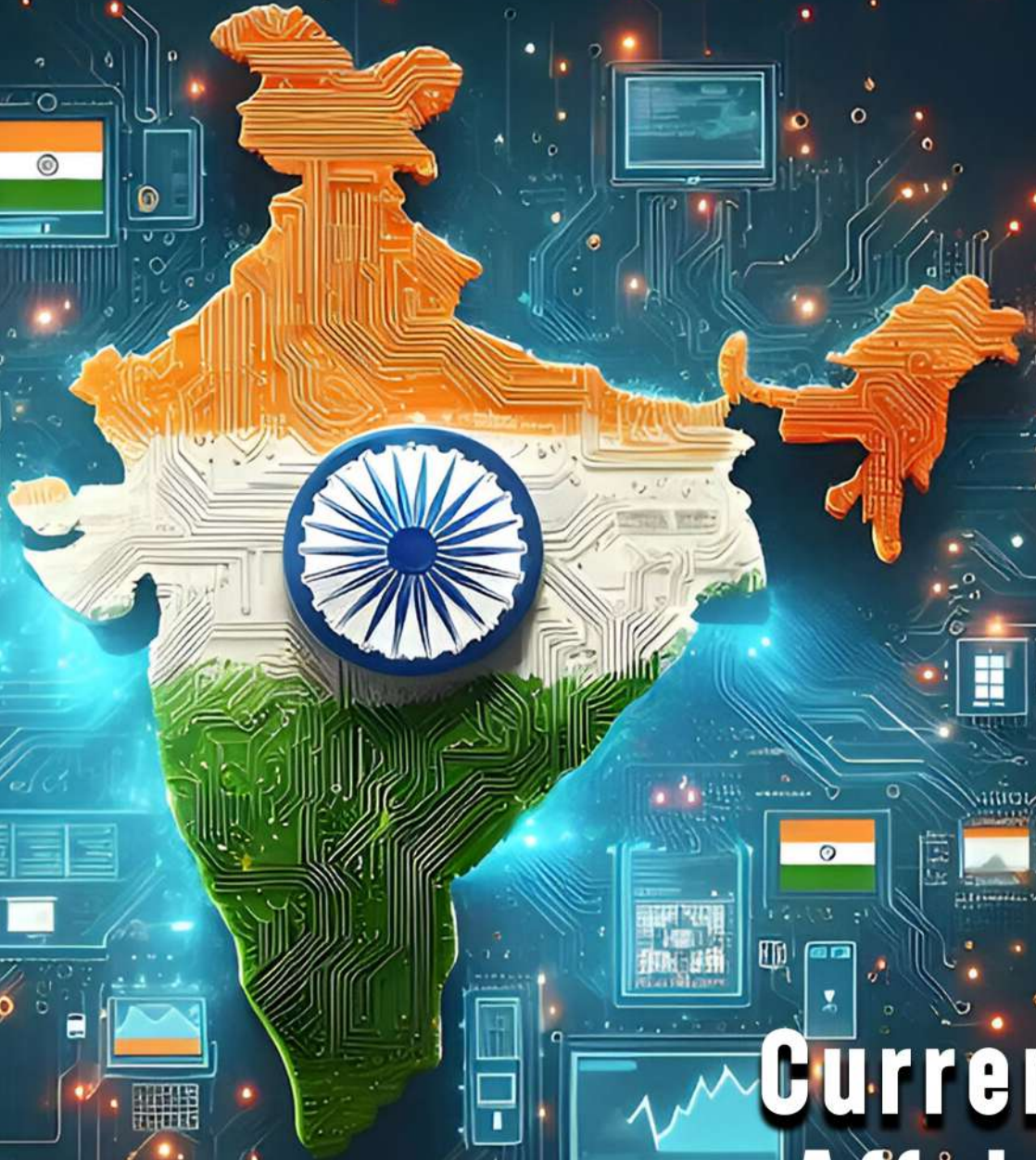


IAS HUB



# SROTHAS

A Monthly Magazine For UPSC Civil Service Examination



**Current  
Affairs  
2024  
OCTOBER**



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**Digital India**  
Power To Empower

# 9 YEARS OF DIGITAL INDIA INITIATIVE



*It is a Programme to prepare India for a knowledge future. The focus is on being transformative to realize  $IT + IT = IT$  (Information Technology + Indian Talent = India Tomorrow). The focus is on making technology central to enabling change.*

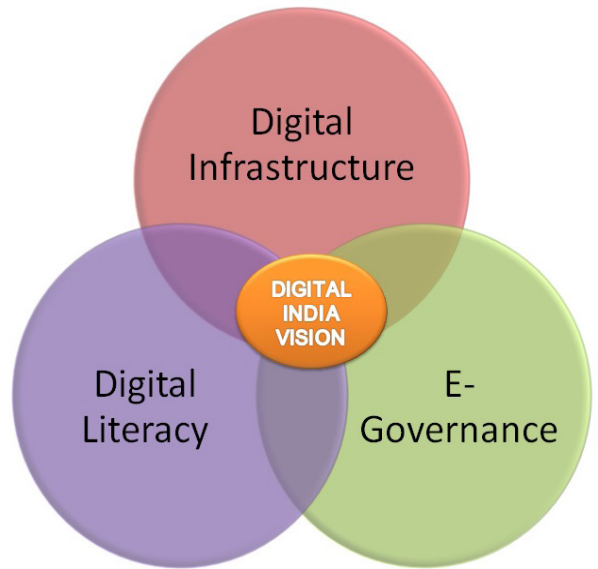
- **It is an Umbrella Programme covering many departments. It weaves together a large number of ideas and thoughts into a single, comprehensive vision so that each of them is seen as part of a larger goal. Each individual element stands on its own.**
- **But it is also part of the larger picture. It is coordinated by DeitY, implemented by the entire government. The weaving together makes the Mission transformative in totality**



## Vision of Digital India is centered on 3 Key Areas

*Key Achievements:*

- **Internet Connectivity:** Expansion of broadband connectivity to rural areas through the Bharat Net project, connecting over 1.5 lakh gram panchayats. Bharat Net has laid 6.83 lakh kilometers of optical fiber network, enough to circle the Earth over 17 times. Increased mobile network coverage across remote and rural regions.
- **Digital Infrastructure:** Established over 400,000 CSCs, providing digital services and e-governance solutions in rural areas. It also enables citizens to store and share important documents electronically, with over 674 crore documents issued. Over Nine crore FASTags issued it's almost equal to the number of vehicles manufactured worldwide in 2023.



### E-Governance

- **Digital Service Delivery:** Implementation of various government services online, improving transparency and reducing processing times. Key services include online tax filing, passport applications, and land records management.
- **E-Sign Framework:** Facilitated secure and authenticated electronic signatures for digital documents.
- The Government has come up with e-Marketplace (GeM), a dedicated platform for different goods & services procured by government organizations/departments/PSUs, offering 11,829 product categories and 327 service categories.
- **Swamitva Scheme:** Using drones and technology, the Swamitva Scheme aims to provide land titles to rural landowners.
- **Digital India Land Records Modernization Programme (DILRMP):** Modernized land records management with digitized records, ensuring transparency and reducing disputes.
- Over 137 Crore Aadhaar numbers have been generated, a unique ID for every Indian which is empowering millions with digital identity.

### Financial Inclusion

- **Pradhan Mantri Jan Dhan Yojana (PMJDY):** Opened over 450 million bank accounts, promoting financial inclusion and access to banking services.
- **Digital Payments:** Widespread adoption of digital payment systems through initiatives like the Unified Payments Interface (UPI), Bharat Interface for Money (BHIM) app, and RuPay card.
- Due to the Digital India campaign, over 11 Crore farmers now receive money directly in their bank accounts. The Government of India, in collaboration with the EKstep Foundation, launched an AI chatbot with PM-Kisan to extend financial help to farmers.
- BHIM is a UPI-based payment app that simplifies digital transactions. It has empowered millions of users to send and receive money seamlessly. There has been more than 535 lakh crore rupees of UPI transactions.

### Digital Literacy

- **National Digital Literacy Mission (NDLM):** Trained over 40 million individuals in digital literacy, ensuring at least one digitally literate person per household.
- Pradhan Mantri Grameen Digital Saksharta Abhiyan (PMGDisha), the world's largest digital literacy program, equips rural communities with essential digital skills like marketing, e-commerce, finance, and cybersecurity, enabling them to participate fully in the digital economy.

### Startup Ecosystem

- **Startup India:** Created a supportive environment for startups with various incentives, tax benefits, and funding opportunities.
- **Atal Innovation Mission:** Established Atal Tinkering Labs and incubation centers, fostering innovation and entrepreneurship among young minds.

## E-Health and E-Education

- Expansion of the National Digital Health Mission (NDHM) for digitizing healthcare records. **E-Sanjevani Platform:** Launched telemedicine services, enabling remote consultations and healthcare access, with over 10 million teleconsultations conducted.
- SWAYAM Platform: Offers free online courses from top institutions, benefiting over 15 million learners.
- **Ayushman Bharat:** leverages digital platforms to provide health insurance coverage to vulnerable sections of society. Over 34.6 crore Ayushman Cards were created.
- **Smart Cities Mission:** Promoted the development of smart cities with integrated digital infrastructure for better urban management and improved quality of life.

## Digital Services for Farmers

- **E-NAM (National Agriculture Market):** Provided an online trading platform for farmers, connecting them to a wider market and ensuring better price discovery.
- **Soil Health Card Scheme:** Enabled farmers to receive digital soil health reports, guiding them on optimal fertilizer use.
- **Cybersecurity and Data Protection:** Strengthened cybersecurity frameworks and initiatives to protect digital infrastructure and data. Implementation of the Personal Data Protection Bill to safeguard citizens' data privacy.

## Challenges

- **Digital Divide:** A significant gap exists between urban and rural areas in digital access, with only 24% of rural households having the internet compared to 66% in cities (NSSO data). This disparity limits access to education, jobs, and economic opportunities in rural regions.
- **Infrastructure Limitations:** Consistent high-speed broadband access is still lacking, particularly in remote and hilly regions. Frequent power outages in many areas disrupt digital infrastructure, hindering continuous access to digital services.
- **Digital Literacy:** Many, especially in rural areas, lack digital literacy, with only 38% of Indian households digitally literate. Urban literacy is 61%, compared to just 25% in rural areas. Expanding digital literacy programs nationwide is a significant challenge, requiring widespread outreach and resources.
- **Cybersecurity and Data Privacy:** As per NCRB, cybercrime cases surged by 24.4% in 2022, with 65,893 cases reported, mostly cyber fraud (64.8%). The crime rate rose from 3.9 in 2021 to 4.8 in 2022. Ensuring strong data privacy and protection, particularly as more personal data is collected, is essential to secure user trust.
- **Regulatory and Policy Challenges:** Coordinating digital policies across states and sectors is complex, leading to inconsistencies in implementation. Developing robust frameworks for emerging technologies like AI, blockchain, and IoT is critical for safe and effective adoption.
- **Financial Constraints:** Securing sufficient funding for largescale digital infrastructure and literacy initiatives remains challenging, especially in underdeveloped areas. Ensuring the financial viability of digital programs, particularly in low-income regions, is vital for long-term success.
- **Interoperability and Integration:** Breaking down data silos between government departments and platforms is crucial for seamless, integrated digital services. Upgrading outdated legacy systems is necessary to support new digital infrastructure and ensure system compatibility.



## Way Forward

- **Bridging the Digital Divide:**
  - Rural Connectivity:** Accelerate the expansion of highspeed broadband and mobile connectivity in rural and remote areas through projects like BharatNet and other innovative technologies such as satellite internet.
  - Affordable Access:** Implement policies to make digital devices and internet services more affordable for lowerincome populations through subsidies or financing options.
- **Enhancing Digital Infrastructure:**
  - Infrastructure Investment:** Increase investment in digital infrastructure, including data centers, cloud services, and 5G networks, to support growing demand.
  - Reliable Power Supply:** Improve the reliability of electricity in rural and underserved areas to ensure continuous operation of digital services.
- **Promoting Digital Literacy:**
  - Scaled Training Programs:** Expand digital literacy programs to reach all demographics, including women, elderly, and differently-abled individuals, through community centers, schools, and online platforms.
  - Curriculum Integration:** Integrate digital literacy and skills training into the education system from early stages to prepare future generations for a digital economy.
- **Strengthening Cybersecurity and Data Privacy:**
  - Robust Cybersecurity Measures:** Enhance cybersecurity frameworks and infrastructure to protect against cyber threats, with regular updates and training for both government and private sector entities.
- **Data Protection Laws:** Enforce comprehensive data protection laws to safeguard personal information and ensure transparency in data usage.



# BULLDOZER JUSTICE



SATISH  
ACHARYA



- ‘Bulldozer justice’ refers to the practice of using the heavy-duty piece of machinery to demolish houses of alleged criminals, communal violence rioters and accused criminals.
- As part of ‘bulldozer justice’, houses, shops and small establishments have been bulldozed across India, especially in the states of Uttar Pradesh, Delhi, Madhya Pradesh, Gujarat, Assam and Maharashtra.

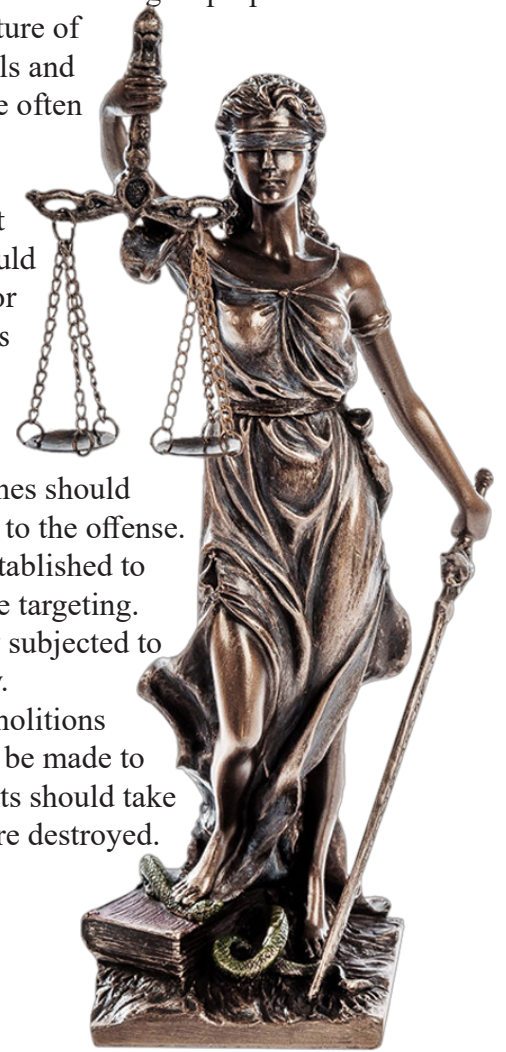
### Supreme Court Ruling

The Supreme Court has emphasized that any demolition of property must strictly follow legal procedures, even in cases involving unauthorized construction in public spaces or individual’s involvement in criminal activities. In raising questions about the legality of demolition of homes belonging to alleged offenders, the SC has raised and articulated a valid worry about the use of the bulldozer as a form of retribution.

The ruling underscores the importance of ensuring natural justice and due process in property-related cases, especially demolitions. The court expressed the need for nationwide guidelines to ensure that demolitions are carried out lawfully, ensuring fairness and protecting citizens’ rights.

### Issues with Bulldozer Justice

- **Targeting of Marginalized Communities:** Bulldozer justice disproportionately affects marginalized and minority communities, intensifying existing inequalities. These actions often target vulnerable groups, exacerbating social divisions and creating a perception of selective enforcement of law, leading to societal alienation.
- **Erosion of Rule of Law:** By bypassing established legal procedures, bulldozer justice undermines the core principles of the rule of law. This extrajudicial practice disregards due process, damaging public trust in legal and political institutions, and fosters a sense of lawlessness within the state apparatus.
- **Infringement of Fundamental Rights:** Rushed decisions can result in the violation of individuals’ or communities’ fundamental rights. In India, the right to shelter is a fundamental right, recognized as an integral part of the right to life under Article 21 of the Constitution. This right encompasses the provision of adequate housing, which is essential for living with dignity.
- **Unjust Punishments and Ethical Dilemmas:** Bulldozer justice conflates the roles of judge, jury, and executioner, resulting in unjust outcomes. It punishes entire families or communities for the actions of individuals, failing to distinguish between the guilty and innocent, and often inflicting disproportionate harm.
- **Psychological Trauma to Communities:** The sudden and violent nature of demolitions causes severe psychological trauma to affected individuals and entire communities. The shock and instability from losing one’s home often result in long-term emotional distress and mental health issues.
- **Adherence to Rule of Law and Due Process:** The legal process must be strictly followed in all cases of property demolition. No action should be taken without proper legal notice, hearings, and the opportunity for the accused to appeal. Strengthening institutional checks and balances will help prevent arbitrary and unjust demolitions.
- **Development of Nationwide Guidelines:** There is a need for clear, nationwide guidelines to regulate the demolition of properties, ensuring transparency, consistency, and accountability. These guidelines should ensure that demolitions are used as a last resort and are proportionate to the offense.
- **Protection of Marginalized Communities:** Safeguards should be established to protect marginalized and minority communities from disproportionate targeting. Governments must ensure that no individual or community is unfairly subjected to demolitions based on their socioeconomic status, religion, or ethnicity.
- **Provision for Resettlement and Compensation:** In cases where demolitions are necessary, provisions for resettlement and fair compensation must be made to minimize the impact on affected individuals and families. Governments should take responsibility for rehabilitating those whose livelihoods and homes are destroyed.



- 
- **Promoting Restorative Justice Approaches:** Instead of punitive actions like bulldozing, a shift towards restorative justice approaches should be encouraged. These approaches prioritize community healing, rehabilitation of offenders, and long-term solutions to prevent recurring issues.
- **Independent Oversight and Accountability:** To prevent misuse of power, independent oversight bodies should be established to review cases of demolition and ensure accountability for wrongful actions. This will help build public trust and reduce the risk of politically or communally motivated actions.
- **Public Awareness and Legal Aid:** Raising public awareness about legal rights and providing access to legal aid for vulnerable communities can help prevent arbitrary demolitions. Citizens should be informed about their right to due process, legal recourse, and protection from state overreach.

# PRELIMSMART

*#A Hub for the SMART*



# Co-District

Assam has become the first state in India to introduce a unique administrative structure known as “Co-Districts” to enhance governance and make public services more accessible.

## Key Features of Assam’s Co-Districts:

- **Purpose and Structure:** Co-Districts are smaller administrative units under the district administration, designed to decentralize governance and improve service delivery by bringing it closer to citizens’ homes.
- **Functions and Responsibilities:** Co-Districts handle administrative services such as issuing ration cards, caste certificates, managing land revenue, excise, welfare programs, and disaster management. They also possess magisterial powers to support local governance.
- **Leadership and Jurisdiction:** Each Co-District is headed by an Assistant District Commissioner, whereas the district remains under the authority of a Deputy Commissioner. Co-Districts cover a more localized area compared to the larger districts.
- **Role and Impact:** Acting as an extension of the district, Co-Districts alleviate the workload on district-level offices by handling specific administrative tasks, without assuming full departmental control.
- **Implementation Plan:** In 2024, 21 Co-Districts are being launched, with an additional 18 expected to follow, aiming to cover all 126 assembly constituencies over time.



## Ni-kshay Poshan Yojana

The Union Health Ministry has recently increased the monthly nutritional support under the Ni-Kshay Poshan Yojana (NPY) from Rs 500 to Rs 1,000 for all tuberculosis (TB) patients during their treatment.



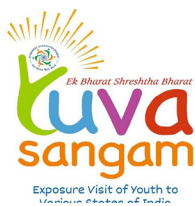
- Launched by the Ministry of Health and Family Welfare in April 2018, NPY operates as a centrally sponsored scheme under the National Health Mission (NHM). It aims to provide nutritional support to TB patients as part of the National Tuberculosis Elimination Program (NTEP).
- All notified TB patients across India are eligible to receive benefits under this scheme. This includes patients notified to the government on or after April 1, 2018, whether they are new or already under treatment.
- To qualify for the incentives, TB patients must be registered or notified on the NIKSHAY portal, ensuring they are officially recorded in the government’s TB elimination program.

- The scheme offers a monthly financial incentive of Rs 1,000 for each notified TB patient for the entire duration of their anti-TB treatment. Payments are made directly through Direct Benefit Transfer (DBT), preferably to Aadhaar-linked bank accounts, or provided in-kind where feasible.
- NPY is implemented across all states and union territories in India, supporting the country's commitment to ending TB by providing essential nutrition support to patients throughout their treatment.

## Yuva Sangam

The Ministry of Education launched the registration portal for the fifth phase of Yuva Sangam under Ek Bharat Shreshtha Bharat.

- Yuva Sangam is an initiative under the Ek Bharat Shreshtha Bharat (EBSB) program launched by the Government of India.
- Its primary goal is to foster cultural exchange and strengthen people-to-people connections among youth from different states and union territories of India.
- Youth aged 18-30, including students, National Service Scheme (NSS) and Nehru Yuva Kendra Sangathan (NYKS) volunteers, and employed/self-employed individuals, are eligible to participate by registering on the Yuva Sangam portal.



## SBM Urban 2.0

As a goal of the SBM Urban 2.0, which was launched in 2021, all legacy landfills in the country are to be cleared by 2025-2026.

- Ahmedabad: Cleared 4.3 acres of land from 2.30 lakh tonnes of waste at Bopal Ghuma site. Redeveloped into an ecological park costing Rs. 8 crore. Work ongoing at larger Pirana landfill (84 acres) with 54% cleared.
- Nagpur: Remediated 35 acres of landfill containing 10 lakh metric tonnes of waste. Site planned for an integrated waste management project.
- Pune: Cleared 75 acres of land at Vanaz landfill, remediating 37 lakh tonnes of waste. The site is now the Hill View Park Car Depot, part of the Pune Metro Rail project.
- These efforts are part of the SBM Urban 2.0 goal to clear all legacy landfills by 2025-2026.



## Anna DARPAN Project

The Food Corporation of India (FCI) has selected Coforge Limited as the System Integrator (SI) for its digital transformation project, Anna DARPAN.



- The project aims to streamline and enhance the supply chain management system at various levels.
- This system will be designed to improve efficiency and productivity by creating an interactive and user-friendly UI design.

- It will also enable data-driven decision-making by leveraging data analytics to support strategic and operational decisions.
- The system will be integrated with internal and external systems, and a mobile-first approach will be prioritized to ensure that it is accessible anytime, anywhere.
- As part of the project, Coforge will be responsible for the end-to-end design, development, implementation, and maintenance of the Anna DARPAN system.
- The development team will leverage the latest technology and a state-of-the-art IT environment to build a cloud-based platform for hosting the system.
- It will be powered by a service mesh architecture, which will facilitate seamless communication among microservices.
- In the requirement gathering, analysis, and documentation phase of the project, Coforge will have extensive visibility into FCI's operations, including a deep understanding of its requirements, existing process flows, and potential integration opportunities with current FCI-related applications.

## Digital Personal Data Protection Act



### DATA SECURITY

*NITI Aayog, the top think tank of the government, had opposed some of the provisions of the Digital Personal Data Protection Act, and particularly red-flagged the changes proposed to the Right to Information (RTI) Act that could “weaken” the legislation.*

- The data protection law proposed is an amendment to a section in the RTI Act with such effect that disclosure of personal information about public officials would not be allowed even when these are justified in larger public interest.
- **Digital Personal Data Protection Act:** It is a comprehensive privacy and data protection law that provides guidelines on processing, storing, and securing personal data.
- It aims to regulate the processing of digital personal data while ensuring individuals' right to protect their data and the need to process it for lawful purposes.

- **It protects digital personal data by providing:**

- o The obligations of Data Fiduciaries (that is, persons, companies, and government entities who process data) for data processing (that is, collection, storage, or any other operation on personal data);
- o The rights and duties of Data Principals (that is, the person to whom the data relates);
- o Financial penalties for breach of rights, duties, and obligations.

- **Salient Features of the Digital Personal Data Protection Act:**

- o It applies to the processing of digital personal data within India where such data is collected in digital form or non-digital form and digitised subsequently.
- o It empowers individuals with the right to know and control their personal data.
- o This includes rights to access, correction, and erasure of their data, giving citizens greater control over their personal information.
- o It mandates that personal data may be processed only for a lawful purpose after obtaining the consent of the Data Principal (who shall have the right to withdraw consent at any time). For a child or a person with a disability, consent will be provided by the parent or legal guardian.

# Jal Hi AMRIT Programme

The Union Minister for Housing and Urban Affairs said that the government has introduced the Jal Hi AMRIT scheme in its first 100 days.

- Jal Hi AMRIT Programme was launched under the AMRUT 2.0 scheme.
- Under this initiative, it is envisaged to incentivise State & UTs to manage the used water (sewage) treatment plants (UWTPs/ STPs) efficiently to ensure recyclable good quality treated water, meeting environmental standards, on a sustained basis.
- The purpose of the exercise is to build competition among the cities, develop capacities and incentivise them to attain the best quality of used treated water at the treatment facilities.
- The main focus is thus on capacity building & incentivizing qualitative improvements in the treated discharge effluent.
- A mid-course assessment and water quality testing will be conducted, culminating in a final assessment & award of Clean Water Credits in terms of a Star-rating (between 3 stars to 5 stars) certificate valid for six months.



## AMRUT 2.0 scheme:

- It was launched for a period of five years, from the financial year 2021-22 to the financial year 2025-26.
- It is designed to provide universal coverage of water supply through functional taps to all households in all the statutory towns in the country and coverage of sewerage/septage management in 500 cities covered in the first phase of the AMRUT scheme.

# SARTHIE 1.0

*SARTHIE 1.0 is a strategic initiative focused on empowering marginalized communities, including Scheduled Castes (SCs), Other Backward Classes (OBCs), senior citizens, transgender persons, victims of alcoholism and substance abuse, those engaged in begging, and Denotified and Nomadic Tribes.*



- The initiative aligns with the United Nations 2030 Agenda for Sustainable Development, specifically targeting goals aimed at poverty eradication, reducing inequality, and promoting inclusive social protection policies.
- SARTHIE 1.0 seeks to close awareness gaps and provide legal assistance, ensuring that social welfare programs reach and benefit those they are intended to serve. The collaboration fosters synergy between the executive and judiciary to strengthen social justice.
- Established under the Legal Services Authorities Act of 1987, the National Legal Services Authority (NALSA) is mandated to provide legal aid to disadvantaged groups and to promote legal literacy across the country.
- The Chief Justice of India serves as the patron-in-chief of NALSA, with the second senior-most judge of the Supreme Court as its Executive Chairman. NALSA operates out of the Supreme Court of India, New Delhi, supporting the implementation of SARTHIE 1.0 and its commitment to social justice and equality.

## Dharti Aaba Janjatiya Gram Utkarsh Abhiyan

The Prime Minister of India recently launched the Dharti Aaba Janjatiya Gram Utkarsh Abhiyan in Jharkhand with an allocation of approximately Rs 80,000 crore, aimed at fostering comprehensive development in tribal villages.

- The Abhiyan seeks to bring transformative socio-economic development to tribal regions by focusing on the holistic upliftment of tribal villages.
- It will encompass about 63,843 villages, benefiting over 5 crore tribal residents across 549 districts and 2,911 blocks, covering all tribal-majority villages and aspirational blocks in 30 States and Union Territories.
- Through convergence across 17 government ministries, the program will address critical gaps in social infrastructure, healthcare, education, and livelihood through 25 specific interventions to ensure sustainable and inclusive development in tribal areas.
- The initiative has a total budget outlay of Rs 79,156 crore, with Rs 56,333 crore provided by the Central Government and Rs 22,823 crore from State contributions.
- The Abhiyan builds on the insights and successes of the Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN), launched in November 2023, which has a budget of Rs 24,104 crore and is focused on uplifting Particularly Vulnerable Tribal Groups (PVTGs).



## Doctrine of Lis Pendens

The Supreme Court has reaffirmed that when a transaction is affected by the doctrine of lis pendens, the defenses of being a bona fide purchaser or lacking notice of a prior sale agreement are not applicable.

- Lis pendens translates to “a pending legal action.” It holds that during on-going litigation, no new rights or interests should be introduced that might alter the rights of parties involved in the case.
- The doctrine is grounded in the idea that during the pendency of a lawsuit, the subject matter of the suit, such as property, should not be transferred to a third party to avoid interference with the case.
- Governed by Section 52 of the Transfer of Property Act, 1882, lis pendens states that any transfer of immovable property during a pending lawsuit does not affect the rights of parties involved in the case regarding that property.
- The outcome of the litigation, as ruled by a competent court, will be binding on a purchaser who acquired the property while the litigation was on-going, regardless of whether the purchaser had notice of the dispute or was a party to it.
- This rule is intended to protect the rights and interests of parties involved in a pending lawsuit over specific property.
- The doctrine does not invalidate the transfer itself but rather makes it subject to the litigation’s final decision. Any purchaser of the property during the lawsuit will be bound by the judgment, even if they were not aware of the case or were not a party to it.



# Annual Survey of Industries Report 2022-23

*The Ministry of Statistics and Programme Implementation (MoSPI) released the Annual Survey of Industries (ASI) for 2022-23 which presents significant insights into the recovery and growth of the manufacturing sector in India.*

- The survey fieldwork was conducted from November 2023 to June 2024 for ASI 2022-23.

## **Highlights of the ASI Report 2022-23:**

- The ASI indicates that employment in manufacturing grew by 7.5% from 1.72 crore in 2021-22 to 1.84 crore in 2022-23, the highest rate of growth in the last 12 years.
- In 2022-23, the manufacturing sector created 13 lakh jobs, an increase from 11 lakh in FY22.
- The manufacturing GVA grew robustly by 7.3%, reaching Rs 21.97 lakh crore in 2022-23, up from Rs 20.47 lakh crore in 2021-22.
- The total industrial input increased by 24.4%, while the output grew by 21.5% in the sector in 2022-23 compared to 2021-22, reflecting a significant rebound in manufacturing activities.
- The primary drivers of manufacturing growth in 2022-23 were basic metals, coke and refined petroleum products, food products, chemicals, and motor vehicles. Together, these industries accounted for about 58% of total output.
- Top 5 states in terms of employment were Tamil Nadu, Maharashtra, Gujarat, Uttar Pradesh, and Karnataka.
- The number of factories increased from 2.49 lakh in 2021-22 to 2.53 lakh in 2022-23, marking the first full recovery phase after Covid-19 disruptions.
- The informal sector saw a 1.5% decline in employment, dropping by 16.45 lakh to 10.96 crore in 2022-23, indicating a shift towards formal employment in manufacturing as per the Annual Survey of

# ECONOMY





Unincorporated Enterprises (ASUSE) 2022-23 report released in July 2024.

- Average emolument per person rose by 6.3%, reaching Rs 3.46 lakh in 2022-23 compared to 2021-22.
- Gross fixed capital formation (GFCF) surged by over 77% to Rs 5.85 lakh crore in 2022-23, while net fixed capital formation saw 781.6% rise to Rs 2.68 lakh crore, supporting sustained manufacturing growth.
- Gross fixed capital formation (GFCF), or “investment,” refers to the acquisition of produced assets, including second-hand purchases, as well as the production of assets by producers for their own use, minus disposals.
- Net fixed capital formation is the amount of Gross fixed capital formation (GFCF) minus the amount of consumption of fixed capital.
- Profits in the manufacturing sector increased by 2.7% to Rs 9.76 lakh crore.

## Humsafar Policy

*Aimed at providing wayside amenities along national highways, the Union Road Transport Minister recently launched ‘Humsafar Policy.’*

- Humsafar Policy is a comprehensive initiative aimed at enhancing facilities along India’s national highways.
- The policy seeks to improve the convenience, safety, and comfort of highway travelers by providing a wide range of services at key locations along the road network.
- Under this policy, rest stops equipped with essential amenities like clean washrooms, food courts, parking spaces, and first-aid services will be developed across major highways.
- Dedicated rooms for baby care, equipped with changing tables and other essentials, will be provided for families travelling with young children.
- It includes provisions for creating multi-utility spaces at regular intervals to cater to the diverse needs of travelers.
- These spaces will feature fuel stations, Electric Vehicle (EV) charging points, convenience stores, and other roadside services that are expected to reduce driver fatigue and improve overall road safety.
- Dormitories will be introduced at fuel stations to provide short-term accommodation for truck drivers, travellers, and those requiring a rest break during long-distance travel.
- Accessibility will be a key focus, with wheelchair provisions made available for differently-abled travelers.
- The initiative also aims to promote sustainability by incorporating green technologies, such as solar-powered facilities and EV infrastructure, contributing to India’s environmental goals.



# World Green Economy Forum, 2024

The World Green Economy Forum 2024, held in Dubai, brings together global leaders to address pressing environmental issues under the theme “Empowering Global Action: Unlocking Opportunities and Advancing Progress”.

- Summit held in: Dubai, UAE, on October 2nd and 3rd, 2024.
- Theme: “Empowering Global Action: Unlocking Opportunities and Advancing Progress”
- Aim is to promote global cooperation, innovation, and sustainable practices across energy, decarbonization, climate finance, and more. The forum’s goal is to drive positive transformation towards a net-zero future.
- Sessions on decarbonization in heavy industries, use of AI for sustainability, and the role of youth in climate action.
- A focus on the future of Sustainable Aviation Fuel (SAF), aiming for 300 million tonnes production by 2050.
- Emphasis on public-private partnerships and philanthropy to drive climate solutions.
- Panels on renewable energy, power grid challenges, and carbon footprint management.
- This forum aligns with global climate goals, such as the Paris Agreement, and encourages collaboration between governments, industries, and civil society for sustainable development



## Third-Party Litigation Funding

The idea of Third-Party Litigation Funding (TPLF) has quickly emerged as a game-changer, potentially opening courtroom doors for many who felt they had been shut out.

- TPLF, often referred to as litigation finance, is a financial arrangement in which a third party (with no prior connection to the litigation) in a legal dispute provides funding to support the plaintiff’s pursuit of a legal claim.
- In return, the third-party funder receives a portion of the proceeds if the case is successful.
- Plaintiffs do not have to repay the funding if their lawsuit is not successful.
- This funding model allows entities to bring lawsuits without shouldering the financial risks associated with litigation.
- The emergence of TPLF has been driven by various factors, including the escalating costs of legal proceedings, the complexity of modern litigation, and the desire to level the playing field between parties with disparate financial resources.
- Disputes that attract TPLF generally include commercial contracts, international commercial arbitration, class action suits, tortious claims like medical malpractice and personal injury claims, anti-trust proceedings, insolvency proceedings, and other like claims that have a calculated chance of resulting in a substantial monetary award.
- TPF is not expressly prohibited in India. In fact, several judgments highlight its benefits and express that there is a need for its regulation.

# Supreme Court Ruling on ITC

*The Supreme Court laid down functionality and essentially test for Input Tax Credit (ITC) eligibility under the Goods and Services Tax (GST) regime.*

- The verdict was delivered in the Chief Commissioner of Central Goods and Service Tax & Ors. Vs Safari Retreats Case, 2024.
- The Supreme Court (SC) ruled that the real estate sector can claim ITC on construction costs for commercial buildings used for renting or leasing purposes under the functionality and essentially test.
- Earlier ITC was not allowed on such immovable property construction.
- The court clarified that if the construction of a building is essential for providing services like leasing or renting, the building may fall under the category of ‘plant and machinery.’
- This is based on Section 17(5)(d) of the Central Goods and Services Tax (CGST) Act, 2017 which permits ITC claims on plant and machinery used in the business of supplying services.
- The court read down the scope of Sections 17(5)(c) and (d) of the CGST Act, 2017 which prohibit ITC claims for construction materials used for immovable property, except for plant or machinery.
- The SC emphasised that determining whether a building like a mall or warehouse qualifies as ‘plant’ under Section 17(5)(d) should be assessed on a case-by-case basis.
- The business nature and the role of the building in the registered person’s business are key factors in this determination.



## Functionality and Essentially Tests:

- **Functionality Test:** It will evaluate whether the building plays a role in the supply of services, akin to the function of plant and machinery in a factory.
- **Essentially Test:** The SC held that procurement of goods or services must be directly essential to business operations.
- It means that only those goods and services that are directly needed for constructing or developing property can be claimed for tax benefits or input tax credit (ITC). E.g., cement, steel etc.

## Employees Deposit Linked Insurance (EDLI) Scheme : Extended

*The Centre has decided to extend providing benefits of Employees’ Deposit Linked Insurance (EDLI) Scheme to all subscribers of Employees’ Provident Fund Organisation and their family members till further notice.*

- EDLI is an insurance scheme that was launched by the Government in 1976.
- This scheme was launched with the objective of providing social security benefits to the employees of the private sector for whom such benefits were not commonly provided by the employer.
- The EDLI scheme is managed and administered by the Employees Provident Fund Organisation (EPFO), and the scheme provides term life insurance cover on the life of the member employee.



- The EDLI scheme covers all organizations registered under the Employees Provident Fund (EPF) and Miscellaneous Provisions Act, 1952.
- This scheme works in combination with the EPF and the Employees' Pension Scheme (EPS).
- The extent of the benefit is decided by the last drawn salary of the employee.
- The registered nominee of the EDLI scheme receives a lump-sum payment in the event of the death of the EPF member, during the period of the service.
- The nominee registered in the EDLI is the same as registered in the EPF Scheme.
- Maximum assured benefit up to Rs 7 lakh to be paid to the nominee or legal heir of the EPF member if death occurs while in service.
- Minimum assurance benefit is of Rs 2.5 lakh in case the deceased member was in continuous employment for 12 months prior to his or her death.
- This life insurance benefit being given to the EPFO member is free of cost for the PF/EPF account holders.
- Minimal contribution by employer at 0.5% of employee's monthly wages, up to wage ceiling of Rs 15,000; no contribution made by employee.
- Auto-enrolment of PF members in the EDLI scheme.
- Benefit directly credited to the bank account of a legal heir or nominee.

## Hand-in-Hand Initiative

*The Food And Agricultural Organisation (FAO) Director-General opens the third Hand-in-Hand Investment Forum.*

- Hand-in-Hand Initiative was launched in 2019, is a flagship of Food And Agricultural Organisation (FAO)
- It prioritizes countries and territories where poverty and hunger are highest, national capacities are limited, or operational difficulties are greatest due to natural or man-made crises.
- It seeks to eradicate poverty (SDG1), end hunger and malnutrition (SDG2), and reduce inequalities (SDG10) by accelerating market-based transformation of agri-food systems to raise incomes, improve nutrition, empower poor and vulnerable populations, and strengthen resilience to climate change.
- It uses geospatial, biophysical and socio-economic data, as well as advanced analytics to identify territories where agricultural transformation and sustainable management of forest and fisheries have the greatest potential for alleviating poverty and hunger.
- Its area of intervention includes developing value chains for priority commodities, building agro-industries and efficient water management systems, introducing digital services and precision agriculture
- Member countries: 72 countries have joined this Initiative.



Food and Agriculture  
Organization of the  
United Nations



Hand-in-Hand  
Initiative

## All India Rural Financial Inclusion Survey (2021-22)

*The latest All India Rural Financial Inclusion Survey (2021-22) indicates a reversal of the declining trend in rural households' dependence on agriculture.*

All India Rural Financial Inclusion Survey (2021-22):

- 57% of rural households were identified as "agricultural" in
- The average monthly income of agricultural households was ₹13,661 in 2021-22, compared to ₹8,931 in 2016-17. Agricultural households



नाबार्ड अखिल भारतीय ग्रामीण  
वित्तीय समावेशन सर्वेक्षण 2021-22

NABARD All India Rural  
Financial Inclusion Survey 2021-22

earned more than their non-agricultural counterparts. (NABARD Survey)

- Income from farming activities rose from 43.1% to over 45% in 2021-22. (NABARD Survey).
- The pandemic-induced economic slowdown caused a shift back to agriculture, which was less affected by lockdowns due to exemptions. (NABARD Survey and PLFS).
- PLFS data shows agriculture engaged 46.5% of India's workforce in 2020-21, rising from 42.5% in 2018-19. (PLFS)

## Global Hunger Index (GHI) 2024

*India ranks 105th out of 127 countries in the Global Hunger Index (GHI) 2024 with a score of 27.3, highlighting a "serious" hunger crisis driven by ongoing challenges of food insecurity and malnutrition.*

- India-Specific Findings: GHI Score (2024) – 27.3 ('serious') slightly improved from GHI Score (2023) – 28.7 ('serious').
- Undernourished children – 13.7%
- Stunted children – 35.5%
- Wasted children – 18.7% (highest globally)
- Child mortality rate – 2.9%



## Climate Risk Information System

*The Reserve Bank of India proposes to create a data repository namely, the Reserve Bank Climate Risk Information System (RB-CRIS)*

- Climate Risk Information System will bridge the gap in climate-related data that is currently available in a fragmented manner.
- Presently the available climate-related data is characterised by various gaps such as fragmented and varied sources, differing formats, frequencies and units.
- It will comprise of two parts
- The first part will be a web-based directory, listing various data sources, (meteorological, geospatial, etc.) which will be publicly accessible on the RBI website.
- The second part will be a data portal comprising of datasets (processed data in standardised formats).
- The RBI plans a phased launch of RB-CRIS starting with the web-based directory, followed by a gradual introduction of the data portal for regulated entities to ensure smooth adaptation.
- It is crucial for regulated entities to undertake climate risk assessments to ensure stability of their balance sheets and that of the financial system.
- On February 28, 2024, RBI issued draft guidelines for a 'Disclosure Framework on Climate-Related Financial Risks,' requiring Regulated Entities (REs) to disclose information across four key areas: governance, strategy, risk management and metrics and targets.
- The framework aims to inform stakeholders—such as regulators, investors, and customers—about the climate-related risks faced by REs and their strategies for addressing these issues



## World Association of Zoos and Aquariums

*The World Association of Zoos and Aquariums (WAZA) recently suspended the membership of the Delhi Zoo over concerns about the treatment of its lone African elephant named Shankar.*

- World Association of Zoos and Aquariums (WAZA) is the umbrella organization for the World Zoo and Aquarium community.
- Established in 1935, it is the only organisation representing zoos and aquariums at the global level.
- WAZA's mission is to guide, encourage, and support the zoos, aquariums, and like-minded organisations of the world in animal care and welfare, environmental education, and global conservation.
- Its members include leading zoos and aquariums, and regional and national Associations of Zoos and Aquariums, as well as some affiliate organizations, such as zoo veterinarians or zoo educators, from all around the world.

### Activities of WAZA are:

- Promoting cooperation between zoological gardens and aquariums in relation to the conservation, management, and breeding of animals in captivity.
- Encouraging highest standards of animal welfare and husbandry.
- Promoting and coordinating cooperation between national and regional associations and their constituents.
- Assist in representing zoological gardens and aquariums in other international organizations or assemblies.
- Promoting wildlife conservation, environmental research, and environmental education.
- WAZA has formed partnerships with leading international conservation organisations.
- Together, they are committed to tackling global issues such as the illegal wildlife trade, coral reef restoration, marine litter, sustainable palm oil and climate change.

## Advanced Glycation End Products

*A diet rich in Advanced Glycation End Products (AGEs) is among the leading causes of India being the world's diabetic capital, notes a first-of-its-kind clinical trial finding published recently.*

- Advanced Glycation End Products (AGEs) are harmful molecules formed by the glycation and oxidation of lipids and proteins.
- Glycation is the process of combining other molecules with sugars.
- Oxidation is the process of combining other molecules with oxygen.
- AGEs are formed in your body by metabolism, but the major source of AGEs is food.
- They are formed in food by grilling, toasting, roasting, broiling, frying, and other high-temperature cooking.
- Tobacco use is yet another source of AGEs.
- AGE production in the body increases with age.

- AGEs are present in the body at all times. At low levels, they don't cause significant injury.
- However, they cause cell and tissue damage when they reach high concentrations.
- AGEs combine with receptors located on blood vessels and several other organs to cause damage to organ systems.
- These compounds can impact the function of proteins within the cells, alter the behavior of hormones, cytokines, and free radicals, and modify the extracellular matrix between cells.
- AGEs activate inflammatory and other destructive processes in many systems of your body.
- AGEs are involved in the development of various chronic inflammatory diseases such as type II diabetes mellitus, vascular and cardiovascular diseases, osteoporosis, and arthritis.
- Hyperglycemia (high blood levels of glucose) is one condition associated with more AGE production, causing blood vessel damage in people with diabetes.

## Emergency Use Listing : WHO

*The World Health Organization (WHO) announced that it has listed the first mpox In Vitro Diagnostic (IVD) under its Emergency Use Listing (EUL) procedure.*

- Emergency Use Listing procedure is a risk-based procedure for assessing and listing unlicensed vaccines, therapeutics and in vitro diagnostics.
- It aims to expedite the availability of these products to people affected by a public health emergency.
- This will assist interested UN procurement agencies and Member States in determining the acceptability of using specific products, based on an essential set of available quality, safety and efficacy and performance data.
- The disease for which the product is intended is serious or immediately life-threatening has the potential of causing an outbreak, epidemic or pandemic.
- Existing products have not been successful in eradicating the disease or preventing outbreaks.
- The product is manufactured in compliance with current Good Manufacturing Practices (GMP) in the case of medicines and vaccines and under a functional Quality Management System (QMS) in the case of IVDs.



## Nile River Basin Cooperative Framework Agreement

*The Nile River Basin Cooperative Framework Agreement (CFA) came into force on October 13, 2024, after over a decade of negotiations, aiming to promote equitable and sustainable use of the Nile's water resources.*

- The CFA replaces colonial agreements from 1929 and 1959 that gave Egypt veto powers over Nile usage.
- The CFA introduces Article 14b, ensuring no significant effect on water security for any Nile Basin State.
- Negotiated among nine Nile Basin countries (Burundi, DR Congo, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, Uganda) and later ratified by five nations (Burundi, Ethiopia, Rwanda, Tanzania, Uganda) and South Sudan acceded.
- Nations rejecting: Egypt and Sudan opposed the CFA, particularly Article 14b, citing concerns about water security.



# USCIRF International Religious Freedom Report

*India rejected the International Religious Freedom Report of the US Commission on International Religious Freedom's (USCIRF), labeling it a biased organization with a political agenda.*

## Highlights of the USCIRF Report (2024):

- The report called for India to be designated as a “Country of Particular Concern”(CPC).
- Countries that commit systematic, ongoing, and egregious violations of religious freedom are designated as a CPC by the US State Department.
- The report states that vigilante groups killed, assaulted, and lynched individuals, while religious leaders were unjustly arrested, and homes and places of worship were destroyed.
- It also criticised the Citizenship Amendment Act, 2019, Uniform Civil Code, and state-level anti-conversion and cow slaughter laws.
- USCIRF is a US federal commission established in 1998 under the International Religious Freedom Act, with commissioners appointed by the President and congressional leaders from both parties.
- It is based on international human rights standards, especially Article 18 of the Universal Declaration of Human Rights that ensured freedom of religion.
- It monitors the universal right to freedom of religion or belief (FoRB) in countries other than the US.



## 44th Session Of The Codex Committee On Nutrition And Foods For Special Dietary Uses (CCNFSDU)

*India participated in the 44th session of the Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU) in Germany, contributing significantly to global food safety and nutrition standards.*

- CCNFSDU is a unit of the Codex Alimentarius Commission(CAC), responsible for developing global standards for special dietary foods such as infant formulas, dietary supplements, and medical foods.
- The CAC, established in 1963 by the Food and Agriculture Organization(FAO) and World Health Organization(WHO), sets international food standards to protect consumer health and ensure fair trade practices, with input from its 189 Codex Members(including India).
- India at 44th Session of CCNFSDU: India stressed the need to update outdated FAO/WHO probiotic guidelines from 2001 and 2002, highlighting that the current guidelines are two decades old.
- The country called for harmonized regulations to enhance global trade.
- India suggested that the combined Nutrient Reference Value-Requirement (NRV-R) for children aged 6 to 36 months should be calculated by taking the mean of two age groups(6–12 months and 12–36 months), and it was accepted by the CCNFSDU.
- NRVs-R are recommendations for nutritional intake based on current scientific data, established for target groups or populations.





*The United Nations International Children’s Fund (UNICEF) has said that Indian suppliers are the third largest provider of organisation’s health and nutrition support to children globally.*

- The United Nations International Children’s Emergency Fund (UNICEF) was established in 1946, in the aftermath of World War II.
- Its Mandate To help children and young people whose lives and futures were at risk – no matter what role their country had played in the war.
- It works in over 190 countries and territories to protect the rights of every child.
- UNICEF’s work is funded entirely through the voluntary support of millions of people around the world and our partners in government, civil society and the private sector.
- It has received the Nobel Peace Prize in 1965, the Indira Gandhi Prize in 1989, and the Princess of Asturias Award in 2006.
- It publishes important Reports: The State of the World’s Children, The State of the World’s Children reports.
- Global Initiatives:
- In 2012, UNICEF worked with Save the Children and The United Nations Global Compact to develop the Children’s Rights and Business Principles, and now these guidelines form the basis of UNICEF’s advice to companies.
- UNICEF’s Data Must Speak Initiative (DMS) helps countries unlock existing data to expand access to education and improve learning for all. Headquarters: It is headquartered in New York City



## **International Solar Alliance Assembly**

*The curtain raiser for the Seventh Session of the International Solar Alliance (ISA) Assembly was hosted in New Delhi.*

- International Solar Alliance Assembly is the apex decision-making body of International Solar Alliance (ISA), representing each Member Country.
- This body makes decisions concerning the implementation of the ISA’s Framework Agreement and coordinated actions to be taken to achieve its objective.
- The Assembly deliberates matters of substance, such as the selection of the Director General, the functioning of ISA, approval of the operating budget, etc.
- It meets annually at the ministerial level at the ISA’s seat.
- It assesses the aggregate effect of the programmes and other activities in terms of deployment of solar energy, performance, reliability, cost and scale of finance.
- Members: 120 countries are signatories to the ISA Framework Agreement, of which 102 countries have submitted the necessary instruments of ratification to become full members of the ISA.



- The Republic of India holds the office of the President of the ISA Assembly, with the Government of the French Republic as the co-president.
- The Seventh Session of the ISA Assembly will deliberate on initiatives of ISA that impact energy access, security, and transitions with a focus on:
- Empowering Member Countries to adopt solar energy as the energy source of choice
- Make energy access universal by supporting solar entrepreneurs to scale up local solutions
- Mobilise finance to speed up solar deployment.

## Kazan Declaration

*The 16th BRICS Summit saw the leaders adopt the Kazan Declaration: ‘Strengthening Multilateralism For Just Global Development And Security’*

- The 16th BRICS Summit was hosted by Russia in Kazan from October 22 to October 24, 2024.
- Theme: “Strengthening Multilateralism for Just Global Development and Security”.
- Participants: Leaders of BRICS nations (Brazil, Russia, India, China, and South Africa) along with new partner countries including Egypt, Ethiopia, Iran, Saudi Arabia, and the UAE.



### Highlights:

- Geopolitical Concerns Call for peaceful resolution to the Ukraine conflict through diplomacy.
- Concerns over the humanitarian crisis in Palestine and condemnation of violence in Gaza, West Bank, and Lebanon.
- Global Governance & Multilateralism Emphasis on the reform of global financial architecture and multilateralism.
- Support for the continued functioning of the G20 and a reformed, responsive global financial system.
- Economic Cooperation Promotion of local currencies for cross-border payments to reduce trade barriers.
- Agreement to explore the establishment of a BRICS Grain Exchange and a BRICS Cross-Border Payment System.
- Pandemic Preparedness & Health Support for the BRICS R&D Vaccine Center and Early Warning Systems for infectious diseases.
- Addressing antimicrobial resistance and enhancing healthcare collaboration.
- Environmental Conservation Support for India’s Big Cats Conservation initiative and collaboration on protecting endangered species.
- Expansion & Partnerships Welcoming new BRICS partners from Egypt, Ethiopia, Iran, Saudi Arabia, and the UAE, expanding the bloc’s influence in the Global South.

## Mid-Career Training Programme For Civil Servants : BIMSTEC

*India’s National Centre for Good Governance (NCGG) has initiated its first-ever Mid-Career Training Programme for civil servants from the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) nations.*

- BIMSTEC is a regional organization comprising seven member states lying in the littoral and adjacent areas of the Bay of Bengal constituting a contiguous regional unity.
- It came into being on 6 June 1997 through the Bangkok Declaration.
- It constitutes seven Member States: five deriving from South Asia, including Bangladesh, Bhutan, India, Nepal, Sri Lanka, and two from Southeast Asia, including Myanmar and Thailand.
- The main aim of the BIMSTEC was the promotion of economic cooperation between countries bordering the Bay of Bengal.
- BIMSTEC has identified 14 priority areas of mutual cooperation where a member country takes the lead.
- India is the lead country for Transport & Communication, Tourism, Environment & Disaster Management and Counter Terrorism & Transnational Crime.
- Permanent Secretariat: Dhaka, Bangladesh

## Peechi -Vazhani Wildlife Sanctuary



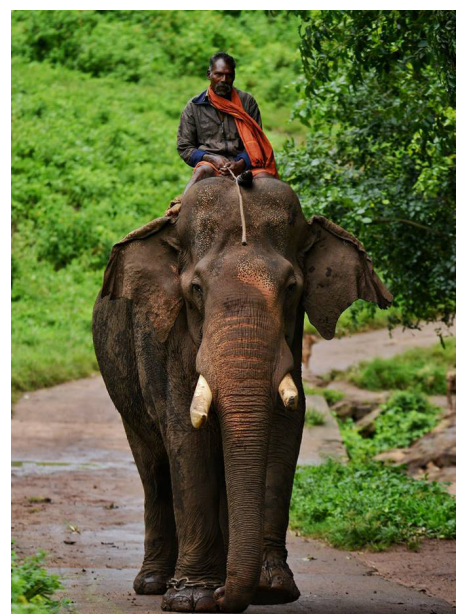
*A female elephant recently died due to apparent electrocution near a tribal colony close to the Peechi wildlife sanctuary in Kerala's Thrissur district.*

- Peechi -Vazhani Wildlife Sanctuary is located in Thrissur District, Kerala.
- Spread across 125 sq. km, the Peechi-Vazhani Wildlife Sanctuary was established in 1958.
- It is situated in the catchment area of the Peechi and Vazhani Dams.
- It is part of the Palapilii-Nellyampathy forests and forms the northern boundary of the Chimmini Wildlife Sanctuary.
- The wildlife population includes over 25 types of mammals, including carnivores like the leopard, the tiger, and the fox, and herbivores like the elk, deer, barking deer, spotted deer, the gaur, and the elephant.

## Kumki Elephants

*Andhra Pradesh (AP) and Karnataka signed an MoU for the deployment of trained elephants (Kumki) from Karnataka to control the elephant menace in AP.*

- It Includes deploying an expert team for elephant capture, mahout training programs, knowledge transfer, SOPs for darting (tranquillising) and capturing animals, nutrition and food, and workshops and seminars.
- Karnataka has transferred 62 kumki elephants to Uttar Pradesh, Chhattisgarh, Maharashtra, and other states.
- Kumki is a term used in India to refer to trained captive Asian elephants.
- They can capture, rescue, and treat injured wild elephants, as well as to drive them away from human settlements.
- Some are trained to follow commands and aid in training other elephants.



- They participate in forest patrolling to support conservation initiatives.
- India is home to about 60% of the world’s Asian elephant population, with an estimated 27,312 individuals as per the 2017 census and 138 identified elephant corridors.
- Elephants have a gestation period of about 22 months, the longest of any land animal.
- Asian elephants (Indian) are classified as Endangered on the IUCN Red List.

## Eco-mark Scheme

The Ecomark Scheme was introduced to promote eco-friendly products in alignment with the ‘LiFE’ (Lifestyle for Environment) mission initiated in 2021.



- The revised scheme, notified in 2024, replaces the earlier 1991 version, and focuses on reducing environmental impacts, promoting resource efficiency, and encouraging sustainable production and consumption.
- Accreditation of products based on specific environmental criteria, ensuring minimal environmental harm.
- Reduction in energy consumption and promoting a circular economy by utilizing recycled materials and eco-friendly production methods.
- The scheme mandates accurate labelling to avoid misleading claims about product sustainability.
- Implementation is overseen by the Central Pollution Control Board (CPCB) and Bureau of Indian Standards (BIS).
- The scheme is a step towards achieving sustainability goals, supporting both consumer awareness and motivating manufacturers to adopt eco-friendly practices.

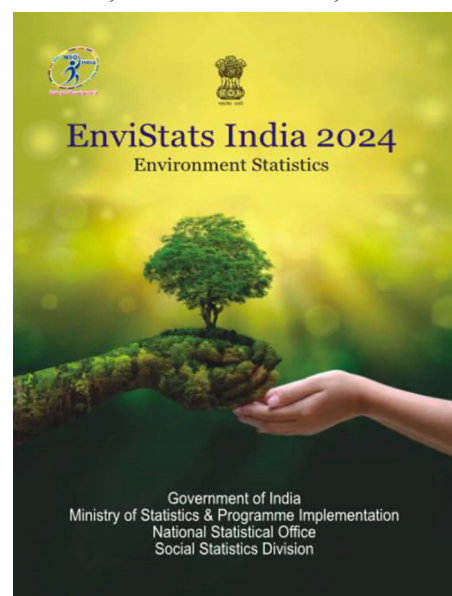
## EnviStats India 2024

The Ministry of Statistics and Programme Implementation (MoSPI) compiled and released the 7th consecutive issue of the publication “EnviStats India 2024: Environment Accounts”.

- EnviStats India 2024 is compiled in accordance with the System of Environmental-Economic Accounting (SEEA).
- The current publication which is seventh in the series covers Energy Accounts, Ocean Accounts, Soil Nutrient Index and Biodiversity.

### Highlights EnviStats India 2024

- There has been around 72% increase in the number and around 16% increase in area for the Total Protected Area during the period 2000 to 2023.
- The coverage of Mangroves, which is an important sub-ecosystem of the ocean ecosystem has increased around 8% over the years 2013 to 2021.
- The report also includes the taxonomic faunal and floral diversity of India, the status of the Leopard and Snow leopard and information on Genetic Conservation using data from the stakeholder Ministries/agencies.
- Also, the Species Richness of the International Union for Conservation of Nature (IUCN) Red List of Threatened species by taxonomic groups has been compiled using spatial datasets from IUCN.

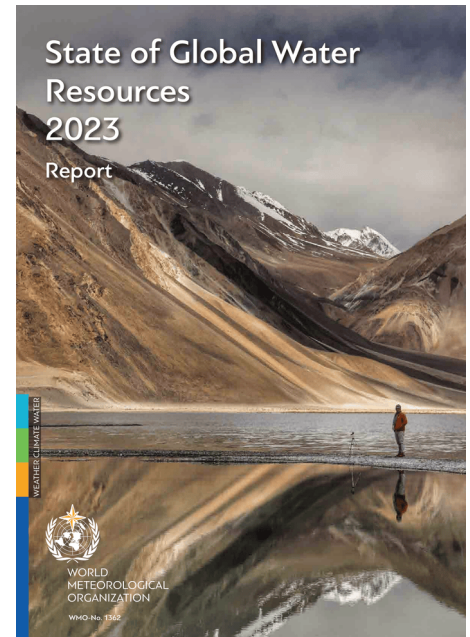


# State of Global Water Resource Report 2023

According to the State of Global Water Resource Report 2023, the year 2023 marked the driest year for global rivers in over three decades.

## State of Global Water Resource Report:

- It is an annual report published by the World Meteorological Organization (WMO) since 2021.
- It offers a comprehensive and consistent overview of water resources worldwide.
- It is based on input from dozens of National Meteorological and Hydrological Services and other organizations and experts.
- The year 2023 marked the driest year for global rivers in 33 years.
- The last five consecutive years have recorded widespread below-normal conditions for river flows, with reservoir inflows following a similar pattern.
- It notes that 2023 was also the second consecutive year in which all regions in the world with glaciers reported ice loss, the year in which “glaciers suffered the largest mass loss ever registered in 50 years.
- More than 600 gigatons (Gt) of water were lost across all glaciated regions of the world.
- The report says that 6 billion people currently face inadequate access to water at least one month a year, and this is expected to increase to more than 5 billion by 2050.
- The world is far off-track with Sustainable Development Goal 6 on water and sanitation.



## Padmaja Naidu Himalayan Zoological Park

*The Red Panda Program of Darjeeling's Padmaja Naidu Himalayan Zoological Park has been selected as a finalist for the World Association of Zoos and Aquariums (WAZA) Conservation Award 2024.*

- Red Panda is Primarily herbivorous, consuming bamboo, berries, acorns, and occasionally small mammals.
- Lives in the mountainous forests of Bhutan, China, India, Myanmar, and Nepal, with nearly 50% of its habitat in the Eastern Himalayas.
- Conservation Status: IUCN Red List: Endangered
- CITES: Appendix I
- Wildlife Protection Act 1972 (India): Schedule I
- Threats: Habitat loss due to deforestation and decline in bamboo forests are major threats to red panda populations.



## Caracal Breeding and Conservation Center

The Gujarat government has announced the establishment of a Caracal (*Henotaro*) Breeding and Conservation Center in the Chadva Rakhhal region of Kutch, with a budget allocation of ₹10 crore.



- Caracal is an elusive, primarily nocturnal animal which has traditionally been valued for its liveness and extraordinary ability to catch birds in flight.
- In India, it is called siya gosh, a Persian name that translates as 'black Ear'.
- They typically use abandoned porcupine burrows and rock crevices for maternal dens but can be found with their young in dense vegetation.
- They live in small herds and their shy and elusive nature makes them difficult to spot in

the wild.

- They live in woodlands, savannahs and in scrub forests.
- The most suitable habitat for caracals in Rajasthan, Gujarat and Madhya Pradesh is located in Kutch, the Malwa Plateau, the Aravalli hill range and the Bundelkhand region,
- It is found in several dozen countries across Africa, the Middle East, Central and South Asia.
- Large-scale hunting, illegal trading and loss of natural habitats are considered significant threats to the species.
- Conservation status IUCN: Least concern
- The Wild Life (Protection) Act, 1972: Schedule I

## Living Planet Report 2024

The Living Planet Report 2024 revealed that the average size of monitored wildlife populations has decreased by 73 per cent since 1970.

### Highlights of the Living Planet Report 2024

- The sharpest decline is reported in freshwater ecosystems at 85%, followed by terrestrial ecosystems at 69% and marine ecosystems at 56%.
- Latin America and the Caribbean, where populations have dropped by 95 per cent
- Africa: 76 % decline.
- Asia-Pacific region: 60 % decline.
- Central Asia: 35% decline
- North America: 39 % decline.
- Major threats to wildlife include Habitat loss, overexploitation, climate change, pollution, invasive species, and diseases, which were the dominant drivers of the decline of wildlife.
- Habitat loss was driven by unsustainable agriculture, fragmentation, logging, mining, to name a few causes.



- Ongoing mass coral reef bleaching, affecting over 75 per cent of the world’s reefs, the Amazon rainforest, the collapse of the subpolar gyre and the melting of the Greenland and West Antarctic ice sheets are all nearing critical tipping points.
- More than half of the United Nations-mandated Sustainable Development Goals for 2030 are unlikely to meet their targets, with 30 per cent of them either already missed or worse off than their 2015 baseline.

## National Biodiversity Strategy and Action Plans Tracker

*National Biodiversity Strategy and Action Plans (NBSAPs) Tracker revealed that only 10% of nations fulfil their biodiversity commitments ahead of COP16.*



- National Biodiversity Strategy and Action Plans Tracker is a new tool developed by the World Wildlife Fund for Nature (WWF), which is monitoring the progress of countries in developing their NBSAPs that align with the goals of the Kunming-Montreal Global Biodiversity Framework (GBF).
- It aims to make biodiversity policies accessible to all stakeholders, ensuring transparency and accountability as countries prepare for COP16.
- NBSAPs are crucial blueprints for countries to outline their strategies to tackle biodiversity loss and meet international targets.
- These plans are aimed at ensuring that nations can mobilise action and funding to help restore ecosystems and safeguard wildlife.
- Kunming-Montreal Global Biodiversity Framework was adopted during the 15th meeting of the Conference of the Parties, or COP15, to the UN Convention on Biological Diversity in December 2022.
- It aims to support the achievement of sustainable development goals and build on previous strategic plans.
- It sets a bold path towards global harmony with nature by 2050.
- In adopting the GBF, all parties committee to setting national targets to implement it.
- The GBF consists of 23 targets(set for 2030) and four global goals (set for 2050) to preserve biodiversity for current and future generations.
- The targets address reducing threats to biodiversity, meeting people’s needs through sustainable use and benefit-sharing, and tools and solutions for implementation and mainstreaming.

## Kaziranga National Park : India's Second Largest Butterfly Diversity Hub

More than 446 butterfly species have been recorded in Assam’s Kaziranga National Park (KNP), making it a habitat with the second highest concentration in the country after the Namdapha National Park in Arunachal Pradesh.

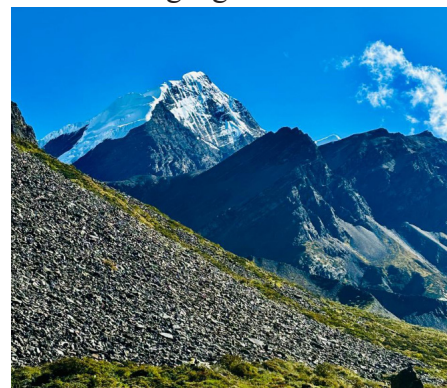
- Kaziranga National Park is situated in the north-eastern part of the country in the districts of Golaghat and Nagoan in the state of Assam.
- It is the single largest undisturbed and representative area in the Brahmaputra Valley floodplain.
- In 1985, the park was declared a World Heritage Site by UNESCO.
- The river Difalu, a tributary of the Brahmaputra, flows through the National Park area (core/critical tiger habitat), while another tributary, Moradifalu, flows along its southern boundary.
- It is of sheer forest, tall elephant grass, rugged reeds, marshes, and shallow pools.
- It is inhabited by the world’s largest population of one-horned rhinoceroses, as well as many mammals.



## Tsangyang Gyatso Peak

*A peak in Arunachal Pradesh was named 'Tsangyang Gyatso Peak' after the 6th Dalai Lama, Tsangyang Gyatso on which China objected.*

- China condemned the naming of the peak calling it an illegal operation in “Chinese territory”.
- China claims the entire Arunachal Pradesh as “South Tibet”. Beijing calls the region “Zangnan” in the Chinese language.
- Tsangyang Gyatso was born in Tawang and lived during the 17th-18th century CE.
- India described the naming as a tribute to Tsangyang Gyatso’s “timeless wisdom” and his contributions to the Monpa community (an ethnic group native to the Tawang region).
- A team from National Institute of Mountaineering and Adventure Sports (NIMAS) scaled the 6,383-metre peak facing steep ice walls, dangerous crevasses, and a two-kilometre-long glacier.
- The peak is located in the Gorichen range of Arunachal Pradesh Himalayas.
- A crevasse is a deep, wedge-shaped opening in a glacier. Crevasses usually form in the top 50 metres of a glacier.
- NIMAS comes under the Ministry of Defence.



# GEOGRAPHY

## Kosi River : Severe Flood In Bihar

*Several regions of Bihar are facing severe flooding due to the heavy release of water from the Kosi Barrage in Birpur, following intense rainfall.*

- Kosi River is a trans boundary river which flows through China, Nepal and India.
- It is a prominent tributary of the Ganges.
- The river Kosi is formed by the confluence of three streams, namely the Sun Kosi, the Arun Kosi, and the Tamur Kosi, all of which have their origin in the Himalayan region of Nepal and Tibet.
- About 30 miles (48 km) north of the Indian-Nepalese frontier, the Kosi is joined by several major tributaries and breaks southward through the Siwalik Hills at the narrow Chatra Gorge.
- The river then emerges on the great plain of northern India in Bihar state on its way to the Ganges River, which it enters south of Purnea after a course of about 450 miles (724 km).
- The Kosi drains an area of 74,500 sq.km, of which only 11,070 sq.km lie within Indian Territory.
- The Kosi River valley is bounded by steep margins that disconnect it from the Yarlung Zangbo River to the north, the Mahananda River to the east, the Gandaki to the west, and the Ganga to the south.
- Because of its great outflashing of debris, the Kosi has no permanent channel in its course through the great plain of northern India.



- It is well known for its tendency to change course generally in a westward direction. During the last 200 years, the river has shifted westwards for a distance of about 112 km and has laid waste large tracks of agricultural land.
- Kosi is known as the “sorrow of Bihar”, as it has caused widespread human suffering in the past due to flooding and very frequent course changes when it flows from Nepal to Bihar.
- It has seven major tributaries: Sun Koshi, Tama Koshi or Tamba Koshi, Dudh Koshi, Indravati, Likhu, Arun, and Tamore or Tamar.

## Mount Erebus

*An annular solar eclipse was visible in parts of South America on October 2 while a partial solar eclipse was visible in parts of South America, Antarctica, North America, the Atlantic Ocean, and the Pacific Ocean. Solar Eclipse takes place when the Moon moves in the middle of the Earth and the Sun.*

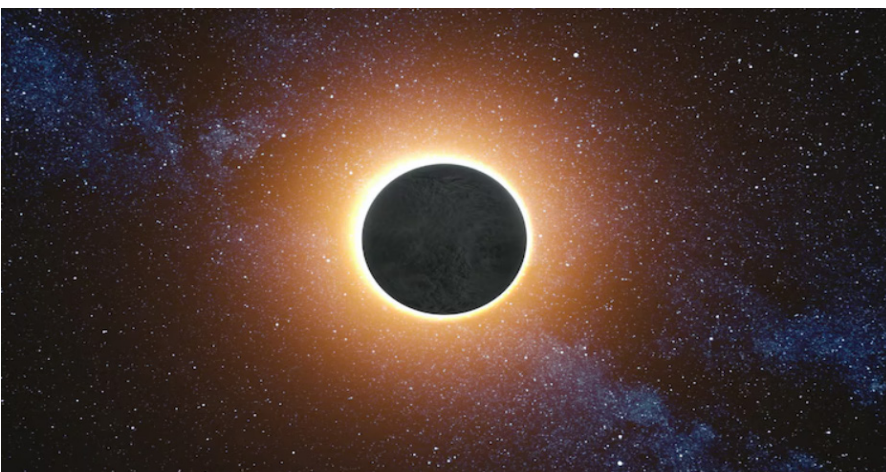
- The Moon blocks the light of the Sun, either fully or partially, which casts a huge shadow on some parts of the world.
- A solar eclipse is witnessed only during the new moon — when the Moon and Sun are aligned on the same side of Earth.
- A new moon occurs about 29.5 days because that is how long it takes the Moon to orbit Earth. It takes place only between two to five times annually.
- It is because the Moon does not orbit Earth in the same plane as the Earth orbits the Sun. In fact, the Moon is tilted by about five degrees with respect to Earth.
- As a result, most of the time when the Moon is in between the Sun and Earth, its shadow is either too high or too low to fall on the Earth.



## Annular solar eclipse

*Antarctica’s second largest volcano, Mount Erebus, is spewing out gold dust, which has left scientists in complete shock.*

- Mount Erebus is the world’s southernmost active volcano.
- It is situated on Ross Island, Antarctica.



- It was discovered in 1841 by the British explorer Sir James Clark Ross, who named it after his ship, the Erebus.
- It’s a stratovolcano characterized by a conical shape and layers of hardened lava, tephra, and volcanic ash.
- Mount Erebus is known for its persistent lava lake.
- The lake has been active since at least 1972 and is one of only a few long-lived lava lakes on Earth.
- It constantly churns and occasionally spews bombs of molten rock in Strombolian eruptions.
- Because the volcano is in a remote location, researchers monitor it using satellites.
- The largest Antarctic settlement—McMurdo Station, operated by the United States—stands within sight of the volcano (about 40 kilometers or 25 miles away).

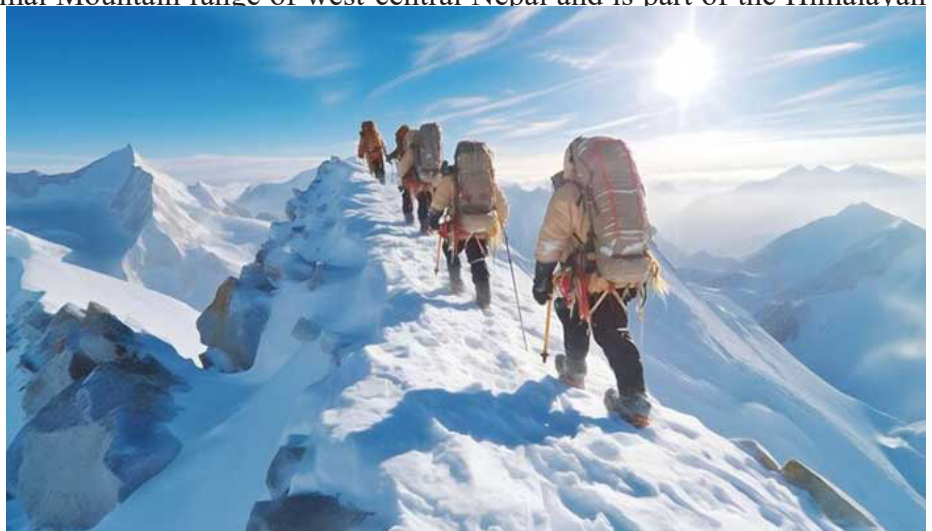
There are four different types of solar eclipses,

- **Total Solar eclipse:** It occurs when the Moon blocks the Sun entirely, the areas in the centre of the Moon's shadow at the time witness a total solar eclipse. The sky darkens and people who are in the path of a total solar eclipse can get a glimpse of the Sun's corona — the outer atmosphere — which is usually not visible due to the bright face of the Sun.
- **Annular solar eclipse:** It occurs when the Moon passes in front of the Sun but is at or near the farthest point from Earth. In this scenario, the Moon covers the Sun in such a way that only the periphery of the Sun remains visible — looking like a ring of fire.
- **Partial solar eclipse:** It takes place when the Moon blocks just a part of the Sun, giving it a crescent shape. During both partial and annular eclipses, the regions outside the area covered by the Moon's umbra — the middle and the darkest part of the lunar shadow — will see a partial solar eclipse. Partial solar eclipse is the most common type of solar eclipse.
- **Hybrid solar eclipse:** It is the rarest type of solar eclipse and it is witnessed when an eclipse shifts between annular and total as the shadow of the Moon moves across the globe.

## Mount Dhaulagiri : Russian Mountaineers Lost Their Lives

*Five Russian mountaineers recently lost their lives during an expedition on Mount Dhaulagiri*

- Mount Dhaulagiri is the seventh-highest mountain in the world.
- It has an elevation of 8,167 meters (26,795 feet) above sea level.
- It is located in the Dhaulagiri Himal Mountain range of west-central Nepal and is part of the Himalayan Mountain range.
- It is also one of the “eight-thousanders” — the fourteen mountains on Earth that are more than 8,000 metres (26,247 ft) above sea level.
- Dhaulagiri means “white mountain” in Sanskrit, and it is known for its snowy peaks and glaciers.
- It is the highest mountain located entirely within Nepal.
- It extends about 120km from the Kaligandaki River to the Bheri River in the west.
- It is also the highest point of the Gandaki River Basin.
- It is one of the most challenging mountains to climb due to its difficult terrain and unpredictable weather conditions.
- The first successful expedition to Mt. Dhaulagiri was led by the Swiss climber, Max Eiselin, in 1960.



## Lake Erie : Infected Bacteria

*Research has shown that toxins from these bacteria called microcystin can make animals and people sick when they come into contact with infected water of Lake Erie.*

- Lake Erie is the fourth largest of the five Great Lakes of North America.
- It forms the boundary between Canada(Ontario) to the north and the United States to the west, south, and east.
- The lake's principal tributary rivers are the Detroit (carrying the discharge of Lake Huron), Huron, and Raisin rivers of Michigan etc.
- The lake discharges at its eastern end through the Niagara River.
- It is an important link in the Lawrence Seaway.

- Microcystin is a single-celled freshwater cyanobacterium that forms colonies surrounded by mucilage.
- The genus *Microcystis* contains several species which often form massive blooms and which produce toxins.

## Marapi Volcano

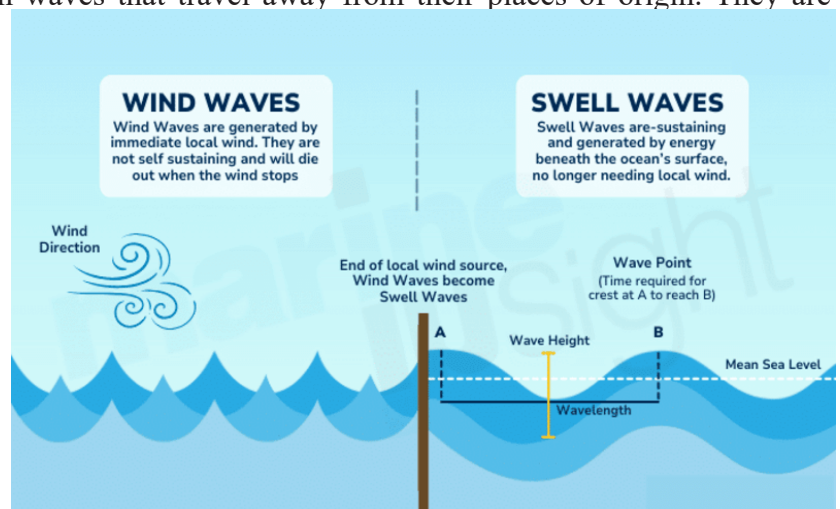
*One of Indonesia's most active volcanoes, Marapi Volcano, erupted recently, spewing thick columns of ash at least three times and blanketing villages with debris, but no casualties were reported.*

- Marapi Volcano is an active volcano located in the Padang Highlands of western Sumatra, Indonesia.
- The mountain is part of the Ring of Fire—a long, horseshoe-shaped, seismically active belt that rings the Pacific Ocean.
- The highest peak among several volcanoes in the highlands, Mount Marapi rises to 9,485 feet (2,891 meters) above sea level.
- It has steep slopes with dense vegetation on its lower flanks.
- Its summit contains the Bancah caldera, which has a diameter of 0.9 miles (1.4 km) and is characterized by a series of overlapping craters.
- Mount Marapi is often confused with a similar active volcano called Mount Merapi, which is located near the center of the island of Java, Indonesia.
- It has erupted 11 times during the early 21st century, with its deadliest single event having killed 60 people in 1979.

## Swell waves

*The Indian National Centre for Ocean Information Services (INCOIS) has issued extensive advisories for swell waves for Andaman and Nicobar and Lakshadweep as well as parts of coastal areas in Andhra, Goa, Gujarat, Kerala, Maharashtra, Odisha, Tamil Nadu, West Bengal, Daman and Diu, and Puducherry.*

- Swell waves are also called Kallakkadal waves in India, which is a colloquial term used by Kerala fishermen to denote sudden waves that cause flash floods.
- INCOIS Hyderabad launched its swell surge forecast system in February 2020 to provide warnings for coastal populations in case of anticipated swell waves.
- Swell waves are long-wavelength ocean waves that travel away from their places of origin. They are usually created by windstorms or other weather systems. Sea waves otherwise are usually generated due to local winds.
- Windstorms and other powerful air current systems transfer energy from the air to water, making swell waves more powerful. Because of their high energy, swell waves are able to travel large distances and strike shores with considerably high power.
- According to INCOIS, swell waves organise themselves into groups of similar heights and periods, and then travel long distances without much change. Wave period is the time one wavelength takes to pass a specific point.
- Longer wavelengths, therefore, result in longer wave periods, and these characteristics are associated with faster and more powerful waves.
- A wave is essentially a transfer of energy from one point to another. Shorter waves dissipate more energy due to frequent movement, which is why they also lose energy quickly. Longer wavelengths are more powerful, and this is also why swells continue to persist days after they are formed.

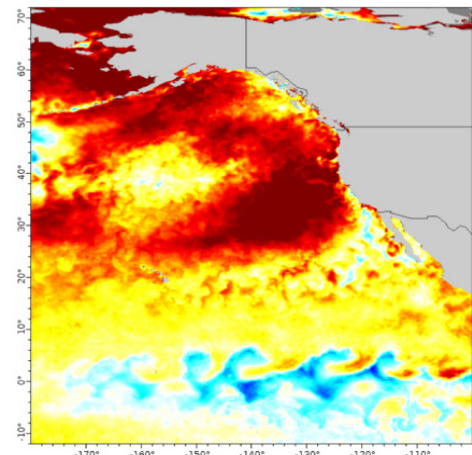


- Kallakkadal waves inundate large areas of land.
- These waves are also sometimes confused with tsunami waves given their stealthy nature, but both are different.
- Kallakkadal waves are caused due to weather phenomenon, while tsunamis are mostly caused due to earthquakes or tectonic activity.

## Marine Heat Wave

*Researchers found that marine heat waves (MHWs) deep in oceans may be “significantly under-reported” and caused by ocean currents.*

- A marine heat wave is an extreme weather event.
- It occurs when the surface temperature of a particular region of the sea rises to 3 or 4 degree Celsius above the average temperature for at least five days.
- MHWs can last for weeks, months or even years, according to the US government’s agency National Oceanic and Atmospheric Administration (NOAA).
- MHWs are prolonged temperature events that can cause severe damage to marine habitats, such as impacts to coral reefs and species displacement.
- These events are becoming more frequent due to global warming, with notable occurrences off Australia’s East Coast and Tasmania, as well as the northeast Pacific coast and North Atlantic.
- Higher ocean temperatures, which are associated with MHWs, can make storms like hurricanes and tropical cyclones stronger.
- MHWs also fuel the growth of invasive alien species, which can be destructive to marine food webs.
- When storms travel across hot oceans, they gather more water vapour and heat.
- This results in more powerful winds, heavier rainfall and more flooding when storms reach the land meaning heightened devastation for humans.



## Mesophotic Coral Ecosystems

*Researchers from the Max Planck Institute for Chemistry have found that mesophotic coral ecosystems in the Eastern Tropical Pacific face a two-pronged threat, with bleaching from warm water above and cold-water exposure from below.*

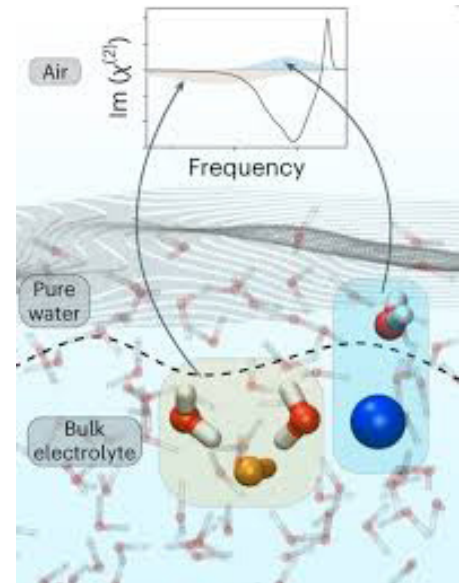
- Published in Science of the Total Environment, the study highlights the increasing risks to these reefs’ health and functionality.
- Mesophotic coral ecosystems are found in tropical and subtropical regions at depths between 100 and 490 feet.
- Key organisms in these ecosystems include corals, sponges, and algae, which provide structural habitat.
- These ecosystems may help replenish shallow coral reefs and serve as essential habitats for fish species crucial for spawning, breeding, and feeding.
- Mesophotic corals contain organisms with specialised defences that could lead to the development of natural products for medical use.



## Electrolyte

*Researchers recently developed an electrolyte with high conductivity, formability, and electrochemical stability.*

- Electrolytes are minerals that give off an electrical charge when they dissolve in fluids like blood and urine.
- The most familiar electrolytes are acids, bases, and salts which ionize when dissolved in such solvents as water or alcohol.
- Many salts, such as sodium chloride, behave as electrolytes when melted in the absence of any solvent; and some, such as silver iodide, are electrolytes even in the solid state.
- Your body makes electrolytes. You also get these minerals from foods, drinks, and supplements.
- Electrolytes in blood, tissue, urine and other body fluids play a critical role in balancing body fluids, regulating your heart rhythm, and supporting nerve and muscle function.
- An electrolyte imbalance occurs when you have too much or not enough of certain minerals in your body. This imbalance may be a sign of a problem like kidney disease.
- An electrolyte panel is a blood test that measures electrolyte levels.



## Five-Hundred Aperture Spherical Telescope

*China has kicked off a second phase of construction to enhance the capabilities of the Five-Hundred Aperture Spherical Telescope (FAST).*



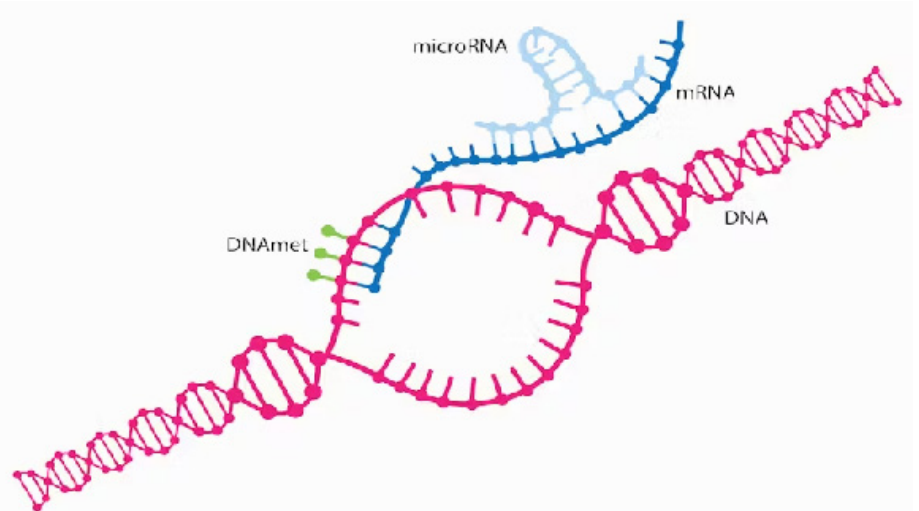
- Five-Hundred Aperture Spherical Telescope (FAST) is a radio telescope in China's Guizhou Province.
  - It is the world's largest and most sensitive radio telescope, with a receiving area equivalent to 30 football fields.
  - It measures 500 meters in diameter.
- Scientific Goals:**
- Detect neutral hydrogen at the edge of the universe; reconstruct the images of the early universe;
  - Discover pulsars, establish a pulsar timing array, and participate in pulsar navigation and gravitational wave detection in the future;

- Join the International Very-Long-Baseline Interferometry Network to obtain hyperfine structures of celestial bodies;
- Perform high-resolution radio spectral survey;
- Detect weak space signals;
- Participate in the search for extraterrestrial intelligence.
- FAST uses a data system developed at ICRAR (International Center for Radio Astronomy) in Perth, Australia, and at ESO (European Southern Observatory) to manage the huge amounts of data it generates.

# microRNA

*The 2024 Nobel Prize for Medicine has been awarded to scientists Victor Ambros and Gary Ruvkun for their discovery of microRNA — tiny molecules which play a crucial role in how genes function.*

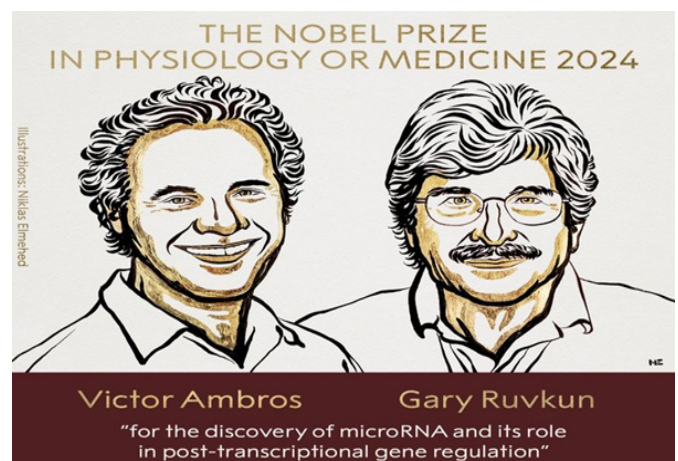
- MicroRNAs, or miRNAs, are small, non-coding molecules of RNA.
- They are typically around 19-24 nucleotides long and play an important role in determining how much messenger RNA (mRNA), which carries genetic information, eventually gets translated into protein.
- These microRNAs act as molecular switches, fine-tuning the expression of genes in different cell types and under varying conditions.
- They regulate the production of proteins by bonding with and subsequently silencing the mRNA at an appropriate juncture.
- The process is called post-transcriptional gene regulation.
- MicroRNAs help fine-tune various cellular processes like development, growth, and metabolism.
- Their role is essential in maintaining normal cell function, and disruptions in microRNA activity have been linked to diseases such as cancer.
- Mutations in genes coding for microRNAs have been found in humans, causing conditions such as congenital hearing loss, eye and skeletal disorders.
- The discovery of microRNAs has provided scientists with new tools to investigate gene regulation and has significantly expanded our understanding of how genetic information is processed and utilized in living organisms.



## Nobel Prize For Medicine, 2024

*The Nobel Prize for Medicine in 2024 has been awarded to Victor Ambros and Gary Ruvkun for their groundbreaking work in discovering microRNA and its role in gene regulation.*

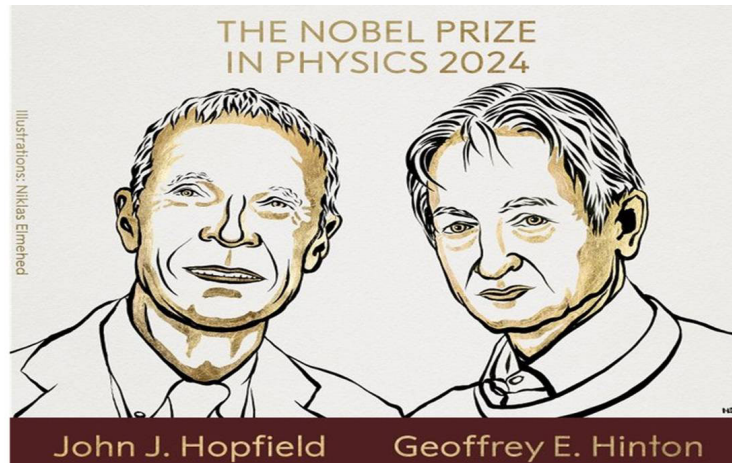
- Nobel Prize in Medicine 2024 Ambros and Gary Ruvkun.
- Discovery of microRNA and its role in post-transcriptional gene regulation.
- They studied the roundworm *C. Elegans* and identified how the lin-4 microRNA regulates the lin-14 gene by inhibiting its protein production



## 2024 Nobel Prize In physics:

*The 2024 Nobel Prize in physics has been awarded to John Hopfield and Geoffrey Hinton for foundational discoveries and inventions that enable machine learning with artificial neural networks.*

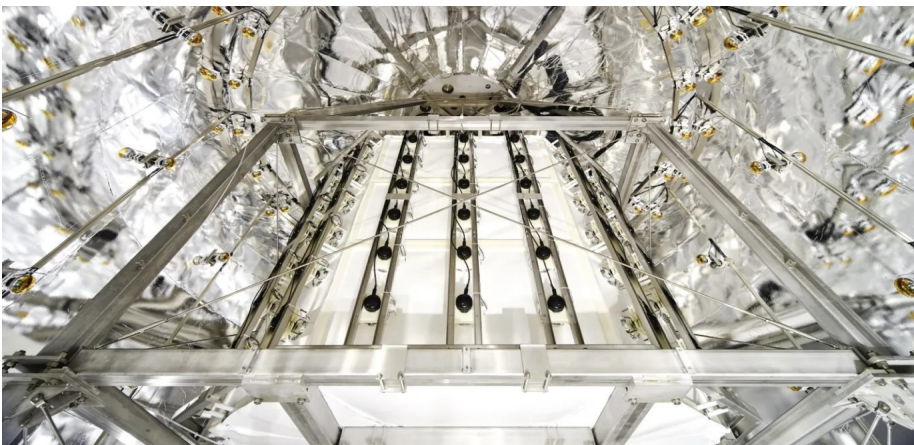
- ML is a branch of Artificial Intelligence (AI) focused on building computer systems that learn from data.
- ML allows computer systems to continuously adjust and enhance themselves as they accrue more “experiences.”
- ML algorithms are trained to find relationships and patterns in data.
- Using historical data as input, these algorithms can make predictions, classify information, cluster data points, reduce dimensionality and even generate new content.
- Examples of the latter, known as generative AI, include OpenAI’s ChatGPT, Anthropic’s Claude and GitHub Copilot.
- Training ML algorithms often demands large amounts of high-quality data to produce accurate results.
- ML is widely applicable across many industries. For example, e-commerce, social media and news organizations use recommendation engines to suggest content based on a customer’s past behavior.
- In self-driving cars, ML algorithms and computer vision play a critical role in safe road navigation.
- In healthcare, ML can aid in diagnosis and suggest treatment plans.
- Other common ML use cases include fraud detection, spam filtering, malware threat detection, predictive maintenance, and business process automation.



## Neutrino Fog

*The LUX-ZEPLIN (LZ) experiment, one of the many dark matter detection efforts globally, recently reported its findings, which placed the tightest restrictions yet on the possible identity of dark matter particles.*

- “Neutrino fog” refers to the interference caused by neutrinos—ghostly particles produced by the Sun and cosmic events—in detecting dark matter.



- Since neutrinos rarely interact with matter, they pass through almost everything, including dark matter detectors.
- Dark matter detection experiments, like LUX-ZEPLIN, are becoming increasingly sensitive, but they also detect neutrinos. This creates “fog,” or background noise, making it harder to distinguish between

neutrinos and dark matter signals.

- Neutrinos mimic the weak signals expected from dark matter, confusing results.
- Neutrino fog sets a boundary on how sensitive future dark matter experiments can be.
- Developing methods to differentiate neutrino signals from dark matter is a key challenge for advancing research.

# Charon Moon

*Scientists have recently detected carbon dioxide and hydrogen peroxide on Charon, Pluto's largest moon, using the James Webb Space Telescope (JWST).*

- Charon is the largest of Pluto's five moons, roughly half the size of Pluto itself.
- It was discovered on June 22, 1978, by James W. Christy and Robert S. Harrington at the U.S. Naval Observatory in Flagstaff, Arizona.
- Charon is about 1,214 kilometers (754 miles) in diameter, and its mass is more than one-tenth of Pluto's mass.
- Due to its size and mass relative to Pluto, they are often referred to as a double dwarf planet system.
- Charon and Pluto always show the same face to each other, a phenomenon known as mutual tidal locking.
- Charon orbits Pluto every 6.4 Earth days at a distance of about 19,640 kilometers (12,200 miles).
- Recent findings include carbon dioxide and hydrogen peroxide, in addition to previously known substances like water ice and ammonia-bearing compounds.
- Charon is located in the Kuiper Belt and serves as an invaluable target for studying icy bodies beyond Neptune's orbit.



## LUPEX Mission

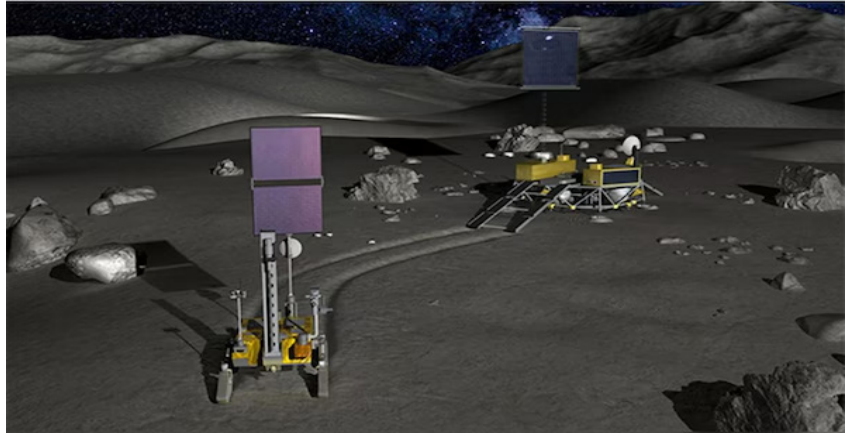
*The National Space Commission, India's apex body on space missions, cleared the fifth lunar mission, the Lunar Polar Exploration Mission.*

- LUPEX Mission is a collaborative mission between the Indian Space Research Organisation (ISRO) and the Japan Aerospace Exploration Agency (JAXA).
- Objective is to explore the moon's southern polar region, investigating the presence of water and other elements, potentially in the form of surface ice.
- It aims to showcase innovative surface exploration technologies. The special focus is on vehicular transport and lunar night survival.
- It features both a lander and a rover.
- JAXA is responsible for developing and operating the rover, and ISRO for developing and operating the lander that will carry the rover.
- The rover will drive on its own to search for areas where water is likely to be present and sample the soil by digging into the ground with a drill.

SPACE



- The plan is to acquire data by analyzing the collected samples in detail with observation equipment mounted on the rover.
- The rover will be equipped with instruments for measuring the water content of regolith (lunar sand), drilling, and sampling, as well as with other world-first and world-leading technologies for the driving system and batteries.
- The rover will carry not only the instruments of ISRO and JAXA but also those of the US space agency NASA and the European Space Agency (ESA).
- The mission is scheduled to launch in 2025.



## Space Docking Experiment (SPADEX)

*Hyderabad-based company handed over two 400 kg class satellites to ISRO, which will be part of the Space Docking Experiment planned by the space agency later this year.*

- Space Docking Experiment (SPADEX) is one of ISRO’s most significant steps towards developing autonomous docking technology.



- The mission involves two vehicles—‘Chaser’ and the ‘Target’—coming together and connecting in space.
- Docking systems allow two spacecraft to connect in orbit, enabling critical operations like assembling space stations, refueling, or transferring astronauts and cargo.
- It will also test how well the combined spacecraft maintains stability and control after docking, ensuring smooth operations for future missions.
- India’s SPADEX experiment is unique because it focuses on developing indige-

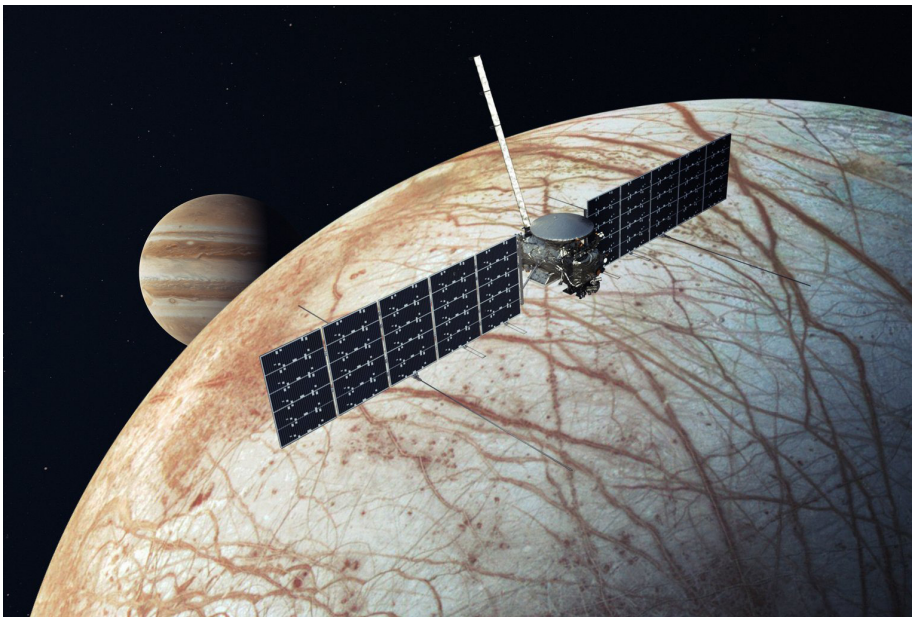
nous, scalable, and cost-effective docking technology.

- This experiment involves two spacecraft docking autonomously in orbit, demonstrating precision, navigation, and control capabilities critical for future missions.
- SPADEX is designed to serve a wide range of spacecraft sizes and mission objectives, including potential collaborations for building space stations or deep space exploration,”
- The history of docking systems dates back to the Cold War when the Soviet Union achieved the first successful docking in space.

# Europa Clipper mission

*NASA is set to launch Europa Clipper mission today.*

The spacecraft is scheduled to launch from Nasa’s Kennedy Space Center in Florida aboard a Falcon Heavy rocket.



## About Europa Clipper Mission

- Europa Clipper Mission is a NASA mission aimed at exploring Jupiter’s moon Europa, which is considered one of the top candidates in the search for extraterrestrial life.
- The mission is expected to last several years, with the spacecraft making multiple flybys of Europa.
- The main objective of the Europa Clipper mission is to determine whether Europa’s subsurface ocean could support life. The mission will investigate the moon’s ice shell,

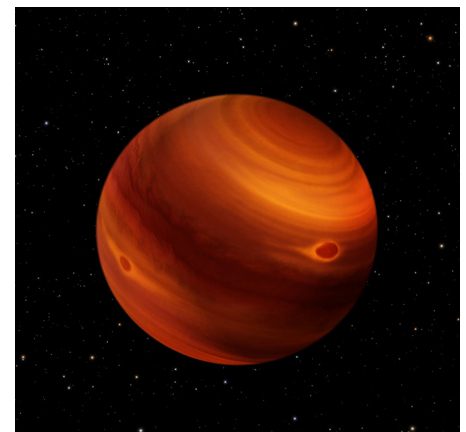
ocean, composition, and geology.

- Europa Clipper is the largest spacecraft NASA has ever developed for a planetary mission. Its solar arrays span over 100 feet (30 meters) when deployed.
- The spacecraft is expected to reach Jupiter and begin its scientific investigations by April 2030
- The mission ends in 2034 with a planned crash into Ganymede — Jupiter’s biggest moon and the solar system’s too.

## Brown dwarf

*Scientists have puzzled over the object known as Gliese 229B, the first known brown dwarf discovered 30 years ago is actually twins orbiting each other.*

- Brown dwarfs are sometimes called failed stars because they’re lighter than stars, but heavier than gas giant planets.
- These objects have a size between that of a giant planet like Jupiter and that of a small star.
- Brown dwarfs accumulate material like a star, not like a planet.
- They can also have clouds made out of precipitates in their atmospheres. However, while we have water clouds on Earth, the clouds on brown dwarfs are much hotter and likely made up of hot silicate particles.
- Thus, they hold onto their lighter elements (hydrogen and helium) more effectively than planets and have a relatively low metal content.
- They do not have enough mass for their cores to burn nuclear fuel and radiate starlight. This is why they are sometimes referred to as “failed stars.”
- The difference between brown dwarfs and stars is that, unlike stars, brown dwarfs do not reach stable luminosities by thermonuclear fusion of normal hydrogen.
- Both stars and brown dwarfs produce energy by fusion of deuterium (a rare isotope of hydrogen) in their first few million years.



# Exercise KAZIND

*The 8th edition of Exercise KAZIND is scheduled to be conducted from 30th September to 13th October 2024 at Surya Foreign Training Node, Auli, Uttarakhand*

- Exercise KAZIND is a joint military Exercise held every year between India and Kazakhstan.
- The Indian Armed Forces, comprising 120 personnel, are being represented by a battalion of the KUMAON Regiment of Indian Army, along with other arms and services, as well as personnel from the Indian Air Force.
- The Kazakhstan contingent will be represented mainly by personnel from Land Forces and Air Borne Assault Troopers.
- Aim is to enhance the joint military capability of both sides to undertake counter-terrorism operations in a sub-conventional scenario under Chapter VII of the United Nations Charter.
- It will focus on operations in the semi-urban and mountainous terrain. Objectives to be achieved from the Joint Exercise are a high degree of physical fitness, rehearsing and refining drills for operations at the tactical level and sharing of best practices.
- Tactical drills to be rehearsed during the Joint Exercise include joint response to terrorist action, establishment of a Joint Command Post, establishment of an Intelligence and Surveillance Centre
- Joint Exercise KAZIND-2024 will enable both sides to share best practices in tactics, techniques and procedures of conducting joint operations.
- It will facilitate the development of inter-operability, bonhomie and camaraderie between the two armies. The Joint Exercise will also enhance defence cooperation, further augmenting bilateral relations between the two friendly nations.



## Akashteer Air Defence Systems

*The Indian Army has significantly enhanced its air defence capabilities with the acquisition of 100 Akashteer air defence systems.*

- These are advanced Air Defence Control and Reporting Systems (ADCRS) which will serve as a critical asset in safeguarding the country from aerial threats, including missile and rocket attacks.
- It is a sophisticated, integrated control and reporting system designed to neutralize enemy threats swiftly.
- The system is capable of managing all aspects of air defence for the Army, integrating multiple radar systems, sensors, and communication technologies into a single operational framework.

- It provides a real-time battlefield view, allowing military personnel to detect, track, and engage aerial threats such as incoming missiles or enemy aircraft.
- It brings together various surveillance assets, radar systems, and communication nodes, enabling precise coordination of air defence operations.
- It is suitable for a wide range of operational environments.
- It is developed by Bharat Electronics Limited (BEL).
- This enhances the Indian Army’s ability to monitor airspace and deliver timely responses to any imminent threats.

## Fattah-2

*Iran recently fired more than 180 ballistic missiles, including its hypersonic medium-range Fattah-2, in a major offensive aimed at overwhelming Israel’s air defences.*

- Fattah-2 means conqueror in Farsi, is a hypersonic ballistic missile.
- It was developed by Iran. It is a new version of its first domestically made hypersonic ballistic missile named ‘Fattah’.
- It is equipped with a Hypersonic Glide Vehicle (HGV) warhead that can manoeuvre and glide at hypersonic speed.
- It uses a liquid-fuel rocket propellant.
- The liquid fuel engine can adjust the thrust force.
- The precision-guided two-stage missile can hit targets within a range of 1500 kilometres with a velocity of Mach 15 (fifteen times the speed of sound, i.e 18522 km/hr).
- Measuring 12 meters in length, it can carry 200 kilograms of explosives.
- It is capable of significant trajectory changes during flight to evade defence systems.
- While the missile can accelerate outside the Earth’s atmosphere, its aerodynamic control surfaces allow for steering within the atmosphere..



## INS Nirdeshak

*The Garden Reach Shipbuilders and Engineers (GRSE) Ltd delivered INS Nirdeshak to the Indian Navy.*

- INS Nirdeshak is the second in a series of four Survey Vessels (Large) being built by the Garden Reach Shipbuilders and Engineers.
- It displaces about 3400 tons and overall length is 110 meters. It can achieve speeds in excess of 18 knots.
- It is propelled by two marine diesel engines combined with fixed-pitch propellers.
- It was built using ‘Integrated Construction’ technology. This was in compliance with applicable provisions and regulations of the Classification Society (IRS).

- It is fitted with state-of-the-art hydrographic equipment such as data acquisition and processing systems, autonomous underwater vehicles, remotely operated vehicles, DGPS long-range positioning systems, digital side scan sonar, etc.
- It has an indigenous content of over 80% by cost.
- The delivery of Nirdeshak is a tribute to the collaborative efforts of a large number of stakeholders, MSMEs and the Indian industry in enhancing the maritime prowess of the nation in the Indian Ocean Region.



## IBSAMAR VIII

*Indian Navy's frontline stealth frigate, INS Talwar arrived at Simon's Town, South Africa to participate in the eighth edition of exercise IBSAMAR.*

- IBSAMAR VIII is a joint multinational maritime exercise among the Indian, Brazilian and South African Navy.
- The exercise aims to enhance interoperability and strengthen cohesion between the three navies. The broad concept is based on Blue Water Naval Warfare, encompassing the dimensions of Surface and Anti-Air Warfare.
- The harbour phase of IBSAMAR VIII will include professional exchanges, Damage Control & Firefighting drills, Visit, Board, Search, and Seizure drills, cross-boarding, aviation safety lectures, joint diving operations, an Ocean Governance seminar, sports interactions, cross-deck visits, and interaction among Special Forces and Junior Officers.
- Multilateral interactions are crucial bridges of friendship that increase mutual trust and enhance interoperability among navies of like-minded littoral nations, with the common goal of a peaceful maritime domain and positive maritime environment.

## National Health Account Estimates

The Union Ministry of Health and Family Welfare recently released the National Health Account (NHA) estimates for the fiscal years 2020-21 and 2021-22. These reports are the eighth and ninth editions of the NHA series, which provides a comprehensive view of the country's healthcare expenditure.

### Key Findings of National Health Account (NHA) Estimates for 2020-21 and 2021-22:



- Government health expenditure (GHE) as a percentage of GDP increased from 1.13% (2014-15) to 1.84% (2021-22).
- GHE as a share of General Government Expenditure (GGE) rose from 3.94% (2014-15) to 6.12% (2021-22).
- Per capita GHE increased from ₹1,108 to ₹3,169 during the same period.
- OOPE reduced from 62.6% (2014-15) to 39.4% (2021-22) of Total Health Expenditure (THE).
- GHE increased from 29% (2014-15) to 48% (2021-22) of THE.
- Social security expenditure (SSE) growth on health increased from 5.7% (2014-15) to 8.7% (2021-22) of THE, aiding in reducing OOPE.
- Total health expenditure (THE) was ₹7,39,327 crores (3.73% of GDP); by 2021-22, it rose to ₹9,04,461 crores (3.83% of GDP).
- Per capita health expenditure rose from ₹5,436 (2020-21) to ₹6,602 (2021-22).
- Significant increases in health expenditure reflect government efforts to tackle the COVID-19 pandemic through expanded healthcare infrastructure and vaccination programs.
- The NHA framework aligns with System of Health Accounts (SHA) 2011, facilitating international comparisons and improving healthcare financial transparency.

## Trachoma

The World Health Organisation (WHO) has declared that the Government of India has eliminated Trachoma as a public health problem becoming the third country in the South-East Asia Region to achieve this milestone.

- Trachoma is a bacterial infection that affects the eyes.
- It is caused by the bacterium Chlamydia Trachomatis.
- It is contagious; spreading through contact with the eyes, eyelids, nose or throat secretions of infected people, if left untreated it causes irreversible blindness.
- It is found in communities that are living in poor environmental conditions.

- WHO has termed Trachoma as a neglected tropical disease and its estimation suggests that 150 million people worldwide are affected by Trachoma and 6 million of them are blind or at risk of visually disabling complications.
- The Government of India launched the National Trachoma Control Program in 1963 and later on Trachoma control efforts were integrated into India's National Program for Control of Blindness (NPCB).
- As a result, in 2017, India was declared free from infective Trachoma. However, surveillance continued for trachoma cases in all the districts of India from 2019 onwards till 2024.
- The National Trachomatous Trichiasis (TT only) Survey was also carried out in 200 endemic districts of the country under the National Programme for Control of Blindness & Visual Impairment (NPCBVI) from 2021-24, which was a mandate set by WHO to declare that India has eliminated Trachoma as a public health problem.
- To eliminate trachoma as a public health problem, WHO recommends the SAFE strategy.
- The SAFE strategy includes: Surgery to treat the blinding stage (trachomatous trichiasis); Antibiotics to clear the infection, particularly the antibiotic azithromycin; Facial cleanliness and Environmental improvement, particularly improving access to water and sanitation.
- The 17 other countries that have eliminated trachoma are: Benin, Cambodia, China, Gambia, Ghana, Islamic Republic of Iran, Lao People's Democratic Republic, Malawi, Mali, Mexico, Morocco, Myanmar, Nepal, Oman, Saudi Arabia, Togo and Vanuatu.

## Operation Amrith

*Kerala has taken a significant step in combating antimicrobial resistance (AMR) by launching Operation Amrith, enforcing the 2011 H1 rule to prohibit the over-the-counter (OTC) sale of antibiotics.*

- Operation Amrith aim to curb the irrational use of antibiotics by banning their sale without a prescription, reducing the rise of antimicrobial resistance (AMR).
- Launched by: Kerala government in 2023.
- Strict enforcement of the 2011 H1 rule, which bans the OTC sale of all classes of antibiotics (first, second, and third-line) without a doctor's prescription.
- Targeting pharmacies, hospitals, and other medical stores to ensure compliance.
- Kerala remained committed to the 2011 rule, unlike other states which followed a modified 2013 rule allowing OTC sales of first-line antibiotics.
- Focuses on antibiotic stewardship to prevent the misuse of antibiotics, thus mitigating the threat of AMR.



# TDP1 : Cancer Treatment

Recent research by scientists at the Indian Association for the Cultivation of Science (IACS), Kolkata, has identified a new approach for cancer treatment by targeting a DNA repair enzyme called TDP1.

- Tyrosyl-DNA phosphodiesterase 1 (TDP1) is a DNA repair enzyme that plays a crucial role in fixing DNA damage induced by Topoisomerase 1 (Top1) inhibitors during cell division.
- TDP1 becomes particularly active during the mitotic phase, helping repair drug-induced DNA damage, allowing cancer cells to survive chemotherapy.
- The enzyme's activity is regulated by Cyclin-dependent kinase 1 (CDK1), which enhances TDP1's ability to resolve DNA damage through phosphorylation.

# Smart Insulin Developed For Diabetes Treatment

Recently, scientists announced a breakthrough in diabetes treatment. They developed a smart insulin that reacts in real time to blood sugar changes. This research was published in the journal Nature.

- Diabetes affects over 500 million people globally. It leads to nearly 7 million deaths annually. The disease is marked by high blood sugar levels.



- There are two main types of diabetes: Type 1 and Type 2.
- Type 1 Diabetes: Often begins in childhood. The pancreas produces little or no insulin.
- Type 2 Diabetes: The body's cells resist insulin. More insulin is needed than the pancreas can produce.
- Both types are managed with synthetic insulin.
- However, insulin management is complex. Blood glucose levels fluctuate throughout the day.
- Too much insulin can cause

dangerously low blood sugar levels. Patients must frequently monitor their blood sugar and adjust their insulin doses.



## Doddalathur Megalithic Site : Excavation

*A team of history and archaeology scholars and students from the University of Mysore have embarked on an excavation of megalithic burial sites in Chamarajanagar district (Karnataka).*



- Doddalathur village, Hanur taluk, Chamarajanagar district, Karnataka. Situated in a small valley formed by the Male Mahadeshwara Hill ranges.
- Identified by C. Krishnamurti of the Archaeological Survey of India (ASI) in 1961.
- The site corresponds to the Iron Age, broadly placed between 1200 BC and 300 CE in South India.
- Contains hundreds of megalithic burials characterized by circles made of large boulders. Many burials remain intact despite agricultural expansion and land development.
- Current excavation led by a team from the University of Mysore and the Mythic Society, Bengaluru, with a focus on understanding megalithic-iron age culture and providing field training to archaeology students.

## Tharu Tribe

*The Pradhan Mantri Awas Yojana (PMAY) homes bring smiles to women of the Tharu tribe in the Kheri district near the Indo-Nepal border.*

- Tharu Tribe is one of the indigenous groups living in the Terai plain on the Indo-Nepal border.
- They live in both India and Nepal.
- In the Indian terai, they live mostly in Uttarakhand, Uttar Pradesh and Bihar.
- In 1967, this tribe was documented as a Scheduled Tribe by the Government of India.
- They have their own language called Tharu or Tharuhati, a language of the Indo-Aryan subgroup of the Indo-Iranian group of the Indo-European family.
- Most Tharu practice agriculture, raise cattle, hunt, fish, and collect forest products.
- Most of their food involves rice, lentils, and vegetables.
- They build their homes from bamboo and mud.



- Despite their patrilineal social system, women have property rights greatly exceeding those recognized in Hindu society.
- Tharu marriages are patrilocal within the tribe.
- A common feature of the Tharu community is the joint family system of living in long houses.
- Tharus live in compact villages, usually in the middle of a forest clearing. Each village is governed by a council and a headman.

## National Maritime Heritage Complex

*The Union Cabinet recently approved the development of the National Maritime Heritage Complex (NMHC) in Lothal, Gujarat.*

- Under the Sagarmala programme, the Ministry of Ports, Shipping, and Waterways is developing the NMHC, a world-class facility at Lothal, Gujarat.
- NMHC is set to become an international tourist destination, showcasing India's maritime heritage from ancient to modern times through an edutainment approach utilizing the latest technology.

### **The project will be completed in phases:**

- Phase 1A will have an NMHC museum with 6 galleries, which also includes an Indian Navy & Coast Guard gallery envisaged to be one of the largest in the country with external naval artifacts, a replica model of Lothal township surrounded by an open aquatic gallery, and a jetty walkway.
- Phase 1B will have NMHC museum with 8 more galleries, Light house museum which is planned to be the world's tallest, Bagicha complex (with a car parking facility for about 1500 cars, a food hall, a medical centre, etc.).
- Phase 2 will have Coastal States Pavilions (to be developed by respective coastal states and union territories), Hospitality Zone (with maritime theme eco resorts and museuotels), Recreation of real-time Lothal City, Maritime Institute and hostel and 4 theme-based parks (Maritime & Naval Theme Park, Climate Change Theme Park, Monuments Park, and Adventure & Amusement Park).
- Phases 1A and 1B of the project are to be developed in Engineering, Procurement and Construction (EPC) mode and Phase 2 of the project will be developed through land subleasing/ PPP to establish NMHC as a world-class heritage museum.



- A separate society will be set up for the development of future phases, to be governed by a Governing Council headed by the Minister of Ports, Shipping and Waterways under the Societies Registration Act, 186
- This society will manage the implementation and operation of the NMHC.

## Bharatiya Kala Mahotsav

The President launched the first edition of Bharatiya Kala Mahotsav at Rashtrapati Nilayam in Secunderabad (Hyderabad).

- It is an eight-day festival, organised by the Rashtrapati Nilayam in collaboration with the Ministry of Development of the North-east Region (DONER) and the Ministry of Culture.
- It is to celebrate the vibrant cultural heritage and showcase the art, crafts, and culinary diversity of the North-Eastern states.
- It also serves as a platform for cultural exchange and aims to connect the North-East with the southern regions of the nation.
- Rashtrapati Nilayam is one of India's three presidential retreats (one is in Delhi and the other is in Shimla) and the only one in Southern India.
- It was constructed in 1860 with a total land area of 90 acres and was taken over by the Nizam of Hyderabad after independence.



## Dadasaheb Phalke Lifetime Achievement Award For Year 2022

Legendary actor Mr. Mithun Chakraborty will be honoured with the Dadasaheb Phalke Lifetime Achievement Award for the year 2022.

- Dadasaheb Phalke Award is India's highest award in the field of cinema.
- It is presented annually at the National Film Awards ceremony by the Directorate of Film Festivals, an organisation set up by the Ministry of Information and Broadcasting.
- The recipient is honoured for their "outstanding contribution to the growth and development of Indian cinema".
- Dhundiraj Govind 'Dadasaheb' Phalke was born in 1870 at Trimbak in Maharashtra.
- He studied engineering and sculpture and developed an interest in motion pictures after watching the 1906 silent film The Life of Christ.



## Sri Singeeswarar Temple

A set of copper-plate inscriptions dating back to the 16th Century CE have been discovered at the Sri Singeeswarar temple at Mappedu village in Tiruvallur district recently.

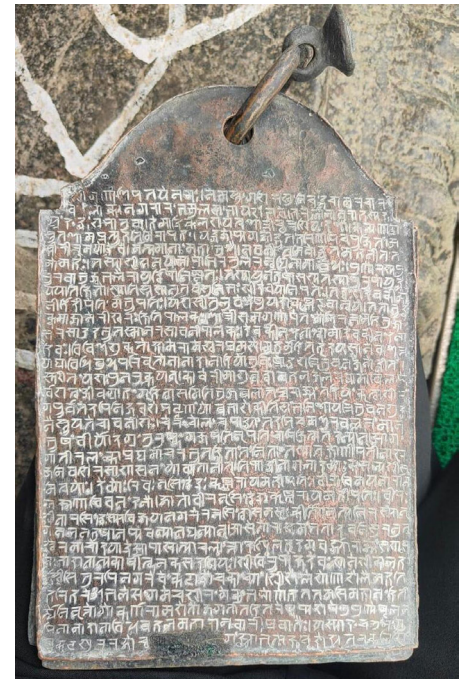
- Singeeswarar Temple (Mappedu) Situated in Mappedu, Tiruvallur district, Tamil Nadu, approximately 20 km from Poonamallee on the Chennai-Poonamallee-Perambakkam highway.
- Built in 976 A.D. by Aditya Karikal Chola II, the elder brother of Rajaraja Chola.
- In the 16th century, Ariyanatha Mudaliar, an officer under King Tirumala Nayaka, renovated the temple, particularly erecting the main tower (Raja Gopuram).
- Copper-plate inscriptions from 1513 CE, written in Sanskrit and Nandinagari script during the reign of Vijayanagara King Krishnadevaraya, were recently discovered at the temple. These inscriptions hold significant historical value.
- The temple is known for its unique depiction of Anjaneya (Hanuman) playing the Veena in a subtle state, making it a special spiritual site.



# Copper Plates Discovered

*A collection of copper plate inscriptions featuring two leaves from the 16th Century CE was discovered at the Sri Singeeswarar temple in Mappedu village, Tiruvallur district of Tamil Nadu.*

- The two leaves of the copper plates strung together using a ring featuring the seal of the Vijayanagara Kingdom.
- The inscription, donating a village to Brahmins by the Raja of Chandragiri, is written in Sanskrit and the Nandinagari script.
- It was engraved in 1513 during the reign of King Krishnadevaraya.
- The Kingdom of Vijayanagar was ruled by Krishnadevaraya from 1509 to 1529 AD.
- After Krishna Deva Raya, Achyuta Raya took over in 1530, followed by Sada Siva Raya in 1542.
- He was known by various titles, including “Kannadaraya” and “Kannada Rajya Ramaramana.”
- He is regarded as one of the greatest statesmen in Indian history and is considered one of the most significant rulers of mediaeval South India.
- The Vijayanagara Empire was established in the Deccan region from 1336 onwards, founded by Harihara (also known as Hakka) and his brother Bukka Raya.
- They made Hampi the capital city (declared a World Heritage site by UNESCO in 1986).
- Vijayanagar Empire was ruled by four important dynasties (Sangama, Saluva, Tuluva, Aravidu).
- The empire lasted from 1336 until around 1660, although it faced a gradual decline in its final century following a devastating defeat by an alliance of deccan sultanates, leading to the capital being captured, looted, and destroyed.



# Korowai Tribe

*An Indian travel vlogger recently travelled deep into the jungles of Indonesia to meet the Korowai tribe, often referred to as a ‘human-eating’ tribe, and documented his experience on social media.*

- The Korowai tribe is a group of indigenous people who live in the southeastern part of Papua, Indonesia.
- The Korowai people have a deep connection to the forest, which they rely on for their survival. They hunt and gather food from the forest, including wild animals and plants.
- Until around 1975, Korowai had almost no contact with the outside world.
- They are famous for their treehouses.
- Built-in 8-15 meters off the ground, though there are houses that were up to 45 meters on a tall tree.
- The tribe has no particular hierarchy system, as the Korowai people treasure equality and harmony between them.
- They have been sensationalised in modern media for their association with cannibalism, a practice of eating human flesh.
- While it is believed that the tribe historically practised cannibalism as part of their spiritual and social beliefs, it has largely faded over time.



# National Mission for Manuscripts

*The Union Ministry of Culture is set to “revive and relaunch” the National Mission for Manuscripts (NMM) and is mulling the formation of an autonomous body to help preserve ancient texts in India.*

- Presently, NMM is a part of the Indira Gandhi National Centre for Arts.
- The new body, likely to be named the National Manuscripts Authority, will be an autonomous entity under the Ministry of Tourism and Culture.
- National Mission for Manuscripts (NMM) was established in February 2003, by the Ministry of Tourism and Culture, Government of India.
- Mandate: Documenting, conserving and disseminating the knowledge preserved in the manuscripts.
- Motto: ‘Conserving the past for the future’
- A unique project in its programme and mandate, the NMM seeks to unearth and preserve the vast manuscript wealth of India.
- India possesses an estimate of ten million manuscripts, probably the largest collection in the world.
- These cover a variety of themes, textures, and aesthetics, scripts, languages, calligraphies, illuminations, and illustrations.
- While 75% of the existing manuscripts are in Sanskrit, 25% are in regional languages, according to the NMM.

## Objectives:

- Locate manuscripts through a national-level survey and post-survey.
- Document each and every manuscript and manuscript repository, for a National Electronic Database that currently contains information on four million manuscripts making this the largest database on Indian manuscripts in the world.
- Conserve manuscripts incorporating both modern and indigenous methods of conservation and training a new generation of manuscript conservators.
- To train the next generation of scholars in various aspects of Manuscript Studies like languages, scripts and critical editing and cataloguing of texts and conservation of manuscripts.
- To promote access to manuscripts by digitizing the rarest and most endangered manuscripts.
- To promote access to manuscripts through the publication of critical editions of unpublished manuscripts and catalogues.
- To facilitate public’s engagement with manuscripts through lectures, seminars, publications and other outreach programmes
- To achieve this mandate, the mission has established more than 100 Manuscripts Resource Centres and Manuscripts Conservation Centres all over India.



## Manuscript:

- A manuscript is a handwritten composition on paper, bark, cloth, metal, palm leaf, or any other material dating back at least seventy-five years that has significant scientific, historical, or aesthetic value.

# Bhagat Singh's Birth Anniversary

28th September 2024 marks the birth anniversary of Bhagat Singh, a legendary revolutionary whose spirit inspires generations in India. Celebrated as a national hero, he dedicated his life to fighting British colonial rule, leaving a legacy of courage and sacrifice.

- Bhagat Singh was born on 28th September, 1907, in Banga, Punjab, British India (now in Pakistan).
- He Came from a Sikh family actively involved in anti-colonial activities; his father, Kishan Singh, and uncle, Ajit Singh, were prominent freedom fighters.
- Witnessed the Jallianwala Bagh massacre at the age of 12, which instilled a deep sense of patriotism and a vow to fight for India's freedom.
- Joined the National College, Lahore, founded by Lala Lajpat Rai, which emphasised Swadeshi Movement and provided a platform for revolutionary ideas.
- Bhagat Singh became a member of the Hindustan Republican Association (HRA) in 1924, later renaming it the Hindustan Socialist Republican Association (HSRA) in 1928.
- Naujawan Bharat Sabha was founded by Bhagat Singh in 1926, aimed at mobilising youth for the freedom struggle.
- Involved in the assassination of police officer J.P. Saunders in 1928 (Lahore Conspiracy Case) as retaliation for Lala Lajpat Rai's death due to police brutality.
- Threw a bomb in the Central Legislative Assembly on 18th April 1929, with B.K. Dutt to protest against repressive British laws.
- Arrested in 1929 for the bomb incident and later charged with murder in the Lahore Conspiracy Case. He was tried, convicted, and sentenced to death.
- Executed on 23rd March 1931, along with fellow revolutionaries Sukhdev and Rajguru, in Lahore. Bhagat Singh is affectionately known as Shahid-e-Azam, the greatest of martyrs.
- Authored significant works, including Why I Am an Atheist, The Jail Notebook and Other Writings, and several political manifestos advocating for socialism and revolution.
- In his early work, Vishwa Prem (Universal Love), Singh proclaimed the importance of equality. He envisioned a world free of hunger and war, where humanity transcends boundaries of race and nationality.
- Advocated Marxist and socialist ideologies, emphasising rationalism, equality, and justice. Critiqued organised religion, viewing them as forms of mental and physical slavery.
- Celebrated as a national hero and martyr; his birth anniversary and the date of his execution are observed annually to honour his contributions to India's freedom struggle.
- Every year, 23rd March is observed as Martyrs' Day as a tribute to freedom fighters Bhagat Singh, Sukhdev, and Rajguru.



## ARDETOSAURUS VIATOR

*Paleontologists have identified a new genus and species of sauropod dinosaur named Ardetosaurus viator from a semi-articulated specimen found in the 1990s in northern Wyoming, the United States.*

- Ardetosaurus viator is a newly discovered species of dinosaur that roamed Earth during the Late Jurassic epoch, some 150 million years ago.
- It was a type of diplodocid, a family of sauropod dinosaurs that includes some of the longest creatures ever to walk the planet.
- Sauropods were the largest of all dinosaurs and the largest land animals that ever lived.
- They existed for a minimum of 135 million years, from the beginning of the Jurassic 201 million years ago to the end of the Cretaceous, 66 million years.
- Sauropod remains have been found on every continent, except Antarctica.
- They are best recognized by their long necks and long tails, and their success can be attributed to their extreme size, an intricate bird-like air sac system, as well as their unique feeding and digestive strategies and oviparous reproduction.
- One of the most recognizable sauropod families is Diplodocidae.
- These sauropods are generally characterized by their extremely long necks and even longer tails.
- Diplodocids are known from North and South America, Europe, and Africa.



## Agasthyamalai Bambootail

*A group of researchers recently discovered a new species of damselfly, Agasthyamalai Bambootail, from Manjadinnavila in Thiruvananthapuram district, Kerala.*

- Agasthyamalai Bambootail is a new species of damselfly.
- It is a rare species belonging to the group of bambootails, so named because of their long cylindrical abdomen resembling a bamboo stalk.
- It was discovered from the Agasthyamalai landscape of Western Ghats.



- The only other species in this genus is the Malabar Bambootail (*Melanoneura bilineata*) which is found in the Coorg-Wayanad landscape of the Western Ghats.
- The members of this genus can be separated from other bambootails by the absence of the anal bridge vein in their wings.
- This genus of damselflies has long black bodies with brilliant blue markings.
- The new species differs from the Malabar Bambootail in the structure of prothorax, anal appendages, and secondary genitalia.

## Tsetse flies

*According to a new atlas published by Food and Agriculture Organization of the United Nations (FAO), Tsetse flies are present in 34 African countries.*

- Tsetse flies (genus *Glossina*) are unicellular blood-sucking insects.
- They are holometabolous insects, females giving birth to full-grown larvae which rapidly pupate in the soil.
- They are arranged taxonomically and ecologically into three groups: the fusca, or forest, group (subgenus *Austeniina*); the morsitans, or savanna, group (subgenus *Glossina*); and the palpalis, or riverine, group (subgenus *Nemorhina*)
- They are found in local patches of dense vegetation along banks of rivers.
- Also found in lakes in arid terrain, and also in dense, wet, heavily forested equatorial rainforest
- They feed on blood and transmit the *Trypanosoma* parasites, which are responsible for sleeping sickness in humans and animal trypanosomiasis or “Nagana” in cattle.
- They are also linked to nagana in African livestock, resulting in annual agricultural losses estimated in the billions of dollars.
- The collected data confirmed the presence of *Glossina* species in 34 countries, ranging from Northern Senegal (around 15 degrees north) to South Africa (Kwazulu-Natal province at 28.5 degrees south).



## Halari Donkey



*The endangered Halari donkeys, native to the Halar region of Gujarat, are considered to be intelligent animals which work closely with human beings.*

- Halari donkey is native to the Halar region of Gujarat especially found in the semi-arid landscape of Jamnagar and Dwarka
- It is white in colour, and is larger and more resilient than other donkey breeds.
- They are social animals and

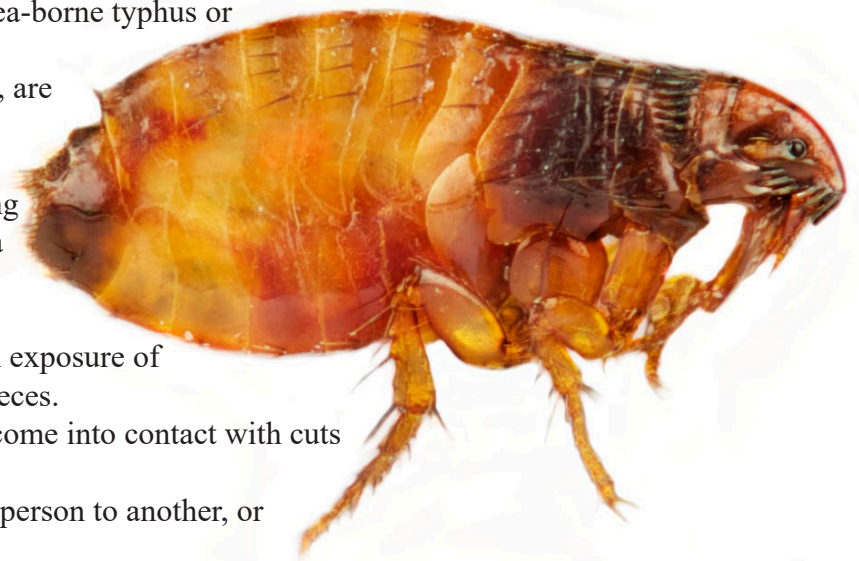


- form close bonds with people, supporting them for transport needs.
- The Bharwad and Rabari pastoralists are the main communities which use this donkey as a pack animal to carry luggage during migration with small ruminants.
- The Kumbhar (potter) community also uses this animal for pottery work in Dwarka in the Jamnagar region.
- Halari donkey milk is known for its sweetness. Milk powder made from it can fetch upwards of ₹7,000 a kg in the international market and is used for cosmetic purposes.
- Conservation status: It is considered endangered; the surviving population of the Halari donkey numbers fewer than 500.

## Murine Typhus

*A 75-year-old man from Kerala who recently travelled to Vietnam and Cambodia was diagnosed with the bacterial disease murine typhus.*

- Murine Typhus is an infectious disease caused by the flea-borne bacteria *Rickettsia typhi*.
- It is transmitted to humans through the bites of infected fleas
- It is also known as endemic typhus, flea-borne typhus or flea-borne spotted fever.
- Rodents like rats, mice and mongoose, are known to be reservoirs of the disease.
- The disease-carrying fleas can also live on other small mammals, including pets such as cats and dogs. Once a flea is infected, it can spread the disease for the rest of its life.
- Transmission can also happen through exposure of mucous membranes to infected flea faeces.
- It is spread when infected flea faeces come into contact with cuts or scrapes in the skin.
- Murine typhus is not spread from one person to another, or from person to fleas.
- The disease has been reported in coastal tropical and subtropical regions, where rats are prevalent.
- In India, cases of murine typhus have been reported in the Northeast, Madhya Pradesh and Kashmir.
- The symptoms usually appear seven to 14 days after the exposure and include fever, headaches, body aches, joint pains, nausea, vomiting, and stomach aches.



## Komodo Dragon

- *The Indonesian government is proposing partial closures of Komodo National Park in 2025 to ease the strain from the increasing number of visitors drawn to its unique ecosystem.*
- Komodo Dragon is the largest extant lizard species.
- Scientific Name: *Varanus komodoensis*
- It is a monitor lizard of the family Varanidae.
- It occurs on Komodo Island and a few neighbouring islands of the Lesser Sunda Islands of Indonesia.
- The lizard grows to 3 metres (10 feet) in total length and attains a weight of about 135 kg (about 300 pounds).
- Their tongues are yellow and forked.



- Adults are an almost-uniform stone color with distinct, large scales, while juveniles may display a more vibrant color and pattern.
- Although most young are produced through sexual reproduction, females that are isolated from males sometimes produce offspring through parthenogenesis.
- They are well-known for their venomous bite, which contains toxins that cause massive blood loss and shock in their prey.
- They can run swiftly and occasionally attack and kill human beings.
- Lifespan: 30 years
- Conservation Status: IUCN Red List: Endangered

## Water chestnut

*Water chestnut, or “goer” in Kashmir, is a vital income source for families around Wular Lake, one of Asia’s largest freshwater lakes. However, environmental changes have led to declining production, affecting local livelihoods.*

- Water Chestnut (Goer) in Kashmir Grows in Wular Lake, Kashmir; known as “Singhara” in other parts of India.
- Collected during autumn, typically starting in late September.
- Harvested by villagers using boats, with protective footwear to avoid injuries from sharp barbed spines on the plants.
- The edible kernel is peeled, dried, and ground into flour. It’s widely consumed during festivals like Navaratri.

Uses:

- Food: White, crunchy, sweet flesh is eaten fresh or dried and used in fasting rituals.
- Fuel: Dried outer shells are used as fuel in traditional Kashmiri fire pots (kangri) during winter.
- Nutritional value: Rich in potassium and fiber, low in sodium and fat, and high in carbohydrates.
- Economic importance: Primarily harvested by poorer communities around Wular Lake; provides seasonal income.



## African Baobab

*New research by South African ecologists has refuted the claim that the African Baobab (Adansonia digitata) tree is dying due to climate change.*

- Baobabs are long-lived deciduous, small to large trees from 20 to 100 ft tall with broad trunks and compact tops.
- These trees can live to become thousands of years old.
- The oldest baobab tree on record was the Panke baobab in Zimbabwe, which lived to be a venerable 2450 years old
- These solitary trees are also incredibly resilient, thriving in dry, open areas such as the savannas of southern Africa and western Madagascar.
- Baobab trees are fundamental to the entire dry African savanna ecosystem. They help keep soil conditions humid, aid nutrient recycling, and slow soil erosion with their massive root systems.
- It absorbs and stores water from the rainy season in its massive trunk, producing a nutrient-dense fruit in the dry season, which can grow up to a foot long.



- The fruit contains tartaric acid and Vitamin C, serving as a vital nutrient and food source for many species.
- These baobabs play a vital role in their ecosystem; mitigate impacts of climate change, providing food and shelter to animals and humans.
- Its fruit is recognised as having high fibre content, acting as a natural prebiotic that promotes the growth of beneficial bacteria in the gut.

## COELOGYNE TRIPURENSIS

*A new species of orchid named Coelogyne tripurensis was recently discovered in Jampui Hills, in Tripura's North District.*

- Coelogyne tripurensis is a new species of orchid.
- It was discovered from the moist broadleaf forests of Jampui Hills in Tripura, situated at the westernmost fringe of Indo-Myanmar Biodiversity Hotspot.
- This genus, consisting of around 600 species, is native to the Indian subcontinent, Southeast Asia, and the Southwest Pacific Islands.
- The genus consists of mostly epiphytic (rarely lithophytic and terrestrial) taxa and is widely popular among horticulturists for its high ornamental value and easy growth requirements.
- The section of Coelogyne to which the new species belongs, Fuliginosae, is characterised by unique features such as showy flowers, a distinctive labellum, and keels.
- Species belonging to this group show a high degree of phenotypic plasticity, rendering them challenging to delineate.



## Nilgiri Tit Butterfly

Nilgiris have recorded for the first time in India, the Nilgiri tit Butterfly (*Hypolycaena nilgirica*) utilising a large terrestrial orchid plant as a host.

- Nilgiri tit Butterfly belongs to the family Lycaenidae.
- It was first described in 1884 from Coonoor in the Nilgiris, it has since been recorded in Sri Lanka.
- It was also found in Kalakkad Mundanthurai Tiger Reserve, Chinnar Wildlife Sanctuary of Idukki district, and Silent Valley National Park of Palakkad district in Kerala.
- The male is dark reddish purple-brown on the upper side. It has two black spots capped in orange near the tails. The female is pale brown.



- This is the first known record of the butterfly using this particular species of plant as a host.
- This terrestrial orchid was found on rocky slopes in humid areas.
- This endemic butterfly is classified under Schedule II of the Wildlife Protection Act.

# Canary Islands

*Rescue teams resumed searching for at least 48 migrants who went missing the day before when their boat overturned just as it was being rescued off Spain's Canary Islands.*



- Canary Islands is an archipelago located in the Atlantic Ocean.
- It is about 1300 km South of mainland Spain and 115 km West of the African coast (Morocco).
- The Canaries comprise the Spanish provinces of Las Palmas and Santa Cruz de Tenerife.
- These Islands were formed by volcanic eruptions millions of years ago.
- They have a subtropical climate. Temperatures are warm and show little seasonal variation.
- It has rich volcanic soils and mild temperatures that support a wide variety of vegetation that generally follows a zonal arrangement based on elevation.
- Archipelago is a term used to describe a group or chain of islands that are closely scattered in a body of water, such as a sea, ocean, lake, or river.

## Lake Prespa

*According to experts, of the 450 hectares of Little Prespa Lake in Albania, at least 430 hectares have been transformed into swamps or dried up.*

- Lake Prespa is one of the oldest tectonic lakes in Europe, and also the highest tectonic lake on the Balkan Peninsula.
- It lies at the junction of three major geological masses: a granite massif on the East, a karstic massif belonging to Galicica on the West, and the Suva Gora on the South.
- The region is famous for having rocks from the oldest Paleozoic form to sediments belonging to the young Neogene era.
- It is made up of the Great Prespa Lake (Albania, Greece and the Republic of Macedonia) and Small Prespa Lake.

- The majority of Little Prespa Lake, also known as Small Lake Prespa, sits in Greek territory, with just its southern tip crossing into Albania.
- Rising temperatures and increasingly mild winters with little snowfall and a scarcity of precipitation have battered the lake.



## Galathea Bay

*The mega International Container Transshipment Port (ICTP) at Galathea Bay, located on Great Nicobar Island in the Bay of Bengal, has been officially designated as the 13th major port in India. Kamarajar Port located on the Coromandel Coast (Chennai) was named the country's 12th major port.*

- The ICTP is along the East-West international trade and shipping route, close to key transshipment hubs such as Singapore, Klang, and Colombo.
- This location enhances its importance within global trade networks.
- Located just 40 nautical miles from the Malacca Strait, a key shipping route handling 35% of global sea trade, the port has strong potential as a major transshipment hub for cargo from India's east coast, Bangladesh, and Myanmar.
- Currently, nearly 75% of India's transshipped cargo is handled at foreign ports, the ICTP aims to reduce this dependency.
- It could help Indian ports save an estimated USD 200-220 million annually in transshipment charges.



## Triton Island

Recent satellite imagery reveals a significant military buildup on Triton Island, the closest landmass in the disputed Paracels archipelago to Vietnam.

- Triton Island is a tiny island that's part of the Paracel Islands chain located in the South China Sea.
- It covers a tiny area of about 1.2 square kilometers and is situated southwest of the main islands in the group.
- The island is approximately 4,000 feet long by 2,000 feet wide and, until recently, was completely uninhabited.
- The Paracel Islands are claimed by multiple countries, primarily China, Vietnam, and Taiwan, as part of their territorial waters, making the region politically sensitive.

- Although Triton Island is uninhabited, it plays a strategic role due to its location in the South China Sea, an area known for its rich fishing grounds and potential oil and gas reserves.
- South China Sea is an arm of the western Pacific Ocean that borders the Southeast Asian mainland.
- It is bordered by China, Taiwan, the Philippines, Malaysia, Indonesia, Brunei, and Vietnam.



## Benog Wildlife Sanctuary

*Ninety-five bird species and 22 butterfly species were sighted during the 8th Uttarakhand Bird Festival at Benog Wildlife Sanctuary.*

- Benog Wildlife Sanctuary is situated about 11 kilometers from Mussoorie, a popular hill station in the Garhwal region of Uttarakhand.
- It was established in the year 1993 and is named after the highest peak in the area, Benog Hill, which rises to a height of 2,250 meters above sea level.
- It is a part of Rajaji National Park.
- It is located on a pine-clad slope and is surrounded by snow capped peaks of the Himalayan ranges.
- Aglar River, a tributary of the Yamuna River flows through the sanctuary.
- The place is known for the rare species of birds that habitat in its area.
- The sanctuary is home to several species of exotic birds, such as the White Capped Water Redstart and the Red Billed Blue Magpie, to name a few.



## Mount Adams

Scientists are trying to establish what caused an unusual spike in earthquakes at the Mount Adams volcano by installing multiple temporary seismic monitoring stations at the site.

- In September, six small earthquakes were recorded at the “high threat” volcano. Normally, it only experiences one earthquake every two to three years, according to the U.S. Geological Survey (USGS).
- Mount Adams is a stratovolcano located in the Cascade Range of the western United States, in Washington State.
- It is the second-highest mountain in Washington after Mount Rainier, with an elevation of 3,743 meters.
- Mount Adams is a stratovolcano, which means it is built up by many layers of hardened lava, tephra, pumice, and volcanic ash. Stratovolcanoes are known for their explosive eruptions.

- It is part of the Cascade Volcanic Arc, a chain of volcanoes in the Pacific Northwest region formed due to the subduction of the Juan de Fuca Plate beneath the North American Plate.
- Mount Adams is considered dormant but not extinct. The last known eruption occurred about 1,000 years ago, and there is still potential for future volcanic activity.
- Research indicates that Mount Adams has produced four lava flows within the last 12,000 years, all of which have remained within a few miles of the volcano.
- The USGS highlights that the greatest risk to nearby communities comes from lahars—muddy flows of rock, ash, and ice—that can occur during both eruptive and non-eruptive phases.
- These lahars have the potential to travel significant distances, with historical flows thought to have reached far from the volcano approximately 6,000 and 300 years ago.



## Roopkund Lake

*Climate change is affecting Roopkund Lake in Uttarakhand, causing it to shrink annually.*

- Roopkund, also known as the "lake of skeletons" is a glacial lake in Uttarakhand.
- It is situated at 16,500 feet above sea level at the base of Mt. Trishul in the Garhwal Himalayas.
- Measuring a mere 130 feet in width, the lake is encased in ice for the majority of the year.
- It is surrounded by snow-capped peaks and lush green meadows.
- It is called the "lake of skeletons" as the glacial body conceals numbers of human skeletons, some with preserved flesh.
- These skeletons become visible when snow melts in the region.
- These skeletal remains, dating back to around the 9th century AD, have led to various theories about the cause of death.
- A 2019 study by scientists from India, the US, and Germany challenged the belief that the skeletons belonged to a single group that perished in a single event, instead suggesting they were genetically diverse individuals who died over a span of up to 1,000 years.



# Colombia

*India has signed Audio-visual Co-production Agreement with Colombia.*

## Political features

- A map showing Colombia with its capital Bogota. It shows Colombia border countries including Venezuela, Brazil, Panama, Peru, Ecuador.
- Land boundaries: Venezuela and Brazil (east); Panama (north); Peru and Ecuador (south).
- Maritime Boundaries: Caribbean Sea, Pacific Ocean
- Known as Gateway of South America because it lies in northwestern part of continent where South America connects with Central and North America.
- Joined OECD in 2020.
- Geographical features
- Highest point: Pico Cristobal Colon
- Climate: Tropical along coast and eastern plains; cooler in highlands.
- Major Rivers: Magdalena, Amazon, Orinoco etc.
- Natural resources: Petroleum, Natural Gas, Coal, Gold etc,



# Lebanon

In recent escalations, Israel has ramped up its offensive against Hezbollah by deploying more troops along the Southern part of Lebanon.

## Political Features

- Location: Narrow strip of territory along the eastern shore of Mediterranean Sea.
- West Asian Country, part of Levant region.
- Bordering Countries: Syria (North and Northeast); Israel (South)
- Maritime Boundary: Cyprus
- Geographical Features
- Mountains: Lebanon Mountains (Jabal Lubnan), Anti-Lebanon and Hermon Ranges.
- Highest Peak: Qurnat al-Sawda
- Valley: Bekaa (Al-Biqā)
- Rivers: Litani, Baalbek, Orontes, etc.





# Mauritius

*UK cedes sovereignty to Mauritius*

## Geography:

- Location – Indian Ocean
- Comprises ~58 small, low-lying islands.
- Key islands: Salomon Islands, Diego Garcia, Nelsons Island.
- Strategic Importance:
- Diego Garcia: US naval support facility.
- ~1,600 km south of the southern tip of the Indian subcontinent.
- Topography: Highest point is an ocean-side dune on Diego Garcia.



A certificate for the SROTHAS Insights Quiz Competition. At the top left is the IAS HUB logo. At the top right is a badge that says "202+ Success Stories". The main text reads "SROTHAS Insights Quiz Competition Winner" in a mix of bold sans-serif and cursive fonts. Below this is a circular portrait of a man with a beard and mustache, identified as "Deepak Jose". To the left of the portrait is a badge that says "THE FIRST CIVIL SERVICE ACADEMY IN KERALA SINCE 1992". At the bottom, the word "Congratulations" is written in a large, golden cursive font. A dark brown footer bar contains contact information: a phone icon with "9567 744 544", an email icon with "mail@mgoicsmcsa.com", and a location pin icon with "Orthodox Students Centre Complex, opp.AKG Centre Palayam, Trivandrum".



(A project of MGOCSM, the student wing of the Malankara Orthodox Church)

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