energy Access (PM DHARA)...



Why in News

- The **Union Cabinet** approved the **₹1.86 lakh crore PM-DHARA scheme** to strengthen renewable-energy transmission infrastructure.

Renewable Energy and Grid Infrastructure

- **PM-DHARA** stands for **PM-Developing Harmonized and Accelerated Renewable-energy Access**.
- The scheme will strengthen the **Intra-State Transmission System (InSTS)** to facilitate evacuation of up to **135 GW of renewable energy** across States and UTs.
- It also provides for **50 GWh of Battery Energy Storage Systems (BESS)** to improve grid flexibility.



Financial Architecture

- The total project outlay is **₹1,86,405 crore**, including **₹1,36,378 crore** for InSTS under **Green Energy Corridor Phase-III (GEC-III)**.
- **₹50,000 crore** is earmarked for **50 GWh BESS**, while total **Central Financial Support** is **₹54,082 crore**.
- The scheme is targeted for implementation by **FY 2032-33**.

Implementation Mechanism

- **Greenfield projects** under the InSTS component will be implemented through **Tariff Based Competitive Bidding (TBCB)**.
- **Brownfield upgradation and network strengthening** will follow the **Cost Plus Basis (CPB)**.
- **State Transmission Utilities** will be the overall implementing agencies, while Transmission Service Providers will participate through a **Build-Own-Operate-Maintain (BOOM)** model.

National Coastal Mission 2.0

 News On AIR

Environment Minister Bhupender Yadav launches guidelines for National Coastal Mission 2.0

Environment, Forest and Climate Change Minister Bhupender Yadav today launched the Guidelines for the implementation of the National Coastal...



Why in News

- The **Ministry of Environment, Forest and Climate Change** launched the guidelines for implementation of **National Coastal Mission 2.0** in New Delhi.

Institutional and Financial Framework

- **NCM 2.0** is a **Central Sector Scheme** that subsumes **National Coastal Mission 1.0**, implemented during **2021-22 to 2025-26**.
- It has an approved outlay of **₹767 crore** and will operate from **2025-26 to 2030-31**.
- The **Ministry of Environment, Forest and Climate Change** is the nodal ministry.

Geographical Coverage

- The mission covers **9 coastal States**: Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha and West Bengal.
- It also covers **4 coastal Union Territories**: Dadra and Nagar Haveli and Daman & Diu, Andaman & Nicobar Islands, Puducherry and Lakshadweep.

Coastal Resilience and Blue Economy

- The mission seeks to strengthen **coastal resilience and sustainability** while unlocking the potential of the **Blue Economy**.
- It promotes conservation of **mangroves, brackish-water wetlands and coral reefs** and addresses climate-change impacts on coastal communities.
- It supports **Integrated Coastal Zone Management Plans (ICZMP)** and **Coastal Marine Spatial Plans (CMSP)** for sustainable coastal development.
- Other objectives include diversified livelihoods, marine pollution control and implementation of India's international ocean and coastal environmental commitments.

CHIME Telescope

 Department of Science and Technology (DST)

Scientists map earliest glow of hydrogen, opening a new window to the universe

In an international collaboration that includes researchers from India, the Canadian Hydrogen Intensity Mapping Experiment telescope (CHIME...



Why in News

- An international team, including researchers from **Raman Research Institute (RRI), Bengaluru**, detected faint radio emission from hydrogen dating back about **9 billion years** using the CHIME radio telescope.

Telescope and Scientific Purpose

- **CHIME** stands for **Canadian Hydrogen Intensity Mapping Experiment** and is located in **British Columbia, Canada**.
- Built in **2017**, it is designed to map the distribution of **hydrogen gas in the early universe**.

Technical Features

- CHIME consists of **four massive parabolic radio antennas** operating in the **400–800 MHz** range.
- It has **no moving parts** and digitally combines signals from more than **1,000 antennas** using signal-processing techniques.
- Its correlator processes data at around **7 terabits per second**, while Earth's rotation allows it to observe roughly half the sky each day.

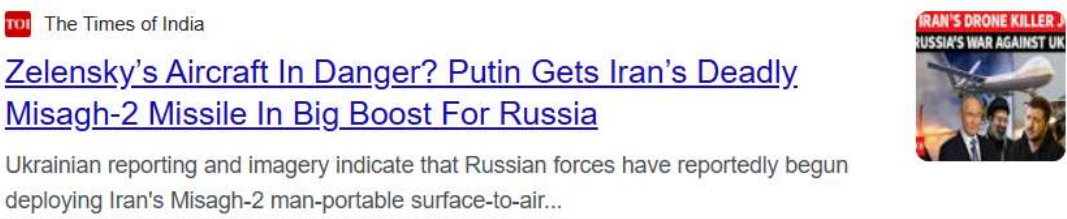
Astronomical Applications

- CHIME can detect and study **Fast Radio Bursts (FRBs)**, which are transient flashes of radio waves originating from distant galaxies.
- Its observations are also used for studying the distribution of hydrogen and the radio universe.

Other Important News of the day

Places in News	Palau
	Why in News ➤ Japan's Coast Guard recently reported signs of activity at the Fukutoku-Okanoba submarine volcano.  Earth.Org <u>Palau's President On His Mission to Fight Climate Change</u> Surangel Whipps Jr. has positioned Palau at the forefront of global ocean conservation. Yet the tiny island nation faces existential... 

	Geographical and Tectonic Setting ➤ Fukutoku-Okanoba is an active submarine volcano in Japan's Volcano Islands in the Pacific Ocean. ➤ It forms part of the Izu-Bonin Arc, associated with subduction of the Pacific Plate beneath the Philippine Sea Plate. ➤ Its summit is only about 14 metres below sea level, allowing eruptions to breach the ocean surface. Volcanic Characteristics ➤ The volcano is mainly composed of tholeiitic basalt, characteristic of arc-front volcanism. ➤ Its eruptions can produce pumice rafts, discoloured water and temporary island formation. ➤ The 2021 eruption produced massive pumice rafts that drifted thousands of kilometres across the Pacific. Surtseyan Eruptions ➤ A Surtseyan eruption occurs when rising magma interacts explosively with shallow water and rapidly converts it into steam. ➤ The resulting explosion can fragment magma into tephra and produce an ash column. ➤ Such eruptions are generally phreatomagmatic and can form tuff rings and pyroclastic cones. ➤ Ash, rock fragments and shock waves can create hazards for ships and aircraft.
Environment	Bandhavgarh Tiger Reserve  News On AIR <u>5 day Elephant Festival & Rejuvenation Camp begins at Bandhavgarh Tiger Reserve, Madhya Pradesh</u> A five-day Elephant Festival and Rejuvenation Camp is being held at Bandhavgarh Tiger Reserve in Umaria district of Madhya Pradesh.  Why in News ➤ A five-day Elephant Festival and Rejuvenation Camp is being organised at Bandhavgarh Tiger Reserve in Umaria district, Madhya Pradesh. Location and Historical Significance ➤ The reserve lies between the Vindhyan and Satpura ranges in Madhya Pradesh.

	➤ It was declared a National Park in 1968 and a Tiger Reserve in 1972, covering about 1,150 sq. km. ➤ Its name is derived from the prominent Bandhavgarh hillock, traditionally associated with Lord Rama and his brother Lakshmana. Archaeological and Ecological Features ➤ The reserve contains around 39 caves featuring Pali inscriptions and animal depictions. ➤ Ancient structures, including stupas and statues dating to the 1st century BCE, are also present. ➤ Its dominant vegetation includes Sal forests, grasslands and bamboo forests, along with species such as Saja, Dhauda, Tendu, Arjun and Aonla. Wildlife Significance ➤ Bandhavgarh is known for its high tiger density and is associated with the origin of the world's white tigers. ➤ Other mammals include leopard, gaur, sambar, chital, nilgai, wild boar, sloth bear, wolf, jackal and langurs. ➤ The reserve supports more than 250 bird species, including the crested serpent eagle, Malabar pied hornbill, white-rumped vulture and Indian roller.
Defence	Misagh-2  Why in News ➤ Russian forces have reportedly begun using the Iranian Misagh-2 man-portable surface-to-air missile system against Ukrainian unmanned aircraft. Weapon Characteristics ➤ Misagh-2 is an Iranian man-portable infrared-guided surface-to-air missile (MANPADS) system. ➤ It is a variant of the Chinese QW-2 Vanguard missile system.

	➤ Its primary role is engaging low- and very-low-altitude tactical targets such as fighters, attack aircraft and armed helicopters. Technical Specifications ➤ The missile weighs 11.32 kg at launch, its warhead weighs 1.42 kg, and the complete firing-position system weighs 18 kg. ➤ It can engage approaching targets up to 6 km and receding targets up to 5.2 km. ➤ Its effective altitude is about 2.5 km against jet fighters and about 3.5 km against helicopters and subsonic aircraft. Guidance System ➤ It uses a passive infrared (IR) seeker and operates on a fire-and-forget principle. ➤ Its dual-band passive IR seeker is designed to resist heat flares and solar or ground heat interference.
Health	Swyer Syndrome TH The Hindu All you need to know about: Swyer Syndrome Swyer syndrome: causes, symptoms, diagnosis, management, and fertility options for 46,XY individuals with female development.  Why in News ➤ Swyer syndrome is a rare difference of sex development estimated to occur in about 1 in 80,000 people. Genetic and Medical Dimensions ➤ Swyer syndrome is medically known as 46, XY complete gonadal dysgenesis. ➤ It involves individuals with one X and one Y chromosome in each cell who develop female reproductive structures, with failure of the sex glands to develop. Clinical Features ➤ The condition results from disruption of the genetic pathway involved in testicular development during early embryonic development. ➤ It is one of the Differences/Disorders of Sex Development (DSDs) and may remain undetected during childhood. ➤ Primary amenorrhoea, or absence of menstruation, is a characteristic sign during adolescence.

	Management ➤ There is currently no treatment that changes the 46,XY chromosome pattern or converts streak gonads into functioning ovaries. ➤ The effects can be managed through hormone replacement therapy.
Science and Technology	Permafrost  Phys.org In Alaska, soil in permafrost regions is warming the fastest Soils are warming quickly and at considerable depth across Alaska, with temperatures rising fastest in the state's permafrost region,...  Why in News ➤ Thawing permafrost in Alaska is releasing acids and metals into rivers, altering water chemistry over large distances. Definition and Distribution ➤ Permafrost is ground that remains frozen at 0°C or below for at least two consecutive years. ➤ It is mainly found in high-latitude and high-mountain regions, including areas near the North and South Poles. ➤ It can occur both on land and beneath the ocean floor and may range from about 1 metre to more than 1,000 metres in thickness. Composition and Carbon Storage ➤ Permafrost consists of soil, rocks and sand held together by ice and remains frozen throughout the year. ➤ Near-surface layers contain significant amounts of organic carbon preserved because decomposition is inhibited by low temperatures. ➤ The active layer above permafrost thaws during summer and freezes again during autumn. Environmental Implications ➤ Permafrost thaw is the progressive loss of ground ice caused mainly by heat input. ➤ Thawing can release carbon dioxide and methane from previously frozen organic matter, reinforcing global warming through a positive feedback mechanism.

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| | <ul style="list-style-type: none">➤ It can destabilise land and damage roads, buildings and pipelines, while also releasing mercury, other toxins and potentially dormant microbes into surrounding environments.➤ The source notes that the oldest known permafrost in Siberia has remained frozen for about 650,000 years. |
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