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Monthly Current Affairs Magazine

NASA–ISRO SYNTHETIC APERTURE RADAR (NISAR) SATELLITE

India successfully launched the NASA–ISRO Synthetic Aperture Radar (NISAR) satellite aboard GSLV-F16 from Sriharikota on July 31, 2025.

- It marks the first joint Earth-observation mission between ISRO and NASA, symbolizing deep Indo-US space collaboration.

About India Successfully Launched The NASA–ISRO Synthetic Aperture Radar (NISAR) Satellite:

- **What is NISAR?**
  - **Full Form – NASA–ISRO Synthetic Aperture Radar:** Joint Earth observation satellite using dual-frequency SAR tech for land and ice monitoring.
  - **Mission Life – 5 years (2025–2030):** Designed to capture Earth data over five years with 12-day revisit cycles.
  - **Orbit – Sun-synchronous polar orbit (747 km):** Ensures consistent lighting for accurate change detection across the globe.
  - **Launch Site – Satish Dhawan Space Centre, Sriharikota:** Launched aboard GSLV-F16, marking ISRO's first polar orbit GSLV mission.
- **Objectives Of the Nisar Mission:**
  - Detect minute land and ice surface movements with centimetre-level precision.
  - Monitor natural disasters such as earthquakes, floods, landslides, and volcanic activity.
  - Track changes in forests, glaciers, wetlands, and soil moisture.
  - Support agriculture, infrastructure, coastal, and climate management through actionable data.
- **Key Features of the Nisar Mission:**
  - **Dual-Frequency SAR**: First satellite to use both L-band (NASA) and S-band (ISRO) radars.
  - **Wide Swath & High Resolution:** Scans 242 km swath with detailed spatial mapping every 12 days.
  - **All-Weather, 24/7 Imaging:** Operates day-night, even through cloud cover and storm conditions.
  - **12-metre Deployable Reflector Antenna:** Enables advanced SweepSAR technology for surface deformation detection.

- **Contributions: INDIA vs. USA**
    - **NASA:** L-band radar, deployable boom, reflector antenna, GPS, solid-state recorder, and telecom system.
    - **ISRO:** S-band radar, satellite bus (I-3K), GSLV-F16 launcher, solar arrays, data handling, and ground control.
    - **Mission Management:** Jointly executed via NASA's JPL and ISRO's multiple centers (SAC, URSC, VSSC, NRSC).
- **Significance Of Nisar Mission:**
    - **Scientific Edge:** Enables global-scale, real-time Earth system monitoring and disaster forecasting.
    - **Strategic Diplomacy:** Strengthens Indo-US civil space cooperation under "science diplomacy."
    - **Climate Action & SDGs:** Assists in global efforts towards climate adaptation, sustainable agriculture, and resource governance.
    - **Knowledge Export:** Open data policy supports developing nations and global researchers in Earth sciences.

NISAR is a landmark in Indo-US space partnership, blending high-end technology with societal impact. It transitions India from utility-driven to knowledge-led space applications. Through NISAR, India affirms its leadership in Earth observation, sustainability, and global science cooperation.

BHISHM CUBES

India recently gifted two BHISHM cubes to the Maldives on its 60th Independence Day. This gesture marks India's regional cooperation and healthcare diplomacy in the Indian Ocean.

The BHISHM cubes are portable medical units designed for rapid emergency response. They enhance disaster preparedness in vulnerable island nations like the Maldives.

BHISHM Initiative and Its Purpose

BHISHM stands for Bharat Health Initiative for Sahyog, Hita & Maitri. It is part of India's Aarogya Maitri mission launched in 2024.

The initiative aims to provide timely healthcare support in disaster-hit and developing countries. The cubes are self-contained medical units ready for quick deployment in emergencies and conflict zones.

Structure and Composition of BHISHM Cubes

The system is modular and scalable. Thirty-six mini cubes form one mother cube. Two mother cubes combine to create a full BHISHM Cube. Each full cube can manage about 200 emergency cases, including surgeries. The cubes contain medicines, trauma supplies, surgical tools, and AI-powered coordination systems.

Deployment and Operational Features

BHISHM Cubes can be set up within 12 minutes, crucial for the golden hour in emergencies. They consist of 72 lightweight, waterproof components. These can be transported by hand, bicycle, drone, or airdrop. The cubes are designed for harsh conditions and versatile emergency scenarios.

Technology Integration and Management

The cubes use RFID for inventory tracking. A dedicated tablet app supports 180 languages and offers real-time stock updates. AI and data analytics aid in disaster response coordination. This technology ensures efficient management of medical supplies and services in the field.

Benefits to the Maldives

The Maldives faces unique healthcare challenges due to its geography of 1192 coral islands and no land connectivity. The BHISHM cubes improve emergency medical capacity for natural disasters and climate-related events. They provide essential care across remote islands quickly and effectively.

Medical Capacity and Support Features

Each BHISHM Cube supports trauma care, burns, fractures, and shock treatment. It can perform 10-15 basic surgeries daily. The cubes generate limited power and oxygen independently. They also provide shelter and food for a five-person crew for 48 hours, ensuring sustained operations.

VEER PARIVAR SAHAYATA YOJANA

The National Legal Services Authority (NALSA) launched the Veer Parivar Sahayata Yojana. This scheme aims to provide free legal aid to defence personnel and their families.

It was revealed during the North Zone Regional Conference in Srinagar. The initiative strengthens legal support through dedicated clinics linked with Sainik Boards at district, state, and central levels.

Background and

Defence personnel often face legal challenges while posted in remote areas. Issues such as land disputes, matrimonial conflicts, and service entitlements become difficult to manage from afar. The scheme recognises this gap and offers a legal support network to ease these burdens. It honours the sacrifices of soldiers and ensures their families receive timely legal assistance.

Structure and Implementation

The scheme builds on existing legal services clinics. It establishes a dedicated network within Sainik Boards across all administrative levels. These Boards are already welfare hubs for serving and retired personnel. Now, they will also provide legal guidance.

Panel lawyers and para-legal volunteers will actively assist defence families. This creates a robust support system tailored to their unique needs.

Scope and Beneficiaries

Veer Parivar Sahayata Yojana covers serving soldiers, ex-servicemen, and paramilitary forces. This includes personnel from the Border Security Force (BSF), Central Reserve Police Force (CRPF), Indo-Tibetan Border Police (ITBP), and others.

The scheme ensures legal aid reaches those in isolated and high-risk postings. It addresses both civil and service-related legal issues.

Significance and Impact

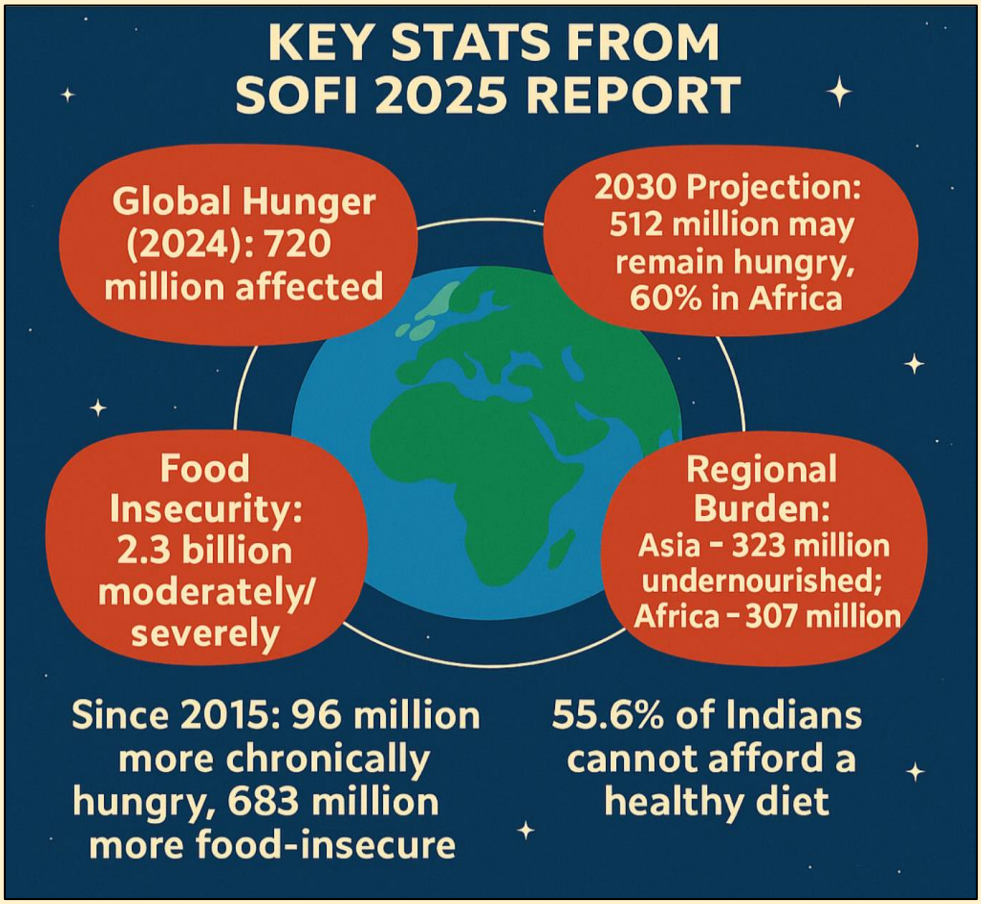
This is the first initiative in India to provide proactive legal assistance to defence families. It relieves soldiers from managing legal matters remotely. The scheme reflects a commitment by the judiciary to support the armed forces beyond traditional roles.

It also involves defence families as paralegal volunteers, encouraging community participation. The scheme was launched on Kargil Vijay Diwas, symbolising tribute to soldiers' sacrifices.

STATE OF FOOD AND NUTRITION IN THE WORLD (SOFI) REPORT

The 2025 edition of the State of Food and Nutrition in the World (SOFI) report reveals that hunger affected 720 million people worldwide in 2024. This represents about 8.2 per cent of the global population.

Although this is a slight improvement from previous years, the overall progress remains uneven across regions. The report marks persistent food insecurity, especially in Africa and parts of Asia, and warns of the difficulties in achieving the UN's zero-hunger goal by 2030.



Key Features of SOFI 2025 Report:

- **Global Underperformance:** Despite marginal improvements, global hunger levels in 2024 remain above pre-pandemic benchmarks, jeopardising the 2030 SDG-2 target.
- **Regional Disparities:** Africa, though home to fewer people than Asia, sees over 20% of its population undernourished, reflecting stark regional imbalances.
- **Asia's Burden:** Asia continues to host nearly half of the world's food-insecure population due to sheer numbers, despite modest regional improvements.
- **Southeast Progress:** Countries in Southeast Asia and South America registered slight declines in hunger, driven by social protection and agri-nutrition reforms.
- **Diet Affordability:** Over 3 billion people globally are unable to afford a healthy diet, pushing them toward calorie-dense but nutrient-poor options.
- **Climate & Conflict Linkages:** Ongoing wars and climate events like droughts and floods remain primary catalysts for hunger post-2020.
- **Sluggish Recovery:** Only a 65 million decline in undernourishment is projected by 2030—nowhere close to the 'zero hunger' ambition.

India and SOFI 2025 Report:

- **Affordability Crisis:** 55.6% of India's population cannot afford a nutritious diet, indicating a failure in food access despite surplus grain stocks.
- **Rural–Urban Divide:** Urban food access has improved due to income recovery, while rural India suffers due to PDS inefficiencies and price volatility.
- **Child Malnutrition:** India still ranks among the highest in child stunting and wasting, indicating persistent early-age nutritional failure.
- **Hidden Hunger:** Micronutrient deficiencies remain rampant due to cereal-heavy diets with inadequate intake of fruits, vegetables, and proteins.
- **Policy Shift Needed:** Experts demand inclusion of millets, pulses, and fortified foods into public schemes to tackle undernutrition holistically.

Analysis of Report:

- **Positive Developments:**
  - **Global Gains:** Hunger prevalence declined from 8.7% (2022) to 8.2% (2024), showing slow but visible improvement.
  - **Regional Recovery:** Progress in Southeast Asia and Latin America offers hope for replicable best practices in targeted interventions.
  - **Diet Awareness:** Governments and civil society have amplified focus on diet quality and nutrition education globally.
  - **Institutional Convergence:** The collaboration of FAO, WFP, IFAD, WHO, and UNICEF fosters comprehensive, multi-sectoral responses.
  - **Data Systems:** Hunger mapping and nutrition tracking technologies enable quicker and more targeted interventions.

- **Negative Trends:**
  - **Post-COVID Setback**: The pandemic reversed a decade of gains, leaving 96 million more people hungry than in 2015.

- **Africa's Challenge**: By 2030, 60% of global undernourished will be in Africa, highlighting the urgency for continental support.
- **SDG Drift:** With just a 65 million projected decline by 2030, the pace is too slow to meet global targets.
- **Inequality Spike:** The cost of healthy food has risen disproportionately, hurting low-income groups most severely.
- **Persistent Undernourishment:** Despite surplus global production, equitable distribution remains a major bottleneck.

Way Ahead:

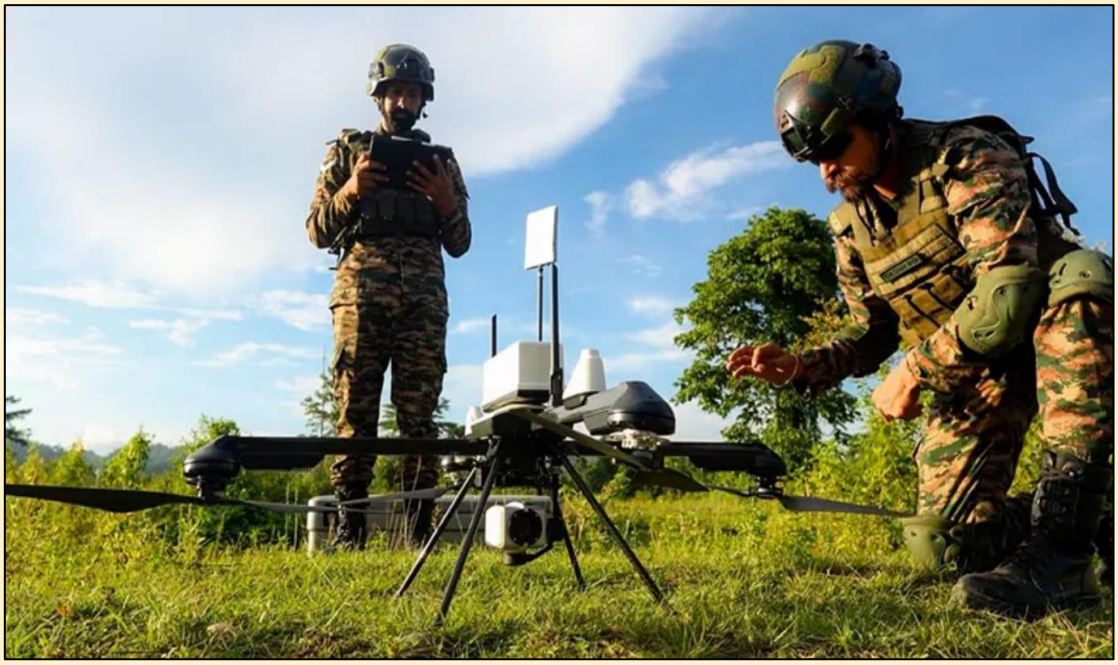
- **Nutrition-centric PDS:** Revamp India's food system by adding diverse, locally grown, and nutrient-rich foods into subsidised channels.
- **Diversify Agriculture:** Move beyond rice-wheat dominance to include millets, pulses, and horticulture to improve dietary balance.
- **Resilient Food Systems:** Invest in region-specific, climate-adaptive food systems to enhance food security and reduce disaster-linked hunger.
- **Global Coordination:** Support Africa and South Asia through climate finance, food aid, and region-focused SDG cooperation.
- **Improve Affordability:** Align food prices with income growth via minimum wages, inflation targeting, and better supply chains.

The SOFI 2025 report serves as a reality check on SDG-2, highlighting the growing gap between commitments and outcomes. For India, tackling hidden hunger and diet affordability must be policy priorities. True food security lies not in quantity alone but in nutrition and equity.

DRONE PRAHAR

The Indian Army recently conducted Exercise Drone Prahar in Arunachal Pradesh's East Siang district. This high-tech military drill validated the use of drone technology in tactical battlefield scenarios.

The exercise demonstrated the effective application of drones for intelligence, surveillance, reconnaissance, and precision targeting under realistic operational conditions.



Objective of Exercise Drone Prahar

The primary aim was to enhance command reach and situational awareness for tactical commanders. Drones provided layered surveillance and supported dynamic decision-making on the ground. This marked step towards modernising combat capabilities by integrating emerging technologies into battlefield operations.

Operational Demonstrations

The exercise showcased real-time sensor-to-shooter coordination using drones. It brought into light precision targeting capabilities based on live intelligence and surveillance data. The use of drones enabled faster and more accurate responses to battlefield threats, improving operational efficiency.

Key Technical Evaluations

Critical aspects such as airspace deconfliction were tested to avoid interference among multiple aerial platforms. Secure communication channels ensured reliable data transmission between drones and ground units. Coordination protocols were established among various arms and services to enable seamless drone integration.

Strategic Importance

Exercise Drone Prahar reflects the Indian Army's focus on innovation and adaptability. It advances the goal of becoming a fully technology-enabled force. The exercise prepares the army to meet future challenges on modern battlefields by leveraging cutting-edge technologies and enhancing operational superiority.

Future Implications

The success of this exercise paves the way for wider deployment of drone technology in Indian military operations. It will influence doctrine, training, and procurement strategies. Continued development in this area is expected to improve battlefield awareness, reduce risks to personnel, and increase mission success rates.

GREAT INDIAN BUSTARD

The Supreme Court-appointed committee in 2024 has proposed dedicated corridors for power lines in Rajasthan and Gujarat to protect the critically endangered Great Indian Bustard (GIB). This move aims to balance renewable energy growth with wildlife conservation.

The committee suggested rerouting existing lines and burying some underground to reduce bird collisions. The recommendations are set for Supreme Court review soon.

Background on Great Indian Bustard Conservation

The Great Indian Bustard is critically endangered with fewer than 150 individuals left in the wild. Its population has declined due to hunting, habitat loss, egg poaching, predation, and low reproduction rates.

Renewable energy infrastructure expansion in its habitat has increased risks. The birds often collide fatally with power transmission lines due to poor frontal vision and heavy bodies.

Supreme Court Mandate and Committee Formation

In March 2024, the Supreme Court modified a previous order requiring underground power lines over 80,000 sq km in Rajasthan and Gujarat.

The court recognised the importance of renewable energy and tasked a seven-member expert committee to find a balanced solution. The committee was asked to assess the feasibility of overhead and underground lines and propose conservation measures for the GIB.

Committee Recommendations on Power Line Corridors

The committee proposed designated power corridors in Rajasthan and Gujarat to channel most power lines. This would reduce line criss-crossing and risks to the GIB. Some existing lines near critical habitats should be rerouted through these corridors.

A joint committee of forest departments, Central Electricity Authority, and Wildlife Institute of India will identify these stretches based on ecology and technical feasibility.

Specific Corridor Proposals in Rajasthan and Gujarat

In Rajasthan, a 5 km wide corridor is proposed south of Desert National Park for east-west connectivity across the GIB priority conservation area. Planned power projects lie west of this zone.

Gujarat will have two corridors – one for evacuating wind power in Kutch coastal areas and another for a 400 kV high-voltage line in northern Kutch within the GIB habitat.

Mitigation Measures and Urgent Actions

The committee recommended insulating high-voltage lines and burying certain sections underground. About 80 km of lines near bustard enclosures and past death sites in Rajasthan are prioritised for immediate undergrounding.

Similar urgent measures apply to identified sections in Gujarat. These steps aim to reduce bird electrocution and collisions.

Revised GIB Habitat Priority Areas

The committee revised the GIB priority area to 14,013 sq km in Rajasthan by retaining the original zone and adding 850 sq km from additional important areas. Some areas with fewer sightings were excluded to allow power transmission. In Gujarat, the priority area increased from 500 sq km to 740 sq km, excluding fragmented northern parts of the habitat.

GREATER ADJUTANT STORK

Recent efforts have seen the successful Assam conservation model for the greater adjutant stork adapted in Cambodia. This initiative focuses on the Prek Toal Bird Sanctuary within the Tonle Sap Biosphere Reserve.

It aims to empower local communities, especially women, to protect endangered stork species and wetland biodiversity. The programme was led by Dr Purnima Devi Barman, founder of Assam's Hargila Army and United Nations Environment Programme Champion of the Earth.

Background of the Assam Hargila Army

The Hargila Army is a women-led conservation movement in Assam. It protects the endangered greater adjutant stork through community participation.

The movement combines scientific knowledge with cultural traditions. It has successfully changed local attitudes towards the stork, once seen as a nuisance. The initiative integrates education, local customs, and ecological science.

Training Programme in Cambodia

On 28 July 2025, 20 Cambodian women conservationists and park rangers were trained in the Hargila Army model. The programme was hosted by the Wildlife Conservation Society (WCS) Cambodia. It included leadership exercises to identify women's strengths in conservation.

Activities connected local culture with environmental values. A textile hunt explored nature motifs in traditional fabrics. A web of life game illustrated biodiversity interdependence.

Educational Outreach and Community Engagement

Educational posters featuring the behavioural ethogram of the greater adjutant stork were revealed. These posters aim to raise awareness and promote coexistence with storks and wetland wildlife. Local community members and rangers participated in the inauguration. This marked a new phase of grassroots conservation in the Prek Toal Bird Sanctuary.

IUCN : NEAR THREATENED

Global Collaboration and Network Formation

The event led to the creation of the Sisters and Brothers of Storks network. This global alliance will work alongside the Hargila Army. Their goal is to protect greater adjutant storks and other stork species worldwide. The network promotes cross-border collaboration and shared conservation strategies.

Significance of Women's Leadership in Conservation

The initiative emphasises empowering women as guardians of nature. It weaves conservation into the fabric of culture and daily life. Women's leadership is central to building sustainable community-driven conservation. This approach enhances both biodiversity protection and social inclusion.

South-South Cooperation and Ecological Ties

This initiative represents a breakthrough in South-South cooperation. It strengthens ecological and cultural ties between Assam and Cambodia. The partnership aims to replicate and adapt successful conservation models across regions. It also advances biodiversity protection in globally important wetlands.

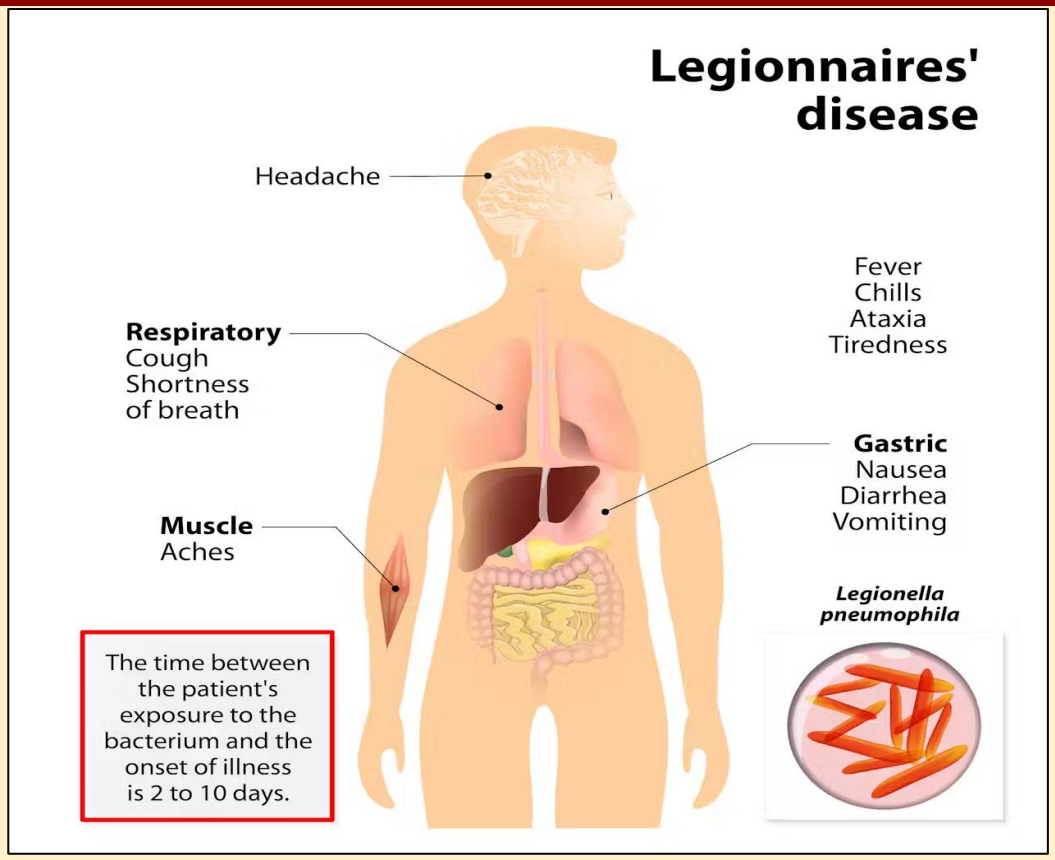
LEGIONNAIRES' DISEASE

Recent reports from New York City reveal an outbreak of Legionnaires' disease in Central Harlem. Since late July 2025, five confirmed cases have emerged. Health authorities are investigating water sources in affected areas. Residents are advised to remain vigilant and seek prompt medical care if symptoms arise.

About Legionnaires' Disease

Legionnaires' disease is a severe pneumonia caused by Legionella bacteria. The bacteria thrive in warm water environments such as cooling towers, hot tubs, and large plumbing systems.

Infection occurs by inhaling contaminated water droplets. The disease is not contagious and cannot spread from person to person. Early diagnosis and antibiotic treatment are crucial for recovery.



Symptoms and Risk Groups

Symptoms usually develop 2 to 14 days after exposure. Common signs include high fever, persistent cough, headaches, muscle pain, and shortness of breath. Some patients may experience nausea, diarrhoea, or confusion.

People aged 50 and above, smokers, and those with chronic lung diseases are at higher risk of severe illness. A milder form called Pontiac fever causes flu-like symptoms and resolves within a week.

Sources and Transmission

Legionella bacteria naturally inhabit freshwater bodies like lakes and rivers. They also colonise man-made water systems including cooling towers, fountains, and plumbing in large buildings. Inhalation of aerosolised contaminated water droplets is the primary mode of transmission. Aspiration of contaminated water into the lungs can also cause infection. Drinking water does not transmit the disease.

Public Health Response in Harlem

The New York City Department of Health is conducting extensive testing of water systems in ZIP codes 10027, 10030, 10035, and 10037. Cooling towers and other potential sources are being sampled for Legionella presence. Health officials urge residents with flu-like symptoms to seek medical advice promptly, especially if COVID-19 tests are negative. No deaths have been reported so far, but hospitalisation has been necessary in all confirmed cases.

Global Context and Surveillance Challenges

Legionnaires' disease occurs worldwide but is often underreported due to diagnostic challenges. Countries with robust surveillance detect 10 to 15 cases per million people annually.

Outbreaks have been linked to public bathhouses, water tanks, and air conditioning systems globally. The World Health Organization marks the need for better detection and prevention strategies to reduce incidence.

STRAY DOG ISSUE AT NCR

Stray-dog bites in Delhi-NCR are a critical public health concern—evidenced by tens of thousands of bites annually and rising rabies cases. The Supreme Court directed municipal authorities to house stray dogs in shelters, highlighting urgent legal and humanitarian dimensions of this issue.

Problems & Challenges

1. **Public Health Crisis**
   - Delhi records over 68,000 dog-bite cases in 2024, with 49 recorded human rabies deaths by July 2025.
   - Human rabies remains nearly 100% fatal—prompt and effective animal and human interventions are urgent.
2. **Infrastructure & Institutional Gaps**
   - Municipal capacities are severely overstretched; NCR-wide dog populations run into tens of thousands, but shelter infrastructure is grossly inadequate.
   - Financial resources, skilled personnel (veterinarians, handlers), and land for humane shelters are lacking.
3. **Urban Drivers Sustaining Stray Populations**
   - Open garbage, wet-waste mismanagement, offal from slaughterhouses, construction waste, and irresponsible pet abandonment create feeding grounds that support and sustain the stray dog population.
4. **Policy–Operational Disconnect**
   - The Animal Birth Control (ABC) Rules, 2023, mandate catch–neuter–vaccinate–**return-to-locality** (CNVR), whereas the recent SC order urges detention in shelters. This conflict threatens implementation.
5. **Data and Coordination Deficits**
   - No comprehensive dog census or microchipping system exists; bite and rabies case reporting is patchy; coordination between health, municipal, and animal welfare departments is weak.

Supreme Court Judgments & Legal Context

1. **Supreme Court Principles**
   - In *A. Nagaraja* (2014), the SC affirmed animals' dignity, and under Articles 51A(g),(h), upheld citizens' and the State's duty to practice compassion and scientific temper in animal management.
2. **Recent SC Direction (Aug 2025)**
   - A Bench ordered authorities to pick up stray dogs and house them in shelters, addressing public safety imperatives.

Implementation Challenges

1. **Resource Constraints**: Significant capital and operational investments required for building and maintaining humane shelters.
2. **Policy Tensions**: CNVR vs. sheltering debate; need clarity on handling aggressive or unfit-to-release dogs.
3. **Welfare Risks**: Overcrowding and disease outbreaks in shelters pose animal welfare risks—defeat cruelty objective.
4. **Community Conflicts**: Neighbourhoods vs. feeders; risks of vigilantism; slack grievance redress systems.
5. **Fragmented Governance**: Lack of unified command between departments—health, municipal, environment, NGOs.
6. **Data Scarcity**: Planning is hampered without reliable data on dog numbers, bites, or vaccination status.

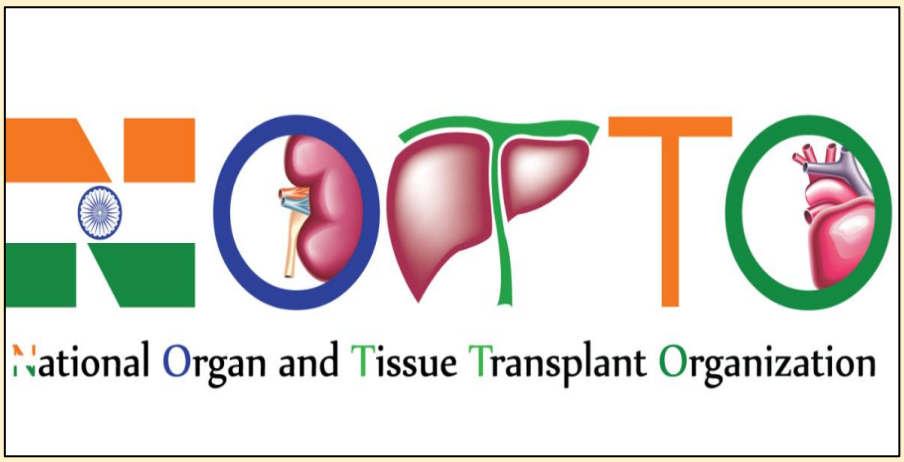
Way Forward (Reforms & Actions)

1. **Mass Vaccination & Targeted CNVR**
   - Achieve >70% dog vaccination (WHO benchmark) combined with behaviour-based release; unadoptable or aggressive dogs to humane shelters.
2. **Sacrificial Infrastructure—Shelters with Standards**
   - Modular, sanitary shelters with capacity for quarantine, veterinary care, behavioural assessment, and adoption programs.
   - Build through PPPs/NGOs under service-level agreements for sustainability.
3. **Waste & Environmental Management**
   - Enforce wet-waste segregation and manage offal; clamp down on illegal dumping; regulate pet-living areas and pet-food waste.
4. **Pet Ownership Regulations**
   - Mandatory pet registration and microchipping; licensing for breeders and pet shops; enforce anti-abandonment fines.
5. **Bite-Response & Human Health Protocols**
   - Ensure steady ARV/HRIG supply; train healthcare staff in bite management; conduct awareness drives in schools and communities.
6. **Data-Driven Governance**
   - Implement a dog census with microchipping, vaccination records, bite/rabies case tracking; transparent dashboards for public tracking.
7. **Community Engagement & Social Harmony**
   - Designate feeder points; burnish feeder-community agreements; mediate conflicts; encourage adoption; train municipal and police staff on humane management.
8. **One Health Coordination**
   - Create inter-departmental Task Forces combining health, veterinary, municipal, education, and NGOs to drive integrated interventions.

The issue of dog bites in NCR demands a balanced One Health approach—one that ensures **public safety** without compromising animal dignity. Ethics demands that India treat even its stray dogs with compassion and scientific rationality—reflecting both constitutional duty and public health necessity.

NATIONAL ORGAN AND TISSUE TRANSPLANT ORGANISATION (NOTTO)

India's organ transplant system has seen a major policy update in 2025. The National Organ and Tissue Transplant Organisation (NOTTO) has issued a 10-point advisory to reduce gender disparity among transplant recipients. Women patients and relatives of deceased donors will now receive priority in organ allocation. This move aims to create a fairer and more transparent organ donation and transplantation process.



Recent Policy Changes

NOTTO's advisory instructs states and Union Territories to give additional points in organ allocation to women on waiting lists. It also suggests prioritising near relatives of deceased donors who need transplants.

The goal is to address longstanding gender imbalances in organ transplantation. The advisory calls for dignified funerals and public felicitation of deceased donors and their families to honour their contribution.

Allocation Criteria and Transparency

Current organ allocation follows criteria such as disease duration, waiting time, illness severity, and compatibility factors like blood group and size. NOTTO mandates a unique ID for every organ donor and recipient to ensure transparency.

Data from all transplant centres must be submitted to a national digital registry. Non-compliance may lead to legal action under the Transplantation of Human Organs and Tissues Act, 1994.

Infrastructure and Training Enhancements

The advisory urges states to establish permanent posts for transplant coordinators in hospitals performing organ transplants or retrievals. It also recommends developing organ retrieval facilities in trauma centres and medical colleges in phases.

Training emergency responders and ambulance staff is emphasised to identify potential deceased donors early, especially among accident and stroke victims.

Public Awareness and Participation

Since launching an Aadhaar-based online pledge system in 2023, over 3.3 lakh citizens have committed to organ donation. In 2024, India recorded a historic high of 18,900 organ transplants, rise from fewer than 5,000 in 2013.

The government plans to appoint state-level brand ambassadors to boost awareness and dispel myths surrounding organ donation.

Legal and Ethical Framework

The Transplantation of Human Organs and Tissues Act (THOTA), 1994, governs organ donation in India. The new advisory strengthens enforcement by linking compliance with legal consequences. It also stresses the need for equity and dignity in the transplant process. The policy aims to balance medical urgency with social justice, ensuring organs reach those most in need while reducing bias.

What Does the THOT Act, 1994 Say?

- **About:**
  - The law governs the transplantation of human organs and tissues in India, **including the donation of organs after death.**
  - It lays down regulations governing healthcare providers and hospitals, and stipulates penalties for violations.
- **Organ Donors and Recipients:**
  - A transplant can be **either from a pool of organs of deceased persons donated by their relatives or from a living person** who is known to the recipient.
  - In most cases, **the Act allows living donations from close relatives** such as parents, siblings, children, spouses, grandparents, and grandchildren.
- **Donations From Distant Relatives and Foreigners:**
  - **Altruistic donations from distant relatives,** in-laws, or long-time friends are allowed **after additional scrutiny** to ensure there is no financial exchange.
  - Living donations from close relatives **involving Indians or foreigners** must be accompanied by documents establishing their identities, family trees, and pictures that prove the donor-recipient relationship.
    - **Donors and recipients are also interviewed.**
- **Donations from Unrelated Persons:**
  - Donations from unrelated persons **require documents and photographic evidence** to prove their long-term association or friendship with the recipient.
  - These are **examined by an external committee** to prevent illegal dealings.
- **Fines and Punishments:**
  - Offering to pay for organs or supplying them for payment; initiating, negotiating, or advertising such arrangements; looking for persons to supply organs; and abetting in preparing false documents can **attract a jail term up to 10 years and a fine up to Rs 1 crore.**

- **Formation of NOTTO:**
  - **National Organ and Tissue Transplant Organization (NOTTO)** is a National level organization set up under Directorate General of Health Services, Ministry of Health and Family.
    - This has been mandated as per the **Transplantation of Human Organs (Amendment) Act 2011.**
    - National Network division of NOTTO would function as apex centre for All India activities of coordination and **networking for procurement and distribution of Organs and Tissues** and registry of Organs and Tissues Donation and Transplantation in the country.

What Do the THOT Rules, 2014 Say?

- **Authorisation Committee:**
  - Rule 7 of the 2014 Rules provides for the **constitution of the Authorisation Committee** and the nature of enquiry and evaluation conducted by it.
  - Rule 7(3) says the **Committee must ensure there is no commercial transaction involved** in cases where the donor and recipient are not near relatives.
    - Rule 7(5) says that if a recipient is in a critical condition and needs transplantation within a week, the hospital can be approached for an expedited evaluation.
- **Living Donor Transplantations:**
  - For living donor transplantations, **Rule 10 describes the application process,** which requires joint applications by the donor and recipient.
  - **Rule 21 requires the Committee to personally interview applicants** and determine their eligibility to donate.

What is the Authorisation Committee?

- **About:**
  - The Authorisation Committee **oversees and approves organ transplant procedures** involving donors and recipients who are not near relatives.
  - This approval is crucial, **especially in cases where organs are donated for reasons of affection, attachment, or other special circumstances**, to ensure ethical compliance and prevent illegal practices.

- **Composition:**
  - **Section 9(4)** of the Act,1994 says the "composition of the Authorisation Committee shall be such as may be prescribed by the Central Government from time to time".
  - **State government and Union Territories** "shall constitute one or more Authorisation Committee consisting of such members as may be nominated by the State Government and the Union Territories."

- **Powers:**
  - Under Section 9(5), the Committee is **expected to conduct a thorough inquiry** while reviewing applications for transplant approval.
  - A crucial aspect of the inquiry is to **verify the authenticity of the donor and recipient**, and ensure that the donation is not driven by commercial motives.

- **Role of Parliament:**
  - Section 24 of the Act allows the Centre to make rules, **subject to parliamentary approval,** for carrying out the various purposes of the Act.
    - These can relate to the **manner and conditions under which a donor may authorise** the removal of their organs before death.
    - Also **how a brain-stem death is to be certified**, or the steps to be taken to preserve human organs removed from anyone, etc.

MERITE SCHEME

The Union Cabinet approved the MERITE Scheme to enhance technical education across India. It targets 275 government and government-aided institutions including engineering colleges, polytechnics, and technical universities.

The scheme aligns with the National Education Policy-2020 (NEP-2020) and aims to improve quality, equity, and governance in technical education.

MERITE Scheme

The MERITE (Multidisciplinary Education and Research Improvement in Technical Education) Scheme is a Central Sector initiative. It has a budget of Rs.4200 crore for 2025-26 to 2029-30. Half of the funding, Rs.2100 crore, comes as a World Bank loan.

The scheme covers all States and Union Territories, focusing on government engineering institutions, polytechnics, and affiliating technical universities.

Objectives and Key Benefits

MERITE aims to boost the quality and inclusivity of technical education. It promotes digitalisation, multidisciplinary programmes, and research innovation.

Around 7.5 lakh students will benefit through enhanced learning and employability skills. The scheme supports faculty development, gender equity, and improved governance in technical institutions.

Implementation Strategy

The scheme will be implemented via a Central Nodal Agency. Funds will be transferred directly to participating institutions. Collaboration with premier bodies such as IITs, IIMs, AICTE, and NBA will ensure effective execution. State and UT departments will also receive support to strengthen local technical education ecosystems.

Employability and Skill Development

MERITE prioritises improving student employability. It includes curriculum updates aligned with industry needs, internships, and faculty training. Research hubs, incubation centres, skill labs, and language workshops will be established. These efforts aim to increase placement rates and reduce graduate unemployment in technical fields.

Research Enhancement

The scheme emphasises a strong research environment. It supports innovation through upgraded academic standards and multidisciplinary approaches. Development of future academic administrators, especially women faculty, is a key feature. Quality assurance and accreditation processes will be strengthened to sustain long-term improvements.

Alignment with National Education Policy-2020

MERITE's interventions reflect NEP-2020 reforms. These include revamping curricula, pedagogy, and assessments. The scheme addresses digital divides and gender gaps in technical education. Stakeholder consultations with States and UTs have shaped the scheme's design and focus areas.

CLIMATE CHANGE AFFECTING ALBEDO

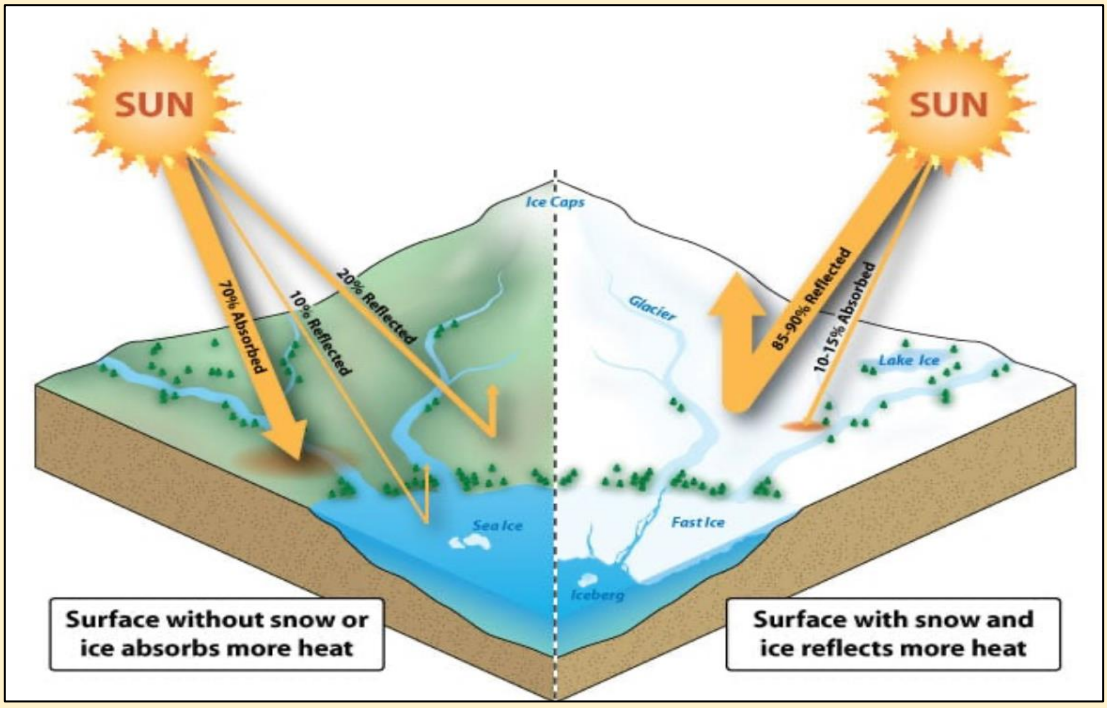
Albedo is a measure of the proportion of incoming sunlight that is reflected by a surface. It is a fundamental concept in climate science, influencing the Earth's energy balance, surface temperatures, and feedback processes such as ice–albedo interactions.

Variations in albedo occur naturally and through human activity, making it an important parameter in understanding and mitigating climate change.

Definition and Measurement

Albedo is expressed as a fraction between 0 and 1, where 0 represents a perfect absorber (a black body) and 1 represents a perfect reflector.

Surface albedo is calculated as the ratio of radiosity (total reflected radiation) to irradiance (total incident radiation) received by a surface. It depends not only on surface properties but also on the spectral and angular distribution of solar radiation, which vary with atmospheric conditions, location, and time of day.



Unless specified as spectral albedo (measured for a particular wavelength), the term refers to reflectance over the full solar spectrum, typically between 0.3 μm and 3 μm. For example, fresh snow can have an albedo of around 0.9, while charcoal reflects as little as 0.04. Earth's average albedo is approximately 0.3, with contributions from clouds, land, and ocean surfaces.

Types of Albedo

For land surfaces, albedo can be categorised as:

- **Black-sky albedo:** Reflectance under direct sunlight at a given solar zenith angle.
- **White-sky albedo:** Reflectance under diffuse light.
- **Blue-sky albedo:** A combination of the two, weighted by the proportion of direct and diffuse light.

The bidirectional reflectance distribution function (BRDF) is used to model how surface reflectance changes with viewing and illumination angles, enabling satellite-based albedo estimates.

Albedo and Climate Feedbacks

The ice–albedo feedback is a positive feedback mechanism in which melting ice reduces surface reflectivity, leading to further warming and additional ice loss.

Arctic ice, which is highly reflective, is particularly important in this process. As snow and ice retreat, darker surfaces such as ocean water or bare ground absorb more heat, accelerating regional and global warming.

Geographic and seasonal variations influence albedo's temperature effects. High-albedo polar regions remain cold due to low insolation, while deserts with similarly high albedo are hot due to intense sunlight. In tropical zones, changes in albedo can cause significant temperature fluctuations.

Human Influence on Albedo

Human activities such as deforestation, farming, and urbanisation alter local and regional albedo. Urban areas generally have lower albedo than surrounding croplands, contributing to the urban heat island effect. Increasing urban albedo by 0.1 globally has been estimated to produce a cooling effect equivalent to offsetting around 44 gigatonnes of CO_2 emissions.

Some large-scale land changes have produced measurable climatic effects. For example, the extensive greenhouses in Spain's Almería province increase local albedo, leading to slight surface cooling. Strategies such as Passive Daytime Radiative Cooling (PDRC) aim to enhance surface albedo and thermal emittance to counter global warming.

Recent Observations

Satellite data from instruments such as NASA's MODIS and CERES have enabled global albedo monitoring. Between 1998 and 2017, Earth's reflectivity decreased by about 0.5%, partly due to reduced cloud cover over the eastern Pacific. This dimming may have contributed to a 1.7 W/m^2 warming effect since 2010, equivalent to a rise in atmospheric CO_2 concentration of about 138 ppm.

TATO-II HYDRO ELECTRICAL PROJECT

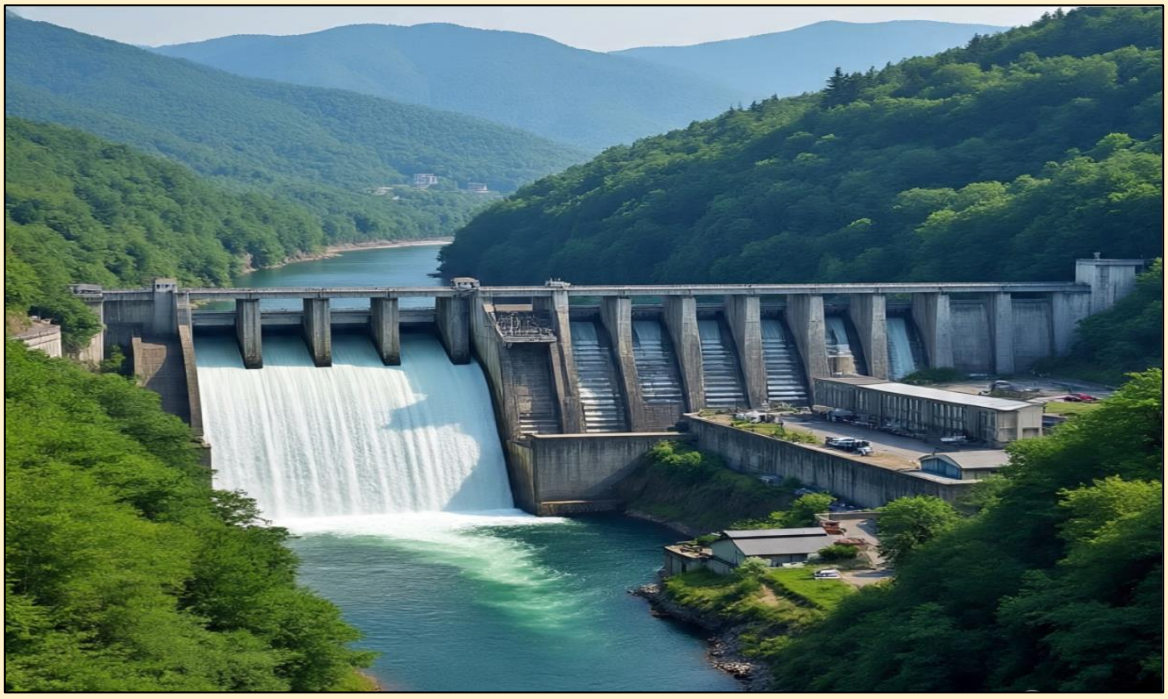
Cabinet Approves 700 MW Tato-II Hydro Electric Project in Arunachal Pradesh

Project Highlights:

- **Capacity:** 700 MW (4 units of 175 MW each)
- **Annual Energy Output:** Approximately 2,738 million units
- **Implementing Agency:** Joint venture between North Eastern Electric Power Corporation Ltd. (NEEPCO) and the Government of Arunachal Pradesh
- **Budget Support:** Funds allocated for infrastructure including roads, bridges, transmission lines, and local area development
- **Completion Timeline:** 6 years

Benefits and Impact:

- Strengthens power supply in Arunachal Pradesh and contributes to national grid stability
- Arunachal Pradesh receives 12% free power and 1% for Local Area Development Fund (LADF)
- Infrastructure development including 33 km of roads and bridges, and support for local hospitals, schools, and markets.
- Promotes socio-economic growth via job creation, compensation, CSR activities, and support for local suppliers and MSMEs.



Recent Hydroelectric Projects in India

India has been actively expanding its hydroelectric capacity as part of its clean energy and regional development goals. Several major hydroelectric projects have been approved or are under construction since 2023, contributing to energy security, regional growth, and sustainable development.

Key Recent Hydroelectric Projects:

1. **Tato-II Hydro Electric Project, Arunachal Pradesh**
   - Capacity: 700 MW
   - Approved in 2025 with an investment of ₹8,146 crore
   - Focus on infrastructure development and local benefits including free power and employment
   - Expected completion: Within 6 years
2. **Subansiri Lower Hydro Electric Project, Arunachal Pradesh**
   - Capacity: 2,000 MW
   - Under construction with phased commissioning ongoing
   - Will be India's largest hydropower project upon completion
   - Key for grid stability and flood control in the Brahmaputra basin
3. **Dibang Multipurpose Project, Arunachal Pradesh**
   - Capacity: 2,880 MW
   - Construction progressing with focus on power generation, irrigation, and flood control
   - Strategic for Northeast's energy needs and flood management

4. **Teesta Stage IV Hydro Electric Project, Sikkim**
    - Capacity: 520 MW
    - Recently commissioned in parts since 2023
    - Enhances power supply in the Northeastern region and promotes local development
5. **Nathpa Jhakri Extension, Himachal Pradesh**
    - Capacity: 800 MW
    - Under construction to augment existing Nathpa Jhakri capacity
    - Aims to improve power generation efficiency in the Sutlej basin
6. **Bhakra Beas Management Board (BBMB) Projects, Himachal Pradesh and Punjab**
    - Several modernization and capacity enhancement projects ongoing since 2023
    - Focus on optimizing water resource utilization and electricity generation.

ENVIRONMENT PROTECTION (MANAGEMENT OF CONTAMINATED SITES) RULES, 2025

The Environment Ministry introduced the Environment Protection (Management of Contaminated Sites) Rules, 2025

The Environment Ministry introduced the Environment Protection (Management of Contaminated Sites) Rules, 2025. These rules provide a legal framework to identify, assess and remediate chemical contamination at hazardous sites across India.

Until now, such sites lacked a formal process despite their risks to health and environment. The new regulations mark step in addressing this longstanding issue.

Definition of Contaminated Sites

Contaminated sites are locations where hazardous wastes were dumped historically. These wastes have polluted soil, groundwater and surface water.

The pollution poses risks to human health and ecosystems. Such sites include landfills, waste dumps, spill areas, and chemical storage facilities. Many were established before regulations existed. Currently, 103 contaminated sites have been identified nationwide.

Need for Legal Framework

Earlier efforts included creating an inventory of sites and guidance for assessment and remediation. However, no legal structure existed to enforce cleanup or assign responsibility.

The 2025 rules fill this gap. They ensure accountability and establish clear procedures for managing contaminated sites. This legal backing is key to effective pollution control and environmental protection.

Assessment and Remediation Process

District administrations must submit half-yearly reports on suspected contaminated sites. State pollution boards or designated expert bodies conduct preliminary assessments within 90 days.

A detailed survey follows within three months to confirm contamination and measure hazardous chemical levels. The rules cover 189 hazardous chemicals identified under previous regulations. Confirmed contaminated sites are publicly notified and access may be restricted.

Responsibility and Funding

The expert body prepares a remediation plan for each site. The State board identifies polluters responsible for contamination within 90 days.

Those found liable must bear remediation costs. If polluters cannot pay, the Central and State governments fund cleanup. Criminal liability applies if contamination causes death or damage, under provisions of the Bharatiya Nyaya Sanhita (2023).

Exemptions and Limitations

The rules exclude radioactive waste, mining pollution, marine oil pollution and solid waste from dump sites. These are governed by separate laws. Another limitation is the absence of strict deadlines to complete remediation once a site is identified. This may affect timely restoration of contaminated lands.

BLUE PINKGILL

The Kagaznagar forest division in Komaram Bheem Asifabad district of Telangana has witnessed a rare burst of colourful fungi. The most remarkable discovery is the Blue Pinkgill mushroom (Entoloma hochstetteri), a species native to New Zealand.

This vivid blue mushroom is notable for its rare azulene pigments. Alongside, the shuttlecock mushroom (Clathrus delicatus) was recorded in the Kawal Tiger Reserve, marking its first sighting in the Eastern Ghats. These findings show the exceptional fungal diversity and ecological uniqueness of Telangana's forests.

Blue Pinkgill Mushroom

The Blue Pinkgill is also called the sky-blue mushroom. It has a striking bright blue cap and stems. The gills appear pink to purplish due to spores. Its colour comes from rare azulene pigments uncommon in fungi. Caps vary from flat to funnel-shaped. Gills can be pink or white, with spores producing a pink to salmon spore print. These features aid in its identification.

Native Habitat and Distribution

Originally native to New Zealand, the Blue Pinkgill grows in broadleaf forests. It thrives in soil rich with leaf litter. The mushroom appears mostly during monsoon when moisture is high and soil conditions are ideal. Its discovery in Telangana is unusual and suggests favourable ecological conditions in the forests of Komaram Bheem Asifabad district.

Ecological Significance

The recent sightings in Kagaznagar and Kawal Tiger Reserve reveal rich fungal biodiversity. The shuttlecock mushroom's presence in the Eastern Ghats extends its known range beyond the Western Ghats.

This challenges earlier habitat assumptions and indicates ecological connections between different mountain ranges. Such findings are vital for understanding forest ecosystem health and fungal diversity in India.

Role of Monsoon in Fungal Growth

Monsoon rains saturate forest floors, creating ideal conditions for fungi. Moisture and temperature influence fungal fruiting. The burst of colourful mushrooms each monsoon reflects seasonal ecological cycles. This also supports forest biodiversity by aiding decomposition and nutrient cycling.

Scientific and Academic Importance

Documenting rare fungi like Blue Pinkgill and shuttlecock mushrooms enriches mycological knowledge. It helps map species distribution and understand ecological niches.

These discoveries encourage further research on fungal diversity in lesser-studied regions like Telangana's forests. They also show the need for forest conservation to protect such unique biodiversity.

DARDANELLES STRAIT

Turkey recently suspended all shipping traffic through the Dardanelles Strait due to extensive forest fires in the Çanakkale province. The Ministry of Transport announced the temporary closure, affecting the usual flow of about 100 ships daily. This event marks the strait's ongoing strategic and environmental significance.

Geographical Overview

- The Dardanelles is a narrow strait in northwestern Turkey.
- It stretches 61 kilometres long and varies between 1.2 and 6.5 kilometres wide.
- It connects the Aegean Sea to the Sea of Marmara.
- The strait lies between the Gallipoli peninsula in Europe and the Asian mainland of Anatolia.
- Its depth averages 55 metres with a maximum of 90 metres in the narrowest part.
- The strait features a surface current flowing from the Sea of Marmara to the Aegean and an undercurrent moving in the opposite direction.

Strategic and Economic Importance

- The Dardanelles forms part of the Turkish Straits along with the Bosphorus.
- These straits link the Mediterranean and Aegean Seas to the Black Sea.
- This route is crucial for maritime trade and naval passage.
- Important ports on the strait include Gallipoli, Eceabat, and Çanakkale.
- The waters are rich in fish species migrating between seas.
- The strait's control has long impacted regional power dynamics and commerce.

Historical Significance

Historically known as the Hellespont, the strait has deep cultural and military importance. It features in Greek mythology through the legend of Hero and Leander. The ancient city of Troy guarded its Asian shore.

In 480 BCE, Xerxes I's Persian army crossed it via a bridge of boats. Alexander the Great followed in 334 BCE. The strait was a focal point in many conflicts, including World War I, when Allied forces attempted to seize control. Its strategic position as a gateway to Istanbul and the Black Sea has shaped international politics.

Environmental and Recent Crisis

Recently, severe forest fires near Sarıcaeli village led to the closure of the strait. The fires spread rapidly from agricultural land into forests. Emergency services evacuated a care home and university campus nearby.

Firefighters faced extreme challenges, including abandoning vehicles due to advancing flames. Weather warnings forecast strong winds, which could worsen the fires. The closure disrupted maritime traffic and raised concerns about environmental damage and economic impact.

SEA OF GALILEE

The Sea of Galilee in Israel displayed an unusual red hue over several days. Israeli authorities have investigated and explained the phenomenon as a natural occurrence linked to algae growth. The event marks growing concerns about climate change and its impact on freshwater ecosystems worldwide.

Red Colouration

The Sea of Galilee, Israel's largest freshwater lake, changed colour to red due to an algal bloom. Officials confirmed the water remains safe for humans. The green algae Botryococcus braunii, common in the lake, produces red pigments under sunlight. This pigment accumulation caused the striking red tint. The Water Ministry continues to monitor the lake's water quality and ecosystem health.

Botryococcus Braunii

Botryococcus braunii is a green algae from the Chlorophyta group. It produces carotenoid pigments that turn red in sunlight. Known for producing hydrocarbons, this algae is studied for biofuel potential. Its sudden bloom in the Sea of Galilee is unusual but not harmful to humans. Similar algae blooms have been recorded in Israel before, including in the Dead Sea area in 2022.

Algae Blooms and Climate Change

Global warming increases sea and lake temperatures, creating ideal conditions for algae blooms. Nutrient levels, especially nitrogen and phosphorus, further boost algae growth.

These blooms can harm aquatic ecosystems by blocking sunlight and reducing oxygen when algae decompose. The Sea of Galilee's red algae bloom is part of a wider pattern linked to climate change impacts on freshwater bodies.

Geographical and Historical Significance of the Sea of Galilee

The Sea of Galilee is about 21 km long and 13 km wide, covering 166 km². It lies 209 metres below sea level, making it the lowest freshwater lake on Earth.

Fed mainly by the Jordan River, it sits in the Jordan Rift Valley formed by tectonic plate movements. The lake is known by several names, including Lake Tiberias and Yam Kinneret. It holds biblical importance and remains a vital source of fish and tourism.

Ecological Concerns and Monitoring

Though the algae bloom does not pose a direct health risk, it threatens the lake's ecosystem. Thick algae layers reduce sunlight penetration, affecting underwater life. Oxygen depletion from algae decay can cause hypoxia, endangering fish and other organisms. Continuous monitoring by Israeli authorities aims to manage these risks and preserve the lake's ecological balance.

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