# KERALA STATE CIVIL SERVICE ACADEMY

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# WEEKLY CURRENT AFFAIRS

## MAGAZINE

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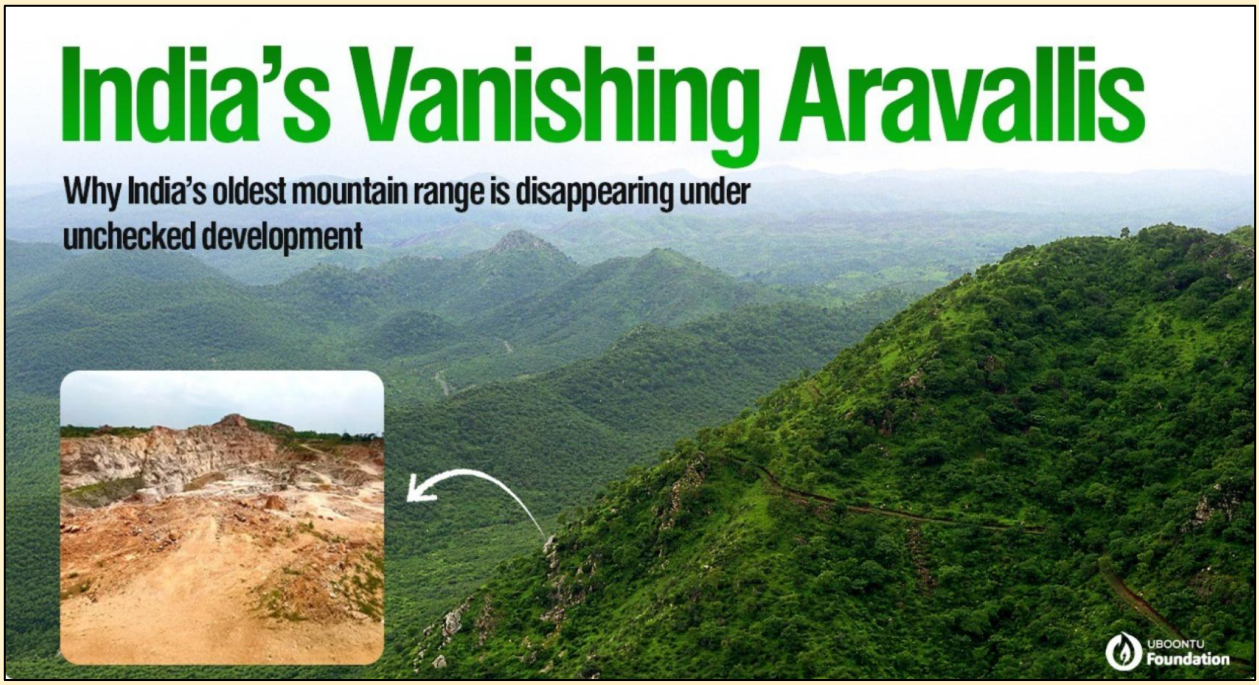
Monthly Current Affairs Magazine

# ARAVALLI CRISIS

The Aravalli range, one of the world's oldest mountain systems, faces sustained ecological degradation due to mining, urbanisation, and fragmented governance across Rajasthan, Haryana, and the National Capital Region.
Despite recent Supreme Court interventions—such as pausing height-based reclassification of hills—the crisis persists, highlighting deeper governance and environmental failures.




The **ecological principle of "thinking like a mountain", coined by Aldo Leopold**, which emphasises **long-term ecosystem integrity over short-term economic gains**. Applied to the Aravallis, this approach demands treating the **mountain range as an integrated ecological system rather than as discrete parcels** defined by administrative or legal thresholds.

**Problem Diagnosis: Governance and Environmental Failures**

- **Short-termism in policymaking:** Prioritisation of construction materials and real estate over ecological stability has led to quarrying, deforestation, and landscape fragmentation.
- **Reductionist legal definitions:** Height-based classification of hills **ignores ecological functions of low-lying ridges**, exposing them to mining and degradation.
- **Fragmented governance:** District-wise mining leases and State-level jurisdictions fail to reflect the **transboundary nature of the Aravalli ecosystem**.
- **Ecological disruption:** Mining and urban sprawl disturb natural drainage, accelerate soil erosion, reduce forest cover, and disrupt food webs.

**Why the Aravallis Matter**

- **Environmental security:** The Aravallis act **as groundwater recharge zones, biodiversity corridors, and a climatic barrier limiting desertification from the Thar**. Recognising these functions, the Supreme Court in **MC Mehta v. Union of India (Aravalli mining cases)** prohibited mining in ecologically sensitive areas, affirming that environmental protection must override commercial exploitation.
- **Climate resilience:** Forested hills **capture carbon, regulate microclimates, and influence the monsoon system** in northern India.

- **Constitutional mandate: Article 48A** directs the State to **protect and improve the environment**, while **Article 21** (as judicially interpreted) includes the **right to a healthy environment.** In **Vellore Citizens' Welfare Forum v. Union of India (1996)**, the Court embedded the doctrine of **Sustainable Development** into Indian law, holding that development cannot be pursued at the cost of irreversible environmental damage.

- **Intergenerational equity:** Irreversible ecological damage violates the principle that development must not compromise future generations.

**Way Forward:**

- Adopt **ecosystem-scale governance**, treating the Aravallis as a single ecological unit rather than fragmented administrative zones.

- Replace district-wise mining permissions with a **comprehensive Aravalli management plan** based on ecological carrying capacity
- Align judicial definitions with scientific understanding of ecological connectivity.

- Strengthen enforcement of environmental laws through coordinated Centre–State mechanisms.

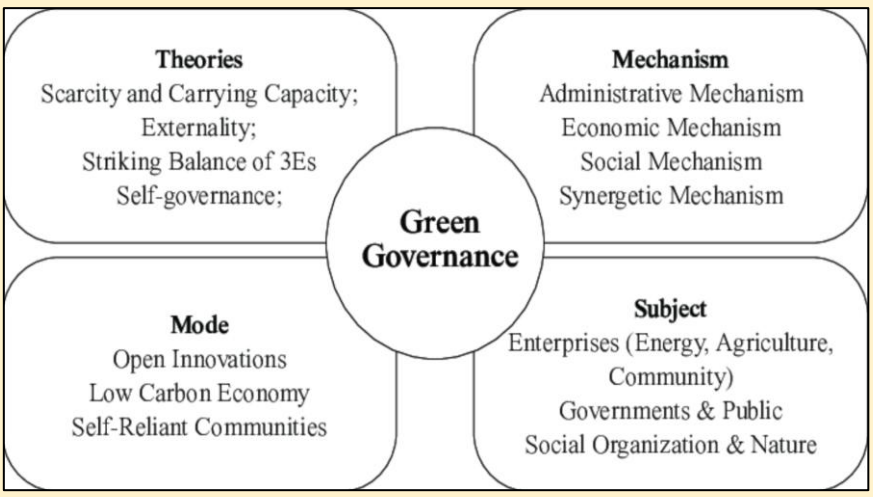
- Embed long-term ecological impact assessments into all land-use and infrastructure decisions.

The Aravalli crisis illustrates the dangers of governance that values immediate economic returns over ecological permanence. **"Thinking like a mountain" is not environmental romanticism but policy realism** recognising that while forests may regrow in decades, mountain ecosystems formed over millions of years are irreplaceable. For a megadiverse country like India, ecological short-sightedness would be the costliest failure of governance.

## GREEN GOVERNANCE

Over the past decade, the Supreme Court of India has **increasingly shifted from judicial review of environmental decisions to issuing forward-looking, managerial directions**.

This transformation often triggered by regulatory failure has seen the Court step into the shoes of administrators. While motivated by environmental protection, **this approach has generated uncertainty, inconsistency, and governance challenges**.



The Court's evolving role reflects a tension between its constitutional duty to protect the environment and the limits of judicial competence in policy implementation.
By substituting regulators instead of disciplining them to act within statutory frameworks, the Court risks undermining regulatory stability, predictability, and democratic accountability.

**Judicial Overreach and Governance Gaps**

- **Shifting and reversible directions:** Blanket rulings such as uniform Eco-Sensitive Zones (ESZs), diesel vehicle bans, and firecracker restrictions have frequently been modified or diluted, creating policy uncertainty.

- **From legality to consequence-based reasoning:** The Court has at times **prioritised immediate outcomes over doctrinal consistency**, as seen in reversals on ex post facto environmental clearances.

- **Expertise dilemma:** Reliance on committees and expert inputs has been uneven, with expert conclusions sometimes adopted, contested, or abandoned within weeks.

- **Continuing mandamus problem:** Serial interim orders, affidavits, and modifications **blur the line between adjudication and administration**.

- **Chilling effect on participation:** Early judicial entry into approval processes **discourages later public challenge** and narrows the evidentiary space.

**Why It Matters**

- **Rule of law and separation of powers:** Judicial governance, if unpredictable, **weakens institutional clarity and accountability**.

- **Environmental outcomes:** Regulatory uncertainty can be as **damaging as regulatory laxity, delaying effective environmental protection.**

- **Federal and administrative strain:** States and regulators face parallel decision-making pressures—statutory compliance on one side and judicial negotiation on the other.

- **Public trust:** Inconsistent **standards erode confidence in both environmental regulation and judicial neutrality**.

**Way Forward: Towards Stable Green Adjudication**

- Re-centre the Court's role on **reviewing legality and procedure**, not managing outcomes.

- Use judicial power to **discipline regulators back into action**, with time-bound, reasoned directions.

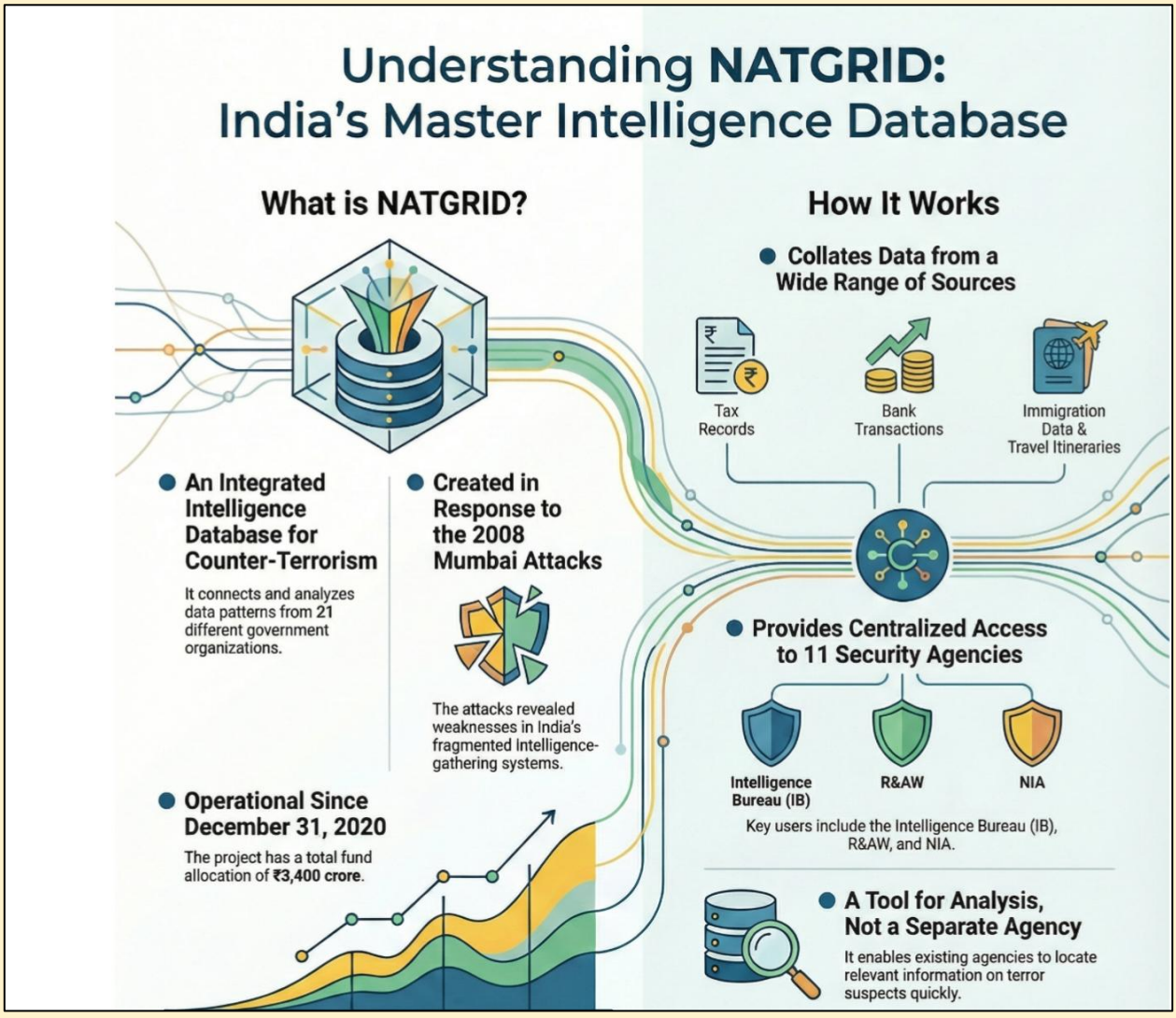
- Specify **clear thresholds** for when managerial intervention is justified
- Avoid sweeping, one-size-fits-all rules that invite exemptions and reversals.

- Preserve space for **public participation and contestation** across regulatory fora.

The Supreme Court's environmental activism has filled critical governance vacuums, but its increasing managerial role has also produced uncertainty and instability. Sustainable environmental protection requires not continuous judicial governance, but strong, accountable regulators operating within clear legal frameworks.

# NATGRID

India's experience with terrorism, particularly the 26/11 Mumbai attacks, exposed serious intelligence coordination failures. In response, the National Intelligence Grid (NATGRID) was conceived as a technological solution to aggregate scattered datasets for counter-terrorism.




However, NATGRID's evolution from a limited intelligence-sharing tool into a vast analytics-driven surveillance architecture raises serious constitutional, governance, and security concerns. NATGRID was originally envisaged as a middleware platform enabling authorised agencies to **query multiple databases to prevent intelligence failures**.

Its contemporary expansion—marked by large-scale data access, **integration with the National Population Register (NPR), and algorithmic analytics** signals a **shift from targeted intelligence to population-scale surveillance**, blurring the line between national security and everyday policing.

**Problem Diagnosis: Governance and Security Risks**

- **Absence of statutory backing:** NATGRID operates through **executive orders without** a dedicated parliamentary law, **weakening democratic accountability**.
- **Mass surveillance creep:** Expansion of access to police units and routine policing functions **normalises extraordinary surveillance powers**.
- **Integration with NPR:** Linking population registers with intelligence databases shifts surveillance **from event-based tracking to continuous citizen profiling**.

- **Algorithmic opacity:** Tools such as **"entity resolution"** rely on probabilistic inference, increasing risks of false positives and discriminatory outcomes.
- **Oversight deficit:** Lack of independent judicial or parliamentary supervision enables unchecked data access and mission creep.

**Why It Matters**

- **Constitutional implications:** The Supreme Court in ***Justice K.S. Puttaswamy v. Union of India (2017)*** recognised **privacy as a fundamental right**, requiring legality, necessity, and proportionality for state surveillance standards NATGRID currently struggles to meet.
- **Rule of law and accountability:** Intelligence failures are often institutional, not data-deficit driven; technology cannot substitute governance reform.
- **Internal security effectiveness:** Over-reliance on mass data risks **diluting actionable intelligence,** repeating the very coordination failures NATGRID sought to fix.
- **Social cohesion:** Automated suspicion **disproportionately impacts vulnerable communities**, risking alienation and long-term security blowback.

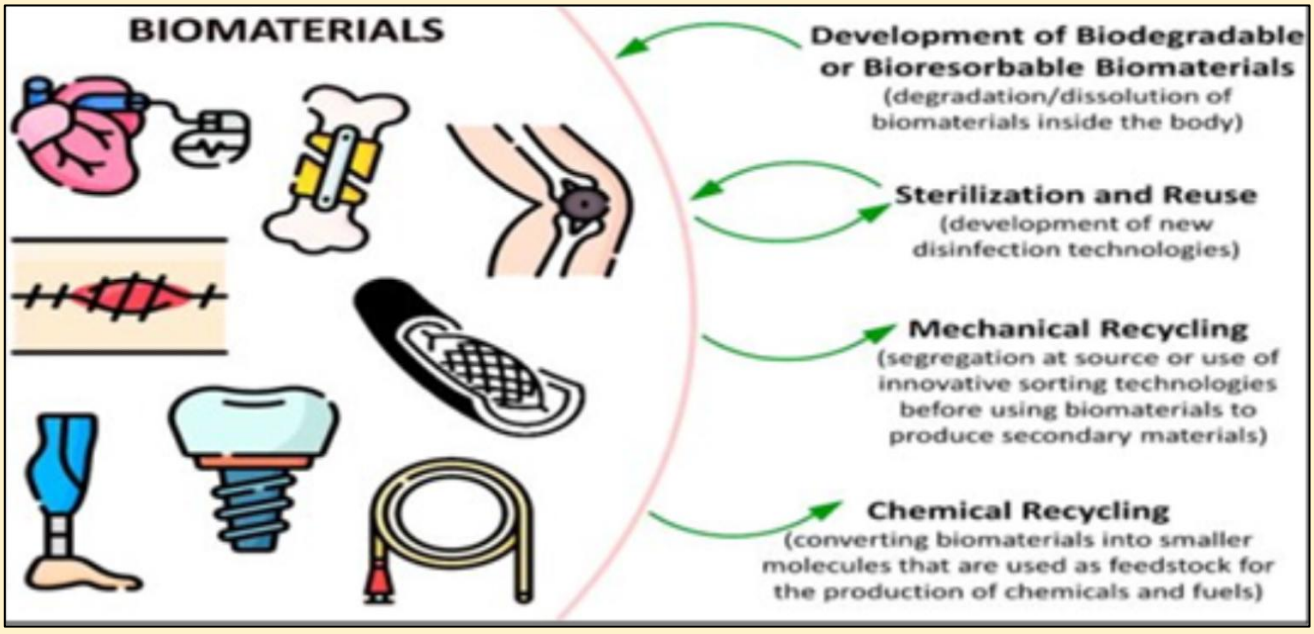
**Way Forward: Rebalancing Security and Liberty**

- Enact a **comprehensive statutory framework** for NATGRID with clear purpose limitation
- Establish **independent oversight mechanisms** involving Parliament and judiciary
- **Limit access** strictly to **counter-terrorism and serious national security threats**
- Mandate **algorithmic transparency, auditability, and bias safeguards**
- **Re-emphasise human intelligence and institutional coordination over data maximalism**

The trauma of 26/11 continues to shape India's security imagination, but the response risks overshooting the constitutional balance. Without statutory grounding, independent oversight, and proportional use, **NATGRID risks becoming an infrastructure of digital authoritarianism rather than a tool of effective security.** True prevention lies not in omnipresent surveillance, but in accountable intelligence systems rooted in constitutional values.

## BIOMATERIALS

As countries look to shift to cleaner processes to manufacture consumer products, biomaterials will become the new frontier of materials engineering.



**About Biomaterials:**

- **Nature:** Biomaterials refer to materials that are derived wholly or partly from biological sources or are **engineered using biological processes** to replace or interact with conventional materials.

- **Usage:** Unlike traditional petroleum-based materials, biomaterials are designed to reduce environmental impact while supporting sustainable production systems. They are increasingly used in **sectors such as packaging, textiles, construction, and healthcare.**

- **Classification:** Broadly, biomaterials are classified into **three categories.**
  - **Drop-in biomaterials** are chemically identical to petroleum-based materials and can be used in existing manufacturing systems without major modifications. Examples include bio-PET used in packaging.
  - **Drop-out biomaterials** are chemically different and require new processing or end-of-life systems, such as polylactic acid (PLA), which needs industrial composting.
  - **Novel biomaterials** go a step further by offering entirely new properties, including self-healing materials, bioactive implants, and advanced composites with enhanced performance characteristics.

- **Significance:** The development of biomaterials is seen as the **next frontier in materials engineering** as industries attempt to reduce carbon footprints and comply with tightening environmental regulations.

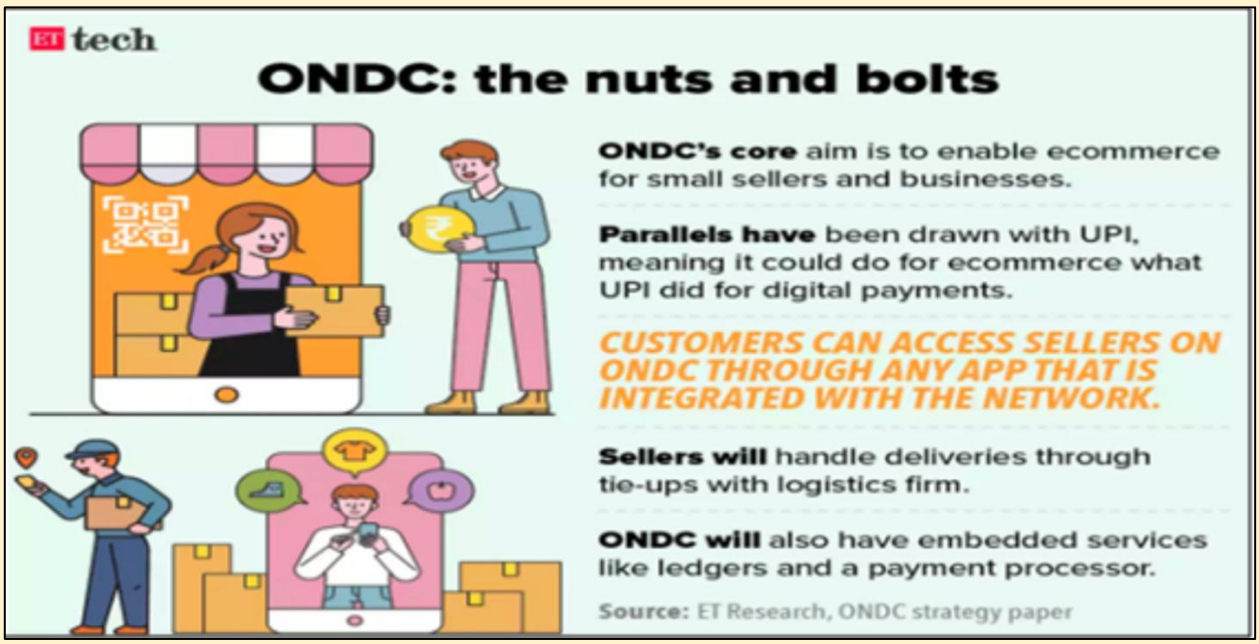
- **Global Developments:**
  - The **European Union** has introduced **binding regulations** under its Packaging and Packaging Waste Regulation, recognising the environmental benefits of compostable materials in specific applications.
  - The **United States** supports biomaterials through **government procurement policies,** particularly under programmes that prioritise bio-based products.
  - Meanwhile, countries like the **UAE** are positioning themselves as major manufacturing hubs through **large-scale investments** in PLA production.
  - These global developments underscore the **competitive urgency for India to** scale up its biomaterials ecosystem.

- **Current Status of Biomaterials in India:**
  - India's biomaterials sector, encompassing bioplastics, biopolymers, and bio-derived materials, is at an **early but rapidly emerging stage.**
  - The bioplastics market alone was **valued at around $500 million in 2024**and is expected to grow steadily through the decade. Several domestic initiatives highlight this transition.
  - Large-scale investments such as the **planned PLA plant by Balrampur Chini Mills in Uttar Pradesh** mark a significant step toward commercial-scale biomanufacturing.

- Indian start-ups are also playing a role, with enterprises converting **agricultural and floral waste into value-added biomaterials.**

# OPEN NETWORK FOR DIGITAL COMMERCE

Tickets for 170 ASI protected heritage sites and museums can now also be purchased online through Open Network for Digital Commerce (ONDC).




**About Open Network for Digital Commerce (ONDC):**

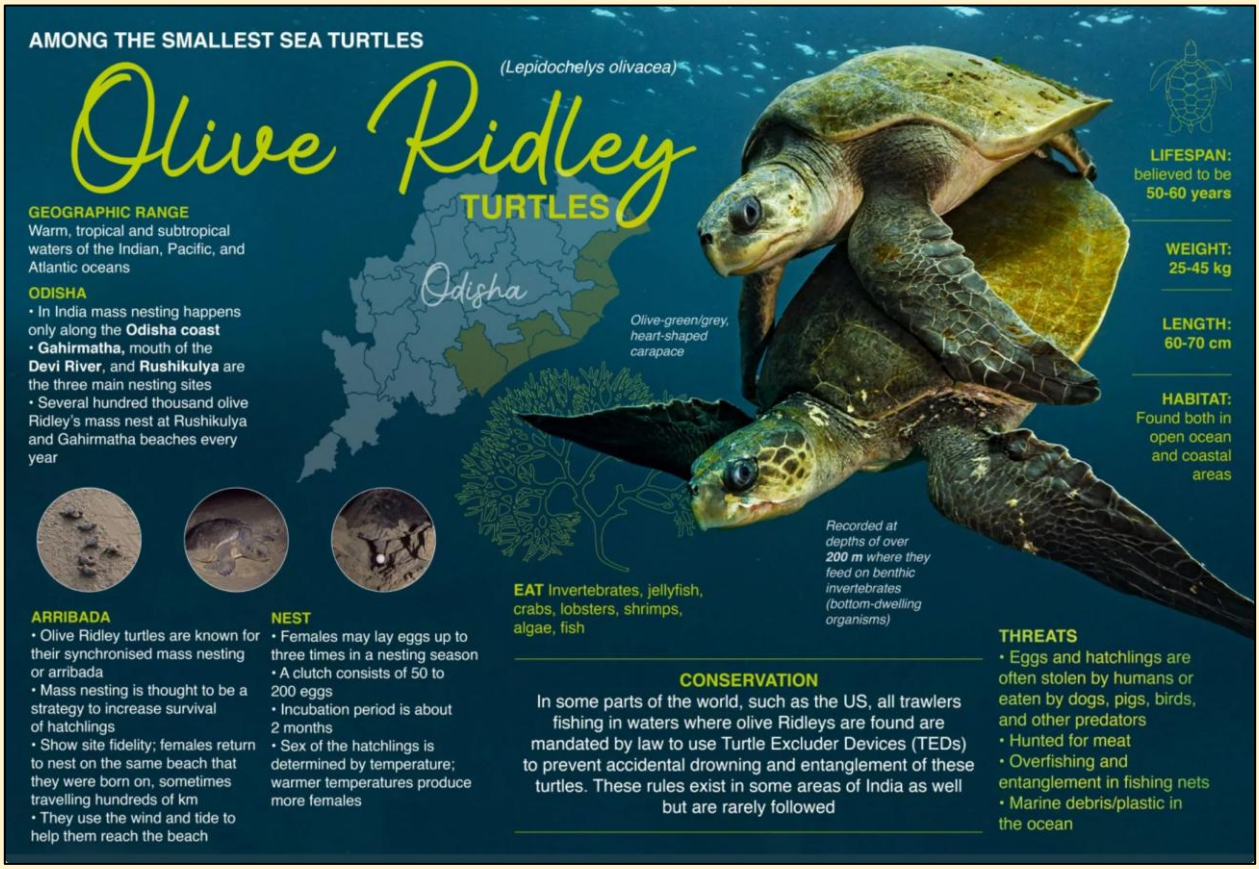
- **Nature:** Open Network for Digital Commerce (ONDC) is a **network of interconnected e-marketplaces** through which sellers, including brands, can list and sell their products directly to customers bypassing any middlemen or intermediaries.
- **Objective:** It is aimed at **promoting open networks** for all aspects of exchange of goods and services over digital or electronic networks.
- **Significance:** It allows transitioning from a **platform-centric model to an open source network** for buying and selling goods and services.
- **Launch:** It was incorporated **in 2021 with initial investment from Quality Council of India (QCI)** and Protean eGov Technologies Limited (formerly NSDL e-Governance Infrastructure Limited).
- **Nodal ministry:** It was launched under the Department for Promotion of Industry and Internal Trade (DPIIT) by the **Ministry of Commerce** as part of the Digital India initiative.
- **Similarity:** Similar to the **Unified Payments Interface (UPI),** ONDC aims to level the operational playing field among e-commerce platforms.

- **Objectives:**
  - Democratisation and **decentralisation** of e-Commerce
  - **Inclusivity and access** for sellers, especially small and medium enterprises as well as local businesses
  - Increased choices and **independency** for consumers
  - Making goods and services **cheaper**.

**Working Mechanism:** It functions on the basis of an open network where it will not be a single platform similar to Amazon or Flipkart but rather in the **form of a gateway** where buyers and sellers across different platforms will be able to connect.

# OLIVE RIDLEY SEA TURTLES

Ahead of the sea turtle nesting season, the forest department has intensified conservation measures along the Mangaluru coastline by setting up hatcheries.




**About Olive Ridley Sea Turtles:**

- **Nature:** They are the **smallest and most abundant of all sea turtles** found in the world.
- **Nomenclature:** It gets its name from the **olive green colouration of its carapace** (shell).
- **Uniqueness:** It is best known for its **unique mass nesting, called Arribada,**where thousands of females come together on the same beach to lay eggs.

- **Global spread:** They are mainly found in the warm waters of the **Pacific, Atlantic, and Indian oceans.**
- **Distribution in India:** Major nesting beaches along the **Odisha coast** (Gahirmatha, Rushikulya, Devi River mouth), solitary nesting also occurs along the **Tamil Nadu, Andhra Pradesh, and Andaman coasts.**
  - **Largest rookery: Odisha's Gahirmatha Marine Sanctuary** is known as the world's largest rookery (a colony of breeding animals) of sea turtles.
  - **Omnivorous:** They are omnivorous, meaning they **feed on both plants and animals.**
  - **Solitary:** They are solitary, preferring the open ocean. These turtles spend their entire lives in the ocean, and **migrate thousands of kilometers** between feeding and mating grounds in the course of a year.
- **Conservation Status:**
- IUCN Red List: **Vulnerable**
- Wildlife Protection Act, 1972: **Schedule 1**
- CITES: **Appendix I.**

## SURYASTRA

Indian Army signed a ₹293 crore contract with private defence manufacturer NIBE Limited, for the supply of an advanced long-range rocket launcher system Suryastra.

**About Suryastra Rocket Launcher System:**

- **Nature:** It is an advanced **long-range rocket launcher system.**
  - **Development:** It is developed by **Pune-based NIBE** Limited in collaboration with Israel's Elbit Systems.
  - **Uniqueness:** It is **India's first** indigenous universal multi-calibre rocket launcher system.
- **Range:** It is capable of executing precision surface-to-surface striking targets at ranges of **150 and 300 kilometers.**
- **Multi-target Capability:** It is designed to engage multiple **targets simultaneously** at varying ranges.
- **Precision:** It achieves a high degree of accuracy with a circular error probable (CEP) of **less than five metres** during trials. The same launcher is also capable of firing loitering munitions up to a range of 100 km.
- **Technologies used:** The system is based on Elbit Systems' **PULS (Precise & Universal Launching System)** launcher technology. It is equipped with a modern fire control system that integrates **GPS, inertial navigation,** and digital ballistic computation.

## SOMNATH TEMPLE


Prime Minister Narendra Modi extended greetings to the nation on the commencement of Somnath Swabhiman Parv.

**About Somnath Temple:**

- **Deity:** It is a Hindu temple dedicated to **Lord Shiva.**
- **Location:** It is located in Prabhas Patan near Veraval in Saurashtra on the western coast of **Gujarat.**
- **Uniqueness:** It is the **first of the 12 jyotirlinga shrines** in India that are regarded as the manifestation of the Lord Shiva Himself.
- **Religious significance:** References to the temple are found in ancient texts like **Skandpuran, Shreemad Bhagavat, Shivpuran, and the Rig-Veda.** It is also the **Neejdham Prasthan Leela site** where Lord Shri Krishna took his last journey.
- **Geographical Significance:** Situated at the **confluence of Kapila, Hiran, and Saraswati rivers** with the Arabian Sea. Abadhit Samudra Marg (Tirth Stambh) indicates an **uninterrupted sea route to the South Pole,** with the nearest landmass ~9,936 km away, reflecting ancient Indian geographical knowledge.

- **Timeline:** The ancient temple's timeline can be **traced from 649 BC** but is believed to be older than that.
- **Construction:** According to tradition, it was **built in phases**—first in gold by Somraj (Moon God), then in silver by Ravana, later in wood by Lord Krishna. King Bhimdev I (or Bhima I) of the Solanki dynasty rebuilt the temple in stone after its destruction by Mahmud of Ghazni in 1026 CE.
- **Attacks and reconstructions:** First major attack on the temple took place **in 1026 AD by Mahmud of Ghazni** (documented by Al-Biruni). The temple was looted and destroyed multiple times, including in 1026, 1297, 1394, and 1706 CE (Aurangzeb). **2026 marks 1,000 years since the first attack**, a significant civilisational milestone.
- **Present form:** The existing temple was rebuilt post-independence as a symbol of national resurgence. **Sardar Vallabhbhai Patel initiated the reconstruction** in 1947. The **Pran-Pratistha was performed by President Dr. Rajendra Prasad** in May, 1951.

## INDORE WATER CONTAMINATION

The Indore water contamination tragedy, which led to multiple deaths and illness among over 2,000 residents, exposes a critical gap in India's water governance: rapid expansion of piped water access without commensurate assurance of water quality at the consumer end.


**Current Status: Water Quality and Water Stress in India**

- **High coverage, low safety:** NFHS-5 shows **96% of households use "improved" drinking water sources**, yet WHO estimates that unsafe water causes **over 1.5 lakh deaths annually in India**, mainly from diarrhoeal diseases.
- **Urban vulnerability:** Even "clean" cities like Indore and campuses like VIT Bhopal (2025 jaundice outbreak) reveal that municipal supply is not inherently safe.
- **Severe water stress:** NITI Aayog's *Composite Water Management Index* warns that **600 million Indians face high-to-extreme water stress**, with 21 cities projected to run out of groundwater.
- **Chemical contamination:** Government data shows **fluoride, arsenic, iron and nitrate contamination** affecting drinking water in over **300 districts**, especially in central and eastern India.

- **Infrastructure deficit:** The Ministry of Housing and Urban Affairs notes that **over 40% of urban water is lost**through leakages, increasing contamination risks.
- **Disease burden:** India accounts for a disproportionate share of global **water-borne diseases**, with children under five most affected.

**Core Issues in Water Quality Governance**

- **Coverage-first approach:** Jal Jeevan Mission prioritised tap connections; however, **quality monitoring has lagged behind scale**, leading to unsafe last-mile delivery.
- **Inadequate testing frequency:** Many States test water **only periodically**, not continuously, allowing contamination to go undetected for weeks.
- **Ageing pipelines:** Old, corroded pipes often run alongside sewage lines, causing cross-contamination, as seen in Indore and earlier cases in Chennai and Bengaluru.
- **Fragmented accountability:** Water sourcing, treatment and distribution fall under different agencies, diluting responsibility when failures occur.
- **Weak enforcement:** BIS drinking water standards exist, but penalties for municipal non-compliance are rare.
- **Poor public disclosure:** Unlike air quality indices, **real-time water quality data is rarely shared with citizens**, delaying preventive action.

**Government Efforts and Policy Measures**

- **Jal Jeevan Mission (JJM):** Provided tap connections to over **13 crore rural households**, with a mandate for water quality testing labs, though utilisation varies widely across States.
- **Swachh Bharat Mission:** Reduced open defecation from 39% (2014) to single digits, indirectly lowering faecal contamination, but sewerage coverage remains incomplete.
- **AMRUT & AMRUT 2.0:** Target urban water supply and sewerage; however, CAG reports highlight delays and under-utilisation of funds.
- **National Water Policy:** Advocates integrated water resource management and pollution control, but implementation remains uneven.
- **Water Quality Monitoring & Surveillance Programme:** Exists on paper, yet many districts lack functional labs or trained personnel.
- **NITI Aayog alerts:** Repeatedly flagged declining groundwater quality and urged States to treat water safety as a public health priority.

**Way Forward: Reforms Needed**

- **From access to assurance:** Treat **potable quality at the delivery point** as a core service obligation, not an optional add-on.
- **Real-time monitoring:** Deploy sensor-based testing and community-level kits for early detection of microbial and chemical contaminants.
- **Infrastructure renewal:** Replace ageing pipelines and ensure physical separation of drinking water and sewage networks.
- **Clear accountability:** Assign a single authority at the city/district level responsible for end-to-end water safety.
- **Strict enforcement:** Mandate compliance with BIS standards, backed by financial penalties and independent audits.
- **Citizen awareness:** Publish water quality dashboards and issue timely advisories, similar to air quality alerts.

India's water challenge has moved beyond scarcity to safety. As NITI Aayog cautions, expanding access without quality assurance risks turning a welfare success into a public health crisis. Safe drinking water must shift from intent-driven policy to enforceable, transparent governance.

## POPOCATÉPETL VOLCANO

Scientists recently obtained first 3D images from inside Popocatépetl Volcano, one of the world's most active volcano and whose eruption could affect millions of people.


**About Popocatépetl Volcano:**

- **Nomenclature:** Popocatépetl means **"Smoking Mountain"** in the Aztec Nahuatl language.
- **Location:** It is located in central **Mexico** roughly 45 miles (72 kilometers) southeast of Mexico City. It is on the border of the states of México and Puebla.
- **Mythology:** In Aztec mythology, it is linked to the twin volcano Iztaccíhuatl. The legend depicts **Popocatépetl as a warrior** and Iztaccíhuatl as a princess who died of grief.
- **National Park:** Both peaks are protected **within the Izta-Popo Zoquiapan National Park.**

- **Interaction of tectonic plates:** It lies on the Trans-Mexican Volcanic Belt, which is the result of the small **Cocos Plate subducting beneath the North American Plate.**
- **Significance:** It is one of Mexico's most **active volcanoes**, with recorded eruptions since 1519. It is one of the most dangerous volcanoes in the **Ring of Fire.**
- **Type:** It is a **stratovolcano** (also called a composite volcano), characterized by a steep, conical shape built by layers of ash, lava flows, and pyroclastic materials.
- **Elevation:** It is approximately **5,452 meters** (17,883 ft) in height, making it the second-highest peak in Mexico after Citlaltépetl (Pico de Orizaba).
- **Eruption Characteristics:** Primarily **andesitic to dacitic** in composition, it produces viscous lava flows, explosive ash clouds, and pyroclastic flows.
- **Hazard Zone:** An estimated **25 million people live within a 100 km radius** of the summit, making it one of the most high-risk volcanoes globally.

# DOUBLE HUMPED BACTRIAN CAMEL

In a historic move confirmed by the Ministry of Defence, the double-humped Bactrian camels will make their official debut on the Kartavya Path on January 26.

**About Double Humped Bactrian Camel:**

- **Scientific name:** It is scientifically known as **Camelus bactrianus.**
    - **Distinctive feature:** They have **two humps** on the back, compared to the single hump of the Dromedary (Arabian) camel. The humps **store fat (not water)** that provides energy and metabolic water during scarcity.
    - **Global spread:** They are native to the harsh and arid regions of Central Asia. They occupy habitats **in Central Asia from Afghanistan to China**, primarily up into the Mongolian steppes and the Gobi desert.

- **Distribution in India:** Small populations of these camels are found in high altitude cold deserts of **Ladakh's Nubra Valley.**
    - **Resilient:** They possess thick, shaggy coats that fluctuate with the seasons, growing dense to withstand temperatures as low as **minus 40 degrees Celsius.**Their nostrils are sealable to **block out frozen dust,** while their broad feet act like natural snowshoes.

- **Uniqueness:** They are among the few land animals that can survive by **eating snow to meet their hydration needs.**
- **Diet:** Bactrian camels are **omnivores** but primarily herbivores and eat various types of plants.
- **Strategic significance:** They are formally inducted into the **Indian Army for logistical and patrol duties** along the Line of Actual Control (LAC) in Eastern Ladakh.
- **Conservation Status:** They are classified as **'Critically Endangered'** as per IUCN Red List.

## TAIMOOR WEAPON SYSTEM

Pakistan Air Force has successfully conducted a flight test of the indigenously developed Taimoor Weapon System, capable of hitting targets at 600 kilometres.

**About Taimoor Missile:**

- **Origin country:** It is an air-launched cruise missile developed by **Pakistan**.
- **Objective:** It is designed to enhance Pakistan's **conventional deterrence and precision-strike capabilities** against both land and sea targets.
- **Capability:** It is capable of striking enemy **land and sea targets** with high precision.
- **Propulsion:** It uses **subsonic turbojet** propulsion for long-range efficiency.
- **Range:** It has a range of upto **600 kilometers**, carrying a conventional warhead.

- **Speed:** It is subsonic in nature and has a speed up to **0.8 Mach.**
- **Navigation:** It uses a sophisticated **mix of Inertial Navigation System** (INS), **Satellite guidance** (GPS/GNSS), and **terrain-based navigation**(DSMAC/TERCOM).
- **Launch platform:** It is primarily launched from the **Mirage-III aircraft,** though it is designed for integration across the PAF fighter fleet.
- **Stealth design:** It has a **low-observable airframe** with a box-shaped fuselage, X-type tail, and foldable wings to minimize radar cross-section. It is designed to **fly at very low altitudes,** allowing it to effectively evade hostile air and missile defence systems.

## DESIGN LINKED INCENTIVE (DLI) SCHEME


The Design Linked Incentive (DLI) Scheme has become critical to anchoring India in the most strategic segment of the global semiconductor value chain—chip design.

**About Design Linked Incentive Scheme:**

- **Nature:** It is a key instrument in advancing India's ambition to develop a **strong fabless capability.**
- **Nodal ministry:** It comes under the **Ministry of Electronics and Information Technology (MeitY)** and is a critical component of the India Semiconductor Mission.

- **Objective:** The scheme aims to **reduce import dependence, strengthen supply chain resilience,** and enhance domestic value addition.
- **Nodal Agency: C-DAC (Centre for Development of Advanced Computing)** is responsible for implementation of the scheme.
- **Eligibility: Start-ups and MSMEs** are eligible for financial incentives and design infrastructure support for semiconductor product design & deployment. **Other domestic companies** are eligible for financial incentives for deploying semiconductor designs.
- **Support:** It provides support through **three main pillars** over a period of 5–6 years:
    - **Chip Design Infrastructure Support:** Provides startups and MSMEs with remote access to the National EDA Tool Grid, IP core repositories, and post-silicon validation services through the ChipIN Centre (implemented by C-DAC).
    - **Product Design Linked Incentive (P-DLI):** Offers reimbursement of up to 50% of eligible design expenditure, with a ceiling of ₹15 crore per application.
    - **Deployment Linked Incentive (DLI):** Provides an incentive of 4% to 6% of net sales turnover for 5 years, capped at ₹30 crore per application, once the design is successfully deployed in electronic products.

## DISTRICT MINERAL FOUNDATIONS

The Allahabad High Court held that the formation of District Mineral Foundations must be construed liberally for those who are affected negatively by mining operations.


**About District Mineral Foundations (DMFs):**

- **Nature:** DMFs are **statutory bodies** in India established by the state governments by notification.

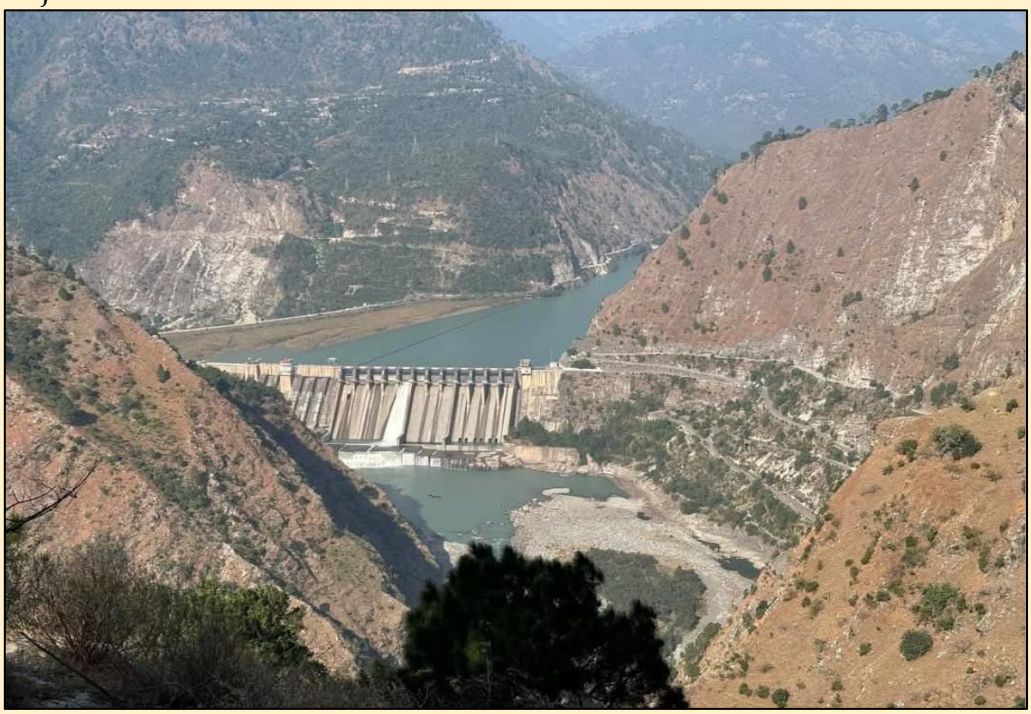
- **Legal status:** They derive their legal status from Section 9B of the **Mines and Minerals (Development and Regulation) Act, 1957,** as amended on 26 March 2015 as the Mines and Minerals (Development and Regulation) **Amendment Act, 2015.**
    - **Establishment:** In any district affected by mining-related operations, the **State Government shall, by notification,** establish a trust, as a non-profit body, to be called the DMF.
    - **Objective:** It aims to work in the interest and **benefit of persons and areas affected by mining-related operations** in a manner as may be prescribed by the respective State Government.
    - **Jurisdiction:** The operation of DMFs falls under the jurisdiction of the **relevant State Government.** Further, composition and functions of the DMF are also prescribed by the State Governments.
    - **Funding:** It is funded through the contributions from the **holders of major or minor mineral concessions in the district,** as may be prescribed by the Central or State Government. The Central Government has notified the rates of contribution payable by miners to the DMFs.
- **Changes after 2015:** In the case of all mining leases executed **before** 12th January, 2015, miners will have to contribute an **amount equal to 30% of the royalty** payable by them to the DMFs. If mining leases are granted **after** 12.01.2015, the rate of contribution would be **10% of the royalty payable.**

- **Uses:** The fund available with the Trust shall be used for:
  - The **overall development of the area** affected by mining-related operations in the District in accordance with the Annual Action Plan prepared by the Trustees of the Foundation for the purpose.

- Creation of local infrastructure for **socio-economic purposes.**
  - Providing, maintaining, or upgrading **community assets and services** for the local population in the area affected by mining-related operations.
  - Organising or conducting training programmes to **skill development and capacity building** for creating employment and self-employment capabilities.

## SALAL HYDROELECTRIC PROJECT

Union Minister of Power and Housing and Urban Affairs recently directed sediment removal at the Salal Power Project to ensure maximum utilisation of water resources.



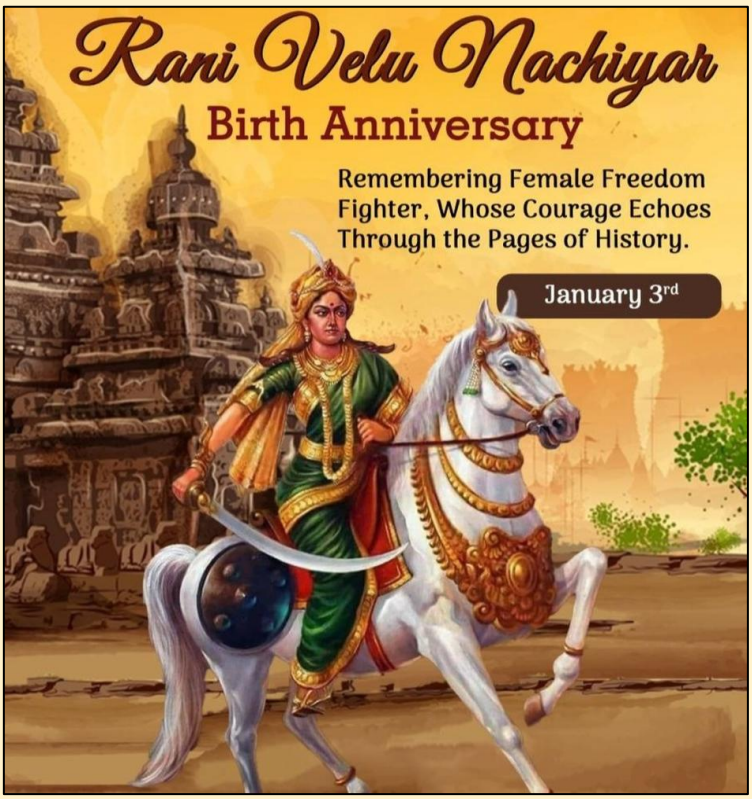
**About Salal Hydroelectric Project:**

- **Location:** It is located in the Reasi District of **Jammu and Kashmir**.

- **Associated river:** It is a 690 MW run-of-the-river power project on the **Chenab River.**
- **Beginning of project:** Although the plan for a water reservoir was originally conceived in pre-independent India, the **planning of the project started in the 1960s**. The project construction commenced in 1970 and subsequently entered into **commercial operation in 1987.**
- **Construction:** The project is developed and owned by **National Hydroelectric Power Corporation (NHPC).**
- **Uniqueness:** This was the **first hydropower project,** which was built by India **under the Indus Water Treaty** regime in Kashmir.
- **Structure:** Salal Dam is **130 meters high** with an elevation of 1627 feet above mean sea level.
- **Distribution of energy: Jammu and Kashmir receives 12.5 percent of the energy** generated from the project. The **rest is transmitted to the Northern Grid**, where it is distributed to the states of Punjab, Haryana, Delhi, Himachal Pradesh, Rajasthan, and Uttar Pradesh. Jammu and Kashmir also purchases additional power at regular prices.

## RANI VELU NACHIYAR RANI VELU NACHIYAR

Prime Minister Narendra Modi recently paid tributes to Rani Velu Nachiyar on her birth anniversary, remembering her as one of India's bravest and most visionary rulers.

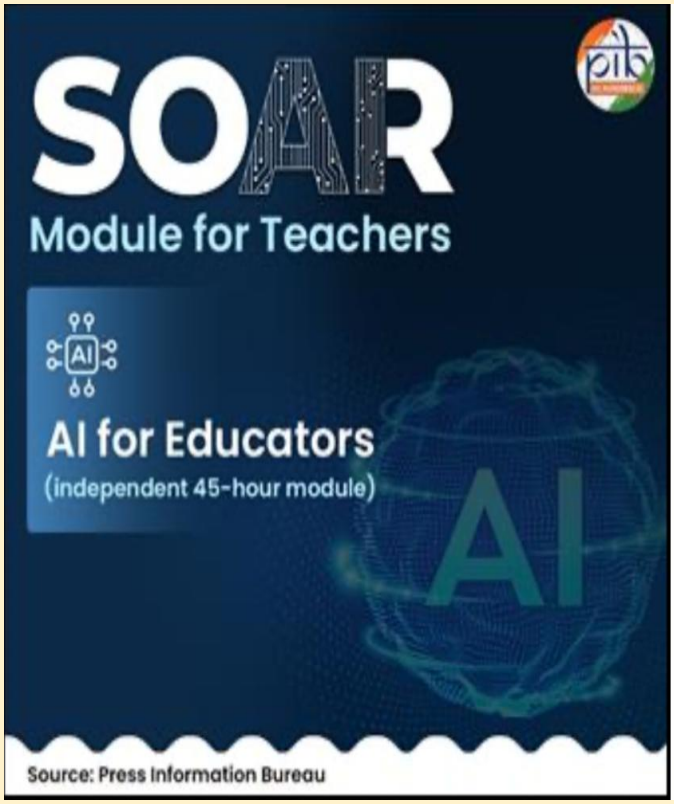


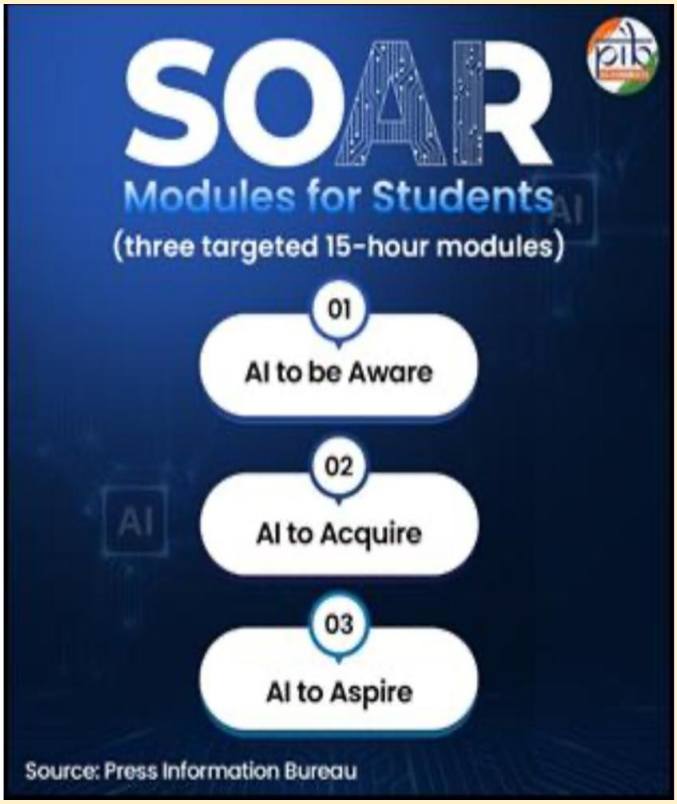

**About Rani Velu Nachiyar:**

- **Early life:** Rani Velu Nachiyar (1730–1796) was the princess of Ramanathapuram and the only child of Raja Chellamuthu vijayaragunatha Sethupathy and Rani Sakandhimuthal of the Ramnad kingdom.
- **Marriage:** At the age of 16, she married the prince of Sivaganga, Muthuvaduganathur Udaiyathevar. She was an 18th-century queen of Sivaganga in present-day Tamil Nadu.
- **Other names:** She is also known as Veeramangai.
- **Military skills:** She was trained in handling various weapons, horse riding, archery, and traditional martial arts such as Silambam and Valari.
- **Polyglot:** She was also a distinguished scholar. She was proficient in multiple languages, including Tamil, English, French, and Urdu.
- **Strategic alliances:** Velu Nachiyar forged strategic alliances with several powerful leaders of the time, including Hyder Ali of Mysore and Gopala Nayaker.
- **Dedicated women army:** She raised a formidable army that included a dedicated women's battalion and the queen named her women's army "Udaiyaal" in her adopted daughter's honour.
- **First human bomb:** Her commander, Kuyili, is considered the "first woman martyr" and the first suicide bomber in Indian history. In 1780, she drenched herself in ghee, set herself on fire, and walked into a British ammunition depot to destroy their weapons.
- **Uniqueness:** She was the first queen to fight for freedom from the British in India. She granted powers to the Marudu brothers to administer the country in 1780.
- **Postal Stamp:** A commemorative postage stamp was issued by the Government of India in 2008 to honour her legacy.
- **India's Joan of Arc:** Some historians refer to her as "India's Joan of Arc" for her pioneering role in the anti-colonial struggle.

## SOAR PROGRAMME

- The President of India, Smt. Droupadi Murmu, recently graced a special function under SOAR Programme at the Rashtrapati Bhavan Cultural Centre (RBCC), New Delhi.



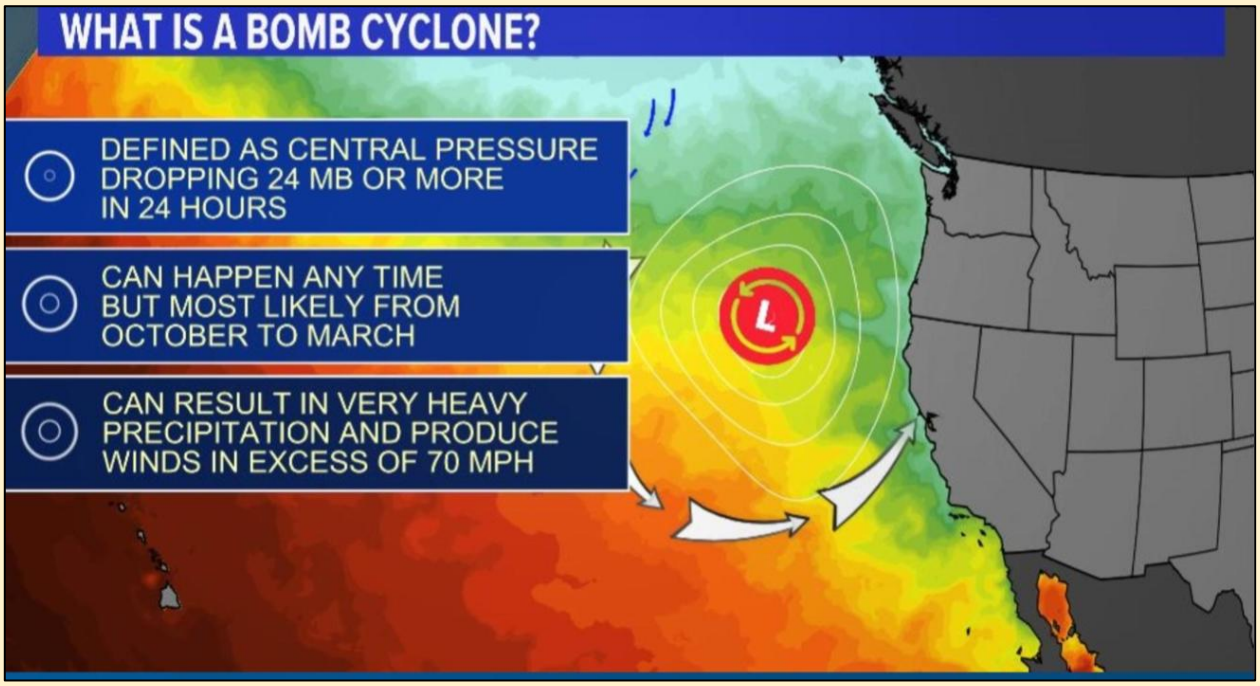




**About SOAR Programme:**

- **Full Form:** SOAR stands for Skilling for AI Readiness.
- **Nodal ministry:** It is an initiative of the Ministry of Skill Development and Entrepreneurship (MSDE).
- **Objective:** It aims to integrate artificial intelligence learning into India's school education and training ecosystem, preparing both students and teachers for a rapidly evolving digital world.
- **Vision:** It has a vision to position India as a global leader in AI by preparing its youth for AI-driven careers and entrepreneurial ventures. It focuses on school students from classes 6 to 12 and educators across India.
- **Course:** It offers three targeted 15-hour modules for students and a 45-hour module for teachers. These courses introduce foundational AI and machine learning concepts, along with data literacy and the ethical use of technology.
- **Funding:** To this government provided ₹500 crore to establish a Centre of Excellence in Artificial Intelligence for Education.
- **Focus areas:** The centre will focus on developing AI-based learning tools, promoting multilingual AI resources for Indian languages, and fostering innovative classroom practices.
- **Future prospects:** It will also strengthen AI curriculum development across technical institutions and complement existing efforts by IITs and AICTE-approved colleges that already offer advanced courses in machine learning, deep learning, and data analytics.

## BOMB CYCLONE

Recently, a powerful "bomb cyclone" barreled across the northern United States, triggering severe winter weather in the Midwest and the East Coast.




**About Bomb Cyclone:**

- **Nature:** It is a large midlatitude storm resulting from explosive cyclogenesis (or, informally, bombogenesis), a type of accelerated extratropical cyclone development.
- **Classification:** To be classified as a bomb cyclone, the central atmospheric pressure must drop by at least 24 millibars within 24 hours.
- **Structure:** In structure, a bomb cyclone is indistinguishable from any other intense midlatitude storm.
- **Differentiation:** The centre of the storm is a low-pressure cell (or cyclone) that draws winds near the surface inward. However, a bomb cyclone is set apart by its rapid rate of intensification.
- **Associated phenomena:** Bomb cyclones are often associated with atmospheric rivers and typically form in winter when cold and warm air masses collide.
- **Type of precipitation:** The precipitation associated with a bomb cyclone is intense, ranging from heavy downpours to strong thunderstorms to blizzards and heavy snowfalls, along with strong winds.
- **Active regions:** The four most active regions where extra-tropical explosive cyclogenesis occurs in the world are the Northwest Pacific, the North Atlantic, the Southwest Pacific, and the South Atlantic.

## VOWIFI SERVICES

Recently BSNL announced the nationwide rollout of Voice over WiFi (VoWiFi), also known as Wi-Fi Calling.


**About Voice over WiFi (VoWiFi) Services:**

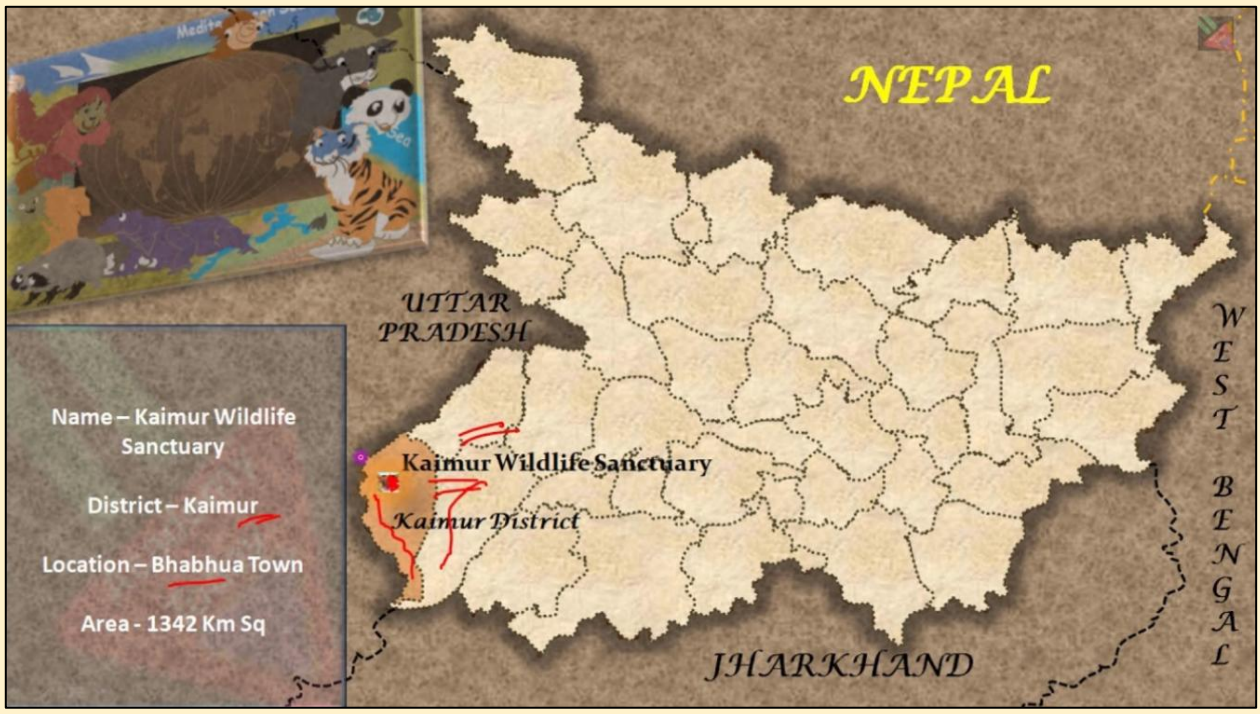
- **Nature:** Voice over WiFi (VoWiFi) is a technology that allows users to make and receive voice calls and SMS over a Wi-Fi network instead of a mobile tower.
- **Operation:** It works using IMS (IP Multimedia Subsystem) and uses the same mobile number and phone dialer, without any third-party app.

- **Key features:**
  - IMS-based service: Uses IP Multimedia Subsystem (IMS) to manage calls, enabling smooth handover between Wi-Fi and cellular networks.
  - Existing mobile number and dialer: Users make and receive calls using their regular phone number and default dialer, without installing any additional apps.
  - No additional charges: Wi-Fi calls are treated like normal voice calls and are provided free of extra cost to subscribers.
  - Indoor and low-signal support: Ensures reliable connectivity in basements, offices, high-rise buildings, and remote areas with poor mobile coverage.
  - Wide smartphone compatibility: Supported on most modern VoWiFi-enabled smartphones, requiring only a settings toggle.
  - Network congestion reduction: Offloads voice traffic from mobile towers to Wi-Fi, improving overall network efficiency and call quality.

- **Mechanism:**
    - The smartphone uses an available home, office, or public Wi-Fi network to connect to the telecom network, instead of relying on a nearby mobile tower.
    - The user is authenticated through the SIM card, ensuring the same level of security and identity verification as regular mobile calls.
    - Voice is converted into digital data packets and transmitted over the internet, allowing calls even where mobile signals cannot reach.
    - When Wi-Fi becomes weak or unavailable, the call automatically shifts to the mobile network (VoLTE) without interruption or call drop.
- **Advantages:**
    - Reliable calling without mobile signal: Enables uninterrupted communication in signal-dark zones, particularly useful in rural and indoor environments.
    - Better call quality: Provides clearer and more stable voice calls compared to weak or fluctuating cellular networks.
    - Enhanced security: Maintains strong protection using SIM-based encryption and authentication, similar to VoLTE services.

## KAIMUR WILDLIFE SANCTUARY

Bihar is set to get its second tiger reserve as the NTCA has given in-principle approval to declare Kaimur Wildlife Sanctuary (KWS) a tiger reserve.



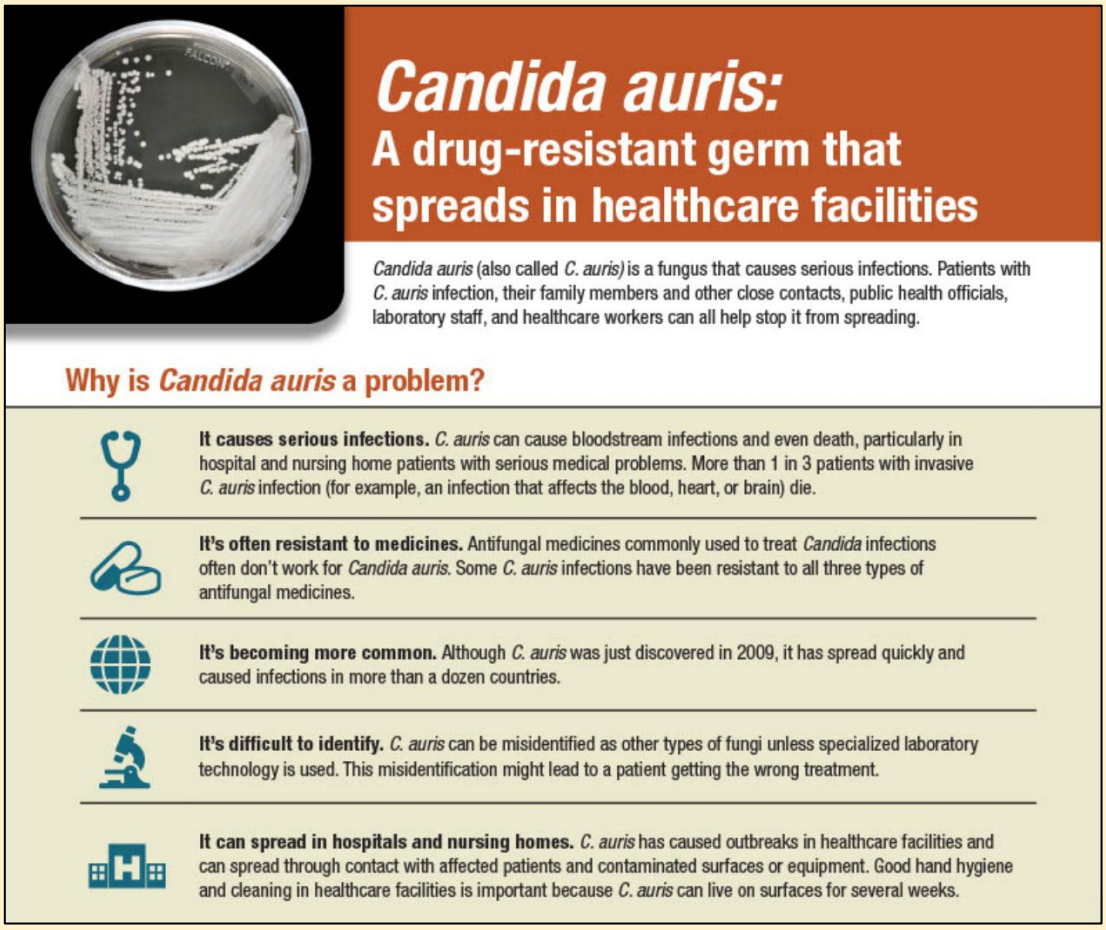

**About Kaimur Wildlife Sanctuary:**

- **Location:** It is located in the Kaimur District of Bihar. It is located in the famous Kaimur Hills range.
- **Famous destinations:** The Kaimur Hills, known for their invincibility, are home to two forts and the ancient Mundeshwari Temple, one of the oldest Hindu temples in India.
- **Area:** It is the largest sanctuary in the state and occupies an area of about 1342 sq.km.
- **Rivers and lakes:** It is bounded by the Son River to the north and the Karmanasa River to the south. The valley part is filled with many waterfalls such as Karkat and Telhar and various lakes such as Anupam Lake.

- **Connectivity:** It is connected to the Bandhavgarh-Sanjay-Guru Ghasidas-Palamau tiger meta-population landscape through fragmented forest patches along the Son basin.
- **Historical significance:** Prehistoric rock paintings, stone inscriptions, and monuments have also been discovered here. Prehistoric murals found in the "Lakhania" and other hilly regions and the prehistoric fossils of the Pre-Cambrian times in the "Salakhan" area bear testimony to the ancient origin and existence of this region.
- **Tribes:** The Oraon tribe is believed to have originated from this region.
- **Flora:** A large variety of vegetation is found in the mixed, dry, deciduous forests that cover the area, the primary tree vegetation being Baakli, Mahua, Dhaak, and Bamboo.
- **Fauna:** The wildlife comprises of Black Bucks, Chinkaras, Four-Horned Deers, Blue-Bulls, Sambar, Cheetals, Bears, Leopards, etc. Apart from these pythons, Gharials/Crocodiles and different species of snakes are also found.

## CANDIDA AURIS

- The drug-resistant fungal species Candida auris is turning more deadly and is spreading globally, according to a study led by Indian researchers.




**About Candida Auris:**

- **Nature:** It is a fungus that causes serious infections. Known as a "superbug," it is often resistant to multiple classes of antifungal drugs, including azoles, polyenes, and echinocandins.
- **Discovery:** It was first discovered in 2009 in Japan but an analysis of the fungus revealed that it was already identified in 1996 in South Korea.
- **Symptoms:** A person infected with this life-threatening fungus experiences symptoms like fever, sepsis, aches and fatigue.

- **Target:** It mainly affects patients who already have many medical problems or have had frequent hospital stays or live in nursing homes. It is more likely to affect patients who suffer from conditions such as blood cancer or diabetes, have received lot of antibiotics or have devices like tubes going into their body.

- **Transmission:** It can spread indirectly from patient to patient in healthcare settings such as hospitals or nursing homes as it remains on people's skin and objects such as hospital furniture and equipments like glucometers, temperature probes, blood pressure cuffs, ultrasound machines and nursing carts etc. for quite a long time.

- **Concerns:** According to health care agencies, almost half of the patients who contract Candida Auris die within 90 days. Some types of Candida Auris fungi are resistant to the first line and second line anti-fungal medications.

- **Treatment:** This fungal infection can be serious and even fatal as there is no specific treatment for it.

- **WHO Classification:** It is listed as a "Critical Priority" pathogen in the World Health Organization's first-ever list of fungal priority pathogens.

- **Precautions:**
  - Family members of patients with C Auris infection, public health officials, laboratory staff and healthcare personnel can all help in stopping its spread.

  - Once the patient is diagnosed with having C Auris, the healthcare facilities should place the patient in a separate room as soon as possible.

  - Wounds should be bandaged to prevent any fluids from seeping out and infecting others.
  - It is also important for healthcare facilities to regularly and thoroughly clean and disinfect affected patient's room with special cleaners known to work against fungi.

  - Cleaning hands with hand sanitizer or soap and water before and after touching a patient with C Auris or equipment in his/ her room.

# KERALA STATE CIVIL SERVICE ACADEMY

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