IAS HUB

SROTHAS

A Monthly Magazine For UPSC Civil Service Examination

Current Affairs 2024 December

Content...

Mains Topics

SPECIES IN NEWS

PLACES IN NEWS

ART AND CULTURE

MISCELLANIOUS

China Approves World's Largest Hydropower Dam

Location and River
Yarlung Zangbo River: The hydropower project is located along the Yarlung Zangbo River, also known as the Brahmaputra River in India.

Geography:
- The Yarlung Tsangpo originates in Tibet and becomes the Siang upon entering Arunachal Pradesh.
- In Assam, it is joined by tributaries like the Dibang and Lohit, forming the Brahmaputra.
- The river flows into Bangladesh before emptying into the Bay of Bengal.

Purpose of the Project

- Carbon Neutrality: Integral to China's goal of achieving carbon neutrality by 2060.
- Economic and Regional Development: Aims to boost industrial growth and create jobs in Tibet, driving regional economic development.
- Renewable Energy: A significant step in enhancing China's clean energy production capacity.

Cost and Timeline

- Project Cost: Estimated at $137 billion.
- Strategic Framework: Part of China's 14th Five-Year Plan (2021-2025) and aligns with long-term objectives through 2035.

Concerns for India

Impact on Water Flow:

- The dam's construction in Tibet could disrupt water availability for India, a lower riparian state.
- Altered water flow could affect agriculture in Assam and Arunachal Pradesh.

Silt Interruption:

- Large dams block silt flow, reducing the nutrient-rich deposits essential for farming.
- The Brahmaputra, a heavily silt-laden river, is vital for agricultural fertility.

Biodiversity Risks:

- Disruption of river flow threatens aquatic ecosystems and wildlife.

Ecological Fragility:

- The region's geological instability increases vulnerability to natural disasters.
- Past incidents, like the 2004 Parechu Lake landslide in Tibet, highlight risks associated with water accumulation in unstable areas.

Diplomatic Challenges:

- China's reluctance to cooperate with lower riparian states like India raises concerns.
- Experiences in the Mekong River basin underscore potential downstream issues.

India-China Cooperation on Transboundary Rivers

Umbrella MoU (2013):

- Framework for cooperation on water management.
- Currently inactive, but remains a foundational agreement.

Brahmaputra MoU:

- Focused on data sharing related to the Brahmaputra River.
- Lapsed in 2023; renewal discussions are ongoing.

Sutlej MoU:

- Initiated after the 2004 Parechu Lake incident, but provides limited year-round data. Renewal is pending.
- Expert Level Mechanism (2006):
- Annual meetings to address transboundary river issues, though recently interrupted.

UN Convention on Watercourses (1997):

- Neither India nor China is a signatory, but both adhere to principles like equitable water use and minimizing harm.

Agreements Between India and Neighboring Countries

Indus Water Treaty (1960):

- Facilitated by the World Bank, divides Indus waters between India and Pakistan.
- India controls the eastern rivers (Ravi, Beas, Sutlej), while Pakistan controls the western rivers (Indus, Jhelum, Chenab).

Mahakali Treaty (1996):

- Joint India-Nepal agreement for utilizing Mahakali River's waters for irrigation and hydropower.
- Nepal receives 64% of the water, and India 36%.

Teesta Water Sharing Agreement:

- Negotiations ongoing between India and Bangladesh for equitable distribution.
- Past proposals aimed at allocating 42.5% of water to Bangladesh and 37.5% to India.

Way Forward

- Sustainable Hydropower: Prioritize environmental assessments to minimize disruptions while exploring renewable energy.
- Flood Control and Disaster Management: Invest in flood management infrastructure, including dams, embankments, and early-warning systems.
- Biodiversity Conservation: Protect ecosystems and species through conservation efforts in wetlands and floodplains.
- Infrastructure Development: Enhance regional connectivity and economic growth while maintaining environmental safeguards.
- Research and Data Sharing: Foster joint research and shared data platforms for monitoring water levels and climate risks, enabling informed decision-making.

Coastal Crisis: India's Coastline Threatened by Erosion

Overview of Coastal Erosion Coastal erosion is the gradual loss of land along coastlines due to both natural processes and human activities. Key contributing factors include:

- Natural Processes: Wave action, tidal currents, and storms.
- Human Activities: Construction, sand mining, and deforestation.

India, with a coastline stretching approximately 7,517 kilometers, faces severe challenges from coastal erosion, impacting its environment, economy, and communities.

Coastal Geography of India

Coastal Extent: The Indian mainland coastline spans 9 coastal states and 2 Union Territories (UTs), covering 66 coastal districts.

Coastal Morphology:

- o 43% sandy beaches
- o 11% rocky coasts
- o 36% muddy flats
- o 10% marshy coasts

- Key Features: 97 major estuaries and 34 lagoons contribute to the diverse coastal ecosystem.

States Most Affected by Coastal Erosion

1. Karnataka: Dakshina Kannada district has seen 48.4% of its 36.66 km coastline eroded over three decades.
2. West Bengal: 60.5% of its coastline, including the Sundarbans, is severely affected.
3. Kerala: 46.4% of the coastline is eroded, impacting ecosystems and local livelihoods.
4. Tamil Nadu: 42.7% of its coastline faces erosion, threatening infrastructure and communities.

Causes of Coastal Erosion

Natural Factors:

- Continuous wave action, especially during high tides and storms.
- Climate change-induced sea-level rise, increasing coastal flooding and erosion.

Anthropogenic Factors:

- Coastal infrastructure projects, such as ports and seawalls, disrupt natural sediment flow.
- Illegal sand mining depletes sand reserves vital for coastal replenishment.
- Deforestation weakens natural barriers like mangroves and coastal vegetation.

Impacts of Coastal Erosion

1. **Loss of Land:** Valuable agricultural and settlement areas are lost.
2. **Displacement**: Coastal communities are forced to relocate, exemplified by Ghoramara Island residents.
3. **Infrastructure Damage**: Roads, bridges, and buildings near the coast are at risk.
4. **Biodiversity Loss**: Coastal habitats, including mangroves, coral reefs, and wetlands, are degraded, impacting marine biodiversity.

Initiatives and Mitigation Measures

- **Integrated Coastal Zone Management Project (ICZMP):**
  - o Implemented in Gujarat, Odisha, and West Bengal with World Bank assistance.
  - o Focuses on sustainable coastal and marine conservation practices.
- **Coastal Regulation Zone (CRZ) Notification (2019):**
  - o Aims to protect coastal stretches and ensure livelihood security for fisher communities.
  - o Establishes No Development Zones (NDZ) to prevent encroachment and mitigate erosion.
- **Coastal Vulnerability Index (CVI):**
  - o Developed by the Indian National Centre for Ocean Information Services (INCOIS).
  - o Maps coastal vulnerability based on key parameters.

Yuva Sahakar Scheme

The Minister of Cooperation informed the Lok Sabha about Yuva Sahakar Scheme.

- Yuva Sahakar – Cooperative Enterprise Support and Innovation Scheme" aims to encourage newly formed cooperative societies with new and/or innovative ideas.
- The scheme encourages young entrepreneur Cooperative Societies which are in operation for a minimum of 3 months.
- The loan provided under the scheme is a long-term loan (up to 5 years) and as an incentive, NCDC provides 2% interest subvention on its applicable rate of interest on term loan for the project activities.
- Further, the loan component under the scheme can also be dovetailed with subsidy, as applicable and available from other Government of India schemes. NCDC funding is project based.
- It is being implemented by National Cooperative Development Corporation (NCDC) across the country.

Yuva Sahakar - Cooperative Enterprise Support and Innovation Scheme

PM Surya Ghar Muft Bijli Yojana

Around 1.45 crore registrations have been made under the PM Surya Ghar Muft Bijli Yojana, and 6.34 lakh installations have been completed, Parliament was informed recently.

- It is a government scheme launched on February 15, 2024, that aims to provide free electricity to households in India.
- Under the scheme, households will be provided with a subsidy to install solar panels on their roofs.
- The subsidy will cover up to 40% of the cost of the solar panels.
- It would help one crore families get up to 300 units of free electricity per month with savings of up to Rs 18,000 annually.It is estimated that the scheme will save the government Rs. 75,000 crore per year in electricity costs.
- The scheme has an outlay of Rs 75,021 crore and is to be implemented till FY 2026-27.

The benefits of the scheme include

- Free electricity for households.
- Reduced electricity costs for the government.
- Increased use of renewable energy.
- Reduced carbon emissions.

Eligibility

- The household must be an Indian citizen.
- The household must own a house with a roofthat is suitable for installing solar panels.
- The household must have a valid electricity connection.
- The household must not have availed any other subsidyfor solar panels.
- Under the scheme, DISCOMs are designated as State Implementation Agencies (SIAs) responsible for facilitating various measures, including net meter availability, timely inspection, and commissioning of installations.
- DISCOMs will receive incentives based on their achievement in the installation of additional grid-connected rooftop solar capacity beyond a baseline level.
- The total financial outlay for the 'Incentives to DISCOMs' component is Rs 4,950 crore.

SVAGRIHA Rating

The Inland Waterways Authority of India's Intermodal Terminal (IMT) at Kalughat in Bihar has received five-star SVAGRIHA rating from GRIHA council.

- SVAGRIHA Rating that stands for Simple Versatile Affordable GRIHA – supports the concept of green buildings and sustainability under Green Rating for Integrated Habitat Assessment (GRIHA).
- It is a guidance-cum-rating system being developed for small stand-alone buildings like residences, commercial offices, motels, dispensaries, schools etc.
- It has been developed in order to help reduce the environmental impact of these small developments.
- It will be applicable only for projects which are less than 2500 sq.m. built-up area.
- The rating system has 14 criteria.
- The criteria are divided into 5 broad sub-groups namely: architecture & energy, water & waste, materials, landscape and lifestyle.
- It will be mandatory to attempt certain points under each sub-group. The total points that a project can achieve are 50.
- The rating will be done on a 1–5-star scale.
- It has been designed as a simple online tool with guiding parameters which will evaluate the performance of the project with respect to SVAGRIHA in a simple, easy to understand manner.

PM-ABHIM

The Union Minister of State for Health and Family Welfare provided updates on the Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM) in a written reply in the Lok Sabha.

- The PM Atmanirbhar Swasth Bharat Yojana (PMASBY), which has now been renamed as PM-ABHIM is one of the largest pan-India Centrally Sponsored Scheme (CSS) with certain Central Sector Components.
- It was launched in 2021 by the Union Ministry of Health and Family Welfare with the outlay of Rs. 64,180 Crores for the scheme period (2021-22 to 2025-26).
- It aims to strengthen India's healthcare infrastructure systems at all levels- primary, secondary, and tertiary and enhance pandemic preparedness.
- It supplements the National Health Mission (NHM) by addressing infrastructure gaps in public health facilities.
- The initiative includes constructing 17,788 Ayushman Arogya Mandirs in rural areas, 11,024 urban Health & Wellness Centres, 3,382 Block Public Health Units, 730 District Integrated Public Health Labs, and 602 Critical Care Hospital Blocks in districts with over 5 lakh population.

National Council For Vocational Education And Training

The National Council for Vocational Education and Training (NCVET) has officially recognized the Indian National Space Promotion and Authorization Center (IN-SPACe) as an Awarding Body (Dual).

- It was established by the Ministry of Skill Development and Entrepreneurship (MSDE), Government of India in 2018, as a regulatory body, aimed at ensuring quality in the Technical and Vocational Education and Training (TVET) sector.
- It has taken over the roles previously held by the National Skill Development Agency (NSDA) and the former National Council of Vocational Training (NCVT).
- It has been entrusted with the development, qualitative improvement, and regulation of vocational education entities involved in both long- and short-term vocational education and training while also establishing minimum standards for their operations.
- The principal functions of NCVET encompass:
- Recognize, monitor, discipline, and de-recognize Awarding Bodies.
- Recognize, monitor, discipline, and de-recognize Assessment Agencies.
- Recognize, monitor, discipline, and de-recognize Skill Information Providers.
- Frame guidelines for the approval of qualifications and approve qualifications in the manner set out in such guidelines.
- Create and monitor a system of redressing grievances against recognized bodies.

Viksit Bharat 2047

India aims for developed nation status by 2047 under the Viksit Bharat vision. However, challenges like slower growth, high taxes, and declining foreign investments risk hindering progress.

Targets of India for Viksit Bharat 2047:

- Economic Growth: Achieve a sustained GDP growth rate of 7-8% annually.
- Social Equity: Eradicate poverty, ensure universal healthcare, and provide quality education.
- Global Competitiveness: Position India among the top three global economies.
- Environmental Sustainability: Attain net-zero emissions by 2070 while enhancing renewable energy adoption.
- Industrial Modernization: Boost manufacturing to contribute 25% to GDP under Make in India.

India Internet Governance Forum

The India Internet Governance Forum (IIGF) 2024 will be held on December 9-10, 2024, at the Bharat Mandapam Convention Center, Pragati Maidan, New Delhi.

- It is the Indian chapter of the United Nations Internet Governance Forum (UN IGF).
- It is a global multi-stakeholder platform that fosters dialogue on public policy issues related to the Internet.
- Established in 2021, aims to maximize the opportunities of the Internet while addressing associated challenges and risks.
- IIGF promotes collaborative discussions among representatives from government, civil society, industries, technical communities, think tanks, and industry associations.
- It is supported by a 14-member multi-stakeholder committee, IIGF Known for its inclusive and collaborative approach, IGF plays a vital role in shaping policies for an open, secure, and accessible Internet, addressing issues such as cybersecurity, digital inclusion, data privacy, and emerging technologies.

Highlights about the IIGF-2024:

- It is supported by the Ministry of Electronics and Information Technology (MeitY) and the National Internet Exchange of India (NIXI).
- This initiative by India's multi-stakeholder community aims to explore critical aspects of Internet governance, foster meaningful dialogue, and highlight India's leadership in the global digital landscape.
- It will address critical themes to advance a secure, inclusive, and sustainable digital ecosystem.
- The forum will explore Legal and Regulatory Frameworksto create balanced, growth-oriented policies that strengthen Internet governance.
- Another key focus is Responsible AI, promoting the ethical and effective use of artificial intelligence for societal benefit.

Bima Sakhi Yojana

The Prime Minister of India recently launched the Bima Sakhi Yojana in Haryana's Panipat.

- Bima Sakhi Yojana is an initiative of the State-owned Life Insurance Corporation (LIC).
- It is designed to empower women aged 18-70 years who have passed out of Class 10.
- They will receive specialised training and a stipend for the first three years to promote financial literacy and insurance awareness.
- After training, they can serve as LIC agents and the graduate Bima Sakhis would have the opportunity to qualify for being considered for Development Officer roles in LIC.

- Women LIC agents will get a stipend of Rs. 7,000 per month for the first year, Rs. 6,000 per month in the second year, and Rs. 5,000 per month in the third year.
- Bima Sakhis will also get commission of Rs 48,000 (excluding bonus) for the first year.
- The plan is to appoint two lakh Bima Sakhis over a period of three years.
- Relatives of existing agents and employees are not eligible for the scheme. Retired employees are also ineligible.

Amrit Gyaan Kosh Portal

The Union Minister of Personnel, Public Grievances & Pensions launched "Amrit Gyaan Kosh" Portal.

- Amrit Gyaan Kosh Portal has been jointly developed by the Capacity Building Commission and Karmayogi Bharat.
- It is a platform to promote self-reliance in governance training and strengthen governance training.
- It is developed on the iGOT platform, serves as a comprehensive repository of best practices in governance and policy implementation.
- It aligns with 15 of the 17 Sustainable Development Goals (SDGs), covering critical themes such as health, education, agriculture, and digital governance.
- The curated resources enable faculty to align their teaching with global standards while addressing India's unique administrative challenges.

Pradhan Mantri Poshan Shakti Nirman Scheme

The central government has revised the prices of food items provided to children under the Pradhan Mantri Poshan Yojana.

- In 2021, Mid-Day Meal Scheme was renamed as Pradhan Mantri POSHAN Scheme.
- It is a centrally sponsored scheme, which aims at providing nutritional support and enhancing school participation of students.
- Under the scheme, one hot cooked meal is served to students studying in Balvatika (pre-primary education program) and classes I to VIII, in Government and Government-aided schools on all school-days.
- The objectives of the Scheme are to address two of the pressing problems for majority of children in India, viz. hunger and education by:
- Improving the nutritional status of eligible children in Governmentand Government aided schools.
- Encouraging poor children, belonging to disadvantaged sections, to attend school more regularly and help them concentrate on classroom activities.
- Providing nutritional support to children of elementary stage in drought-affected and disaster affected areas during summer vacation.
- The Labour Bureau, Ministry of Labour provides data on inflation for the items under the PM POSHAN basket on the basis of Consumer Price Index – Rural Labourers (CPI-RL).
- The CPI-RL is constructed by Labour Bureau on the basis of collecting continuous monthly prices from the sample of 600 villages spread over 20 States of the country.
- On the basis of CPI-RL, the Government of India has enhanced the 'Material Cost' of the items under the PM POSHAN basket by 13.70 %.

Atmanirbhar Clean Plant Programme

The Government of India and the Asian Development Bank (ADB) signed a $98 million loan to improve horticulture crop farmers' access to certified disease-free planting materials which aligns with India's Atmanirbhar Clean Plant Programme.

The Program will aim to:

- Enhance the yield of horticulture crops,
- Disseminate and adopt climate resilient varieties,
- Protect the ecosystem through proactive virus and disease control measures.
- Under this programme 9 world class state-of-the-art Clean Plant Centers (CPCs) equipped with advanced diagnostic therapeutics and tissue culture labs.
- A robust certification system will be implemented to ensure thorough accountability and traceability in planting material production and sale.
- It also prioritizes affordable access to clean plant material for all farmers, actively engages women farmers, and addresses the diverse agro-climatic conditions across India by developing region-specific clean plant varieties and technologies.
- Implemented by: Ministry of Agriculture and Farmers Welfare through the National Horticulture Board (NHB) and the Indian Council of Agricultural Research.
- The programme is poised to deliver numerous benefits across various stakeholders, from farmers to consumers, and bolster India's position in the global fruit market.

Consumer Confidence Survey

According to the latest Consumer Confidence Survey of the Reserve Bank of India (RBI)Indian consumers' confidence about general economic situation, employment scenario, their income and spending have weakened.

- It is a survey that indicates how optimistic or pessimistic consumers are regarding their expected financial situation.

- If the consumers are optimistic, spending will be more, whereas if they are not so confident, then their poor consumption pattern may lead to recession
- It is released by the Reserve Bank of India bi-monthly.

Highlights:

- Households displayed somewhat higher optimism on one year ahead outlook for major economic parameters, except prices.
- The future expectations index (FEI) improved by 0.5 points to 121.9 in the latest survey.
- The CCS survey showed that households anticipated higher spending over one year horizon on the back of higher essential as well as non-essential spending
- Consumer confidence for the current period declined marginally owing to weaker sentiments across the survey parameters except household spending.
- The current situation index (CSI) moderated by 0.7 points to 94 in November 2024 from 94.7 in September 2024.

Banking Laws (Amendment) Bill, 2024

The Lok Sabha recently passed the Banking Laws (Amendment) Bill, 2024 by a voice vote.

- It introduces significant changes aimed at improving governance in the banking sector and enhancing customer convenience.
- The bill seeks to amend five acts: the Reserve Bank of India Act, 1934; the Banking Regulation Act, 1949; the State Bank of India Act, 1955; the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1970; and the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1980.

Highlights of the Bill:

- Key provisions include allowing bank account holders to nominate up to four individuals for their accounts, with an option for successive or simultaneous nominations.
- Locker holders, however, will be restricted to successive nominations.
- The bill also proposes a revision to the definition of "substantial interest" for directorships, raising the threshold from ₹5 lakh to ₹2 crore.
- Additionally, the tenure of directors (excluding chairpersons and whole-time directors) in cooperative banks will increase from 8 to 10 years, aligning with the Constitution (Ninety-Seventh Amendment) Act, 2011.
- It would allow a director of a Central Cooperative Bank to serve on the board of a State Cooperative Bank.
- The Bill also seeks to give greater freedom to banks in deciding the remuneration to be paid to statutory auditors.
- It also seeks to redefine the reporting dates for banks for regulatory compliance to the 15th and last day of every month instead of the second and fourth Fridays.
- The bill also seeks to transfer unclaimed dividends, shares, and interest or redemption of bonds to the Investor Education and Protection Fund (IEPF), allowing individuals to claim transfers or refunds from the fund, thus safeguarding investors' interests.

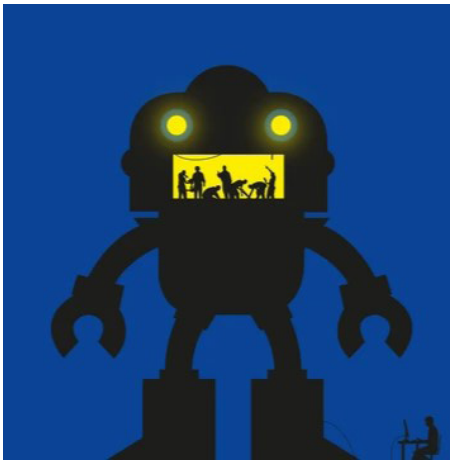
Oilfields (Regulation and Development) Amendment Bill, 2024

The Rajya Sabha recently passed the Oilfields (Regulation and Development) Amendment Bill, 2024, via a voice vote, paving the way for significant changes in India's oil and gas exploration laws.

- It is a bill to amend the Oilfields (Regulation and Development) Act, 1948, aiming to boost investment in oil and gas exploration and production.
- The bill will regulate the exploration and extraction of natural gas and petroleum.
- The amended bill expands the definition of mineral oils to include petroleum and natural gas in it.
- The amended bill includes any naturally occurring hydrocarbon, coal bed methane, and shale gas/oil in the category of mineral oils.
- However, it clarifies that mineral oils will not include coal, lignite, or helium.
- It also provides for mining leases – this will include various activities such as exploration, prospecting, production, making merchantable, and disposal of mineral oils.
- Prospecting is the initial stage in the search for oil and gas fields, involving the assessment of potential petroleum accumulations across large areas.
- The new bill will replace the mining lease with a petroleum lease to cover a similar set of activities. However, existing mining leases granted under the old Law will continue to be valid.
- The new bill will empower the central government to make rules on several matters, like regulating the grant of leases, merger, terms and conditions of leases, including the minimum and the maximum area and the period of the lease, conservation and development of mineral oils, methods for producing oil, and manner of collection of royalties, fees, and taxes, etc.
- It aims to decriminalize some of the provisions of the original 1948 law by introducing "penalties, adjudication by an adjudicating authority, and appeal as against the order of the adjudicating authority".
- For cases of violation of rules, the bill provides to hike the punishment and penalty from a current fine of Rs 1000 to Rs 25 lakhs.
- In cases of exploring, prospecting, and production without a valid lease, a penalty of Rs 25 lakhs and continued violations will attract a penalty of Rs 10 lakh per day.
- For dispute resolution, the central government will appoint an officer of the rank of joint Secretary or above for adjudication of penalties.
- Appeals against the decision of the adjudication officer can be filed at the Appellate tribunal specified in the Petroleum and Natural Gas Board Regulatory Board Act, 2006.

MuleHunter.AI

The Reserve Bank of India asked banks to collaborate with its initiative MuleHunter.AI to weed out mule accounts which are used to commit financial fraud.



- MuleHunter.AI is the Artificial Intelligence/ Machine Learning-based model.
- It has been developed by the Reserve Bank Innovation Hub (RBIH), which is a subsidiary of Reserve Bank of India.
- This model enables detection of mule bank accounts in an efficient manner. A pilot with two large public sector banks has yielded encouraging results.
- Mule bank account is a bank account, used by criminals for illegal activities, including the laundering of illicit funds

International Social Security Association

The Employees' State Insurance Corporation (ESIC) has been awarded one certificate of merit with special mention from the jury for its mobile application (Ask An Appointment – AAA+) at the Regional Social Security Forum for Asia and the Pacific (RSSF Asia-Pacific), organized by the International Social Security Association (ISSA) in Riyadh, Saudi Arabia.

- It was founded in 1927, under the auspices of the International Labour Organization (ILO).
- It promotes excellence in social security administration through professional guidelines, expert knowledge, services and support to enable its members to develop dynamic social security systems.
- It is actually the constituent assembly of the Association and is the highest statutory body. It consists all members of the ISSA are directly represented. It meets every three years.
- It constitutes the electoral body of the Association, composed of the titular delegates of each country in which the ISSA has at least one affiliate member, with each of these countries having one titular delegate.
- It constitutes the administrative authority of the Association, composed of the President of the ISSA, the Treasurer, the Secretary General, and elected members representing the different geographical regions of the world.
- It examines the financial records of the Association and the annual report and statements presented to the Bureau by the Treasurer, and verify that all financial transactions have been carried out in conformity with the Financial Regulations.
- India is a member country of this organization.
- Headquarters: Geneva, Switzerland.

Anna Chakra

The Union Minister of Consumer Affairs, Food and Public Distribution launched 'Anna Chakra' and SCAN (Subsidy Claim Application for NFSA) portal.

- Anna Chakra is a Public Distribution System (PDS) Supply chain optimisation tool.
- It is spearheaded by Department of Food Public Distribution, which enhance the efficiency of the PDS logistics network across the country.

- It is developed in collaboration with the World Food Programme (WFP) and Foundation for Innovation and Technology Transfer (FITT), IIT-Delhi.
- The project leverages advanced algorithms to identify optimal routes and ensure seamless movement of food grains across supply chain nodes.
- An operation of this magnitude involves a complex supply chain, relying on multiple stakeholders starting from farmers to Fair Price Shops.
- The inter-state route optimization tool has been developed for optimization of the PDS movement between the states and it is integrated with the FOIS (Freight Operations Information System) portal of the Railways through Unified Logistics Interface Platform (ULIP).
- A significant milestone in this effort is the integration of the optimization tool with the PM Gati Shakti platform which now houses geo-locations of FPSs and warehouses across the states.

De-dollarisation

RBI Governor Shaktikanta Das clarified that India is not taking steps toward de-dollarisation despite discussions within BRICS about a common currency to reduce reliance on the U.S. dollar.

- The process of reducing reliance on the U.S. dollar in international trade and reserves to mitigate risks associated with currency volatility.
- Countries like China and Russia have initiated measures such as bilateral trade in local currencies and increasing gold reserves.
- India has signed agreements with select nations for bilateral trade in local currencies, reducing transaction costs and exchange rate volatility.
- Increased focus on gold and other currencies in reserves.

Railways (Amendment) Bill, 2024

The Railways (Amendment) Bill, 2024, was passed recently in the Lok Sabha, despite disruptions.

- Railways (Amendment) Bill, 2024 All the provisions in the erstwhile colonial-era Indian Railway Board Act, 1905, are proposed to be incorporated in the Railways Act, 1989, through this Bill.
- It is intended to simplify the legal framework and reduce the need to refer to two laws.

- The Bill also proposes to amend the Railways Act, 1989, to provide statutory backing to the Railway Board, which has functioned without such a sanction since it began functioning.
- The statutory powers seek to enhance the functioning and independence of the Railway Board.
- It also authorises the Union government to decide the composition of the Railway Board.
- This includes the number of members, their terms of service, and their qualifications and experience.
- The bill proposes to establish an independent regulator to oversee tariffs, safety, and the participation of the private sector in the Railways.
- The bill also proposes to improve operational efficiencies and decentralize powers, granting greater autonomy to railway zones.
- The amendment is expected to speed up the approval process for train services that will help meet pending demands from various regions.
- The bill will allow the government to fast-track infrastructure and superfast train operations.

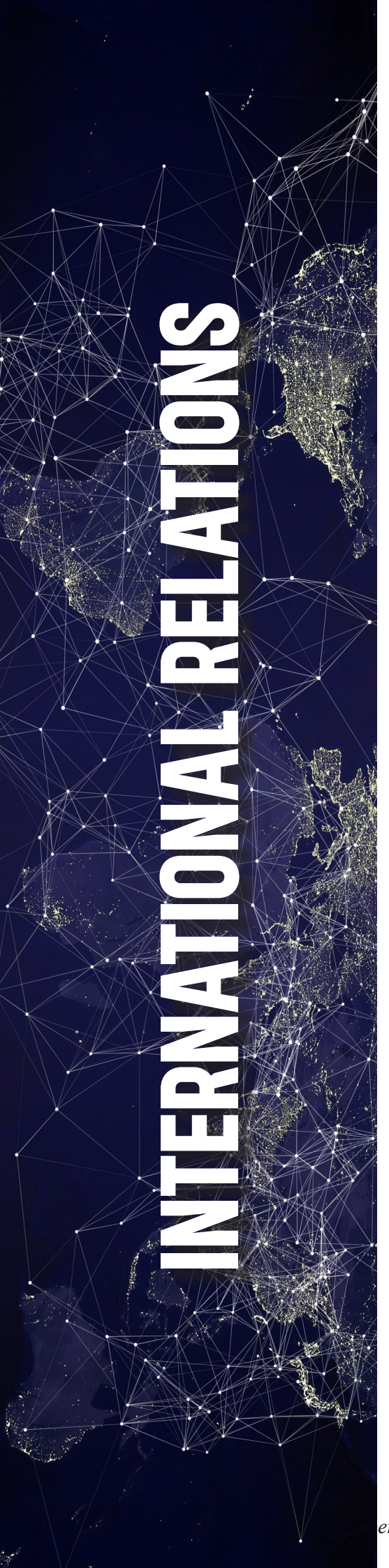
India Skills Report 2025

India's employability among graduates is expected to rise by 7 percent, reaching 54.81 percent in 2025, according to the 'India Skills Report 2025.'

- It has been prepared by the industry body Confederation of Indian Industries (CII) in collaboration with Wheebox (a talent assessment agency) and All India Council for Technical Education (AICTE).
- It is based on data from over 6.5 lakh candidates who participated in the Global Employability Test (G.E.T.) across India, alongside insights from over 1,000 corporations across 15 diverse industries.

Highlights of the Report:

- Nearly 55 percent of Indian graduates are expected to be globally employable in 2025, up from 51.2 percent in 2024 (a seven percent increase).
- It notes that management graduates (78 percent) have highest global employability, followed by engineering students (71.5 percent), MCA students (71 percent) and science graduates (58 percent).
- States like Maharashtra, Karnataka, and Delhi are emerging as major hubs for employable talent, while cities such as Pune, Bengaluru and Mumbai are leading the way in providing a skilled workforce.
- Gender analysis shows that the employability rate for men is expected to rise to 5 percent in 2025 from 51.8 percent in 2024.
- Meanwhile, for women, the employability rate is projected to decline to 47.5 percent from 50.9 percent during the same time period.
- In 2025, 50 percent of secondary and tertiary students are expected to receive vocational training, further positioning India as a key player in the global talent market.
- The report further stresses the importance of integrating vocational training with industry needs, particularly in emerging sectors such as AI, cybersecurity, and green energy.



Global One-Stop Centres

The Ministry of External Affairs' proposal to establish nine One-Stop Centres (OSCs) has received approval from the Empowered Committee of the Ministry of Women and Child Development.

- These centres aim to provide comprehensive assistance to women in vulnerable situations, addressing their immediate needs and offering critical support.
- Out of the nine proposed OSCs, seven will include shelter homes and will be set up in Bahrain, Kuwait, Oman, Qatar, the UAE, and Saudi Arabia (with centres in both Jeddah and Riyadh).he remaining two centres, located in Toronto and Singapore, will operate without shelter home facilities.
- To facilitate the rollout of these initiatives, the Ministry of External Affairs has opened a dedicated budget line for these missions.
- The Indian Community Welfare Fund (ICWF) will play a vital role in extending welfare measures to distressed Indian nationals, particularly women.
- The ICWF has significantly expanded its scope to address a wide range of issues faced by overseas Indians.
- The fund now covers emergency assistance such as boarding and lodging, air travel for those stranded, legal aid, medical care, and the repatriation of mortal remains.
- The ICWF guidelines include specific provisions for legal assistance and counselling for women abandoned by their overseas Indian or foreign spouses.
- Legal panels have also been established in countries with large Indiasporas to provide timely and efficient support.
- In cases involving minor legal infractions, the fund allows for the payment of fines to secure the release of Indian nationals.

UK's Assisted Dying Bill

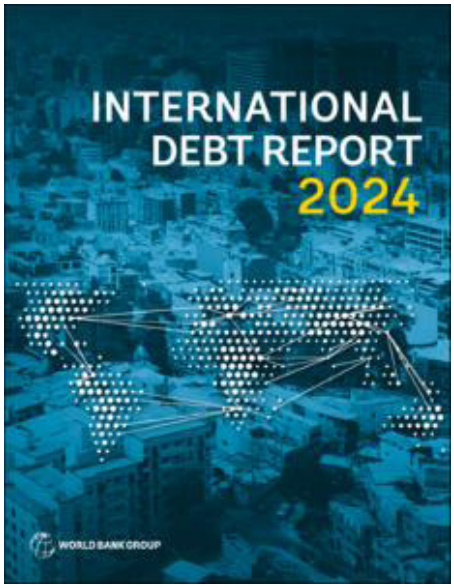
The UK House of Commons voted in favour of the Terminally Ill Adults (End of Life) Bill, allowing terminally ill patients to request assistance to end their own lives.This landmark decision reflects ongoing debates about end-of-life rights and raises questions about ethical considerations and legal frameworks.

- The Suicide Act 1961 makes it illegal to encourage or assist a suicide in England, Wales and Northern Ireland.
- Assisted suicide is considered an offence and can be punished with up to 14 years in prison.
- Since 2013, at least three bills have been introduced to allow assisted dying in the UK.
- A terminally ill person is defined as someone with a worsening condition that cannot be reversed by treatment and is expected to die within 6 months.
- The bill explicitly excludes individuals with disabilities or mental disorders.

- Eligibility Criteria: Only terminally ill individuals aged 18 and above with mental capacity can request assisted dying.
- Patients must be registered and residing in England or Wales for at least 12 months prior to the request.
- In the United Kingdom, each nation and crown dependency is responsible for its own health care, so Scotland and Northern Ireland would have to pass their own assisted-dying rules.

INTERNATIONAL DEBT REPORT 2024

World Bank's "International Debt Report 2024" highlights a worsening debt crisis for developing nations, with 2023 marking the highest debt servicing levels in two decades, driven by rising interest rates and economic challenges.



- Also, earlier in June 2024, a UNCTAD report, "A World of Debt 2024: A Growing Burden to Global Prosperity", highlighted a severe global debt crisis impacting the world.
- Key Findings of the International Debt Report, 2024:
- The total external debt of Low- and Middle-Income countries (Developing or LMICs) reached a record USD 8.8 trillion by the end of 2023, marking an 8% increase since 2020.
- External debt for the International Development Association (IDA)-eligible countries rose by nearly 18%, reaching USD 1.1 trillion.
- IDA, established in 1960,is a World Bank Group institution providing concessional loans and grants to the world's poorest nations with low income and poor creditworthiness.
- LMICs incurred a record USD 1.4 trillion in debt servicing costs (principal plus interest payments) in 2023, with interest payments increasing by 33% to USD 406 billion, placing immense pressure on national budgets.
- The sharp rise in interest payments has curtailed investments in vital sectors like health, education, and environmental sustainability, exacerbating developmental challenges.
- In 2023, interest rates on loans from official creditors doubled to over 4%, while rates from private creditors rose to 6%, the highest level in 15 years.
- This surge in interest rates significantly increased the financial burden on developing countries, exacerbating their debt servicing challenges.
- As global credit conditions worsened, private creditors cut lending to IDA nations, leading to USD 13 billion more in debt servicing than new loans.
- In contrast, multilateral lenders, like the World Bank, supported these economies by providing USD 51 billion more than they collected in debt payments.
- IDA-eligible countries faced severe financial strain in 2023, paying USD 96.2 billion in debt servicing, including USD 34.6 billion in record-high interest costs- 4 times higher than in 2014.
- On average, nearly 6% of their export earnings go to interest payments, with some allocating up to 38%.

International Advisory Body for Submarine Cable Resilience

The International Advisory Body for Submarine Cable Resilience was launched to address the growing challenges and ensure the continued resilience of submarine critical infrastructure.

- It was jointly launched by the International Telecommunication Union (ITU) and the International Cable Protection Committee (ICPC).

- This initiative aims to strengthen the resilience of submarine cables, which are essential to the functioning of the global digital economy.
- It comprises 40 members from around the world—including ministers, heads of regulatory authorities, and senior experts in telecommunications—the body reflects a diverse global perspective.
- The Advisory Body will meet bi-annually to consult on international policies, infrastructure, and best practices for improving submarine cable resilience
- It will work towards promoting best practices across governments and industries to improve cable resilience, reduce risks of damage, and ensure the swift repair and deployment of these vital systems.
- The collective experience of the body will help address the needs of those whose livelihoods depend on submarine cables, as well as those responsible for deploying, maintaining, and protecting this critical infrastructure.
- The Advisory Body will also provide strategic guidance to address challenges related to increasing traffic, aging infrastructure, and growing environmental threats to submarine cables.

UN Commission on Narcotic Drugs

India has been chosen to Chair the 68th Session of the United Nation Commission on Narcotic Drugs (CND).

- UN Commission on Narcotic Drugs is the principal policy-making body of the United Nations on drug-related matters.
- It is mandated to monitor global drug trends, support Member States in formulating balanced policies, and oversee the implementation of the major international drug conventions.
- It is mandated to decide on the scope of control of substances under the three international drug control conventions (1961, 1971 and 1988 Conventions).
- It was established by the resolution of the United Nations Economic and Social Council (ECOSOC) IN 1946.
- It is one of the functional commissions of the ECOSOC and a Governing Body of the United Nations Office on Drugs and Crime (UNODC).

QS World University Rankings: Sustainability 2025

The Quacquarelli Symonds (QS) World University Rankings: Sustainability 2025, in its third edition, evaluates global institutions' progress in tackling environmental and social challenges through education and research.

- These rankings assess universities' contributions to sustainability, focusing on three pivotal pillars: Environmental Impact, Social Impact, and Governance. 78 Indian universities are featured in the 2025 rankings.

Top Performers in India:

- IIT Delhi: Ranked 1st in India and 171st globally.
- IIT Kharagpur: Ranked 2nd in India and 202nd globally.
- IIT Bombay: Ranked 3rd in India and 234th globally.
- IIT Kanpur: Ranked 4th in India and 245th globally.
- IIT Madras: Ranked 5th in India and 277th globally

20th Manama Dialogue

External Affairs Minister S. Jaishankar attended the 20th Manama Dialogue in Bahrain, highlighting India's diplomatic efforts in addressing challenges across the Middle East, from Gaza to Syria.

- Manama Dialogue initiated in 2004 in the Kingdom of Bahrain.
- Includes participants from Middle East, North America, Europe, Asia, and Africa.
- Organized by: The International Institute for Strategic Studies (IISS) in collaboration with Bahrain's Ministry of Foreign Affairs.
- Aim is To provide a platform for national leaders, policymakers, and strategic thinkers to address pressing regional security issues.
- Facilitate policy discussions on geopolitics, security trends, and conflict resolution.
- 2024 Theme: "Middle East Leadership in Shaping Regional Prosperity and Security"

Red Sea : Concern

India remains "concerned" at the evolving situation in West Asia, and attacks against commercial vessels in and around the Red Sea threaten freedom of navigation and "impact our trade", the government informed the Parliament recently.

- The Red Sea is a semi-enclosed, inlet (or extension) of the Indian Ocean between the continents of Africa and Asia.
- It is the world's northernmost tropical sea and is also one of the most heavily traveled waterways.
- It is connected to the Arabian Sea and the Indian Ocean to the south through the Gulf of Aden and the narrow strait of Bab el Mandeb.
- The northern portion of the Red Sea is bifurcated by the Sinai Peninsula into the Gulf of Aqaba and the Gulf of Suez, where it is connected to the Mediterranean Sea via the famous Suez Canal.
- It has a surface area of roughly 438,000 sq.km. and is about 2,250 km in length.
- Yemen and Saudi Arabia border the Red Sea to the east.
- It is bordered by Egypt to the north and west and by Sudan, Eritrea, and Djibouti to the west.
- It is one of the world's warmest seas. It contains some of the world's hottest and saltiest seawater.
- Its name is derived from the colour changes observed in its waters.
- Normally, the Red Sea is an intense blue-green; occasionally, however, it is populated by extensive blooms of the algae Trichodesmium erythraeum, which, upon dying off, turn the sea a reddish brown colour.
- Some well-known islands include Tiran Island, which is located near the mouth of the Gulf of Aqaba, and Shadwan Island, which is located at the entrance of the Gulf of Suez.

Comprehensive and Progressive Agreement for Trans-Pacific Partnership

The United Kingdom became the 12th member of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).

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- It is a landmark Free Trade Agreement (FTA) finalized in 2018, aimed at reducing trade barriers among its 11 member countries.
- Initially known as the Trans-Pacific Partnership (TPP), the agreement was rebranded as CPTPP after the United States withdrew from the deal in January 2017.
- These countries include Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam.
- U.K. becomes the 12th member, marking its first major trade pact post-Brexit.

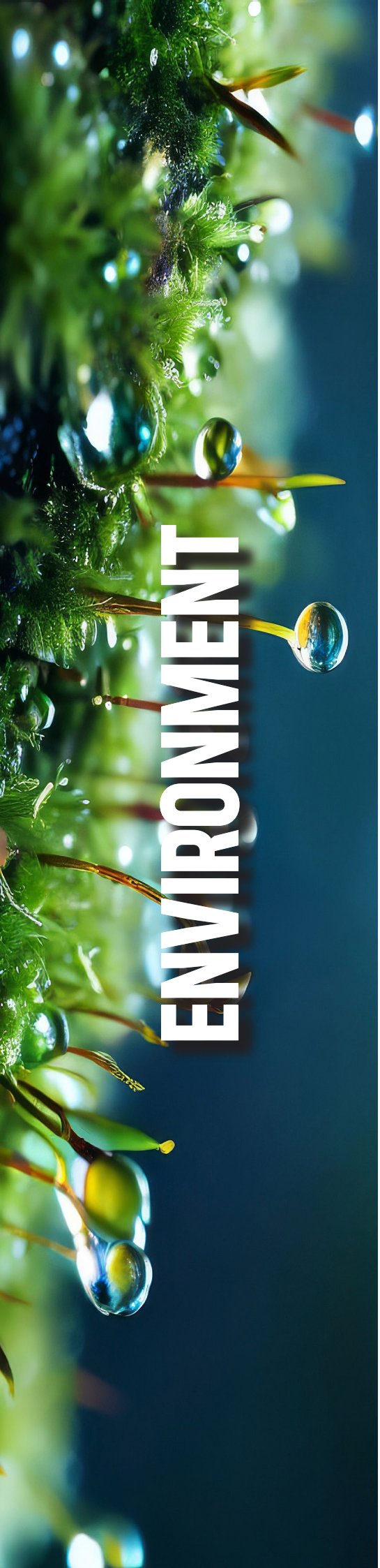
Significance for the U.K.

1. Entry into force from December 15, 2024, with staggered implementation for some nations.
2. Strengthens U.K.'s post-Brexit vision of "Global Britain."
3. Allows access to dynamic Pacific markets.

Romania and Bulgaria Join Schengen Zone

Bulgaria and Romania will join the European Union's Schengen zone on 1st January 2025. Both nations, which have been EU members since 2007, will finally be able to join the borderless area, allowing for seamless travel and movement across Europe.

- The Schengen Zone is named after a small village in Luxembourg, where the Schengen Agreement (1985) and Schengen Convention (1990) were signed.
- These agreements abolished internal border checks between participating countries, allowing for free movement of people across most EU states and some non-EU countries.
- The Schengen Area is the world's biggest area without internal border controls, and now covers 29 countries (25 of the 27 EU member states (excluding Cyprus and Ireland), as well as four non-EU countries (Iceland, Liechtenstein, Norway, and Switzerland).
- The Schengen Area guarantees free movement for over 425 million EU citizens and non-EU nationals legally residing in or visiting the EU.
- By abolishing internal border checks, it allows seamless travel, living, and working across participating countries.
- A uniform visa policy allows short-term stays of up to 90 days for tourists, business travelers, and other visitors.
- The Schengen Area includes provisions for police cooperation, judicial collaboration, and the Schengen Information System (SIS) to ensure security.
- SIS is the most widely used and largest information sharing system for security and border management in Europe.
- In exceptional circumstances, countries can temporarily reintroduce border controls for security reasons, but they must inform other member states and the European Commission.
- Countries wishing to join the Schengen Area must meet specific criteria, including effective border control, visa issuance, and law enforcement cooperation.



Jim Corbett National Park

A study has concluded that the drones and cameras originally planted in the Jim Corbett National Park for conservation activities, such as monitoring animals, are being deliberately misused by local government officials and men to surveil women without consent.

- Jim Corbett National Park is located at the foothills of the Himalayas in the Nainital district of Uttarakhand.
- It is the first national park of India, established in 1936. It was named Hailey National Park then.
- In 1957, the park was rechristened Corbett National Park in memory of the late Jim Corbett, a great naturalist and eminent conservationist.
- Known for housing the endangered Bengal tiger, Corbett National Park is part of the larger Corbett Tiger Reserve.
- It was the first place where Project Tiger was launched in 1973.

2030 Global Strategy for Resilient Drylands

The Consultative Group on International Agricultural Research (CGIAR), a global leader in agricultural research has launched its 2030 Global Strategy for Resilient Drylands (GSRD).

- This initiative is spearheaded by Consultative Group on International Agricultural Research (CGIAR), International Center for Agricultural Research in the Dry Areas (ICARDA) and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).
- It provides a roadmap to enhance food security, conserve biodiversity and build resilient livelihoods for the 2.7 billion people inhabiting drylands, particularly in Asia and Africa.
- It was launched at the 16th Conference of Parties to the United Nations Convention to Combat Desertification (COP16) in Riyadh.
- It was developed through extensive consultations with national research organizations, governments, private sector partners, and civil society, ensuring its alignment with the specific needs of different dryland regions.

Sonai-Rupai Wildlife Sanctuary

The Assam Forest Department has received the first-ever photographic evidence of the presence of the Royal Bengal Tiger in the Sonai-Rupai Wildlife Sanctuary.

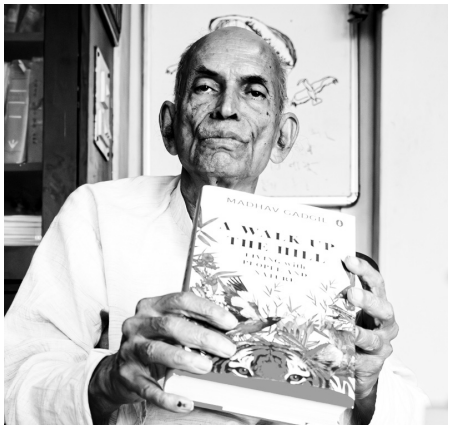
- Sonai-Rupai Wildlife Sanctuary is a protected area located in Assam in India.
- It covers an area of 175 sq.km. The area was declared as a sanctuary in 1998.
- It is located along the foothills of the Great Himalayan Range.
- The eastern boundary of Sonai Rupai Wildlife Sanctuary is marked by the Gabhoru River.
- The western boundary is marked by the Panchnoi River and further west, area is surrounded by the Rowta reserve forest.
- The northern area of the sanctuary shares an interstate boundary with the Kameng reserve forest of the West Kameng district of Arunachal Pradesh.
- In the southern area there is the Charduar reserve forest and villages.

- There are four perennial rivers that flow through the sanctuary: Dolsiri, Gabharu, Gelgeli, and Belsiri. During the rainy season, several wetlands known as “bheels” are also found.
- It experiences a sub-tropical type of climate with hot and humid summers, with heavy summer rains often causing floods and river overflows.
- The forest types in the sanctuary comprise tropical evergreen, semi-evergreen and moist deciduous forests.
- Some common trees found in the sanctuary include Hollock, Koroi, Nahar, Titasapa, Simul, Sal, Ajar, Hatipeta, and more.

Champions of the Earth award

India’s veteran ecologist, Madhav Gadgil has been named as one of the six ‘Champions of the Earth award’ for 2024.

- Champions of the Earth award was established in 2005 and awarded by the United Nations Environment Programme (UNEP).
- It is the UN’s highest environmental honour, recognises trailblazers at the forefront of efforts to protect people and the planet.
- Every year, UNEP honours individuals and organizations working on innovative and sustainable solutions to address the triple planetary crisis of climate change, nature and biodiversity loss, and pollution and waste.
- Champions of the Earth are celebrated in four categories:
- Policy leadership- Public sector officials leading global or national action for the environment. They shape dialogue, lead commitments and act for the good of the planet.



- Inspiration and action- Leaders taking bold steps to inspire positive change to protect our world. They lead by example, challenge behavior and inspire millions.
- Entrepreneurial vision -Visionaries challenging the status quo to build a cleaner future. They build systems, create new technology and spearhead a groundbreaking vision.
- Science and innovation-Trailblazers pushing the boundaries of technology for profound environmental benefit. They invent possibilities for a more sustainable world.

UN Report on Land Degradation

The United Nations (UN) released its report, The Global Threat of Drying Lands, during COP16 in Riyadh, emphasizing the growing threat of aridity to global agricultural systems.

Key Highlights of the UN Report:

- Affects 40% of Earth's arable lands (5.7 million sq km) and an additional 7% when soil erosion is considered.
- 77.6% of Earth's land became permanently drier between 1961-2020.
- Global arid areas may expand by 3.9% by 2040, resulting in significant crop losses:
- 20 million tonnes of maize
- 19 million tonnes of rice
- 8 million tonnes of soybeans
- 21 million tonnes of wheat
- Sub-Saharan Africa: Up to 22% of crop production may be lost by mid-century.
- Kenya: Maize production could decline by 50% by 2050.
- South Asia and North Africa: Significant declines in rainfed agriculture expected.

Rashtriya Gokul Mission

The Ministry of Fisheries, Animal Husbandry & Dairying highlighted the role of the Rashtriya Gokul Mission (RGM) in the conservation of indigenous bovine breeds and the enhancement of milk production in the Lok Sabha.

- Rashtriya Gokul Mission was launched in 2014 for the development and conservation of indigenous bovine breeds.
- The mission continues as part of the Rashtriya Pashudhan Vikas Yojna for the period 2021 to 2026 with a budget outlay of Rs. 2400 crore.
- The decline of indigenous bovine breeds, like Punganur(Andhra Pradesh), threatens valuable genetic resources. These breeds are climate-resilient, produce high-quality milk, and adapt well to local environments, highlighting the need for preservation efforts.
- RGM aims to boost bovine productivity, promote high-quality breeding, strengthen Artificial Insemination (AI) services.

Sultanpur National Park

The Additional Chief Secretary (ACS) of Forest and Wildlife recently asked the district administration to submit a report on illegal construction around the Sultanpur National Park and their status to the Ministry of Environment, Forest and Climate Change of India (MoEF & CC).

- Sultanpur National Park is located in the Gurgaon district of Haryana,46 km from Delhi.
- Formerly known as Sultanpur Bird Sanctuary, it spans 1.42 sq.km., consisting primarily of marshy lakes and floodplains.
- It includes a core area of 1.21 sq. km containing the main Sultanpur Lake/Jheel.
- The Sultanpur Jheel is a seasonal freshwater wetland with fluctuating water levels throughout the year.
- This shallow lake is mostly fed by waters from River Yamuna's Gurgaon canal and the overflowing waters of the neighboring agricultural lands.
- It was recognised as a Ramsar site, a wetland of international importance, in 2021. It has been identified as an Important Bird Area by Bird Life International.
- The vegetation is characterized by tropical and dry deciduous types such as grasses, dhok, khair, tendu, jamun, neem, berberis, and species of Acacia.

2024 Arctic Report Card

A recent report titled the 2024 Arctic Report Card by the National Oceanic and Atmospheric Administration (NOAA) reveals that the Arctic, once a major carbon sink, is now becoming a carbon source due to ongoing climate-induced warming.

Key Findings of the Report:

- The Arctic is warming at an unprecedented rate, with 2024 marking the second-warmest year since records began in 1900.
- The Arctic's summer of 2024 was the third warmest on record, with regions like Alaska and Canada experiencing extreme heat waves.
- Permafrost thaw is causing the Arctic tundra to switch from a carbon sink to a carbon source.
- Decomposing permafrost releases carbon dioxide and methane, accelerating global warming.
- Wildfires are increasing in frequency and intensity, releasing more carbon and extending the wildfire season.
- The extent and thickness of sea ice have reduced significantly over the past decades.
- The shorter sea ice season exposes more dark ocean surfaces, which absorb more heat and further contribute to warming.
- Arctic glaciers and the Greenland Ice Sheet continue to contribute meltwater to oceans, exacerbating global sea-level rise.
- Changes in the Arctic contribute to global challenges like coastal flooding, extreme weather events, and wildfires.
- The Arctic's diminishing ability to store carbon underscores the need to urgently reduce Greenhouse Gas emissions to mitigate further risks.
- The reindeer or caribou are in decline due to climate change affecting Indigenous communities reliant on them for food and cultural practices.

India State of Forest Report

The Minister for Environment, Forest and Climate Change released the 'India State of Forest Report 2023 (ISFR 2023) at Forest Research Institute, Dehradun.

India State of Forest Report:

- It is published by the Forest Survey of India (FSI) on a biennial basis since 1987.
- It carries out in-depth assessment of the forest and tree resources of the country based on interpretation of Remote Sensing satellite data and field based National Forest Inventory (NFI).
- The India State of Forest Report 2023 is 18th such report in the series.
- The report contains information on forest cover, tree cover, mangrove cover, growing stock, carbon stock in India's forests, instances of forest fire, Agroforestry, etc.

Highlights of India State of Forest Report 2023:

- The Forest and Tree cover of India is 17 percent of the geographical area and in that 21.76% is forest cover and 3.41% is tree cover.
- As compared to assessment of 2021, there is an increase in the forest and tree cover of the country.
- Top four states showing maximum increase in forest and tree cover are Chhattisgarh, Uttar Pradesh, Odisha
- Top three states showing maximum increase in forest cover are Mizoram, Gujarat and Odisha.
- Area wise top three states having largest forest and tree cover are Madhya Pradesh, Arunachal Pradesh and Maharashtra
- Area wise top three states having largest forest cover are Madhya Pradesh, Arunachal Pradesh and
- In terms of percentage of forest cover with respect to total geographical area, Lakshadweep (91.33 percent) has the highest forest cover followed by Mizoram and Andaman & Nicobar Island
- The present assessment also reveals that 19 states/UTs have above 33 percent of the geographical area under forest cover.
- Out of these, eight states/UTs namely Mizoram, Lakshadweep, A & N Island, Arunachal Pradesh, Nagaland, Meghalaya, Tripura, and Manipur have forest cover above 75 percent.
- The total mangrove cover is 4,992 sq km in the country.
- The extent of bamboo bearing area for the country has been increased as compared to the last assessment done in 2021.
- There is an increase in the carbon stock of country as compared to the last assessment.
- India's carbon stock has reached 30.43 billion tonnes of CO2 equivalent; which indicates that as compared to the base year of 2005, India has already reached 2.29 billion tonnes of additional carbon sink as against the target of 2.5 to 3.0 billion tonnes by 2030.

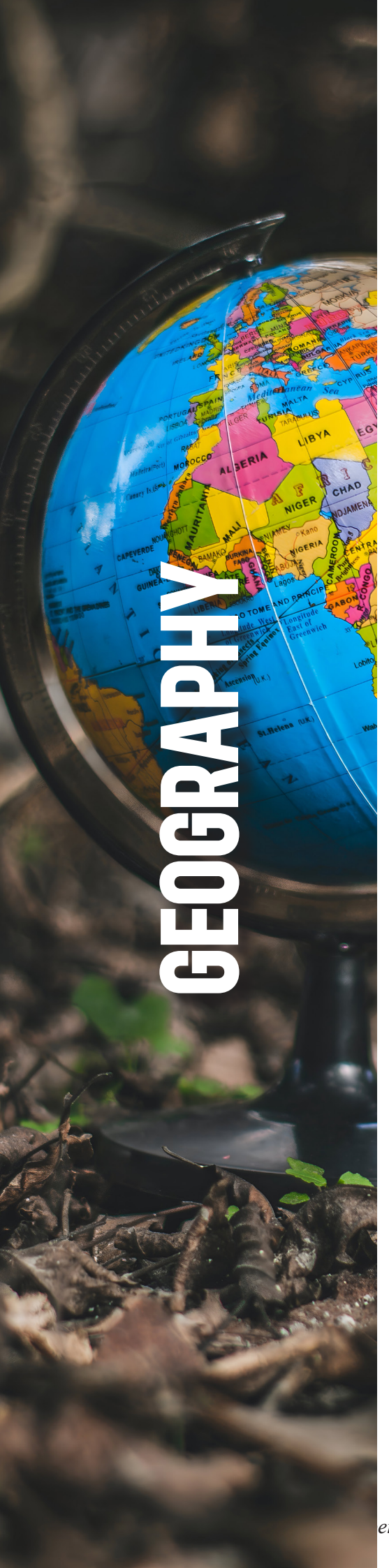
Sacred Groves

The Supreme Court of India has directed the Union Government to formulate a comprehensive policy for managing sacred groves across the country.

- Sacred Groves are small patches of forests or natural vegetation that are protected by local communities due to their religious and cultural significance.
- These areas are often dedicated to local deities and serve as both ecological sanctuaries and sites of spiritual reverence.
- They act as repositories of biodiversity, sheltering rare plant and animal species.
- Hunting and deforestation are usually prohibited, while sustainable activities such as honey collection or gathering deadwood are permitted.

Sacred groves are scattered across India but are particularly found in regions like:

- o The Western Ghats
- o The Himalayas
- o The northeastern hill tracts
- o Central India



Varkala Cliff

The National Green Tribunal (NGT) has sought a reply from the Geological Survey of India (GSI) and others over the deteriorating condition of Varkala cliff, a designated national geo-heritage site.

- It is a beautiful natural formation located in Varkala, a coastal town in Thiruvananthapuram district of Kerala.
- The cliff, including both northern and southern ones, covering a total distance of 3 km, exposes the sedimentary rock formation of the Mio-pliocene Age.
- Varkala is the only place on the West Coast of India where sediments in the Mio-Pliocene age (13 lakh to 2.5 crore years ago) had been exposed.
- The Papanasam Beach, located at the base of the cliff, is revered for its natural springs and believed to have therapeutic properties.
- It is a crucial aquifer and natural water harvesting system for coastal communities, hosted unique biodiversity in its microhabitat, and supported underwater reefs essential for local fishing communities.
- It is the 27th National Geological Monument in the country and the second in the State after the Angadipuram Laterite.

Solar Storm

Scientists have uncovered evidence of an immense solar storm that struck Earth around 664–663 BCE.

- A solar storm is a sudden explosion of particles, energy, magnetic fields, and material blasted into the solar system by the Sun.
- The sun's tangled magnetic fields get twisted up as the Sun rotates — with its equator rotating faster than its poles.
- Solar storms typically begin when these twisted magnetic fields on the Sun get contorted and stretched so much that they snap and reconnect (in a process called magnetic reconnection), releasing large amounts of energy.

These powerful eruptions can generate any or all of the following:

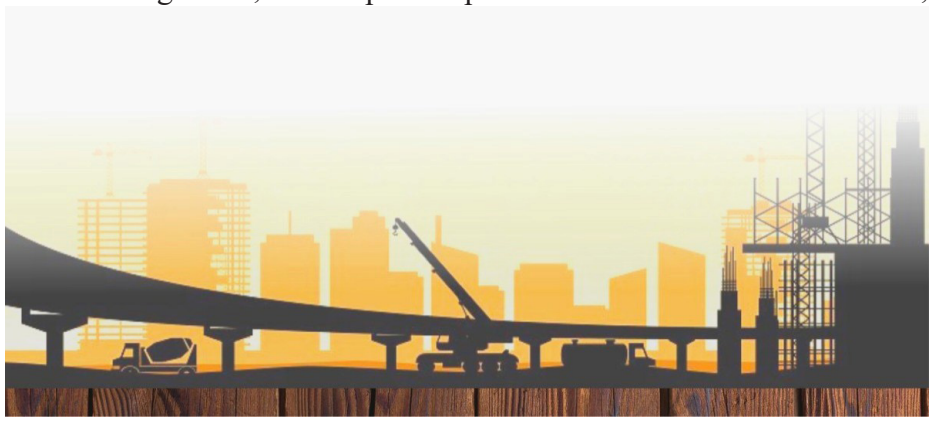
- o a bright flash of light called a solar flare
- o a radiation storm, or flurry of solar particles propelled into space at high speeds
- o an enormous cloud of solar material, called a coronal mass ejection

- When directed toward Earth, a solar storm can create a major disturbance in Earth's magnetic field, called a geomagnetic storm, that can produce effects such as radio blackouts, power outages, and beautiful auroras.
- They do not cause direct harm to anyone on Earth, however, to our planet's magnetic field and atmosphere that protect us from the worst of these storms.

Urban Infrastructure Development Fund

The Minister of State in the Ministry of Housing and Urban Affairs informed in Lok Sabha that the government has set up the Urban Infrastructure Development Fund (UIDF) through use of priority sector lending shortfall for creating urban infrastructure in Tier 2 and Tier 3 cities.

- It was established through the use of priority sector lending shortfall.
- It will be used by public agencies to create urban infrastructure in tier-2 and tier-3 cities.
- It aims to supplement the efforts of the State Governments / UTs for urban infrastructure development works implemented through Public/ State Agencies, Municipal Corporations and Urban Local Bodies, by providing a stable and predictable source of financing for providing basic services like Sewerage and Solid Waste Management, Water Supply and Sanitation, construction and improvement of drains/ storm water drains, etc.



- It is managed by the National Housing Bank.
- The initial corpus for this Fund is ₹10,000 crore.
- It is established on the lines of the Rural Infrastructure Development Fund (RIDF).
- States will be encouraged to leverage resources from the grants of the 15th Finance Commission, as well as existing schemes, to adopt appropriate user charges while accessing the UIDF.
- It currently covers 459 tier-2 cities and 580 tier-3 cities.

Nazca Lines

Artificial intelligence was used by the researchers to discover more mysterious Nazca geoglyphs in Peru.

- Nazca Lines are a group of geoglyphs, or large designs made on the ground by creators using elements of the landscape such as stones, gravel, dirt or lumber.
- These are located in the arid Peruvian coastal plain, some 400 km south of Lima.
- The Nazca Lines were discovered by hikers in the mid 1920s and later on Peruvian archaeologist Toribio Mejia Xesspe studied them systematically in 1926.
- These are believed to be the greatest known archaeological enigma, owing to their size, continuity, nature and quality.
- They depict creatures from both the natural world and the human imagination.
- They include animals such as the spider, hummingbird, monkey, lizard, pelican and even a killer whale. Ancient artisans also depicted plants, trees, flowers and oddly shaped fantastic figures, as well as geometric motifs, such as wavy lines, triangles, spirals and rectangles.
- The vast majority of the lines date from 200 B.C. to A.D. 500, to a time when a people referred to as the Nazca inhabited the region.
- The earliest lines, created with piled up stones, date as far back as 500 B.C.
- The Lines were declared a World Heritage Site by UNESCO in 1994.

AOMSUC

The 14th Asia-Oceania Meteorological Satellite Users' Conference (AOMSUC-14) is being held from December 4-6, 2024, in New Delhi, India.

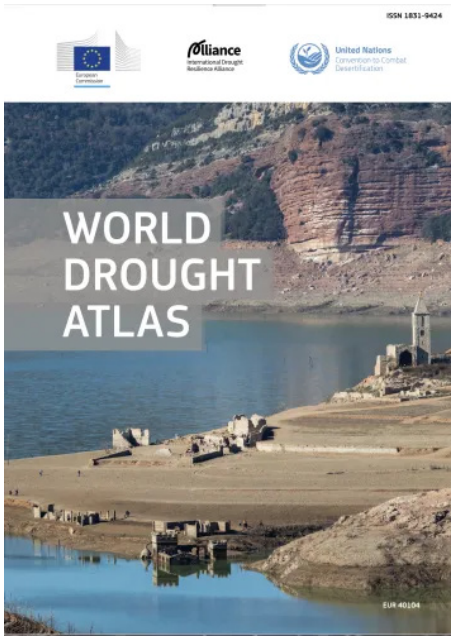
- The first AOMSUC was held in Beijing, China, in 2010. Since then, it has been hosted annually in various locations across Asia-Oceania.
- The AOMSUC has become a premier event for meteorologists, earth scientists, satellite operators, and students from across the region and the globe.
- This year's conference is hosted by the India Meteorological Department (IMD), Ministry of Earth Sciences, and it will feature high-quality oral and poster presentations, panel discussions, and a training workshop focused on applying current satellite data for meteorological and climatologically applications.

The conference aims to:

- o Promote the importance of satellite observations.
- o Advance satellite remote sensing science.
- o Provide a platform for dialogue and collaboration between satellite operators and users.
- o Inform the community about the current status and future plans of international space programs.
- o Encourage the development of new technologies for weather satellite sensing.
- o Engage young scientists in the field.

World Drought Atlas

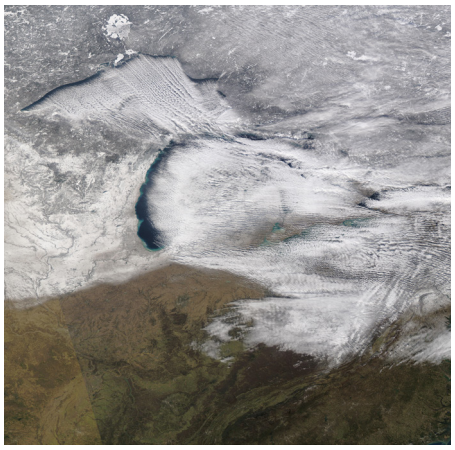
According to the World Drought Atlas around 75 per cent of the population will be affected by drought by 2050



- It has been launched by the United Nations Convention to Combat Desertification (UNCCD) in collaboration with European Commission Joint Research Centre.
- It explains how worsening drought risks are linked to human activities and then delves into the impacts of drought in five key areas—water supply, agriculture, hydropower, inland navigation, and ecosystems.
- It features 21 case studies from around the world, underscoring that no country is immune to drought and all can better prepare for it.
- It describes concrete measures and pathways to manage, reduce, and adapt to systemic drought risks; underscores the co-benefits of these actions for different sectors; and showcases best practices from different regions.
- The measures highlighted in the Atlas fall into three categories:
- Governance (e.g. early warning systems, microinsurance for smallholder farmers, pricing schemes for water usage);
- Land-use management (e.g. land restoration and agroforestry);
- Management of water supply and use (e.g. wastewater reuse, managed groundwater recharge and conservation.)

Lake-Effect Snow

Parts of upstate New York, Pennsylvania, Ohio, and Michigan, situated along the Great Lakes of North America, witnessed "lake-effect snow."



- A heavy snowstorm caused by this phenomenon near Lake Erie in New York has transformed homes into ice-covered igloos.
- Lake-effect snow is a localized weather phenomenon characterized by heavy snowfall that occurs near large bodies of water, such as the Great Lakes in North America.
- It typically happens during colder months when cold air passes over relatively warmer lake surfaces, resulting in intense and narrow bands of snowfall.
- Cold Air Movement: Cold air often from Canada, flows over the unfrozen, warmer waters of the Great Lakes in North America.
- The lakes transfer heat and moisture to the cold air at the surface.
- The warm, moist air rises, cools rapidly in the colder atmosphere above, and condenses to form clouds.
- These clouds develop into narrow bands that produce intense snowfall, often at rates of 2–3 inches or more per hour.

Punatsangchhu-II Hydropower Project

India and Bhutan recently discussed hydropower projects including the 1020 MW Punatsangchhu-II hydropower project, and expressed satisfaction as it was "nearing completion".

- It is a 1 GW run-of-the-river hydroelectric power-generating facility under construction in the Wangdue Phodrang district of Bhutan.
- It is located on the right bank of the Punatsangchhu River in the Wangdue Phodrang district in Western Bhutan.
- The project is being developed by the Punatsangchhu II Hydroelectric Project Authority, under an Inter-Government Agreement between the Royal Government of Bhutan and the Government of India.
- It is funded by the Government of India with 30% grant and 70% loan.
- The project Authority shall be dissolved within two years after the commissioning, and the project shall be handed over to the Royal Government of Bhutan.
- The project involves the construction of a 91m-high and 223.8m-long concrete gravity dam, along with an 877.46m-long and 12m-diametre diversion tunnel with a discharge capacity of 1118 cubic metres per second.

Khorlochhu Hydropower Project

Tata Power has commenced construction on the Rs 6,900 crore Khorlochhu Hydropower Project in Bhutan, with commissioning expected by 2029.

- Khorlochhu Hydropower Project situated on the Kholongchhu River in Eastern Bhutan's Trashiyangtse district, the project seeks to meet Bhutan's rising electricity demands and aid India's renewable energy transition.
- It is the first-ever energy project to be developed through a joint venture (JV) partnership between India and Bhutan.
- It will be constructed by Khorlochhu Hydro Power Limited (KHPL), a strategic partnership between Bhutan's Druk Green Power Corporation (DGPC) and India's Tata Power.
- The 600 MW project is expected to be commissioned in September 2029.
- The project will feature a 95m-high concrete gravity dam measuring 165m in length and 6m in width. The dam will create a 1.4 km long reservoir with 2.9 million cubic metres (MCM) of gross storage capacity.
- The electricity generated from the Kholongchhu hydroelectric project will be transmitted to the NEWNE grids of Bhutan and India via 400 kV transmission lines.
- The project is estimated to cost £488.14 m (INR 46.32bn), which is being financed under a debt-equity ratio of 70:30. The Government of India is providing DGPC's share of equity.

Malwa Canal Project

Nearly 1.30 lakh trees and plants are likely to be felled for the construction of the proposed 150-km-long Malwa Canal, a flagship project of Punjab Chief Minister said recently.

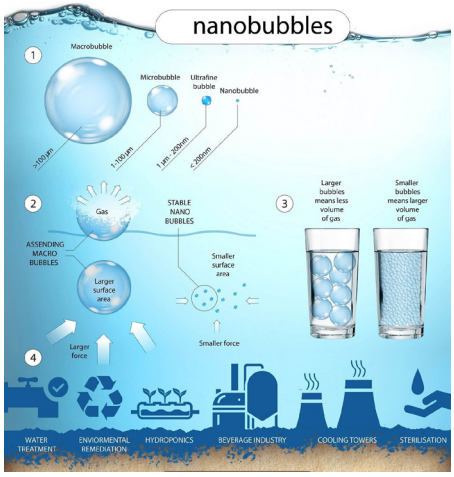
- Malwa Canal Project is a planned irrigation and water management project in Punjab, India.

- It is the first of its kind to be constructed in Punjab since independence.
- Estimated to cost Rs 2,300 crore, the canal will originate from the Harike headworks on the Sutlej in Ferozepur district.
- It will tail off at Warring Khera village in Muktsar district, close to the border with Haryana, and will flow parallel to the Sirhind Feeder and Rajasthan Feeder canals, to the latter's east.
- The canal will be 150 km long, 50 feet wide, and 12.6 feet deep.
- It will carry 2,000 cusecs of water (A cusec is flow equivalent to 1 cubic foot per second.)
- It is designed to cater to the irrigation needs of nearly 2 lakh acres in southern Punjab, running parallel to the left bank of the Rajasthan Feeder Canal.

Nanobubbles

The Union Minister of State for Forest, Environment, and Climate Change recently launched 'Nano Bubble Technology' for cleaning and purifying the water of the National Zoological Park, Delhi, to promote the health of aquatic animals.

- These are 70-120 nanometers in size, 2500 times smaller than a single grain of salt.
- They can be formed using any gas and injected into any liquid.
- They have unique physical and chemical properties and are superior to other aeration methods.
- Therefore, nanobubble technology is used in a variety of applications, including water treatment, agriculture, aquaculture, food processing, and other industrial areas.
- Large Surface Area: Nanobubbles have a high surface area to volume ratio, allowing for a greater amount of gas to be in contact with water. This, combined with their ability to remain suspended in water due to their small size and high buoyancy, results in increased gas transfer efficiency between the gas and water phases.



- Nanobubbles stay in the water for a long time.
- This unique feature enables nanobubbles to provide a homogenous distribution of oxygen throughout an entire body of water and dissolved oxygen levels are maintained for a very long time.
- Nanobubbles can efficiently deliver oxygen into water due to the very large surface area and their Brownian motion. Oxygen transfer efficiency with nanobubbles is reached to around 90%.
- Nanobubbles have a strong negative surface charge. This negative charge improves separation efficiency in the floating process.
- Due to the various inherent physical properties of nanobubbles, the ability to transfer gas to liquid is very high, and thus has the following advantages:
- Nanobubbles can effectively remove organic pollutants, bacteria, and other contaminants from water.
- Nanobubbles can penetrate surface pores and crevices, providing a more thorough cleaning that is effective against stubborn dirt and grime.
- Supplying oxygen nanobubbles to plants and aquatic organisms can improve their growth, health, and resilience.
- Nanobubbles can also enhance nutrient absorption, reduce the need for pesticides and other chemicals, and improve crop yields.
- Nanobubbles can increase the efficiency of oil and gas recovery by improving the flow of fluids and reducing the amount of chemicals needed in the process.
- Nanobubbles can help enhance the absorption of skincare products, leading to healthier skin.

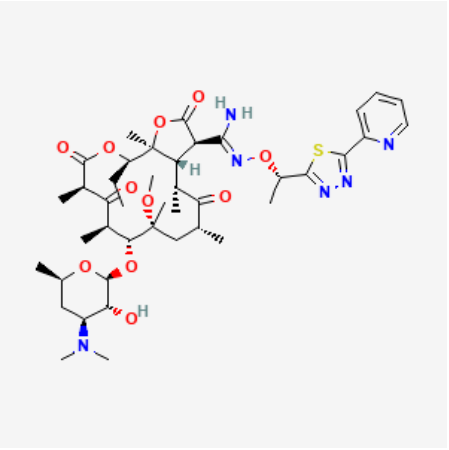
Voronezh Radar

India is set to finalise a landmark USD 4 billion defence agreement with Russia, aimed at acquiring a Russian Voronezh ballistic missile attack early warning radar.

- The Voronezh radar system is a critical component of Russia's early warning and missile defence infrastructure.
- It is capable of identifying and tracking a range of threats, including ballistic missiles and aircraft, over distances of up to 8,000 kilometers.
- These radars are strategically deployed across Russia to provide extensive coverage against potential missile threats.
- They employ phased array technology, which allows for rapid electronic steering of the beam. This makes them highly efficient and less mechanically complex than older systems.
- There are several varieties of these radars operating in the meter (Voronezh-M), decimeter (Voronezh-DM), or centimeter (Voronezh-CM) wavelength range, as well as a few others that combine several ranges.
- Multiple Voronezh radars can work in unison as part of an integrated Missile Attack Early Warning System to generate a comprehensive radar picture of potential missile threats and space activity.

Nafithromycin

India has achieved a groundbreaking milestone in the fight against antimicrobial resistance (AMR) with the development of Nafithromycin, the country's first indigenous macrolide antibiotic.



- Developed by: Wockhardt Ltd., with support from the Biotechnology Industry Research Assistance Council (BIRAC) under the Biotech Industry Program.
- Aim: To combat Community-Acquired Bacterial Pneumonia (CABP) and address infections caused by drug-resistant bacteria.
- Reduce the global and national burden of antimicrobial resistance.
- 10 times more effective than existing treatments like azithromycin.
- Offers a three-day treatment regimen, significantly reducing recovery time.
- Effective against typical and atypical drug-resistant bacteria, with superior safety and minimal side effects.

GG Tau A System

Researchers from the National Institute of Science Education and Research (NISER) in Odisha, studied a unique triple-star system called GG Tau A.

- GG Tau A System is a unique triple-star system which is located 489 light-years away from Earth.
- The system is young – 1 to 5 million years old, which makes it perfect for studying the early stages of planet formation.
- Around these stars is a disk made of gas and dust, which is where planets begin to form.
- The three stars in GG Tau A interact with each other and affect the disk of gas and dust around them, making it harder to predict how planets might form.
- The forces between the stars could cause the disk to behave differently than in a system with just one star, unlike our solar system.
- This makes GG Tau A, a perfect system to study how planets can form in more complicated, multi-star environments.

Bluetooth Low Energy Gateway and Node System

iHub – AWaDH (Agriculture and Water Technology Development Hub) at the Indian Institute of Technology (IIT) Ropar, under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS) launched Bluetooth Low Energy Gateway and Node System.

- Bluetooth Low Energy Gateway and Node System is first-of-its-kind cost-effective system connects Bluetooth-enabled sensors to cloud platforms.
- It enables seamless data transmission, real-time environmental monitoring, and advanced analytics across diverse sectors such as agriculture, logistics, and environmental resilience.

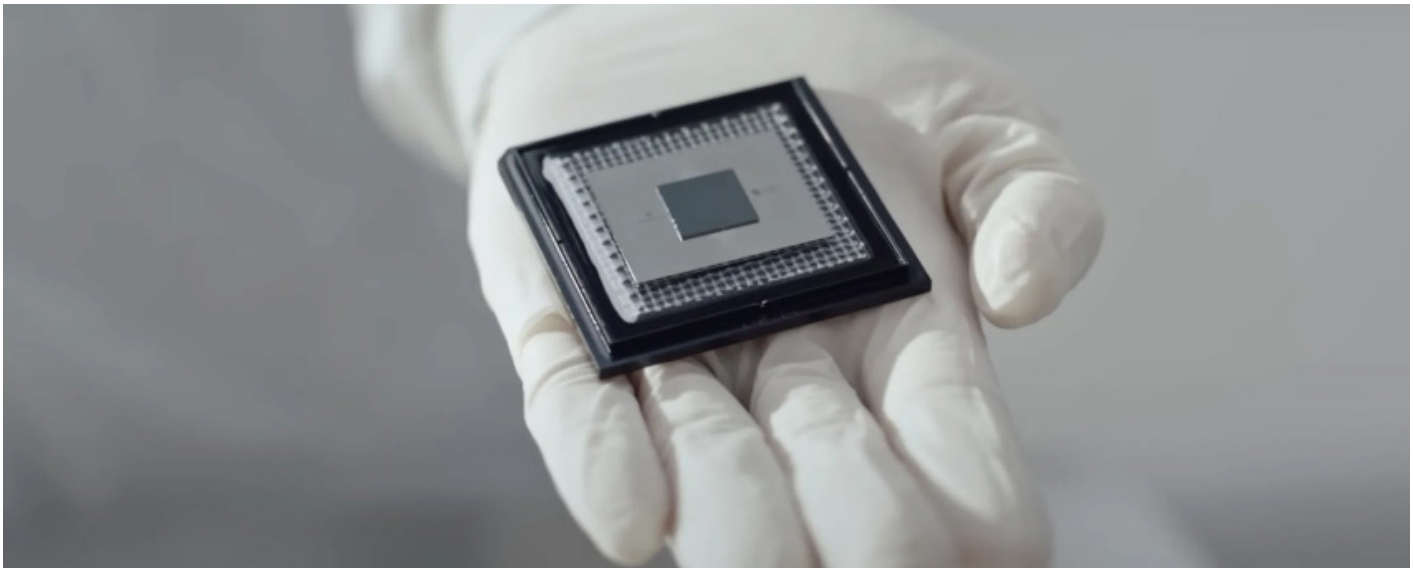
Key Features of the BLE Gateway:

- Offers 4G, WiFi, and LAN compatibility for flexible networking.
- Supports data transmission up to 1 km in line-of-sight (LOS) scenarios.
- Collects and processes data from multiple connected nodes, streamlining analysis and decision-making.
- Providing durability in extreme weather conditions while maintaining a compact and user-friendly form.
- Eliminates the need for extensive wiring, reducing installation costs and supporting remote deployments.
- Delivers energy-efficient performance for prolonged operation.
- Manages over 100+ connected BLE nodes, ideal for large-scale IoT networks.
- Allows remote firmware updates to keep the system up-to-date with minimal manual intervention.
- Fully supports integration with mobile apps, cloud platforms, and diverse sensors for enhanced flexibility.

Willow Chip : Google

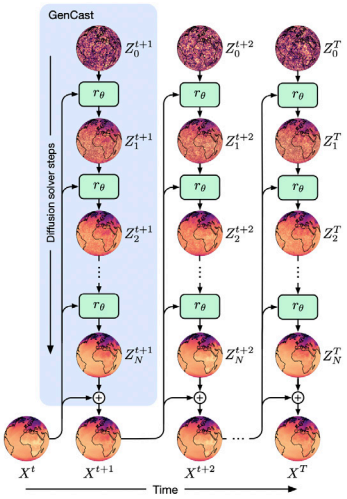
Google has announced a significant advancement in quantum computing as it unveiled its next-generation chip called 'Willow'.

- Willow Chip is a new state-of-the-art quantum computing chip developed by Google.
- The components of the chip include single and two-qubit gates, qubit reset, and readout that have been engineered and integrated to ensure that there is no lag between any two components as that may adversely impact system performance.
- It was able to solve a complex mathematical problem in just five minutes — a task that would take classical computers longer than the history of the universe.
- It performed a standard benchmark computation in under five minutes that would take one of today's fastest supercomputers 10 septillion (that is, 1025) years.
- It operates using superconducting transmon qubits—tiny electrical circuits exhibiting quantum behaviour at extremely low temperatures.
- These circuits are engineered to function like artificial atoms in a quantum state.



GenCast Model

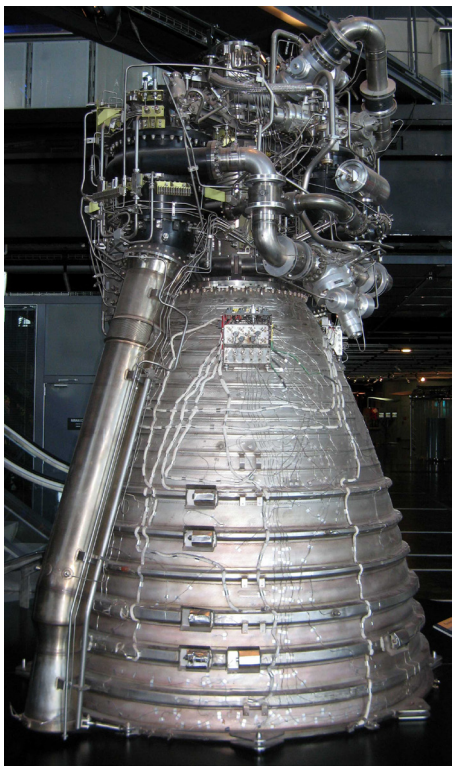
According to a research paper published in the journal Nature by Google DeepMind researchers, a new machine-learning weather prediction model called GenCast can outperform the best traditional forecasting systems in at least some situations.



- GenCast Model is a new machine-learning weather prediction model.
- It uses a diffusion model approach similar to Artificial Intelligence (AI) image generators.
- The system generates multiple forecasts to capture the complex behaviour of the atmosphere.
- It does so with a fraction of the time and computing resources required for traditional approaches.
- It is a part of Google's growing suite of next-generation AI-based weather models.
- It can predict the weather for 15 days in just 8 minutes. The traditional way of predicting weather usually takes hours.
- The AI-powered program was trained on four decades of historical data through 2018, taken from the European Centre for Medium-Range Weather Forecasts' (ECMWF) historical archives.
- The GenCast model makes predictions of several variables such as temperature, pressure, humidity and wind speed at the surface and at 13 different heights, on a grid that divides the world up into 0.25-degree regions of latitude and longitude.

CE20 Cryogenic Engine

The Indian Space Research Organisation (ISRO) has successfully carried out the sea level hot test of its CE20 cryogenic engine.



- CE20 Cryogenic engine s the indigenous engine developed by the Liquid Propulsion Systems Centre of ISRO.
- It is powering the upper stage of the LVM3 launch vehicle and has been qualified to operate at a thrust level of 19 tonnes.
- This engine has successfully powered the upper stage of six LVM3 missions so far.
- Recently, the engine was qualified for the Gaganyaan mission with a thrust level of 20 tonnes and also to an uprated thrust level of 22 tonnes for the future C32 stage, towards enhancing the payload capability of the LVM3 launch vehicle.
- It features an innovative Nozzle Protection System that overcomes previous complexities in engine testing.
- Key achievements of the test include the successful testing of an engine with a nozzle area ratio of 100, the evaluation of a multi-element igniter by activating only the first element, and the confirmation of normal engine and facility performance.
- This test marks a significant step in ISRO's indigenous engine development, showcasing its ability to overcome complex rocket propulsion challenges.

DAE- Homi Bhabha Chair Scheme

The Union Minister of State (Independent Charge) for Science & Technology informed the Rajya Sabha about the DAE- Homi Bhabha Chair Scheme.

- DAE- Homi Bhabha Chair Scheme is administered by the Department of Atomic Energy.
- It is for Distinguished Scientists/Professors, in order to give recognition and an opportunity to outstanding Scientists and Engineers including those retired /superannuated scientists/engineers who were involved in the development of sensitive and/ or critical technologies to carry out research and development work in the fields of their choice and of interest to the Department of Atomic Energy.
- The tenure under DAE- Homi Bhabha Chair Scheme is for the period of one to five years at the discretion of the Selection Committee.
- Under the scheme each awardee shall be entitled to an honorarium of Rs. 200000/-m. (In case honorarium plus pension sanctioned is more than pay last drawn, honorarium would be restricted to pay last drawn before retirement).
- A contingency grant of Rs.76000/- per annum to cover expenditures like secretarial assistance, telephone bills and stationery.
- A lump sum equipment allowance (inclusive of Book Allowance) not exceeding Rs.125000/- would also be made available during the entire tenure of the awardee subject to actual utilization. The equipment allowance also includes a sum of Rs.10000/- towards Book Allowance.
- A fixed monthly transport allowance is also provided in case the awardee of the scheme is not provided with an official vehicle.

Government of India
Department of Atomic Energy

SAMARTH Udyog Bharat 4.0 Initiative

The Minister of State for Heavy Industries and Steel provided information about the SAMARTH Udyog Bharat 4.0 initiative in the Rajya Sabha.

- SAMARTH Udyog Bharat 4.0 Initiative is an initiative of the Ministry of Heavy Industry & Public Enterprises, Government of India under its scheme on Enhancement of Competitiveness in the Indian Capital Goods Sector.
- SAMARTH Udyog encompasses manufacturers, vendors and customers as the main stakeholders.
- The experiential and demonstration centres for Industry 4.0 have been proposed to spread awareness about I4.0 amongst the Indian manufacturing industries.
- Under this 4 Smart Advanced Manufacturing and Rapid Transformation Hub (SAMARTH) Centres have been set up namely:
- Centre for Industry 4.0 (C4i4) Lab, Pune;
- IITD-AIA Foundation for Smart Manufacturing, IIT Delhi;
- I-4.0 India @ IISc, Bengaluru; and
- Smart Manufacturing Demo & Development Cell, CMTI, Bengaluru.
- SAMARTH Centres have been providing assistance to industries including MSMEs to train the workforce and make them aware of Industry 4.0 technologies

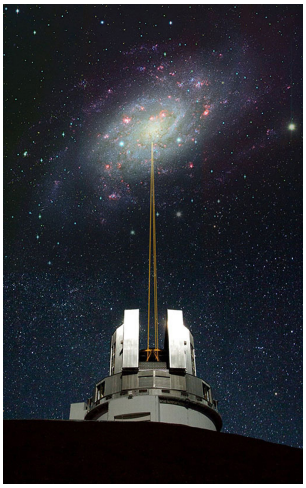
WOH G64 Star

For the first time, scientists have succeeded in taking a zoomed-in picture of the WOH G64 star which is located in another galaxy.

- WOH G64 Star is the massive star that has been imaged with remarkable sharpness by the European Southern Observatory's Very Large Telescope Interferometer (ESO's VLTI).
- It dwells in the Large Magellanic Cloud, a dwarf or satellite galaxy that orbits our Milky Way, which also happens to be one of the closest galaxies to us.
- It was discovered in the 1970s by Bengt Westerlunds, Olander, and Hedin.
- Incidentally, the WOH in its name is the acronym for the names of its three discoverers.
- The star is believed to be around 1,60,000 light years away from Earth.
- It is classified as a red supergiant owing to its size, which is roughly 2,000 times that of the Sun.
- The new photo has revealed that WOH G64 is entering the last stages of its life. In recent years, the star has blown off its outer layer, and it is now surrounded by wreaths and arcs of gas and dust.

Subaru Telescope

The Subaru Telescope recently captured a pair of interacting galaxies designated as NGC 5257 and NGC 5258.

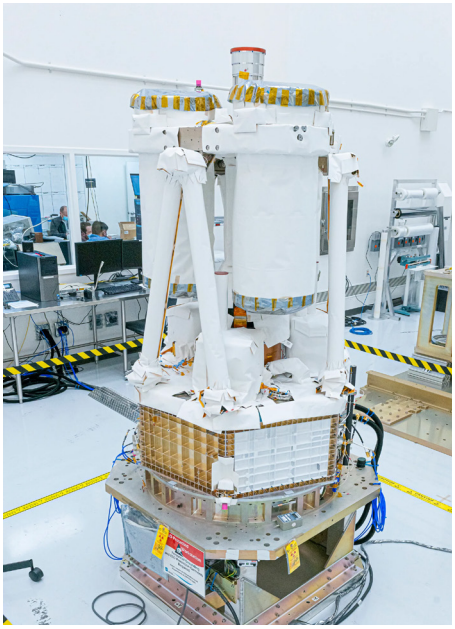


- Subaru Telescope is a Japanese 8.2-metre optical-infrared telescope.
- It is located on the dormant volcano Mauna Kea (4,163 metres) on the island of Hawaii.
- The telescope is named for the Japanese name for the Pleiades (a star cluster in the Taurus constellation) and is operated by

- the National Astronomical Observatory of Japan.
- Its powerful light-collecting capability can capture weak light from celestial objects.
- To minimize air turbulence near the telescope, the dome that surrounds the telescope is cylindrical instead of a hemisphere, as is the case with most other observatories.
- The Subaru Telescope has observed various celestial bodies, from nearby shooting stars to galaxies located 13.1 billion light years away.

Imaging X-Ray Polarimetry Explorer : NASA

NASA's Imaging X-ray Polarimetry Explorer (IXPE) has revealed the structures in a newly discovered X-ray binary system designated as Swift J1727.8-1613, or Swift J1727 in short.

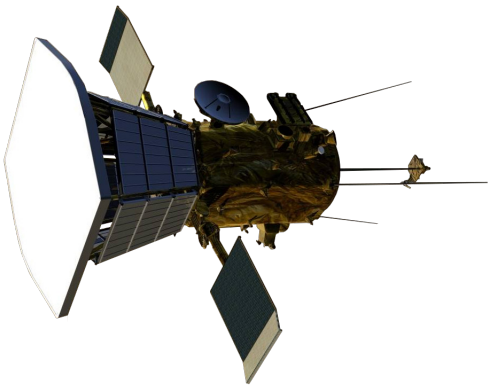


- Imaging X-Ray Polarimetry Explorer (IXPE) is a NASA Small Explorer Mission in collaboration with the Italian Space Agency (ASI).
- IXPE was launched aboard a SpaceX Falcon 9 rocket from Kennedy Space Center, Florida, on December 9, 2021.
- IXPE is NASA's first mission to study the polarization of X-rays from many different types of celestial objects.
- Objects such as black holes can heat surrounding gases to more than a million degrees. The high-energy X-ray radiation from this gas can be polarized – vibrating in a particular direction.
- The observatory features three identical telescopes, each consisting of a mirror module assembly with a polarization-sensitive imaging x-ray detector at the focus.
- IXPE measurements will provide new dimensions for probing a wide range of cosmic X-ray sources – including active galactic nuclei (AGN) and microquasars, pulsars and pulsar wind nebulae, magnetars, accreting X-ray binaries, supernova remnants, and the Galactic center.

NASA's Parker Solar Probe

NASA's Parker Solar Probe recently set a historic record by flying closer to the Sun than any other man-made object, reaching speeds of 430,000 mph and withstanding temperatures up to 982°C.

- It was Launched in 2018, a car-sized robotic spacecraft, is named after American solar astrophysicist Eugene Newman Parker.
- This is the first NASA mission named for a living researcher and it's humanity's first mission to explore within 3.8 million miles of the Sun's corona.
- The Probe uses an advanced carbon-composite heat shield to withstand extreme temperatures.



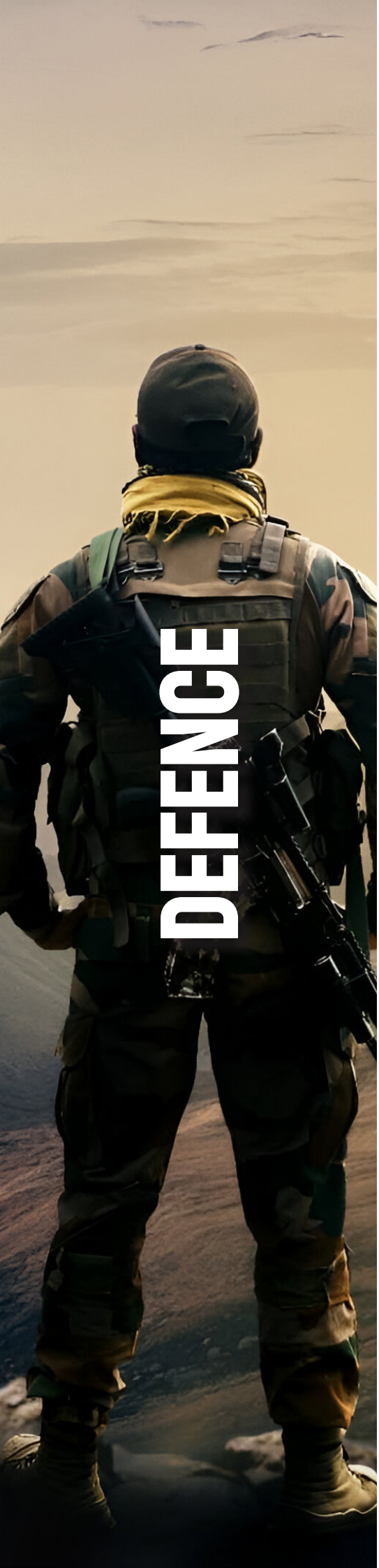
- The Parker Solar Probe aims to approach within 6.5 million kilometers of the Sun to study energy flow, solar corona heating.
- It also investigates the source of solar winds, high-speed streams of charged particles that affect space weather.
- To investigate the Sun's corona, and understand why it is hotter than the Sun's surface, a long-standing mystery in astrophysics.
- To determine the structure and dynamics of the plasma and magnetic fields at the sources of the solar wind.
- To explore mechanisms that accelerate and transport energetic particles.

SpaDeX Mission

ISRO is preparing to launch a record 24 scientific experiments on board the POEM satellite under the Spadex Mission.

- The Space Docking Experiment (SpaDeX) is a groundbreaking mission by the Indian Space Research Organisation (ISRO) aimed at developing autonomous space docking technology.
- The mission involves PSLV-C60 as the launch vehicle to demonstrate in-space docking technology using two small spacecraft: Chaser (SDX01) and Target (SDX02).
- This technology is a critical milestone for future lunar missions, the development of the Bharatiya Antariksh Station (BAS), and other advanced space endeavours.
- Launch vehicle: PSLV-C60.
- Orbit: 470 km circular orbit at a 55-degree inclination.
- Target and Chaser spacecraft will separate with an initial velocity difference to achieve 10-20 km inter-satellite separation.
- Propulsion systems will be used to align both spacecraft into the same orbit, achieving Far Rendezvous.
- After docking, the mission will demonstrate electrical power transfer before undocking for payload operations.

Carol Eve



Exercise CINBAX

The 1st edition of Joint Table Top Exercise, CINBAX commenced at Foreign Training Node, Pune.

Exercise CINBAX is conducted between the Indian Army and the Cambodian Army.
It is aimed to conduct of a joint Counter Terrorism (CT) operations.
It will focus on discussions pertaining to establishment of Joint Training Task Force for Intelligence, Surveillance and Reconnaissance besides planning of operations in CT environment.
The exercise will also involve discussion on information operations, cyber warfare, hybrid warfare, logistics and casualty management, HADR operations
It will be conducted in three phases.

- o Phase-I will focus on preparations and orientation of participants for CT operations during UN peace keeping missions.
- o Phase-II will involve conduct of the Table Top exercises
- o Phase-III will involve finalisation of plans and summing up. This will bring out practical aspects of the theme-based training and aims to enable the participants to comprehend the procedures through situation-based discussions and tactical exercises.

- The exercise will also showcase weapons and equipment of the Indian origin promoting 'Atmanirbharta' and indigenous capabilities in defence production.

RS-28 Sarmat

Russia is set to deploy the RS-28 Sarmat intercontinental ballistic missile, known as 'Satan 2', to replace older missiles.

- RS-28 Sarmat is a liquid-fueled intercontinental ballistic missile developed by Russia.
- It is named after the Sarmatian people of the fourth and fifth century BC. It has also been referred to in the West as the "Satan II".

- It is a three-stage, liquid-fueled missile with a range of 18,000 km.
- It has a launch weight of 208.1 metric tons.
- The missile is 35.3 meters long and 3 meters in diameter.
- Designated a "heavy" ICBM, the Sarmat can carry a 10-ton payload and can load a wide variety of warhead options.
- It can reportedly load up to 10 heavy nuclear warheads, 16 smaller ones, a combination of warheads and countermeasures, or hypersonic boost glide vehicles.
- It is designed to elude anti-missile defence systems with a short initial boost phase, giving enemy surveillance systems a narrow window to track it down.

Exercise AGNI WARRIOR

The 13th edition of Exercise AGNI WARRIOR (XAW-2024) concluded at Field Firing Ranges, Devlali (Maharashtra).

- Exercise AGNI WARRIOR is a joint military exercise between the Indian Army and Singapore Armed Forces.
- It witnessed participation by the Singapore Armed Forces contingent comprising personnel from the Singapore Artillery and the Indian Army contingent personnel from the Regiment of Artillery.
- The aim of XAW-2024 was to maximise mutual understanding of drills and procedures to achieve jointness as a multinational force under the United Nations Charter.
- The exercise showcased joint firepower planning, execution and use of New Generation Equipment by the Artillery of both Armies.

- The exercise involved extensive joint preparation, coordination, understanding of each other's capabilities, procedures and evolution of common interface between Indian and Singapore Artillery procedures.
- It marked the culmination of successful training by Singapore Armed Forces troops exposing them to intricacies of Fire Power planning.
- Both sides utilised niche technologies during the exercise and exchanged best practices as part of the joint training.

Exercise Harimau Shakti

The 4th edition of Exercise HARIMAU SHAKTI commenced at Bentong camp, Pahang district, Malaysia.

- Exercise Harimau Shakti is a joint military exercise conducted between India and Malaysia.
- Indian contingent comprising personnel is being represented by a Battalion of MAHAR Regiment.
- It is an annual training event conducted alternatively in India and Malaysia. Last edition was conducted in November 2023 at Umroi Cantonment in Meghalaya, India.
- Aim of the Joint Exercise is to enhance joint military capability of both sides to undertake counter insurgency operations in jungle terrain under Chapter VII of the United Nations Mandate. The exercise will focus on operations in the jungle environment.

The 2024 exercise will be conducted in two phases.

- The first phase will be focused on cross training between both the Armies including lectures, demonstrations, and practices of various drills in jungle terrain.
- In the final phase both the Armies will take active part in a simulated exercise, wherein troops will execute various drills including Anti-MT Ambush, Occupation of Harbour, Carrying out Recce Patrol, Ambush and an Attack on area taken over by the terrorists.
- It will enable both sides to share best practices in Tactics, Techniques and Procedures of conducting joint operations.
- It will facilitate developing inter-operability, bonhomie and camaraderie between the two armies.

INS Tushil

Defence Minister Rajnath Singh will commission INS Tushil, a stealth missile frigate under Project 1135.6, at the Yantar Shipyard in Kaliningrad.

- INS Tushil is part of the upgraded Krivak III class of Project 1135.6 frigates. It is the seventh ship in this series.
- Built at: Yantar Shipyard, Kaliningrad, Russia.
- Signed in October 2016 between the Indian Navy, JSC Rosoboronexport, and the Government of India.
- Specification: A length of 125 metres and a displacement of 3,900 tonnes.
- Stealth Design: Incorporates radar-absorbing materials and an advanced hull design to reduce detectability.
- Speed: Capable of speeds exceeding 30 knots.
- Weapon Systems: Equipped with guided missiles, advanced radars, and weapon systems for enhanced anti-surface and anti-air warfare.
- Helicopter Deck: Supports operations for naval helicopters, enhancing its multi-role capabilities.
- ombat Versatility: Focused on anti-surface, anti-air, and anti-submarine warfare.

SPECIES IN NEWS

Red-breasted Flycatcher

The Red-Breasted Flycatcher bird which migrates from Eastern Europe to escape the harsh winter was found in the Ameenpur Lake in Hyderabad.

- Scientific name: Ficedula parva
- It is a small (11-12 cm) passerine bird of the Old World Flycatcher family.
- It can be found occasionally feeding on figs (banyan, peepal) in our urban gardens.
- It generally migrates from Eastern Europe to escape the harsh winter there and enjoy the moderate temperatures with abundance of food in South Asia.
- The bird breeds from spring to summer, in the deciduous mixed forests of Eastern Europe and across Central Asia.
- In winter months (September to March mostly), it migrates to forests, woodlands, orchards, parks, and roadside trees of the Indian Subcontinent.
- It can be found in peninsular India during the winter season from October to March.
- Conservation status IUCN: Least Concern

Subabul Tree

Researchers have identified the therapeutic potential of the seedpods from the traditional medicinal plant Subabul in managing insulin resistance related to type II diabetes and developed a marker-assisted fraction and four active compounds from it.

- It is a fast-growing leguminous tree commonly found in tropical and subtropical regions.
- It originates from Mexico is a small, perennial, woody, highly branched to medium-sized tree with a short, clear bole.
- It was introduced as a cover crop in plantations and for fodder and fuel.
- It is mainly found in Andhra Pradesh, Kerala, Maharashtra, Odisha and Tamil Nadu.
- The leaves and immature seeds are eaten in the form of soups or salad, both raw and cooked, providing a rich source of protein and fibre, leading to its traditional usage in human and animal food by different ethnic communities.
- It is valuable for its wood, which is used to make good quality charcoal, small furniture and paper pulp.

Cape Buffalo

A study conducted by researchers in Tanzania's Ngorongoro Conservation Area (NCA) has offered insights into the reasons behind human-Cape buffalo conflict that occurs across sub-Saharan Africa.

- The African or Cape buffalo (Syncerus caffer) is a formidable and aggressive species.
- It is one of the four subspecies of African Buffalo found south of the Sahara, the others being the forest buffalo, the West African Savanna Buffalo and the Central African Savanna Buffalo.
- Compared with other large bovids, African buffalo have long but stocky bodies and short but thickset legs, resulting in a relatively short standing height.
- The adult buffalo's horns are its characteristic feature: they have fused bases, forming a continuous bone shield across the top of the head referred to as a "boss".
- The Cape Buffalo is found across the savannas of east and southern Africa.
- oThey live in swamps and floodplains, as well as mopane grasslands, and the forests of the major mountains of Africa.
- They prefer a habitat with dense cover, such as reeds and thickets, but can also be found in open woodland, montane grasslands, and forest, savannas, and moist lowland rainforests.
- African buffalo may be active throughout the day and night. They are social and live in herds that consist of related females, and their offspring, in an almost linear dominance hierarchy.
- Diet: African buffalo have a strictly herbivorous They feed on a wide variety of grasses, sedges, leaves, and other plants.
- These massive animals are also excellent swimmers and often cross rivers in search of better grazing.
- Conservation status IUCN: Near Threatened,

Indian Star Tortoise

Researchers have identified two genetically distinct groups of the Indian star tortoise species namely northwestern and southern.

- Indian Star Tortoise name comes from the star-like patterns that feature on its high-domed shell.
- It has very distinctive patterns and its highly rounded shell makes it popular in the world's trade in exotic pets.
- They occupy a wide variety of habitats, including semi-arid lowland forests, thorn scrub forests, semi-desert and arid grasslands.

- This species has a high tolerance for habitats that are seasonally wet or dry, with many populations inhabiting areas with a monsoon or rainy season followed by a long hot and dry period.
- It is endemic to the subcontinent and resides in arid pockets of northwest India (bordering Pakistan), South India, and Sri Lanka. However, members of the species have also been found in people's homes as far afield as Canada and the U.S.
- It is generally crepuscular, which means they are active in the early morning and the late afternoon during dry, hot weather.
- Indian star tortoises are mainly herbivores and mostly eat grasses, herbaceous leaves, flowers etc.
- Conservation status:
- IUCN: VulnerableCITES: Appendix I
- Wildlife (Protection) Act 1972: Schedule I

New Species Of Damselfish

A small team of ichthyologists recently discovered a new species of damselfish living off the shores of the Maldives.

- Damselfish are commonly found in warm, tropical regions, but they can also be seen in subtropical zones.
- They are mostly marine, found in the Atlantic, India and Pacific oceans, but can be found in brackish or freshwater habitats.
- There are about 250 species of damselfish in the family Pomacentridae, a group which also includes clownfish.
- They come in a range of colors and patterns, from the aptly named four striped damselfish to the vibrant blue damselfish.
- Across all species, there are a few things they have in common: their bodies are deeper than they are wide, and they have forked tails. Plus, they don't get too big—the largest damselfish, the Garibaldi, grows only to about a foot long.
- They are lively and quick, and are usually strongly territorial and aggressive.
- Some feed mainly on plant matter or small animals suspended in the water; others are omnivorous.
- Most damselfishes live along reefs, but certain species, the anemone fishes, are noted for living among the stinging tentacles of sea anemones.
- Some species of damselfish are "algae farmers," meaning they actually nibble away at the habitat to cultivate algae growth. They bite unwanted algae to remove it, allowing other, more desirable algae species to grow. This is part of a balanced coral reef ecosystem
- However, some damselfish can eat live coral tissue in their quest to create an algae garden. Too many damselfish can stress out an already

Little Gull

Little gull—a bird native to the Eurasian regio—was spotted for the first time in NCR.

- The Little Gull (hydrocele minutes) is the smallest species of gull (seabird) in the world, belonging to the family Laridae.
- It breeds in northern Europe and across the Palearctic.
- It is migratory, wintering on coasts in western Europe, the Mediterranean, and (in small numbers) the northeast United States.
- Habitat: Seacoasts, bays, estuaries, rivers, lakes, ponds, marshes, and flooded fields.
- This is the smallest gull species, with a length of 25–30 cm, a wingspan of 61–78 cm, and a mass of 68–162 g.
- It is pale grey in breeding plumage with a black hood, dark underwings, and often a pinkish flush on the breast.
- In winter, the head goes white apart from a darker cap and eye-spot.
- The bill is thin and black, and the legs are dark red. The flight on rounded wings is somewhat tern-like.
- Young birds have black markings on the head and upper parts, and a "W" pattern across the wings. They take three years to reach maturity.
- IUCN Red List: Least Concern.

Laysan albatross

Wisdom, a 74-year-old Laysan albatross, has set a world record as the oldest wild bird, continuing to contribute to her species' survival.

- Laysan Albatross (Phoebastria immutabilis) is a pelagic bird found predominantly in the North Pacific Ocean.
- Found Primarily in the North Pacific Ocean, with 99.7% of its population nesting in the Northwestern Hawaiian Islands, particularly at Midway Atoll National Wildlife Refuge.
- Medium-sized seabird resembling a gull, with long, slender wings for sustained flight.
- Feeds on squid, fish eggs, and crustaceans far from land.
- Mates for life, laying a single egg per year with shared incubation duties.
- Notable lifespan, often exceeding 60 years, with some individuals like Wisdom reaching 74 years.
- IUCN Status: Near Threatened.

Malayan Night Heron: Spotted

The Malayan Night Heron, a migratory bird from Southeast Asia, has been officially recorded in Madurai for the first time, near the Alagar Kovil hills.

- Malayan Night Heron is also known as the Malaysian night heron and tiger bittern.
- It is a medium-sized and nocturnal
- It is identified by its rufous neck, barred chestnut back, black cap with crest and white tipped primaries.
- It occurs in dense subtropical forests ranging from the low wetlands, where it uses streams, marshes, and swamps, to moderate elevations, where it uses evergreen forests, secondary scrub and reservoirs as its
- It is mainly found in India, South East Asia, Philippines and the East Indies. It is native to Myanmar, Thailand and Malaysia and migrates to India during winter.
- It primarily traverses northern Tamil Nadu and is typically seen in Kerala and Karnataka.
- It feeds particularly on earthworks and beetles.
- Conservation status
- IUCN: Least concern

Indian Rock Python : Declined

Indian Rock Python species is believed to have declined across Tamil Nadu, except in the Moyar Valley, where the pythons seem to be thriving.

- Indian Rock Python is a large, nonvenomous python species.
- It is known by the common names Black-tailed python and Asian rock python.
- Indian pythons are usually whitish or yellowish in color with the blotched patterns varying from tan to dark brown shades.
- Conservation Status
- IUCN: Near Threatened
- CITES: Appendix II
- Wildlife (Protection) Act, 1972: Schedule I
- Threats: Habitat distraction and illegal trade.

Marbled Duck

Recently spotted a marbled duck — an unusual winter migrant at Sultanpur National Park after 30 years.

- The Marbled Duck, also known as marbled teal, is a relatively small duck characterized by its black bill, pale-spotted gray-brown plumage, dark eye patch, and the absence of a speculum.
- Scientific Name: Marmaronetta angustirostris
- It is distributed throughout the central and southwestern Palearctic biogeographic region in several highly fragmented populations that stretch from Central Asia to northwest Africa and the Iberian Peninsula.
- Palearctic includes Europe, Asia north of the Himalayas, and Africa north of the Sahara.
- Migratory Patterns: Populations in colder regions migrate south during winter, reaching areas like North Africa and the Indian subcontinent.
- It is typically found in temporary or semi-permanent wetlands, although it is ultimately tolerant of many types of wetlands, both natural and artificial, provided they offer shallow areas.
- It tends to prefer brackish wetlands over fresh or saline ones, and well-structured vegetation.
- It is a gregarious, non-territorial, and non-aggressive species.
- Marbled ducks are usually monogamous.
- They fly low and slowly and have noticeably long necks and wings.
- IUCN Red List Status: Near Threatened.

Aleppo City

Syria's second-largest city, Aleppo, has fallen from government control for the first time since the country's conflict began more than a decade ago,

- Aleppo, or "Halab" in Arabic, is one of the world's oldest continually inhabited cities, being mentioned in Egyptian texts from the 20th century BC.
- It is a principal city of northern Syria.
- It is situated in the northwestern part of the country, about 30 miles (50 km) south of the Turkish border.
- It lies some 60 miles (100 km) from both the Mediterranean Sea (west) and the Euphrates River (east).
- Located at the crossroads of several trade routes from the 2nd millennium B.C., Aleppo was ruled successively by the Hittites, Assyrians, Arabs, Mongols, Mamelukes and Ottomans.
- Aleppo's most visible landmark is the medieval citadel, which sits on a partly man-made hill at the center of the city about 40 meters high.
- The Queiq River runs through the city, although it has at times run dry in Aleppo partly because of heavy water use in Turkey, where it originates.
- Aleppo was a focal point of the Syrian Civil War from 2012 until 2016, when opposition fighters there surrendered the city to government forces.

D. Ering Memorial Wildlife Sanctuary

A stakeholders' coordination meeting aimed at reintroducing rhinoceroses to the D. Ering Wildlife Sanctuary (DEWS) in East Siang District of Arunachal Pradesh was convened recently.

- D. Ering Memorial Wildlife Sanctuary is situated in the East Siang district ofArunachal Pradesh.
- It was established in 1976.

- It was previously known as Lali Wildlife Sanctuary after the declaration of Lali Reserve Forest as a sanctuary. It was re-named as D`Ering in 1986.
- It has a tropical climate and receives rainfall from both north-east and south-west monsoons.
- The Siang River flows through the sanctuary, which is one of the major rivers in Arunachal Pradesh.

Sultanpur National Park

The Additional Chief Secretary (ACS) of Forest and Wildlife recently asked the district administration to submit a report on illegal construction around the Sultanpur National Park and their status to the Ministry of Environment, Forest and Climate Change of India (MoEF & CC).

- Sultanpur National Park is located in the Gurgaon district of Haryana,46 km from Delhi.
- Formerly known as Sultanpur Bird Sanctuary, it spans 1.42 sq.km., consisting primarily of marshy lakes and floodplains.
- It includes a core area of 1.21 sq. km containing the main Sultanpur Lake/Jheel.
- The Sultanpur Jheel is a seasonal freshwater wetland with fluctuating water levels throughout the year.
- This shallow lake is mostly fed by waters from River Yamuna's Gurgaon canal and the overflowing waters of the neighboring agricultural lands.
- It was recognised as a Ramsar site, a wetland of international importance, in 2021. It has been identified as an Important Bird Area by Bird Life International.
- The vegetation is characterized by tropical and dry deciduous types such as grasses, dhok, khair, tendu, jamun, neem, berberis, and species of Acacia.

Sagar Island

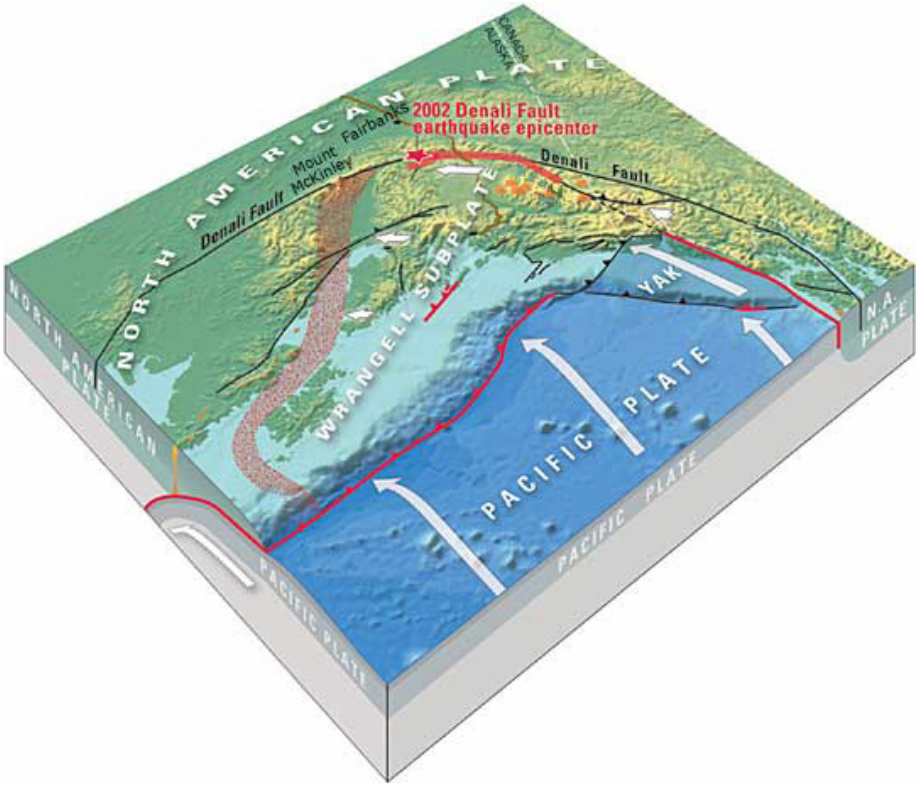
- Sagar Island in West Bengal where the iconic Gangasagar Mela takes place every January is getting impacted by climate change.
-
- Sagar Island is also known as Ganga Sagar or Sagardwip is located in the Ganges delta, lying on the continental shelf of Bay of Bengal.

- It consists of 43 villages. Sagar and Mahisani Islands are separated by River Muriganga Batala.
- This island along with the Mahisani and Ghoramara islands are classified under the sand group category.
- This Island is a religious place for Hindus, where pilgrims celebrate Makar Sankranti festival in honour of the Sun.
- The Kapil Muni temple on the island is a popular pilgrim centre.
- Kapila or Maharishi Kapila is a Vedic sage traditionally considered to be the original proponent of the Samkhya systemof Indian philosophy.

Denali Fault

The Denali Fault split apart the ancient connection of landmasses.

- Denali Fault, located in southern Alaska, has played a crucial role in shaping Earth's geological history.
- A study reveals that three sites along the Denali Fault were once part of a single geologic feature, symbolizing the final joining of two landmasses millions of years ago.
- Over 483 km of horizontal movement along the fault tore apart this united feature due to millions of years of tectonic activity.
- These three locations once formed a terminal suture zone, indicating the last phase of tectonic plate integration into a larger mass.



- A fault line is the visible intersection of a geological fault with the Earth's surface. It refers to a fracture or zone of fractures between two blocks of rock caused by stresses generated by tectonic plate movements.Faults are closely associated with the movement of Earth's tectonic plates.
- The largest faults are found along plate boundaries.
- Movement along faults can occur rapidly, resulting in earthquakes, or gradually, in the form of creep.
- Faults vary in length from a few millimeters to thousands of kilometers, such as the San Andreas Fault in California or the Anatolian Fault in Turkey.
- Fault surfaces can be horizontal, vertical, or inclined at various angles.
- Earth scientists classify faults based on the angle of the fault relative to the surface (known as the dip) and the direction of movement along the fault.

Shahi Jama Masjid in Sambhal

The Supreme Court of India has directed a temporary halt to the survey of the Shahi Jama Masjid in Sambhal, Uttar Pradesh, amid claims by Hindu petitioners that it was built on a demolished Hindu temple.

- Sambhal Mosque Built during the reign of Mughal Emperor Babur (1526–1530) by his general, Mir Hindu Beg.
- Positioned on a hill in Sambhal.
- Features a square mihrab hall with a dome, surrounded by arches.
- Constructed with stone masonry and plaster, similar to the Budaun mosque.
- Renovated during the reigns of Jahangir and Shah Jahan in the 17th century.
- Local Hindu tradition claims it incorporates remnants of a Vishnu temple.
- Believed to be linked to Kalki, the tenth avatar of Vishnu.

Archaeological Site Of Lothal

An IIT Delhi student died and three others were injured after soil collapsed on them when they entered a pit near the archaeological site of Lothal in Gujarat for research recently.

- Lothal is an excavated site situated in the Bhal region in Dholka, Ahmedabad, Gujarat.
- It is one of the prominent cities of the ancient Indus Valley civilization (IVC). The origin and history of Lothal can be dated back to 2400 BC.
- Lothal was one of the southern cities of the IVC, located in the Gulf of Khambat region.
- It is the only port town of the IVC.
- Lothal was discovered by SR Rao, an Indian archaeologist, in 1954.
- Literally called ‘Mound of the Dead’, this ancient and desolate ruined city of Lothal provides insight into the life of the Harappan culture and the IVC.
- Like other cities of the Indus Valley Civilization, Lothal too had excellent architecture and town planning

- The upper part, or acropolis, was where the ruler and other important people of the city lived, while the lower part was meant for the common people.
- The entire city had a scientific drainage system, well-laid paved roads, and a bath for every house, some of which were double-storied and built on mud platforms.
- The most architecturally sophisticated part of Lothal was its dockyard, which provided berthing facilities for the ships.

Gharcholas Saree

Gujarat's 'Gharcholas' receive Geographical Indication tag.

- Gharcholas Saree is also known as Ghatchola and Gharcholu which has finest bandhani work of Gujarat
- It is traditionally been used for years in Gujarati weddings.
- The name 'Gharchola' means 'Outfit for Home', which symbolizes a newly wedded bride joining her new home.
- It is woven on Cotton or Silk fabric in large checks of using Silk and Zari threads.
- This is further colored in Bandhani or tie & dye technique. These checkered patterns are filled with small golden motifs of peacocks, lotus, human figures, and floral designs.
- These are traditionally crafted in auspicious colours such as red, maroon, green, and yellow, which hold special significance in Hindu customs.
- A Gharchola Saree with 12 squares is known as 'Bar Bagh', while the one with 52 squares is known as 'Bavan Bagh'.
- The designs often incorporate symbols of fertility and prosperity, such as the kalash and the paan.
- In recent time weavers are infusing modern designs and techniques into their gharcholas, blending tradition with contemporary appeal.
- This is the 27th GI tag that Gujarat has received.

Indian National Trust for Art and Cultural Heritage

The Supreme Court recently impleaded the Archaeological Survey of India and the Indian National Trust for Art and Cultural Heritage (INTACH) in a plea filed for the restoration of two heritage buildings in Mysore city.

- Indian National Trust for Art and Cultural Heritage (INTACH) is an autonomous non-profit organisation set up in 1984 with a mandate to protect and conserve India's vast natural, built and cultural heritage.
- It is recognized as one of the world's largest heritage organizations, with over 228 Chapters across the Country.
- It is essentially a volunteer-based organization and its enthusiastic volunteers in a network of chapters in cities, towns and villages across the country are largely responsible for the spread of awareness about the vast cultural heritage of the country.
- Headquartered in New Delhi.

INTACH

Hornbill Festival 2024

The Hornbill Festival, Nagaland's iconic cultural and tourism fair that is annually held from December 1 to 10.

- Hornbill Festival is an annual festival celebrated from 1 to 10 of December in Nagaland.
- It was first time organized in the year 2000.
- It aims to promote inter-tribal interaction and preserve Nagaland's heritage, blending the traditional with the contemporary in a harmonious display of unity.
- It is also called the festivals of festivals and held every year.
- It is organized by the State Tourism and Art & Culture Departments of the Government of Nagaland.
- It is celebrated at Naga Heritage Village, Kisama which is about 12 km from Kohima in Nagaland.
- It has evolved into a celebration showcasing the diverse and vibrant cultural and traditional heritage of the tribes of Nagaland.
- The festival was named after the Hornbill bird given its association with the socio-cultural life of the Nagas.

- Theme of 2024 festival: The Hornbill Festival 2024, themed"Cultural Connect," is a grand celebration of Nagaland's rich heritage and cultural diversity.
- The festival's appeal extends beyond culture, weaving together modernity and tradition with activities like Naga wrestling, traditional archery, food and herbal medicine stalls, fashion shows, beauty contests, and musical concerts.
- This year, the Archives Branch is also hosting a special exhibition titled "Naga-Land & People in Archival Mirror", in collaboration with the National Archives of India, offering an in-depth exploration of the region's history and cultural practices.

Durgadi Fort

After 48 years, the Kalyan civil court recently dismissed a suit filed by a Muslim trust claiming ownership of an idgah (prayer space) inside the historical Durgadi Fort in Kalyan and ruled in favour of the state government.

- Durgadi Fort is a fort located in Kalyan, near Mumbai in Maharashtra.
- Perched on the banks of the Ulhas River, the fort provides panoramic views of the surrounding landscape and the city of Kalyan.
- Kalyan is the busiest junction as well as a key location from ancient times.
- This was an important international harbour developed during the Satavahana
- Durgadi Fort was built by Chhatrapati Shivaji Maharaj and marks the initiation of the Maratha Navy.

- Shivaji Maharaj captured Kalyan and Bhiwandi from Adil Shah on 24th October 1654.
- He built a fort near the creek as a support to Kalyan and used it as a dock to manufacture ships.
- The fort is named after Goddess Durga, and a temple dedicated to the goddess is located within the premises.
- The fort holds significant historical value, as it was an important military stronghold during various periods in Indian history.

Abathsahayeswarar Temple : Chosen By UNESCO

The 1,300-year-old Abathsahayeshwarar Temple has been chosen by UNESCO to receive the Asia-Pacific Awards for Cultural Heritage Conservation award.

- Abathsahayeswarar Temple is located in Thukkatchi in Thanjavur district of Tamil Nadu.
- It was constructed during the reigns of Kings Vikrama Chola and Kulothunga Chola.
- This temple stands as a testament to the architectural brilliance and spiritual dedication of the Chola dynasty.
- Historically, the village surrounding the temple was known as Vikrama Chozheeswaram and Kulothunga Chola Nallur, named after these illustrious rulers.
- Kulothunga Chola also installed the idol of Aadhi Sarabeshwarar in the temple.
- The temple is home to numerous deities, including Soundaryanayaki Ambal and Ashtabhuja Durga Parameshwari and also consists of five prakarams or enclosures.
- UNESCO Asia – Pacific Awards for cultural heritage conservation
- This award recognises the efforts of individuals and organizations in Asia and the Pacific in restoring, conserving, and otherwise transforming structures and buildings of heritage value since its establishment in 2000.
- In acknowledging private efforts to restore adapt and breathe new life into historic properties, the Awards encourage other independent efforts, as well as public-private partnerships to undertake conservation projects in their communities.

Homo juluensis

Researchers have identified a new species of ancient humans, which they have named Homo juluensis, meaning "big head," based partly on a very large skull found in China.

- Homo juluensis is a new species of ancient humans with distinctively large skulls.
- The species, known as "big head people," lived 300,000 years ago and survived in small groups across eastern Asia before disappearing around 50,000 years ago.
- Juluensis includes mysterious groups like the Denisovans—ancient human relatives whose histories are still being uncovered.
- Fossils attributed to juluensis, primarily consisting of facial and jaw remains, exhibit dental characteristics reminiscent of Neanderthals.
- Initial measurements indicate that their braincases were up to 30% larger than those of Homo sapiens.
- They hunted wild horses in small groups, and made stone tools and possibly processed animal hides for survival.

Bromalites

New research using fossilized feces and vomit, known as bromalites, highlights how dinosaurs rose to dominance during the Triassic Period.

- Bromalites are fossil traces of organisms, consisting of material from their digestive system.
- They are the group of ichnofossils that record the consumption, processing, and elimination of material through digestive systems.
- Each main stage of processing has been ascribed to distinct bromalite subgroups, with little evidence for transitions between these stages.
- The most famous bromalites are fossilized feces, also known as coprolites.
- However, other types are recognised, including: regurgitalites (fossilised remains of vomit or other regurgitated objects such as owl pellets); cololites (intestinal contents); and gastrolites (stomach contents).
- Bromalites provide behavioural data including predation, scavenging, and vomiting.
- They are important indicators of dietary habits and potential predator-prey relationships; therefore, they largely enhance our comprehension of trophic interactions.
- Bromalites are often studied alongside other trace fossils to reconstruct ancient ecosystems.

Order of Mubarak Al-Kabeer

The Prime Minister of India was awarded the Wisam Mubarak al-Kabeer, or the Order of Mubarak the Great, by Sheikh Meshal Al-Ahmad Al-Jaber Al-Sabah, the Amir of Kuwait.

- Order of Mubarak Al-Kabeer is the highest national award of Kuwait.
- It is conferred by the Kuwaiti government on Heads of State, Sovereigns of foreign countries, and on members of foreign royal families as a sign of friendship and goodwill.
- The award was instituted in 1974, in the memory of Mubarak Al Sabah also known as Mubarak al-Kabeer or Mubarak the Great — who ruled Kuwait from 1896 to 1915.
- Under his reign, Kuwait got more autonomy from the Ottoman Empire. In 1899, Mubarak signed a deal with Britain to guard his kingdom from Turkey, effectively becoming a British protectorate.
- Mubarak is known for playing a major role in shaping the future of Kuwait.
- The design of the award changed in 1992, after Kuwait was liberated from Iraq in the year before.

Notre-Dame Cathedral

The French President recently praised the more than 1,000 craftspeople who helped rebuild Paris' Notre-Dame Cathedral in what he called "the project of the century", five and a-half years after fire gutted the Gothic masterpiece.

- Notre-Dame Cathedral is a cathedral church located in Paris, France.
- It is the most famous of the Gothic cathedrals of the Middle Ages and is distinguished for its size, antiquity, and architectural interest.
- The Notre Dame Cathedral with its sculptures and stained-glass windows show the heavy influence of naturalism, unlike that of earlier Romanesque architecture.
- It was one of the very first Gothic cathedrals, and its construction took place throughout the Gothic period. It features all the Gothic styles, from early to rayonnant.
- The cathedral was initiated by Maurice de Sully, bishop of Paris.
- The foundation stone was laid by Pope Alexander III in 1163, and the high altar was consecrated in 1189.
- The choir, the western facade, and the nave were completed by 1250, and porches, chapels, and other embellishments were added over the next 100 years.
- It has been the setting for many historical events, notably, the coronation of Emperor Napoleon Bonaparte in 1804, the marriages of several Kings of France, including Francis II in 1558 and Henry IV of France in 1572.
- On April 15, 2019, a devastating fire engulfed Notre-Dame, destroying the roof and the iconic spire.
- It is a UNESCO World Heritage Site.

High Risk Food Category

The Food Safety and Standards Authority of India (FSSAI) has decided to treat the packaged drinking and mineral water segment as a "High Risk Food Category".

- Food products that come under the "High Risk" category are subjected to mandatory risk-based inspections.
- They include dairy, meat, fish egg, and food items intended for nutritional use, prepared food, Indian sweets and nutrients, and related preparations such as fortified rice kernel.

- In its order, the FSSAI has made amendments in its Risk-Based Inspection Policy to include the packaged drinking water and mineral water categories.
- This means that these products will now be subject to mandatory inspections and third-party audits.
- All centrally licensed manufacturers under high-risk food categories shall get their businesses audited annually.
- This aims to improve the safety and quality standards of these products for consumers.

- Previously, the packaged drinking water industry had called for simplified regulations, requesting the removal of dual certification requirements from both BIS and FSSAI.

Athlete Biological Passport

The World Anti-Doping Agency (WADA) has granted approval for the National Dope Testing Laboratory (NDTL) as an Athlete Passport Management Unit (APMU) to manage the Athlete Biological Passport (ABP).

- Athlete Biological Passport (ABP) is an advanced anti-doping tool that monitors an athlete's biological markers over time.
- By analyzing variations in parameters such as blood and steroid profiles, the ABP helps to ensure fair play in sports and to protect clean athletes.
- It works against doping through enhanced target testing and analysis, investigations, deterrence and as indirect evidence for use of prohibited methods or substances.
- It can be used to conduct targeted, conventional anti-doping tests on athletes with abnormal profiles.
- It can also be used as corroborating evidence of doping during an anti-doping rule violation case.

Indira Gandhi Peace Prize 2024

The Indira Gandhi Prize for Peace, Disarmament, and Development for 2024 will be conferred on former Chilean president and prominent human rights voice Michelle Bachelet, a statement issued by the Indira Gandhi Memorial Trust said recently.

- The Indira Gandhi Peace Prize, also known as the Indira Gandhi Prize for Peace, Disarmament, and Development, was instituted in the memory of the former prime minister by a trust in her name in 1986.
- It consists of a monetary award of 25 lakh rupees along with a citation.
- The award is given to individuals or organisations who work towards ensuring international peace and development, ensuring that scientific discoveries are used to further the scope of freedom and better humanity, and creating a new international economic order.

Melye-amiley

A recent study published in the prestigious journal 'Food Frontiers highlighted that extract from a traditional fermented bamboo shoot variety of Tripura, popularly called 'Melye-amiley' has anti-obesity effects.

- Melye-amiley is a traditional fermented bamboo shoot variety of Tripura.
- It has anti-obesity effects and offers a solution to weight management and metabolic health.
- It reduces lipid accumulation and increases fatty acid β-oxidation.
- Highlights of the research:
- Based on in-vitro cell culture studies, the team has observed that the 'Melye-amiley' can reduce intracellular lipid accumulation.

- Furthermore, the study demonstrates that treatment with Melye-amiley leads to the upregulation of thermogenic protein expression via the AMPK signaling pathway.
- This process stimulates mitochondrial biogenesis and enhances fatty acid β-oxidation, offering a multifaceted approach to weight management and metabolic health.
- These findings suggest that fermented bamboo shoot extract has promising anti-obesity effects by boosting energy expenditure in white adipocytes.

One Day Camp

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