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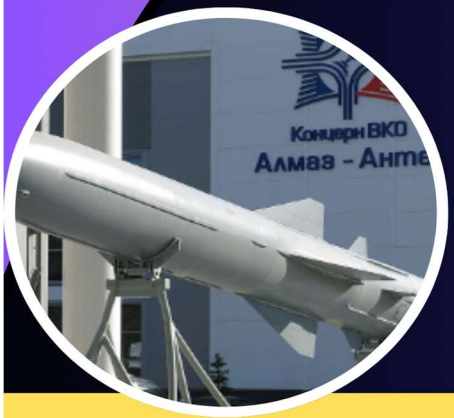
ज्ञानकोश

मासिक चालू घडामोडी

(महाराष्ट्र राज्य)

MPSC, आणि सरळ सेवा भरतीसाठी

ZP, आदिवासी विभाग, पोलीस भरती आणि इतर स्पर्धा परीक्षांसाठी उपयुक्त



राष्ट्रीय न्यायिक नियुक्ती आयोग

न्यायालयाचा अवमान

घरून मतदानाचा सराव

महाराष्ट्रातील सर्वात मोठा सह-स्थित संकरित उपक्रम

8 मुंबई रेल्वे स्थानकांचे नामकरण

दिव्यांगांसाठी विभाग स्थापन करणारे महाराष्ट्र हे पहिले राज्य

Contents

National News

Central Pollution Control Board

- The **Central Pollution Control Board (CPCB) has only utilized 20%** of the funds collected for mitigating air pollution in Delhi-NCR and environmental protection.
- Only Rs 156.33 crore out of Rs 777.69 crore collected has been disbursed.

Key points:

- Funds are collected **under two categories: Environment Protection Charge (EPC) and Environmental Compensation (EC).**

Environment Protection Charge (EPC):

- Mandated by the **Supreme Court,** dealers/manufacturers pay a one percent EPC on the ex-showroom price of new diesel vehicles with engine capacity of 2000cc and above, registered only in Delhi and NCR.

Environmental Compensation (EC):

- Ordered by the **National Green Tribunal (NGT)**, used to rejuvenate and protect the environment through various means such as strengthening laboratories, monitoring networks, and compliance with NGT orders.

CPCB:

- The Central Pollution Control Board (CPCB), **statutory organisation, was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974.**
- Further, CPCB was entrusted with the **powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.**

Plastic Waste Management Amendment Rules 2024

- The **Union Environment Ministry** has recently introduced **stricter rules to regulate "biodegradable" plastics** in response to the growing concern over microplastic pollution.
- These rules aim to ensure that the environmental impact of disposable plastic ware is accurately communicated through labelling.

Key points:

- **Biodegradable plastics were initially seen as a solution to plastic waste**, as they were expected to decompose naturally after use, **reducing plastic accumulation in landfills and the environment.**
- However, previous regulations in India lacked clear definitions for **"biodegradable,"** leading to incomplete breakdowns and the potential for microplastics to remain.
- The new rules **require complete biodegradation, with no microplastics left behind, representing a significant step towards preventing further plastic waste pollution.**

Microplastics:

- Microplastics are **small plastic pieces less than five millimeters long which can be harmful to our ocean and aquatic life.**

Govt. to record parents' religion to register births

- The government is set to update its **birth registration process** by requiring parents to separately declare their religion.
- This change, outlined in **Model Rules by the Union Ministry of Home Affairs, will necessitate State governments to adopt and notify these rules for implementation.**

Key points:

- The **Registration of Births and Deaths (Amendment) Act, 2023,** passed by Parliament on August 11 last year, mandates the **maintenance of a national birth and death database,** which may be used to update various records, including the National Population Register (NPR), electoral rolls, Aadhaar numbers, ration cards, passports, and driving licenses.
- Previously, only the **family's religion was noted in birth registers.**
- The new "Form No.1-Birth Report" will expand the **religion column to include the "religion of father" and "religion of mother," as well as for parents of an adopted child.**
- All births and deaths must now be digitally registered through the Centre's portal for the Civil Registration System (crsorgi.gov.in), as per the law effective since October 1 last year.

myCGHS app

- The U**nion Health Ministry has introduced the myCGHS iOS app**, a significant advancement in healthcare services for CGHS beneficiaries.

Key points:

- This app provides easy access to crucial healthcare features on their mobile devices, according to the Union Health Secretary.
- This initiative aligns with the government's vision of using technology to improve healthcare quality and accessibility.
- The **myCGHS iOS app was developed by the technical teams of the National Informatics Centre (NIC) Himachal Pradesh and NIC Health Team.**
- Key services provided by the **myCGHS app include**
    - booking and canceling online appointments,
    - downloading CGHS cards and index cards,
    - accessing lab reports from CGHS labs,
    - checking medicine history,
    - verifying medical reimbursement claim status, accessing referral details,
    - locating nearby wellness centers, staying updated with news and highlights,
    - locating nearby empaneled hospitals, labs, and dental units, and accessing contact details of wellness centers and offices.

Right against adverse effect of climate change part of right to life, equality

- The Supreme Court has broadened the scope of **Articles 14 and 21 to encompass the "right against the adverse effects of climate change."**

Background of the Case:

- A plea was filed to protect the **Great Indian Bustard (GIB) from habitat loss due to power transmission lines.**
- On April 19, 2021, the **Supreme Court ordered restrictions on overhead transmission lines and suggested their conversion to underground lines.**
- Ministries of Environment, Forests, Power, and New and Renewable Energy sought modifications citing international commitments on renewable energy and technical challenges.

Court's Decision:

- Acknowledged practical difficulties in implementing the order due to technical challenges, land acquisition, and costs.
- Emphasized the i**mportance of renewable energy**, particularly solar power, and the need to balance GIB conservation with overall environmental preservation.

Formation of Expert Committee:

- Established a **nine-member committee to assess the feasibility of undergrounding power lines** in specific areas, considering factors like terrain, population density, and infrastructure.
- The committee was instructed to submit a **report by July 31, 2024, through the Union Government.**

Lack of Specific Legislation:

- Despite various governmental policies recognizing climate change, there's no comprehensive legislation in India addressing it.
- People still have a right against the adverse effects of climate change.

Impact on Right to Life and Health:

- **A clean environment is crucial for fully realizing the right to life.**
- **Climate change affects health** through factors like air pollution, diseases, droughts, and food shortages.
- Inability to cope with climate change violates both the right to life and the right to equality for underserved communities.

Ruling by the Supreme Court:

- Expanded the scope of Articles 14 and 21 to include the "right against the adverse effects of climate change."

Constitutional Provisions:

- **Article 48A** emphasizes the State's responsibility to protect and improve the environment.
- **Article 51A(g)** mandates citizens to protect and improve the natural environment.
- While not directly enforceable, these provisions indicate the Constitution's recognition of the importance of the natural world.

Interpretation of Articles 14 and 21:

- Article 21 recognizes the right to life and personal liberty.
- Article 14 ensures equality before the law.
- **These articles are seen as sources of the right to a clean environment and protection against climate change effects.**

CDP-SURAKSHA

- The government has introduced a **new digital platform called CDP-SURAKSHA to disburse subsidies to horticulture farmers** as part of the **Cluster Development Programme (CDP)**, an initiative to **promote horticulture crops** and boost the sector's growth.
- The CDP-SURAKSHA is essentially a **digital platform.**
- SURAKSHA stands for **"System for Unified Resource Allocation, Knowledge, and Secure Horticulture Assistance."**

Key points:

- CDP-SURAKSHA enables **instant subsidy disbursal to farmers' bank accounts using e-RUPI vouchers,** facilitating transactions through the **National Payments Corporation of India (NPCI).**
- CDP-SURAKSHA's features include database integration with PM-KISAN, cloud-based server space from NIC, UIDAI validation, eRUPI integration, LGD, content management system, geotagging, and geo-fencing.
- **e-RUPI is a one-time payment mechanism from NPCI** that **doesn't require a card, digital payment app, or internet banking access**.
- It can be shared with beneficiaries via SMS or QR code.
- The CDP aims to develop **horticulture clusters, with 55 identified clusters and 12 selected for the pilot**.
- The initiative will cover about 9 lakh hectares and benefit 10 lakh farmers, attracting private investment of Rs 8,250 crore.

Suvidha Portal

- **The Suvidha Portal has received over 73,000 applications since the announcement of General Elections 2024.**

About:

- It is an **online platform** accessible at https://suvidha.eci.gov.in, designed for **political parties and candidates to submit permission requests remotely.**
- The portal also offers offline submission options for inclusivity.
- Managed by **nodal officers across state departments,** the IT platform of Suvidha Portal aims to facilitate the efficient processing of permission requests.
- Additionally, it has a companion app available on IoS and Android platforms, **enabling real-time tracking of request status.**
- One of the key features of the Suvidha Portal is its transparency.
- It provides **real-time tracking of applications, status updates, timestamped submissions, and communication via SMS.**
- This transparency supports the **scrutiny of election expenditures for greater accountability.**
- The Election Commission's commitment is to facilitate a **fair, efficient, and transparent electoral environment.**
- The Suvidha Portal ensures equal access to permissions and clearances for all parties and candidates, aligning with this commitment.

Right to sleep

- The Bombay High Court rejected a plea from a 64-year-old businessman regarding his arrest by the Enforcement Directorate (ED), criticizing the ED for making him wait overnight and recording his statement, thereby **depriving him of the 'right to sleep' under Article 21 of the Constitution.**

Key points:

- The court emphasized that the **'right to sleep' is a fundamental human need and depriving someone of it violates their human rights, affecting their health and cognitive skills.**
- It directed the agency to issue guidelines on the timings for recording statements under Section 50 of the **Prevention of Money Laundering Act (PMLA).**

Green Credit Programme (GCP)

- The **Green Credit Programme (GCP) encourages organisations** and **individuals** to **invest in afforestation projects** in **'degraded' forest lands for 'green credits'**.
- The **Union Environment Ministry**, the **coordinator of the programme**, **emphasizes restoring ecosystems over merely tree planting**.

Key points:

- **Individuals** and **companies can apply** to the **Indian Council of Forestry Research and Education (ICFRE)** to pay **to "restore" 'degraded' forest lands**.
- **Two years** after **planting and following an evaluation** by the ICFRE, **each planted tree** could be **worth one 'green credit.'**

- **These credits can be used to**
  - Comply with existing forest laws or for reporting under environmental, social and governance leadership norms or to meet **corporate social responsibility requirements**.
- As of now, **these credits are not tradeable**. However, the **GCP aims to incentivise environmental positive actions through a market-based mechanism** and generate green credit, which **shall be tradable** and **made available for trading on a domestic market platform**.
- The Environment Ministry has issued guidelines that **States must rely on to calculate what it would cost to restore a degraded forest landscape**.
- The **Ministry has changed the earlier requirement of a minimum of 1,100 trees per hectare to qualify as reforested landscape** and left it to States to specify them.
- **Preference** would be given to **indigenous species** and naturally growing seedlings would be retained.
- **Public sector companies** such as Indian Oil, Power Grid Corporation, National Thermal Power Corporation, Oil India, Coal India, and National Hydropower Corporation **had registered to invest in the programme**.

Think:

- Know about Indian Council of Forestry Research and Education (ICFRE).
- Know about **Carbon Credit Trading Scheme (CCTS)**.

Heat Action Plans (HAPs)

- The **India Meteorological Department (IMD)** has predicted an **increase in the maximum temperature** and the **frequency of heatwave conditions** in the upcoming days, particularly over **eastern** and **southern India**.
- In response, governments at various levels — including State, district, and city — have prepared **Heat Action Plans (HAPs)**.

About Heat Action Plans (HAPs):

- The **National Disaster Management Authority (NDMA)** and **India Meteorological Department (IMD)** are collaborating with **23 states** to develop **HAPs**.
- HAPs serve as a comprehensive **early warning system** and **preparedness plan for extreme heat events**.
- The plan includes both immediate and long-term actions to:
  - Increase preparedness
  - Enhance information-sharing
  - Improve response coordination
- The **primary goal of HAPs** is to **reduce the health impacts of extreme heat** on vulnerable populations.
- On a regional level, the **Ahmedabad Municipal Corporation (AMC) prepared the first Heat Action Plan in 2013**, in response to the devastating heatwave-related deaths in 2010.

What is Heatwave?

- A heat wave, sometimes described as **extreme heat**, is a period of **abnormally hot weather**.
- It is usually measured **relative to the usual climate in the area** and to normal temperatures for the season.
- **High humidity** often accompanies heat waves, especially in oceanic climate countries.
- **In India**, the **India Meteorological Department (IMD)** has specific **criteria for declaring a heat wave**.
- It is considered if the **maximum temperature** of a station reaches at least 4**0°C or more for Plains**, and at least **30°C or more for Hilly regions**. If the above criteria are met at least in **2 stations in a Meteorological sub-division** for at least **two consecutive days**, it is declared a heatwave on the second day.

Vote-from-home exercise

- A **special polling team trekked 18 kilometres inside the deep forest** under the **Idukki Lok Sabha constituency to record a single home vote**.
- The trek was part of the **'vote-from-home' exercise** meant for **senior citizens** aged above 85 and **differently abled voters**.
- The team trekked to the **Nooradi tribal settlement** under the **Munnar forest division**.

About Vote-from-home exercise:

- The "Vote-from-home" option is designed **to make voting more accessible to certain segments** of the electorate **who may find it difficult to visit polling stations** due to health or mobility issues.
- **Targeted Voters**: Primarily aimed at **elderly** voters above the age of 80 and **persons with disabilities (PwD)**.
- **Voluntary Participation**: Eligible voters can choose to opt for this method voluntarily; it is not mandatory.
- **Application Process**: Voters must apply in advance to avail themselves of this facility.

They need to fill out a form (**Form 12D**) and submit it to the returning officer.

National Curriculum for Early Childhood Care and Education 2024 - Aadharshila

- The Central government has released a curriculum for children aged **three to six-years-old**, aiming **to boost pre-school learning** in 14 lakh **anganwadis** across India.
- The **Ministry of Women and Child Development (MWCD)** has released the '**Aadharshila**,' the **National Curriculum for Early Childhood Care and Education 2024**.

About Aadharshila:

- Aadharshila is a detailed **48-week curriculum for three to six-year-olds in anganwadis**.
- The curriculum **aims to strengthen foundational literacy and numeracy concepts**.
- The curriculum includes a **weekly play calendar** with activities such as **storytelling, singing rhymes, art and craft**, and more.
- The curriculum **targets at least 48 weeks of learning in the duration of three years**.
- The curriculum helps in developing listening skill, vocabulary building, boosting imagination, narration, following instructions, creativity, social development, developing self-expression and self-esteem.
- **The national framework will serve as a base for States to develop their own culturally appropriate curriculums**.
- **Training of anganwadi workers** towards providing early childhood education started **under the 'Poshan Bhi, Padhai Bhi' scheme by the MWCD**.

Contempt of court

- The Supreme Court questioned Patanjali Ayurved about the size and cost of its apology published in newspapers.
- Patanjali is facing **contempt action from the Supreme Court for publishing misleading advertisements** about their ayurvedic products.
- They had **violated an undertaking given to the Supreme Court in 2023 to stop these advertisements**.

About Contempt of court:

- Contempt of Court is designed to **protect judicial institutions from unwarranted criticism and attacks**, and **to uphold their authority**.
- The Indian Constitution's **Article 129** designates the **Supreme Court as a court of record with the power to punish for contempt of itself**.
- The **Contempt of Courts Act, 1971** is the governing law for contempt in India.
- **Judges have the authority to impose sanctions**, such as imprisonment or fines, on those found guilty of contempt of court.
- Contempt of court is divided into two categories: **Civil and Criminal**.
- **Civil contempt** occurs when **someone wilfully disobeys a court order or breaches** an undertaking given to the court.
- **Criminal contempt** includes three forms:
    - Actions, signs, or words (written or spoken) that "scandalize" or "tend to scandalize" or "lower" or "tends to lower" the authority of any court.
    - Actions that prejudice or interfere with any judicial proceeding.
    - Actions that interfere with or obstruct the administration of justice.

National Career Service (NCS) portal

- The Central government has plans to **upgrade the NCS portal**.
- The upgrade **aims to link millions of youths with prospective employers**.
- The ultimate goal is to **prepare a future-ready workforce**.

About NCS

- **National Career Service (NCS)** is a **mission-mode project** under the **E-Governance Plan**, launched in **2015**.
- The portal provides **online career counseling** and **vocational guidance** to its registered users.
- It **aims to help jobseekers make informed career choices** based on their qualifications, skills, and interests.
- NCS provides a **nation-wide online platform for job seekers and employers for efficient and responsive job-matching**.
- The NCS portal is **implemented by the Directorate General of Employment**, **Ministry of Labour & Employment**.

National Judicial Appointments Commission (NJAC)

- The **Supreme Court Registry** has **refused to accept a petition to end the Collegium system of judicial appointments** and **revive** the National Judicial Appointments Commission (**NJAC**).
- The **NJAC**, which **gave an equal role to the government in judicial appointments**, had

been **struck down by a Constitution Bench in October 2015**.

About NJAC:

- The NJAC was introduced through the **99th Constitutional Amendment Act in 2014**, along with the **National Judicial Appointments Commission Act, 2014**.
- The **purpose of the NJAC was to replace the existing Collegium system of appointing judges**, which was criticized for lacking transparency and accountability.
- In October 2015, the **Supreme Court declared the 99th Constitutional Amendment and the NJAC Act unconstitutional**.
- The **judgment reinstated the Collegium system**, stating that the **NJAC infringed upon the independence of the judiciary** and **violated the basic structure of the Constitution**.

National Institute for the Empowerment of Persons with Intellectual Disabilities (NIEPID)

- The Union Government is expected to roll out a new test, which is designed by the **National Institute for the Empowerment of Persons with Intellectual Disabilities (NIEPID)**.
- The **purpose of the test is to diagnose Specific Learning Disabilities (SLDs)**.
- **The test is intended for use in adults in India**.

About NIEPID:

- NIEPID, formerly known as the **National Institute for the Mentally Handicapped**, was established in **1984**.
- It is an **autonomous body** under the administrative control of the **Department of Empowerment of Persons with Disabilities (Divyangjan)**, **Ministry of Social Justice & Empowerment**.
- **NIEPID is the apex body** for training, research, and surveys in the **field of intellectual disability in India**.
- The institute is **headquartered in Secunderabad**, **Telangana**, and has **regional centres in Kolkata, Navi Mumbai, and Noida**.
- **It empowers persons with intellectual disabilities to access state-of-the-art rehabilitation interventions, educational, therapeutic, vocational, employment, leisure and social activities, sports, cultural programmes and full participation**.

Authorised Economic Operator (AEO) status

- **The Centre has extended Authorised Economic Operator (AEO) status** to the **gem and jewellery sector**.
- This information was provided by the **Gem & Jewellery Export Promotion Council (GJEPC)**, the apex body of the sector.

Key points:

- It is part of a **broader framework for ease of doing business** and has **simplified export operations across various sectors**.
- The programme has resulted in significant time and cost savings for exporters.
- The **AEO is a programme under the World Customs Organisation (WCO) SAFE Framework of Standards** to **secure and facilitate global trade**.
- The aim of the programme is to **enhance international supply chain security** and **facilitate movement of legitimate goods**.

State News

Eturnagaram Wildlife Sanctuary

- Telangana is **currently grappling with forest fires in the Tadvai region of the Eturnagaram Wildlife Sanctuary in Mulugu and the Amrabad Tiger Reserve.**

Key points:

- The **state's dry season, typically from March to June, has exacerbated the situation due to increased temperatures and reduced rainfall, creating ideal conditions for wildfires.**

Causes of the fires

- Mainly include **human activity, such as campfires left unattended by people fishing in the nearby river,** which can easily ignite the dry vegetation.
- **Chenchu tribes in the region sometimes burn trees to collect mahua flowers more easily.**

About:

- Established in **1952, the Eturnagaram Wildlife Sanctuary stands as one of Telangana's oldest sanctuaries, revered for its ecological significance.**

- Originating in the sanctuary, the **Dayyam Vagu River** intricately divides the sanctuary into two distinct sections.
- The sanctuary is graced by the **presence of the Godavari River, further enhancing its natural allure.**
- The sanctuary boasts a **rich flora, predominantly adorned by deciduous teak trees, interspersed with axlewood, palas, tendu, and dhobi trees**, forming a diverse canopy conducive to supporting various animal species.
- Among its **diverse wildlife inhabitants are tigers, panthers, gaurs, sambar deer, spotted deer, nilgai, blackbucks, jackals, foxes, mongoose, and rodents.**
- The indigenous **Gond and Pardhan tribes** harmoniously coexist with the sanctuary, actively participating in conservation efforts and responsibly utilizing forest resources for sustenance.
- The majestic **Bogatha Waterfall** graces the sanctuary's core area with its mesmerizing presence.
- Additionally, the **sanctuary hosts the biennial festival of Sammakka Saralamma Jatara,** a tribal commemoration honoring the valor of tribal warriors **Sammakka and Sarakka.**

Nimmu-Padam-Darcha Road

- The **Border Roads Organisation (BRO)** has achieved a significant milestone by **establishing connectivity on the 298-km Nimmu-Padam-Darcha road in Ladakh.**
- This road, in addition to the **existing Manali-Leh and Srinagar-Leh routes**, will serve as the **third axis** through the **strategically important area,** reducing dependence on airways during colder months and facilitating the movement of Army personnel.

Key points:

- The Nimmu-Padam-Darcha road is now the third axis connecting Ladakh to the hinterland, apart from the Manali-Leh and Srinagar-Leh routes.
- It is the shortest route and passes through **only one high pass, Shinkun La, which is 16,558 feet high, making it quicker and more effective.**
- Part of the Kargil-Leh highway, the road will pass through Darcha and Nimmu, providing all-weather access to Leh. It starts 35 kilometers before Leh, at Nimo on the Leh-Srinagar highway, and connects Manali to Leh via Darcha and Nimmu on the Kargil-Leh highway.

World's largest Renewable Energy Park

- **Adani Green Energy Limited** is developing a **30 GW** renewable energy plant in **Khavda, Kutch, Gujarat,** on barren land covering **538 sq km, making it the world's largest power plant regardless of the energy source.**

Key points:

- The Khavda project is a **hybrid renewable energy cluster** that generates solar energy during the morning and wind energy during the evening.
- It currently has an operational capacity of **2,000 MW of solar energy.**
- The project area is **five times the size of Paris and almost as large as Mumbai.** Started in December 2022, the project achieved its first production on December 31, 2023.
- The company has completed **2 GW of power production at the Khavda project site** and aims to produce an **additional 4 GW in the ongoing financial year 2024-25, reaching a total of 6 GW by March 2025.**
- **The company aims to install 7 cr 50 lakh solar panels till 2029 and aims to produce 45,000 MW by 2030.**
- This project is expected to help India avoid about **58 million tonnes of CO2 emissions annually.**
- The renewable energy project is spread across 12 states, **with major production in Rajasthan and Gujarat.**

'Forever chemicals' in Chennai water bodies

- The **Southern Bench of the National Green Tribunal (NGT)** has expressed **concerns** about the **presence of 'forever chemicals' in Chennai waterbodies**.
- The bench took **suo motu cognisance** of **chemical contamination** in **Buckingham Canal**, **Adyar River**, and **Chembarambakkam Lake** based on news reports on a study done by **Indian Institute of Technology Madras**.

Key points:

- The study noted the presence of **polyfluoroalkyl substances (PFAS)**, **synthetic chemicals** that **do not degrade in the environment**, in surface level waters, groundwater, and even treated water treatment plant near the lake.

- PFAS are known to have **adverse health effects** such as liver damage, hormonal imbalance, immune system effects, and even cancer.

About forever chemical:

- "Forever chemicals" is a colloquial term commonly used to refer to **per- and polyfluoroalkyl substances (PFAS)**.
- These are a **group of man-made chemicals** that are notable for their p**ersistence in the environment and in human and animal bodies**, where they can accumulate over time.
- **Persistence**: PFAS are extremely durable and **resistant to typical environmental degradation processes**, which is why they are called "**forever chemicals**."
- **Widespread Use**: These chemicals have been used in various industries since the 1940s for their water- and grease-resistant properties.

International News

S.A.R.A.H.

- The **World Health Organization (WHO) has launched S.A.R.A.H. (Smart AI Resource Assistant for Health)**, a **digital health promoter,** to provide accurate health information and support users in optimizing their health and well-being journey.

Powered by **generative AI,** S.A.R.A.H. engages users in dynamic conversations that mimic human interactions.

Key Features of S.A.R.A.H. include:

- **Language Support:** Available 24/7 in 8 languages for global accessibility.
- **Health Topics:** Covers major health topics such as healthy habits, mental health, and risk factors for leading causes of death.
- **Engagement:** Provides personalized and empathetic responses to users' queries and concerns.
- **Accessibility:** Accessible on any device, enabling users to conveniently engage with health information.

75 years of NATO

- **The North Atlantic Treaty Organization (NATO) was established 75 years ago on April 4, 1949. Over the years, it has expanded and evolved significantly.**

About:

- **Formation of NATO:** NATO was founded in **1949 in response to Soviet expansionism,** with the US, Canada, UK, and several European nations signing the treaty.
- **Sweden's Membership:** Recently, **Sweden joined NATO,** becoming the **32nd member.** This decision followed Russia's invasion of Ukraine, which led Sweden to abandon its neutrality policy.
- **World Economic Forum's Global Risks Report 2024:** The report highlights interstate armed conflict as a major global risk, underscoring the importance of NATO's role in maintaining peace and security.
- **NATO's Expansion:** NATO has expanded over the years, with **Finland becoming the 31st member in 2023.** This expansion has been a **response to changing geopolitical dynamics, including Russia's actions in Ukraine.**
- **Open-Door Policy:** NATO maintains an **open-door policy for European countries** willing to commit to defense spending and other requirements. This policy has led to several rounds of enlargement, including the recent additions of Finland and Sweden.

ANTI DUMPING

- The **Directorate General of Trade Remedies (DGTR)** has recommended imposing anti-dumping duty on **sodium cyanide (NaCN) imports from China, the European Union, Japan, and Korea.**

Key points:

- Anti-dumping duty is **imposed on imported goods when they are sold at a lower price than their normal value,** causing injury to producers of competing products in the importing country.
- The purpose of this duty is to **rectify the trade distortions caused by dumping and to re-establish fair trade.**

DGTR:

- The DGTR is an **Indian government organization that handles trade issues,** including unfair trade practices and subsidies that harm Indian businesses.
- It was formed in **2018** by merging several trade-related directorates.
- The DGTR operates under the **Department of Commerce, Ministry of Commerce & Industry,** and is responsible for dealing with anti-dumping and countervailing duty (CVD) cases, safeguard measures, and providing

trade defense support to domestic industries and exporters.

NaCN:

- Sodium cyanide (NaCN) is a **toxic compound used in various industries.**
- It is a **white, water-soluble solid with a high affinity for metals, making it highly toxic.**
- Its main application is in **gold mining, where its reactivity toward metals is exploited.**

Iran-Israel ties

- In a recent development, **Iran reportedly carried out attacks on Israel on April 12** in response to Israeli airstrikes on an Iranian consulate in Syria, which resulted in the death of senior Iranian military commanders.
- **The incident has amplified concerns over a potential wider conflict in the Middle East between the two nations.**

Background:

- Iran-Israel relations were once **cordial before the 1979 Islamic Revolution.**
- As one of the first Muslim-majority countries to recognize **Israel's formation in 1948**, Iran shared common interests with Israel, such as opposing Arab hostility.
- However, **following the revolution, Iran's regime adopted an anti-Israel stance, viewing the country as an occupier of Palestinian land.**
- Consequently, Iran-Israel relations soured, with both countries engaging in proxy conflicts and strategic attacks.

Issues:

- Given **Iran's lack of recognition of Israel's legitimacy** and the overt hostility between the **two nations since the early 1990s**, they have engaged in shadow wars and proxy conflicts, particularly in Syria and Yemen.
- Both countries have **ties to organizations involved in ethnic and religion-based conflicts in the region.**
- The nuclear programs of **both nations have further heightened tensions,** with Israel viewing Iran's nuclear program as a threat to its existence, and **Iran being subjected to various sanctions by the United States.**
- **Iran is believed to provide funding and support to several militant groups in the region that oppose Israel and the United States. These include Hezbollah in Lebanon and Hamas in the Gaza Strip**.
- As the rivalry between the t**wo nations persists, the involvement of the United States as Israel's strong ally** has exacerbated **Iran's insecurity, increasing the potential for unwanted Western interference in the region.**
- The recent incidents of **targeted attacks, assassinations, and cyberattacks between Iran and Israel underscore the delicate and unstable nature of the situation**.
- As tensions escalate, the international community remains concerned about the **potential for a wider regional conflict between the two adversaries.**

Impact on India:

- The intensifying conflict **between Israel and Iran has far-reaching implications for India,** which has deep equities in the region, including a large diaspora, robust economic partnerships, and a burgeoning strategic role.
- **A potential escalation could significantly impact India's people, economic interests, and strategic needs.**
- India's reliance on the **West Asia region for 80% of its oil supplies renders the country vulnerable to the ramifications of a potential conflict on energy prices.**
- Although India has mitigated the impact of oil prices in the **context of the Russia-Ukraine war by securing discounted Russian oil, the Iran-Israel conflict could have adverse effects.**
- India's strategic relationship with major Arab countries, including **Iran and Israel, is a vital factor in the country's foreign policy.**
- New Delhi has balanced its **strategic ties with both nations, but the widening conflict could force India to abandon its ambivalent position.**

India ties with Israel:

- India's strong **strategic relationship with Israel,** particularly in defense and security, has deepened over the past decade.
- Israel has emerged as a **key defense supplier for India, joining the ranks of the US, France, and Russia.** Moreover, both countries share concerns about **extremism and terrorism.**

India ties with Iran:

- Despite maintaining a strategic partnership with Israel, India has managed to **preserve its strategic relationship with Iran.**
- Tehran has been a significant supplier of crude oil to India, though this **relationship has faced obstacles due to sanctions.**

- Both nations also share apprehensions regarding **terrorism originating from Pakistan and Afghanistan.**
- Additionally, the **Chabahar project serves as an essential economic gateway to Afghanistan and Central Asia.**

Way forward:

- The path forward in this **tumultuous situation necessitates diplomatic efforts from global leaders to promote de-escalation and return to the path of diplomacy.**
- India's position advocating for an **immediate cessation of violence** is crucial in restoring peace to the volatile region.
- Pressures from world leaders, such as **US President Joe Biden's statement that the US would not partake in any Israeli counteroffensive against Iran,** may contribute to de-escalating the conflict and establishing peace.

World Craft City (WCC)

- The **World Crafts Council International (WCCI)**, based in **Kuwait**, is **considering Srinagar for the World Craft City (WCC)** nomination from India this year.
- The team has inspected several clusters where artisans were working on local crafts like **Pashmina shawls**, carpets, papier mâché, etc.

Key points:

- The annual ceremony to grant WCC status **aims at promoting, preserving, and evolving handicrafts and building new market linkages**.
- The **Indian National Trust for Art and Cultural Heritage-Kashmir (INTACH-K)** is collaborating with the **J&K Handicrafts department** to map the craft sector ahead of the final nomination.

United Nations membership for the state of Palestine

- The **United States vetoed a U.N. resolution** that would have allowed full **United Nations membership for the state of Palestine**.
- The vote in the 15-member Security Council was **12 in favour**, the **United States opposed**, and **two abstentions**.

Key points:

- The **resolution** would have recommended the 193-member General Assembly **to approve Palestine becoming the 194th member of the United Nations**.
- **140 countries have already recognized the state of Palestine**, so its admission would have been approved.

Think:

- Know about the process for obtaining full membership of the United Nations.

Safeguard Measures

- **India**, along with other nations have **criticised the EU for not terminating its safeguard measure on imports** of certain steel products after a review.
- Most of these countries argued that the **EU's safeguard duty was inconsistent with WTO rules**.

About Safeguard Measures:

- **Safeguard measures** are **emergency actions** introduced by a country **under the World Trade Organization (WTO) Agreement** on Safeguards.
- These measures are **taken to protect a specific domestic industry from an increase in imports of any product** which is causing, or threatening to cause, serious injury.
- Safeguard measures can take the **form of suspension of concessions or obligations**, and can **consist of quantitative import restrictions** or **duty increases to higher than bound rates**.
- They are **one of three types of contingent trade protection measures available to WTO members**, the other two being **anti-dumping** and **countervailing measures**.

Think:

- Know about **Anti-dumping** and **Countervailing measures.**

Schengen visa

- **Indian nationals can now be issued long-term multi-entry Schengen visas** valid for **two years**.
- The **European Union** has announced this new visa 'cascade' regime.

About Schengen visa:

- The Schengen Visa is a **permit that allows one to enter and travel freely within the Schengen Area**, which **comprises 29 European countries**.
- It's **primarily for short stays up to 90 days** within a **180-day period for tourism or business purposes**.
- The visa can be obtained in the form of a **single-entry visa**, which **allows the holder to**

enter the Schengen area once, or a multiple-entry visa.

ASEAN Future Forum

- The **External Affairs Minister of India (EAM)** spoke at the **First ASEAN Future Forum virtually**.
- He highlighted the **synergy between India's Indo-Pacific Oceans Initiative (IIPOI)** and the **ASEAN Outlook on Indo-Pacific (AOIP)**.

Key points:

- This synergy provides a **strong framework of cooperation**, **addressing challenges to comprehensive security**.
- EAM emphasized that **ASEAN is central to India's Act East policy** and is a **crucial pillar in India's wider Indo-Pacific mission**.
- He called for the **global south** to present its perspective and assume a greater role in international affairs.
- He stressed the importance of respecting and facilitating **freedom of navigation**, **overflight**, and **unimpeded commerce**.

Shanghai Cooperation Organisation (SCO)

- The **Defence Secretary led the Indian delegation at the Shanghai Cooperation Organisation (SCO)** Defence Ministers' meeting in **Asthana**, **Kazakhstan**.
- The **SCO Defence Ministers agreed to develop** the idea of '**One Earth, One Family, One Future**', which is **rooted in the ancient Indian philosophy of 'vasudhaiva kutumbakam'**.

About SCO:

- The **SCO was founded in June 2001** in Shanghai **by China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan**.
- **India** and **Pakistan joined in 2017**, expanding the organization's membership.
- **The main objectives of the SCO include**
  - Strengthening mutual trust and neighborliness among member countries,
  - Promoting effective cooperation in political, trade, economic, research, cultural, and other fields,
  - Making joint efforts to maintain and ensure peace, security, and stability in the region.

Economy News

RBI Commemorates its 90th year

- The Reserve Bank of India (RBI) was established **under the RBI Act, 1934, and began operations on April 1, 1935. This year marks its 90th anniversary.**

Key points:

- The Reserve Bank's evolution as an institution has been closely intertwined with the **development of the Indian economy.**
- From being a **central bank primarily concerned with allocation of scarce resources** during the planning period, the Reserve Bank has transitioned into being an **enabler for the market economy.**
- The path-breaking structural reforms are the **enactment of the Insolvency and Bankruptcy Code (IBC) and the adoption of Flexible Inflation Targeting.**
- Moving towards RBI@100, the Reserve Bank remains focused on **ensuring a stable and strong financial system that would act as a bedrock for our country's economic progress.**

About:

- The Reserve Bank of India (RBI) was established on **April 1, 1934, following recommendations from the Royal Commission on Indian Currency and Finance.**
- Its primary goal is to maintain the country's monetary stability. Operations began on **April 1, 1935, with Sir Osborne Smith as its first Governor.**
- The RBI has seen **26 Governors to date**, with Shaktikanta Das currently serving as Governor since October 2021.
- Initially located in **Kolkata, the Central Office was moved to Mumbai in 1937.**

Digital India Trust Agency

- **The RBI is planning to establish the Digital India Trust Agency (DIGITA) to combat illegal loan apps.**

Key points:

- **DIGITA, part of RBI's DIGITA initiative**, collaborates with tech giants to enhance digital lending safety.

- It **verifies apps, removes suspicious ones, and works with the IT Ministry to whitelist legitimate loan apps.**
- RBI's DIGITA initiative aims to **ensure the safety of digital lending by verifying and removing suspicious loan apps.**
- DIGITA acts as a **central hub for vetting digital loan apps,** ensuring compliance with regulations and ethical operation.
- Only verified apps receive a **"DIGITA-approved"** seal, making them easily identifiable for borrowers.
- Unauthorized apps without DIGITA's verification may face penalties, enhancing the safety of borrowers.
- RBI is already working with the government to address the issue.
- It has shared a list of 442 legitimate loan apps with the IT Ministry for whitelisting on app stores like Google Play.
- This collaboration has led to the removal of over 2,200 suspicious lending apps by Google in the past year.
- **These efforts aim to create a safer and more transparent digital lending ecosystem for Indian consumers.**

SCORES 2.0

- The **Securities and Exchange Board of India (Sebi) has launched an upgraded version of SCORES, its online system for handling investor complaints.**
- The new version aims to **improve the efficiency of the complaint redressal process** by introducing automated routing and oversight by designated authorities.

About:

- **SCORES (SEBI Complaint Redressal System) is an online platform where investors can lodge complaints related to the securities market.**
- It was initially launched in **June 2011.**
- The enhanced version of SCORES enhances the investor complaint redressal mechanism by introducing features such as auto-routing, auto-escalation, and monitoring by designated bodies, reducing complaint resolution timelines," Sebi stated.

Features of Sebi SCORES 2.0

- The new version of SCORES includes **automated routing of complaints to the relevant regulated entity, reducing delays in complaint processing.**
- Other features include **standardized timelines for complaint resolution** (21 calendar days from receipt of complaint) and monitoring of complaint resolution by designated bodies.
- The new version also offers **two levels of review: first by the designated body and, if needed, a second review by Sebi.**
- Additionally, complaints will be auto-escalated to the next level if the regulated entity or designated body fails to adhere to prescribed timelines.
- Integration with the KYC Registration Agency database has been introduced for easy investor registration on SCORES.

RBI defers exchange traded currency derivatives norms

- The Reserve Bank of India (RBI) has decided to delay the implementation of new regulations **for the exchange-traded currency derivatives (ETCD) market.**
- **Originally set for April 5, 2024, the new implementation date is now May 3, 2024.**
- This decision follows concerns raised by market participants.

Key points:

- Under the new norm, users would have been able to take positions **in the foreign exchange derivatives market up to a limit of $100 million without the need to establish underlying exposure.**
- However, stock exchanges were instructed to inform users that although they are not required to establish underlying exposure, they must ensure the existence of a valid underlying contracted exposure.

About:

- **Exchange Traded Derivatives (ETDs) are standardized financial contracts** traded on stock exchanges, overseen by **regulatory bodies such as the Securities and Exchange Board of India (SEBI)**.
- These contracts derive their value from **underlying assets, which can include stocks, bonds, commodities, or currencies.**
- ETFs, or **Exchange-Traded Funds,** are investment funds traded on stock exchanges, holding portfolios of assets.

- Their value is directly linked to the assets they hold.
- ETDs come in various types, including **stock ETDs, index ETDs, currency ETDs, commodity ETDs, and bond ETDs, each catering to different investment needs and strategies.**

Credit-Deposit Ratio

- The **March 2024 report by CareEdge** highlighted that **banks' credit-deposit (CD) ratio has reached a decadal high, standing at around 80 percent.**
- This ratio reflects the percentage of deposits banks have raised that have been lent out, indicating liquidity and credit risks for banks.

About:

- The **currency deposit ratio,** on the other hand, reveals the **proportion of currency that individuals hold compared to aggregate deposits.**
- When the cash deposit ratio increases, the money multiplier decreases.
- Similarly, an increase in deposit rates encourages depositors to deposit more, **reducing the Cash to Aggregate Deposit ratio and increasing the Money Multiplier.**

Schemes and Committee News

Longevity India Initiative

- The **Indian Institute of Science (IISc)** has announced the launch of a project called the **Longevity India Initiative**.

About Longevity India Initiative:

- The initiative is aimed at **extending the human health span**, the period during which a person remains healthy, and **tackling ageing-related challenges**.
- It is a **Multidisciplinary Collaboration**.
- It seeks to **develop interventions** that can **effectively manage age-related diseases** and promote healthy ageing across India.
- **Research areas include**
  - Identifying biomarkers of ageing,
  - Early disease indicators, and
  - Developing new therapeutics and technologies.

Rashtriya Arogya Nidhi (RAN) scheme

- The **Delhi High Court** has instituted a case regarding the grant of financial assistance under the Centre's **Rashtriya Arogya Nidhi (RAN) scheme**.
- The court observed that the **threshold income to claim benefit under this scheme is prima facie "extremely low"**.

Key points:

- Under the new umbrella scheme of RAN, the **threshold of monthly income for benefit** is **₹1,571 for rural** and **₹1,605 for urban areas**.
- The **annual income** of the applicant is **₹96,000**.

About Rashtriya Arogya Nidhi (RAN) scheme:

- The Rashtriya Arogya Nidhi (RAN) is a scheme **under the Ministry of Health and Family Welfare** in India.
- The RAN is a **centrally sponsored scheme.**
- It was set up to **provide financial assistance to patients living below the poverty line**.
- It is designed **to help those suffering from major life-threatening diseases receive medical treatment** at any of the **super specialty Government hospitals or institutes**.
- The **scheme provides one-time financial assistance to poor patients living below State/UT** wise threshold poverty line and suffering from **life-threatening diseases relating to heart, kidney, liver, cancer,** etc.

Award News

All We Imagine As Light

- Payal Kapadia's film, **All We Imagine As Light, has become the first Indian title in over 40 years to feature in the prestigious In Competition section of the Cannes Film Festival.**
- British-Indian filmmaker Sandhya Suri's Santosh will also be showcased at the **77th edition of the film gala under the Un Certain Regard section.**

About Payal Kapadia:

- Payal Kapadia is an alumna of the Film & Television Institute of India (FTII) and is best known for her acclaimed documentary **A Night of Knowing Nothing,** which won the Oeil d'or (Golden Eye) award at the **2021 Cannes Film Festival's Director's Fortnight side-bar.**

Did you know?

- The last Indian film to compete for the coveted Palme d'Or award (It is the highest prize awarded at the Cannes Film Festival) was legendary filmmaker Mrinal Sen's Kharij in 1983.
- Neecha Nagar is the only Indian film ever to win the top honour at Cannes back in 1946.

Malcom Adiseshiah Award 2024 and Elizabeth Adiseshiah Citation-2024

- **Surinder S. Jodhka**, **professor**, School of Social Sciences, **Jawaharlal Nehru University**, has been chosen for the **Malcom Adiseshiah Award 2024**.
- **Vikas Kumar**, associate professor, School of Development, **Azim Premji University**, will receive the **Elizabeth Adiseshiah Citation-2024**.
- Every year, the awards are given to outstanding **social scientists**.

Key Points:

- It is awarded by the **Malcolm and Elizabeth Adiseshiah Trust**.
- **Malcom Adiseshiah award** carries a **citation** and a **cash prize of Rs.2 lakhs**.
- **Elizabeth Adiseshiah Award** will carry a **cash prize of Rs.1 lakh**.
- The **award is open to Indian and foreign scholars** ordinarily resident in India.

Did you know:

- **Malcolm Sathiyanathan Adiseshiah** (18 April 1910 – 21 November 1994) was an **Indian development economist** and **educator**.

About Malcolm Sathiyanathan Adiseshiah:

- He was born in Vellore, **Tamil Nadu**.
- He obtained a **doctorate in economics** at the London School of Economics.
- In **1976**, he was awarded the **Padma Bhushan**, India's third-highest civilian award.
- In **1998**, **UNESCO** created the **Malcolm Adiseshiah International Literacy Prize** in recognition of his **contribution to education and literacy**.
- He was **nominated to the Rajya Sabha**, the upper house of the Parliament of India, in **1978**.
- He served as the **Vice Chancellor of the University of Madras** from 1975 to 1978.
- He was the founder of the **Madras Institute of Development Studies (MIDS)**.

Padma awards 2024

- **Padma awards** were conferred by the **President of India**.

About Padma awards 2024:

- **Padma Vibhushan:**
  - Vyjayantimala Bali (Art, Tamil Nadu)
  - Konidela Chiranjeevi (Art, Andhra Pradesh)
  - M Venkaiah Naidu (Public Affairs, Andhra Pradesh)
  - Bindeshwar Pathak (Posthumous, Social Work, Bihar)
  - Padma Subrahmanyam (Art, Tamil Nadu)
- **Padma Bhushan**:
  - M Fathima Beevi (Posthumous, Public Affairs, Kerala)
  - Hormusji N Cama (Literature & Education - Journalism, Maharashtra)
  - Mithun Chakraborty (Art, West Bengal)
  - Sitaram Jindal (Trade & Industry, Karnataka)
  - Young Liu (Trade & Industry, Taiwan)
  - Ashwin Balachand Mehta (Medicine, Maharashtra)
  - Satyabrata Mookherjee (Posthumous, Public Affairs, West Bengal)
  - Ram Naik (Public Affairs, Maharashtra)
  - Tejas Madhusudan Patel (Medicine, Gujarat)
  - Olanchery Rajagopal (Public Affairs, Kerala)
  - Dattatray Ambadas Mayaloo alias Rajdutt (Art, Maharashtra)
  - Togdan Rinpoche (Posthumous, Others - Spiritualism, Ladakh)
  - Pyarelal Sharma (Art, Maharashtra)

- Chandreshwar Prasad Thakur (Medicine, Bihar)
- Usha Uthup (Art, West Bengal)
- Vijaykanth (Posthumous, Art, Tamil Nadu)
- Kundan Vyas (Literature & Education - Journalism, Maharashtra)

- This category features a diverse range of recipients including
  - Parbati Baruah for social work in animal welfare (Assam),
  - Rohan Machanda Bopanna for sports (Karnataka), and
  - Joe D Cruz for literature and education (Tamil Nadu), among many others.

Think:

- Know about the **Bharatratna**.

Defence News

Meghayan 2024

- The METOC seminar **'Meghayan 2024' was conducted on 28th March 2024 by the School of Naval Oceanology & Meteorology (SNOM)** and Indian Naval Meteorological Analysis Centre (INMAC) at Southern Naval Command.

Key points:

- The seminar commemorated **World Meteorological Day,** which marks the establishment of the World Meteorological Organization (WMO) on 23rd March 1950.
- The theme for the seminar was **'At the Frontline of Climate Action',** aligning with WMO's focus for 2024.
- An indigenous mobile application, **INDRA (Indian Naval Dynamic Resource for Weather Analysis), was launched to facilitate weather-related decision-making.**
- The application was developed by **BISAG (Bhaskaracharya National Institute for Space Applications and Geo-informatics) in coordination with the Directorate of Naval Oceanology and Meteorology, Indian Navy.**

Onyx Missile

- **Russia's P-800 Onyx supersonic cruise missile, utilized in attacks on Ukrainian targets, is set to become deadlier with a new target seeker.**

New Seeker for Enhanced Accuracy

- Upgraded with new active homing heads for increased precision in **hitting ground targets of the Armed Forces of Ukraine (AFU).**
- Development aimed at **ensuring Onyx's invulnerability to electronic warfare systems** of the **Ukrainian Armed Forces.**

Overview of P-800 Onyx

- Developed by Reutov NPO Mashinostroeniya, it targets surface ship groups and ground targets **amidst severe fire and electronic countermeasures.**
- Carried by **Russian Navy surface ships and submarines**, utilized in Syria against terrorist ground targets.

First Tri-service Common Defense Station

- The Indian Armed Forces are planning to establish **Mumbai as India's first "tri-service common defense station" for the Army, Navy, and Indian Air Force (IAF) to enhance jointness among the services.**

Key points:

- This initiative aims to **integrate logistics, infrastructure, and administration, which are currently operated separately by the three services in Mumbai.**
- Currently, India lacks common defense stations, with the Andaman and Nicobar command being the only existing tri-service command since 2001.
- **Mumbai will be the first common defense station, with Sulur and Guwahati** potentially being chosen as locations for the second and third stations, with different lead services for each.
- This initiative aligns with the broader goal of integrating the three defense services in India through various measures:

Integrated Theatre Commands (ITCs): Establishment of unified commands under a single commander for strategic geographical theatres involving the Army, Indian Air Force, and Navy.
Office of the Chief of Defense Staff (CDS): Centralized leadership responsible for fostering coordination and synergy among the three services.
Cyber and Space Commands: Integration of capabilities in cyber warfare and space operations across the defense services.

Resource Sharing: Pooling and sharing of resources among the services to avoid duplication and enhance efficiency.

Joint Training and Exercises: Conducting combined training programs and exercises to enhance interoperability and cohesion among the forces.

Akashteer system

- The Indian Army has initiated the deployment of the indigenous **Akashteer system to enhance its air defense capabilities.**
- This system enables **monitoring of low-level airspace in battle zones and effective control of ground-based air defense weapons.**

Key Features:

- Integrates **radar and communication systems into a unified network.**
- Provides **unprecedented situational awareness and control.**
- Enables swift engagement of hostile targets
- Reduces the **risk of fratricide.**
- Ensures safety of friendly aircraft in contested airspace
- Vehicle-based control centers maintain operational capabilities in challenging communication environments

Developed by **Bharat Electronics Limited (BEL), the system aims to automate air defense operations and significantly improve India's air defense posture.** It will enhance operational efficiency and integration by digitizing the entire process.

INS SHARDA

- Admiral R Hari Kumar, Chief of the Naval Staff, awarded INS Sharda an **'On the Spot Unit Citation' for its successful anti-piracy operations.**
- The ship was involved in the safe release of all **19 crew members (11 Iranian & 08 Pakistani) of Iranian fishing vessel Omari** which was held hostage by pirates off East coast of Somalia.

About:

- INS Sharda (P55) is a **Sukanya class patrol vessel** of the Indian Navy.
- The Sukanya-class patrol vessels are **large, offshore patrol craft in active service with the Indian Navy.**
- Vessels of the Sukanya class are **named after notable women from Indian epics.**
- It was commissioned on **27 October 1991.**
- Homeport - **Kochi.**

Israel Deploys C-Dome Defense System

- Israel recently deployed the **C-Dome defense system** for the first time to intercept a **suspicious aerial target near the southern city of Eilat.**

Key points:

- This action came after an alert in the area, which had previously been targeted by missile fire from **Yemen's Houthi rebels.**
- The **C-Dome, a naval adaptation of the Iron Dome**, successfully intercepted the target, marking its maiden operational use.

C-Dome: Naval Adaptation of Iron Dome

- The **C-Dome defense system**, mounted on Sa'ar 6-class corvettes, is the naval counterpart of the land-based Iron Dome.
- Developed by **Rafael Advanced Defence Systems,** the C-Dome employs the same interceptor technology as the **Iron Dome,** providing **robust defense against rocket and missile threats.**
- This operational debut underscores Israel's ongoing efforts to enhance its defensive capabilities in response to evolving security challenges.

Igla-S

- India has recently taken delivery of a fresh **consignment of Igla-S air defense systems from Russia, intended for deployment along the Line of Actual Control (LAC).**
- This procurement fulfills an order placed last year to address the current needs of the Indian Army.

Key points:

- The initial batch comprises **24 Igla-S Man Portable Air Defense Systems (MANPADS) along with 100 missiles,** with plans for the remainder to be manufactured in India under a larger agreement.
- This acquisition **aims to bolster the Indian Army's Very Short Range Air Defense (VSHORAD) capabilities,** particularly in the challenging terrain of high mountainous regions bordering the north.
- The Igla-S system boasts **an enhanced interception range of up to 6 km, providing a significant upgrade over the older Igla-1M systems.**

About:

- The **Igla-S is a portable defense system,** operable by either an individual or a crew.
- It is specifically engineered to **intercept low-flying aircraft** and can also detect and eliminate airborne **threats like cruise missiles and drones.**
- As reported by The Defense Post, the Igla-S air defense system is composed of several components, including the 9M342 missile, the 9P522 launcher, the 9V866-2 mobile test station, and the 9F719-2 test set.
- These systems are primarily deployed in **new air defense units stationed in high mountainous regions along the northern border.**

Vice-Admiral Dinesh Kumar Tripathi

- Vice-Admiral **Dinesh Kumar Tripathi** has been **appointed as the next Chief of Naval Staff**.
- He is currently serving as the Vice-Chief of the Naval Staff (VCNS).
- He will **take over from** the current chief, **Admiral R. Hari Kumar**, on April 30, 2024.

Did you know:

- In India, the **chiefs of the armed forces**—namely the **Army**, **Navy**, and **Air Force**—are **appointed by the President of India**.
- The President acts on the **advice of the Government of India**, typically following a **recommendation from the Ministry of Defence**.
- The appointment is usually made from among the **senior-most officers of the respective forces**, taking into consideration their service records, experience, and suitability for the highest leadership roles within the armed forces.

BrahMos supersonic cruise missiles

Why in news?

- **India delivered the first batch of BrahMos supersonic cruise missiles** to the **Philippines**.
- The Philippines concluded a $375-million deal with India in January 2022 for three batteries of the BrahMos, **becoming the first export customer**.

Key points:

- The **delivery comes amid the ongoing showdown** between the **Philippines** and **China** in the **South China Sea**.
- Several countries have expressed interest in acquiring BrahMos systems, and discussions are in advanced stages with **Indonesia** and **Thailand** among others.

About BrahMos supersonic cruise missiles:

- **Type**: Supersonic cruise missile.
- **Developed by**: Joint venture between India's **Defence Research and Development Organisation (DRDO)** and **Russia's NPO Mashinostroyenia**.
- **Name Origin**: Named after the **Brahmaputra River** in India and the **Moskva River in Russia**.
- **Speed**: Mach 2.8 to 3.0 (supersonic speed).
- **Range**: Approximately **290-450 kilometers**, with extended range versions in development.
- **Warhead**: **Conventional** and **nuclear options**, with a payload capacity up to **300 kilograms**.
- **Launch Platforms**: Versatile launch capabilities from land, sea, sub-sea, and air platforms.
- **Guidance System**: Equipped with an inertial navigation system and a terminal active radar guidance system.
- **Stealth Technology**: Designed to reduce radar cross-section for stealthier approach.
- **BrahMos-II**: Development of a **hypersonic version** of the missile, BrahMos-II, which is **expected to travel at speeds of Mach 7+**.
- **Extended Range**: Ongoing efforts to extend the missile's range beyond 450 kilometers under international missile treaties.

2 women Navy officers return after historic transoceanic expedition

- The Indian Naval Sailing Vessel **INSV Tarini** returned to her base port at **Goa** on April 21 after a **historic transoceanic expedition** of nearly **two months**.
- The expedition was **undertaken by two women officers of the Indian Navy**, **Lieutenant Commander Dilna K.** and **Lieutenant Commander Roopa A**.
- They are the **first from India to accomplish such a feat**.
- The **two officers are now preparing for** their next monumental voyage, a **circumnavigation of the globe**, the **Sagar Parikrama-IV expedition**, on **INSV Tarini**,

scheduled to commence in September this year.

Exercise Poorvi Lehar or XPOL

- The **Indian Navy** conducted a **maritime exercise Poorvi Lehar** along the **East Coast of India**.
- The exercise aimed at **validating procedures to assess the Indian Navy's preparedness to meet Maritime Security challenges in the region**.
- It was conducted in multiple phases, including a **Tactical Phase** and a **Weapon Phase**.

Ranks & Reports News

Global Financial Stability Report 2024

- The **International Monetary Fund (IMF)** released the latest **global financial stability report**.
- The report warns about **risks to the global financial system from several factors**:
  - Persistent high inflation
  - Rising lending in the unregulated credit market
  - Increasing cyber-attacks on financial institutions.

Key points of report:

- **Geopolitical risks**, such as the **ongoing war in West Asia and Ukraine**, could **affect aggregate supply** and **lead to higher prices**. This might **prevent central banks from lowering rates** in the near future.
- In 2023, **India was the second-largest recipient of foreign capital after the U.S**. However, this could change quickly if western central banks indicate that they could maintain high interest rates for a prolonged period.
- The report also highlights **concerns about the growing unregulated private credit market**, where **non-bank financial institutions lend to corporate borrowers**.

Did you know:

- IMF also publishes **World Economic Outlook (WEO)** twice a year, typically in **April** and **October**.
- It Provides **detailed analysis of global economic performance and projections**.

Global report on food crises

- Almost 282 million people suffered from acute hunger in 2023, **according to a UN-led report**.
- The report said that **conflicts**, **extreme weather events** and **economic shocks** were **fueling food insecurity worldwide**.

About Global report on food crises:

- The **Food Security Information Network (FSIN)** released a **global report on food crises**, describing the outlook as "bleak".
- The report noted an increase of **24 million people facing food insecurity in 2023 compared to 2022**.
- The **report was a joint effort** by several **UN agencies**, the **European Union**, **various government bodies**, and **NGOs**.
- **Major food crises** were ongoing in **Afghanistan**, the **Democratic Republic of Congo**, **Ethiopia**, **Nigeria**, **Syria**, and **Yemen**.

National Centre for Polar and Ocean Research

- The **National Centre for Polar and Ocean Research report** details the conditions that have led to **significant changes in Antarctic ice**.
- These conditions have **caused an unprecedented hindrance in the expansion of Antarctic ice**.
- Additionally, these conditions have **led to the retreat of Antarctic ice**.

About National Centre for Polar and Ocean Research:

- It is an **autonomous research institute** under the **Ministry of Earth Sciences (MoES)**, established in **1998**.
- It is **India's premier R&D institution** responsible for the **country's research activities in the Polar and Southern Ocean realms**.
- The institute is **tasked with** planning and **executing polar expeditions and scientific research in Antarctica, Arctic, Himalayas and Southern Ocean**.
- It undertakes research on strategically vital projects like **mapping of Exclusive Economic Zone (EEZ)**, **continental shelf margins** and **the Deep Ocean Mission**.
- It is **located in Vasco da Gama, Goa** and was **formerly known** as the **National Center for Antarctic and Ocean Research (NCAOR)**.

Ranks and Report News

India's Defence Exports Reach Record High

- **India's defence exports exceeded ₹21,000 crore for the first time.**

Key points:

- The Defence Ministry reported a 31-fold increase in exports over the past decade compared to FY 2013-14.
- Mr. Singh expressed his delight, highlighting the significant milestone in India's defence exports.
- The exports reached ₹21,083 crore in FY 2023-24, marking a remarkable 32.5% growth from the previous fiscal year.

Manufacturing PMI rises to 16-year high

- **India's manufacturing sector showed strong performance in March 2024,** driven by robust production and sales, according to a monthly survey.
- The **HSBC India Manufacturing Purchasing Managers' Index (PMI) reached a 16-year high of 59.1 in March, up from 56.9 in February 2024.**
- This marks the 33rd consecutive month of growth in manufacturing output.

About:

- Purchasing Managers' Index (PMI) is an **economic indicator** derived from **monthly surveys of various companies.**
- It reflects **trends in both manufacturing and services** sectors and indicates whether market conditions, as perceived by purchasing managers, are expanding, contracting, or stable.
- PMI is **closely watched as an indicator of business activity and helps predict a country's economic health.**
- **There are two types of PMI:** Manufacturing PMI and Services PMI, with a combined index also being used.

World Anti-Doping Agency (WADA)

- India has been identified as the country with the **highest percentage of doping offenders, according to the 2022 World Anti-Doping Agency (WADA) report.**

Key points:

- Out of 4,064 samples collected from Indian athletes, 127 individuals tested positive for banned substances, constituting **3.26% of the sample size.**
- This highlights a concerning trend in Indian sports and underscores the need for comprehensive measures to address doping.
- The report also reveals a **6.4% increase in the total number of samples analyzed compared to the previous year.**
- Additionally, the percentage of Adverse Analytical Findings (AAFs) rose to **0.77% in 2022 from 0.65% in 2021**, indicating a growing issue worldwide.

WADA:

- The World Anti-Doping Agency (WADA) was established on **10 November 1999.**
- Its mission is to promote and coordinate the fight against doping in sport internationally.
- Its key activities include scientific research, education, development of anti-doping capacities, and monitoring of the World Anti-Doping Code (Code).
- The First World Conference on Doping in Sport held, in Lausanne, Switzerland, on February 2-4, 1999, produced the Lausanne Declaration on Doping in Sport.
- Based on the **terms of the Lausanne Declaration, the World Anti-Doping Agency (WADA)** was established on November 10, 1999, in Lausanne to promote and coordinate the fight against doping in sport internationally.

World Cybercrime Index

- The **World Cybercrime Index (WCI) aims to pinpoint major cybercrime hotspots worldwide and rank significant sources of cybercrime at a national level.**
- The index is a **collaborative effort between the University of Oxford and UNSW Canberra.**
- The index ranks around **100 countries,** identifying key hotspots based on categories such as ransomware, credit card theft, and scams.

Key points:

- Cybercriminal threats primarily originate from a select few countries, with **Russia and Ukraine topping the list.**
- The **top 10 countries in various categories include China, Russia, Ukraine, United States, Romania, and Nigeria.**
- 97 countries are identified as hubs for cybercrime by at least one expert.
- Rankings: **India is ranked 10th overall in the index,** scoring well in impact, professionalism, and technical skills.

- The United States is often linked with **data and identity theft, while China is associated with technical products or services.**
- The estimated cost of cybercrime is projected to be **$9.22 trillion in 2024,** and it is expected to rise to **$13.82 trillion by 2028.**

Asia Development Outlook report

- **Asia Development Outlook report is released by the Asian Development Bank.**
- **As per report, India's GDP growth is forecasted to slow from 7.6% in 2023-24 to 7% in 2024-25, before improving to 7.2% in 2025-26.**

Did you know?

- **India is a founding member of the Asian Development Bank** and the bank's fourth largest shareholder.

About ADB:

- **Full name:** Asian Development Bank
- **Established Year:** 1966.
- **Headquarters:** Manila, Philippines.
- The Asian Development Bank was established as a regional development bank. In India, it was established under the **"Asian Development Bank Act, 1966".**
- **Composition:** The Asian Development Bank is operated by a Board of Governors, which is composed of one representative from each member state.
- **Aim of the Organization:** To promote economic development and poverty reduction in Asia and the Pacific.
- **Programs/Activities/Services Offered by the Organization:** The Asian Development Bank provides assistance to its developing member countries, the private sector, and public-private partnerships through grants, loans, technical assistance, and equity investments to promote development.
- The Asian Development Bank has 68 members, of which 49 are from the Asia and Pacific region.

India's Tree Cover Loss and Carbon Emissions Since 2000: Insights from Global Forest Watch

- India has lost **2.33 million hectares of tree cover since 2000**, which is equivalent to a **six percent decrease during this period.**
- This loss has resulted in an **average release of 51.0 million tons of carbon dioxide** equivalent into the atmosphere annually.
- The **Global Forest Watch (GFW) project, which monitors forest changes using satellite data**, reported that **India lost 414,000 hectares of humid primary forest between 2002 and 2023, accounting for 18 percent of its total tree cover loss in that period.**

Key points:

- From **2001 to 2022, forests in India emitted 51 million tons of carbon dioxide equivalent per year but also removed 141 million tons per year,** resulting in a net carbon sink of 89.9 million tons per year.
- However, the loss of forests accelerates climate change, **as forests act as both a sink and a source for carbon.**
- Tree cover loss in India includes **both human-caused loss and natural disturbances**, such as logging, fire, disease, or storm damage, which may not always meet the definition of deforestation.
- **The data indicates that 95 percent of tree cover loss in India from 2013 to 2023 occurred within natural forests.**
- **Five states in India accounted for 60 percent of all tree cover loss between 2001 and 2023,** with **Assam, Mizoram, Arunachal Pradesh, Nagaland, and Manipur** experiencing significant losses.
- **Assam** had the highest tree cover loss at 324,000 hectares, compared to an **average of 66,600 hectares, followed by Mizoram, Arunachal Pradesh, Nagaland, and Manipur.**
- According to the **Food and Agriculture Organisation**, India's deforestation rate was 668,000 hectares per year between **2015 and 2020**, the **second-highest worldwide.**
- Additionally, from 2002 to 2022, **Odisha had the highest rate of tree cover loss due to fires**, followed by Arunachal Pradesh, Nagaland, Assam, and Meghalaya.

The GFW cautions against comparing old and new data, especially before and after 2015, due to changes in the data over time from algorithm adjustments and improved satellite data.

The project refers to tree cover **when discussing forest extent, loss, and gain,** as it is easily measurable using satellite imagery.

However, the existence of tree cover does not always indicate a forest, and tree cover loss or gain does not always imply forest loss or gain.

Sugar content high in Nestlé baby food sold in India

- A recent report by Swiss **NGO**, the **Public Eye** and **International Baby Food Action Network (IBFAN)**, revealed **higher sugar content** in **Nestle's baby food products sold in India**, **African** and **Latin American countries** compared to those sold in European markets.
- Despite **World Health Organisation (WHO) recommendations against added sugar in foods for children under three years**, **Indian regulators allow a limited amount of sucrose and fructose** in baby food.

Key points:

- Nestle India ensures that their products manufactured in India are in full and strict compliance with **CODEX standards** (a commission established by **WHO** and the **Food and Agriculture Organisation**) and local specifications pertaining to the requirements of all nutrients including added sugars.
- The **Food Safety and Standards Authority of India**, which regulates the manufacture, storage, distribution, sale, and import of food articles, while also establishing standards to ensure food safety, said that it is looking into the IBFAN report.

About CODEX standards:

- The **Codex Alimentarius**, or "**Food Code**", is a **collection of international food standards**, **guidelines**, and **codes of practice**.
- These standards are established by the **Codex Alimentarius Commission (CAC)**, a central part of the **Joint FAO/WHO Food Standards Programme**.
- The **main objectives** of these standards are:
  - To **protect the health** of consumers.
  - To **ensure fair practices** in the **food trade**.

Think:

- Know about the **Food Safety and Standards Authority of India**.

Sports News

Asian Under-20 Athletics Championships

- **Harshit Kumar** won the **men's hammer throw gold at the 21st Asian under-20 athletics championships** in **Dubai**.
  - He threw a **distance of 66.70m**.
- His teammate **Prateek took the bronze with a throw of 65.97m**.
- **Laxita Vinod Sandilea won a silver medal** in the **women's 800m event**.
- The **Indian 4x400m mixed relay team**, comprising P. Abiram, Kanista Teena, Navpreet Singh and Sandramol Sabu, **claimed a silver medal** with a time of 3:24.86.
- **China won the gold in the 4x400m mixed relay race**.

Science and Technology News

Kalam-250

- The recent successful **test firing of Stage-2, named Kalam-250, of the Vikram-1 space launch vehicle** by **Skyroot Aerospace marks a significant advancement in India's space industry.**
- **Importance:**Stage-2 is crucial in propelling the launch vehicle from the atmospheric phase to the deep vacuum of outer space, playing a pivotal role in achieving the desired trajectory.

Key points:

- **Kalam-250 is a high-strength carbon composite rocket motor using solid fuel.**
- It features a h**igh-performance Ethylene-Propylene-Diene terpolymers (EPDM) Thermal Protection System (TPS).**
- The stage-2 includes a carbon ablative flex nozzle and high-precision electro-mechanical actuators for thrust vector control, ensuring **precise trajectory adjustments.**
- The solid propellant for Kalam-250 was processed by **Solar Industries at their Nagpur facility.**
- The successful test firing brings Skyroot Aerospace **closer to the upcoming orbital launch of the Vikram-1 rocket.**

Vikram I Details

- Vikram I is the **first rocket in the series, featuring three solid-fuel-powered stages and a final stage equipped with Raman engines.**

- The Raman engines, powered by MMH and NTO liquid fuels, are used for final orbit adjustments.
- Vikram I is designed to lift payloads of up to 290 kg to a 500 km Sun synchronous polar orbit (SSPO) or **480 kg to a 500 km low Earth orbit (LEO) with a 45º inclination.**

Asteroid 2015 MB54

- NASA has been tracking a massive **170-foot asteroid(Asteroid 2015 MB54) that is moving towards Earth at a speed of 13,798 kilometers per hour.**
- On March 29, NASA's Jet Propulsion Laboratory predicted the passage of **four asteroids near Earth.**
- **Monitoring celestial objects is crucial to protect Earth from potential impacts and damage.**

Key points:

- NASA reassures that Asteroid 2015 MB54 poses no threat to Earth due to its relatively small stature.
- According to **NASA's criteria,** only asteroids **approaching within 4.6 million miles** and measuring larger than approximately 150 meters are considered **potentially hazardous.**

Asteroids:

- Asteroids, also known as **minor planets,** are r**ocky remnants from the early stages** of the solar system's formation around **4.6 billion years ago.**
- These space rocks are primarily located in the **main asteroid belt, a region between Mars and Jupiter, and their total count exceeds 1,351,400.**
- These celestial objects vary **greatly in size,** with the largest asteroid, **Vesta, measuring about 329 miles (530 kilometers) in diameter,** while the smallest are less than 33 feet (10 meters) across. Their shapes range from nearly spherical to irregular double-lobed peanut shapes.
- Asteroids **follow highly elliptical orbits around the Sun,** often rotating unpredictably and tumbling through space.
- Despite their abundance, the combined mass of all asteroids is less than that of E**arth's Moon.** Interestingly, many large asteroids have small moons orbiting them.

Hume AI

- Hume AI is an advanced conversational AI chatbot powered by its **empathic large language model (eLLM).**
- **New York-based startup Hume AI** launched the **first voice AI with emotional intelligence** which can generate conversations for the emotional well-being of its users.

Key points:

- Unlike traditional AI, **Hume emphasizes the tones of voice behind words to understand different emotions.**
- It can emulate tones across **23 different emotions**, including **admiration, adoration, and frustration, to generate human-like conversations.**
- The chatbot is trained on data from millions of human conversations worldwide to understand voice tonality, human reflexes, and feelings.
- **Responses are optimized in real-time based on the user's emotional state.**

Benefits and Applications:

- Hume's product is gaining recognition for its potential uses in various fields such as robotics, healthcare, and wellness.
- AI assistants powered by **Hume's eLLM could not only engage in conversations but also assist in daily tasks.**
- This technology opens up possibilities for AI assistants to understand user frustrations, offer genuine emotional support, and empathize with complaints, according to industry experts.

White Rabbit Collaboration

- **CERN, the European Organization for Nuclear Research,** has recently introduced the **White Rabbit Collaboration,** a technology developed to synchronize devices in accelerators to sub-nanosecond precision.

Key points:

- **White Rabbit (WR) is a technology created at CERN** in partnership with various institutions and companies to synchronize devices in accelerators to sub-nanosecond precision, **addressing the challenge of establishing a common time reference across a network.**

- This technology, previously requiring specialized hard-wired timing systems, now provides **sub-nanosecond synchronization accuracy using White Rabbit Switches within real-time Ethernet networks, offering greater flexibility and modularity.**
- Initially deployed in **2012,** White Rabbit's application has extended beyond particle physics into various fields.
- It achieved a significant milestone in **2020 by being incorporated into the Precision Time Protocol (PTP), an international standard governed by the Institute of Electrical and Electronics Engineers (IEEE).**
- One of White Rabbit's notable features is its **open-source nature and adherence to standards**, enabling companies and institutions to customize it for their specific needs and integrate it into their products and systems.
- **White Rabbit is utilized not only in the field of finance but also in various research infrastructures.** It is currently being evaluated for potential use in the future quantum internet.

Discovery of Ozone on Jupiter's moon

- A study conducted by an international team of scientists, with contributions from researchers in India, has resulted in the **detection of ozone on Callisto.**
- **This discovery sheds light on the moon's atmospheric composition and potential habitability.**

Implications

Ozone as Indicator of Atmospheric Stability:

- **The presence of ozone on Callisto suggests the existence of stable atmospheric conditions on the moon.**
- Ozone formation requires **specific chemical processes and stable environmental conditions, indicating potential habitable environments**.

Fundamental Ingredient for Life:

- **Oxygen, a component of ozone, is essential for the formation of complex molecules necessary for life.**
- The discovery raises questions about the habitability of Callisto and other icy moons in our solar system.

Insights into Geological and Atmospheric Processes:

- The discovery provides valuable insights into the **geological and atmospheric processes occurring on Callisto and other icy moons.**
- It enhances our understanding of the formation and evolution of Jupiter's moons.

Comparative Planetary Science:

- Comparing the chemical compositions and processes on different celestial bodies helps scientists better understand the similarities and differences between these moons and their potential habitability.

Callisto:

- Callisto, the farthest of **Jupiter's Galilean moons,** stands out as one of the solar system's most heavily cratered objects.
- Its surface is **dominated by impact craters of varying sizes,** indicating a lack of substantial geological activity.
- Composed mainly of **water ice and rocky material,** Callisto is believed to possess a **subsurface ocean, though it is suspected to be in contact with a rocky core rather than being heated by tidal forces.**

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TSAT-1A

- **Tata Advanced Systems Ltd (TASL) in Partnership with Satellogic Launches India's First Privately-Built Sub-Metre Resolution Surveillance Satellite.**
- TASL, in collaboration with **Satellogic,** has successfully launched **TSAT-1A, India's first privately-built sub-metre resolution** surveillance satellite. This marks a significant achievement in India's space capabilities.

Launch Details:

- TSAT-1A was launched from the **Kennedy Space Center, Florida**, aboard **SpaceX Falcon 9 rocket** on April 7.
- It was assembled at TASL's Vemagal facility in Karnataka.

Technical Specifications:

- TSAT-1A offers **high-resolution optical satellite imagery** with multispectral and hyperspectral capabilities.
- It boasts a **sub-metre resolution** (0.5-0.8 meters natively) which can be enhanced to 0.5 to 0.6-meter super resolution using software.
- **Weighing less than 50 kg, it is positioned in low-earth orbit, enabling increased collection capacity and low-latency delivery of satellite images.**

Key points:

- TSAT-1A **aims to cater primarily to government agencies, including the Indian armed forces, with plans to extend services to commercial clients.**
- Its inclined orbit allows for frequent revisits to areas of interest, enhancing surveillance capabilities.
- TASL aims to expand its capabilities in the space sector by focusing on assembly,

integration, and testing of satellites, data processing, and satellite control centers.

- **Collaboration with ISRO for future launches is also envisioned.**

NexCAR19

- **NexCAR19**, the country's **first 'Made in India' CAR T-cell therapy**, was recently launched.
- The therapy was developed by **IIT Bombay** and the **Tata Memorial Centre**.

About NexCAR19:

- NexCAR19 is a type of **immunotherapy** known as **CAR T-cell therapy**.
- In this therapy, a patient's **immune cells (T cells)** are **engineered in a lab** to produce special proteins called **chimeric antigen receptors (CARs)**.
- These receptors are designed to recognize specific proteins, or antigens, found on the surface of cancer cells.
- **Purpose and Importance**: Treat different types of **cancer**, particularly blood cancers like **leukemia** and **lymphoma**. It's important because it represents a **major breakthrough in cancer treatment**. It provides a new, potentially **more effective way to fight cancer**, especially for patients for whom other treatments have failed.
- **Unique Features**: One of the standout features of NexCAR19 is its **"humanised" design**. It's tailored to **mimic the human immune system** more closely, which aims to enhance the therapy's effectiveness while minimizing the risk of immune system rejection.
- **Applications**: NexCAR19 is used mainly to **treat certain types of blood cancers**, including B-cell acute lymphoblastic leukemia (ALL), diffuse large B-cell lymphoma, follicular lymphoma, high-grade B-cell lymphoma, mantle cell lymphoma, multiple myeloma, and primary mediastinal large B-cell lymphoma.

Advantages: It's an **affordable CAR T-cell therapy**, costing significantly less than comparable treatments available globally. Lab and animal studies indicate l**ower drug-related toxicities**, including reduced neurotoxicity and Cytokine Release Syndrome (CRS).

Challenges or Drawbacks: One significant concern is **cytokine release syndrome (CRS)**, a serious reaction that can occur following the CAR-T infusion. Additionally, while the therapy is promising, it **doesn't work for everyone** and **can be expensive**.

Hydrogel

- Researchers from the **Indian Institute of Science (IISc) have developed a sustainable hydrogel designed to combat the issue of microplastic pollution in water sources.**

Key points:

- The hydrogel developed by **IISc researchers features a unique three-layer polymer architecture**.
- It consists of **chitosan, polyvinyl alcohol, and polyaniline,** forming an **interpenetrating polymer network (IPN).**
- Nanoclusters of a substance called **copper substitute polyoxometalate (Cu-POM)** are embedded into the polymer matrix, serving as catalysts for breaking down microplastics under UV light.
- The hydrogel efficiently **adsorbs and degrades significant amounts of microplastics from water.**
- To monitor the removal and degradation of microplastics, **a fluorescent dye is incorporated into the hydrogel.**
- The effectiveness of the hydrogel was demonstrated in tests, where it **removed approximately 95% and 93% of two different types of microplastics in near-neutral pH water.**
- The material was also tested for its durability and stability under various conditions and was found to be strong and stable.

What are microplastics?

- Microplastics are **tiny plastic particles that pose significant threats to human health and the environment.**
- They can enter our bodies through water consumption, **potentially leading to various illnesses.**

- These particles are not only harmful to human health but also pose dangers to **aquatic and terrestrial life.**
- They have been found in remote areas such as **polar ice caps and deep ocean trenches**, highlighting the extent of their environmental impact.

Queqiao-2

- The **China National Space Administration (CNSA) recently announced the successful launch of the Queqiao-2 satellite.**

Key points:

- It serves as a **communications relay satellite between ground operations on Earth and future lunar probe missions** on the far side of the moon, planned to operate until at least **2030.**
- The satellite features a 4.2-meter-diameter (13.8-foot) parabolic antenna, **one of the largest deployed beyond Earth's orbit.**
- Queqiao-2 will support **China's Chang'e-6 lunar far-side sample return mission**, as well as future Chang'e-7 and -8 missions.
- It carries **three scientific instruments: an Extreme Ultraviolet Camera (EUC), a Grid-based Energetic Neutral Atom Imager (GENA), and the Lunar Orbit VLBI EXperiment (LOVEX), a very long baseline interferometer.**
- Additionally, the mission includes deploying two **experimental CubeSats, Tiandu-1 and Tiandu-2, which will orbit the Moon to test navigation and communication technologies.**

ISRO's Innovative Approach to Zero Orbital Debris

- ISRO's **PSLV-C58/XPoSat mission has achieved a remarkable feat by leaving virtually no debris in Earth's orbit.**
- This achievement is attributed to the **innovative use of the PSLV Orbital Experimental Module (POEM), developed by the Vikram Sarabhai Space Centre (VSSC).**

POEM:

- POEM is powered by **solar panels and a lithium-ion battery mounted on the fuel tank of the rocket's fourth stage.**
- It is equipped with a **dedicated navigation, guidance, and control (NGC) system,** including four Sun sensors, a magnetometer, and gyroscopes, which communicate with **ISRO's NavIC satellite constellation for navigation.**
- POEM also features **helium control thrusters and a telecommand system for ground station communication.**

Key points:

- This achievement is **significant due to the escalating issue of space debris, particularly in low Earth orbit (LEO).**
- LEO debris consists of spacecraft fragments, rockets, defunct satellites, and fragments from anti-satellite missile tests, posing risks to operational satellites.
- **ISRO's Space Situational Assessment report 2022 noted a significant increase in the number of objects placed in space, highlighting the urgent need for effective debris mitigation strategies.**

Concerned Laws:

- While there are **no international laws specific to LEO debris,** most **space-faring nations adhere to the Space Debris Mitigation Guidelines 2002 set by the Inter-Agency Space Debris Coordination Committee (IADC),** endorsed by the **U.N. in 2007**.
- **Aim:to reduce accidental collisions,** break-ups during operations, intentional destruction, and post-mission break-ups.
- They discourage the **long-term presence of spacecraft and launch vehicle orbital stages in LEO and limit their impact on the geosynchronous orbit (GEO).**

Various initiatives:

- Various space agencies have implemented **strategies to address space debris.**
- **NASA's Orbital Debris Program, initiated in 1979, focuses on reducing orbital debris and developing technologies** for tracking and removing existing debris.
- The **European Space Agency (ESA)** has adopted a **'Zero Debris charter,'** aiming for zero space debris **by 2030** and advocating for its adoption by other agencies.
- **Japan's Commercial Removal of Debris Demonstration (CRD2)** project is another effort to tackle the issue of space junk.

Pink hydrogen generation

- **Nuclear energy** can be **utilized to stimulate the production of 'pink' hydrogen** in India.
- This can be achieved by **amending the nuclear law**.

About Pink hydrogen:

- **Pink Hydrogen** is **generated through electrolysis powered by nuclear energy**.
- It can also be referred to as **purple hydrogen** or **red hydrogen**.
- The **very high temperatures from nuclear reactors could be used in other hydrogen productions by producing steam** for more efficient electrolysis or fossil gas-based steam methane reforming.
- Nuclear power offers significant **advantages** for pink hydrogen production, including **reducing production costs and emissions**.
- **Applications of Pink Hydrogen**:
  - Promising **replacement for fossil fuels** in the **cement industry, steel industry, aviation and heavy transportation**.
  - Can be used as a **feedstock and energy source with no greenhouse gas emissions**.

INCOIS study on Ocean floor

- The **Andaman and Nicobar Islands** and the **Maldives Islands significantly influence the currents in the Indian Ocean, altering their direction and speed**.
- Scientists at the **Indian National Centre for Ocean Information Services (INCOIS)** found that **deep-swirling patterns in the ocean depths are opposite to the surface currents**.

About Indian National Centre for Ocean Information Services (INCOIS):

- INCOIS was **established in 1999** as an **autonomous organization** under the **Ministry of Earth Sciences (MoES)**.
- **Mandate**: It serves as a **repository of ocean data** and information, providing operational oceanographic services, modeling, and advisory services.
- **Location**: INCOIS is located in **Hyderabad, Telangana**.
- **Objectives**:
  - To provide ocean information and advisory services to various stakeholders.
  - To develop and implement operational oceanography systems for the Indian Ocean region.
  - To conduct research in various aspects of oceanography and related fields.

Advanced Composite Solar Sail System (ACS3)

- **NASA** has successfully **launched its spacecraft**.
- It is the **Advanced Composite Solar Sail System**.

Key points:

- **ACS3 is a NASA technology demonstration mission** launched in 2024.
- It is **designed to characterize solar sail structures technologies** for **future small spacecraft to engage in deep space missions** requiring long-duration, low-thrust propulsion.

Misc. News

North Atlantic Right Whale

- A recent study has highlighted that **even minor tangles in fishing gear can significantly decrease the chances of female North Atlantic right whales reproducing**.
- These whales inhabit the **cold waters of the North Atlantic Ocean** and are considered **critical for conservation due to their struggle for survival.**

Habitat and Migration Patterns

- They are **migratory, moving between feeding and calving grounds.**
- In **summer,** they feed in **cooler waters near Canada and the northeastern US,** and in **winter,** they **migrate south to warmer waters off the coasts of Florida and Georgia for breeding.**

Unique Characteristics

- They have **rough, raised patches of skin on their heads called callosities,** which are used for identification.
- Right whales are **slower swimmers,** making them more prone to ship strikes.
- Unlike most whales, they lack a dorsal fin, making them easily distinguishable.

Role in Marine Ecosystem

- Right whales feed by filtering plankton from the water, which **helps cycle nutrients and promotes healthy phytoplankton growth.**

Threats to Survival

- Entanglement in fishing gear, p**articularly lobster trap lines, is a major threat.**
- Collisions with ships are also significant due to their slow speed and shallow-water preference.
- Climate change impacts on ocean temperatures and currents could affect their food sources and migration patterns.

Protection Status

- The IUCN Red List categorizes them as **"critically endangered," with fewer than 360 individuals remaining.**
- Various **international agreements and laws aim to protect them, including regulations on fishing gear and designated shipping lanes.**

USSD

- The **Department of Telecom (DoT)** has issued a directive to telecom operators regarding the deactivation of **USSD-based call forwarding services, effective from April 15, to prevent fraud and online crimes.**

Key points:

- **USSD (Unstructured Supplementary Service Data)** is a protocol used by GSM cellular telephones to communicate with service provider computers.
- It allows users to interact with various services using short codes, initiating a session between the user's phone and the service provider's system.

Reasoning and Impact:

- The directive aims to prevent fraud and enhance security for subscribers by suspending USSD-based call forwarding services.
- Telecom operators can mitigate risks associated with fraudulent activities.

Tropical Cyclone

- In a recent research paper published in the Proceedings of the **National Academy of Sciences**, a proposal was made to **modify the Saffir-Simpson (SS) wind scale.**
- The suggested modification involves **linking category 5 to peak wind speeds ranging between 252 and 309 km/hour,** with the addition of a new **category 6 for wind speeds exceeding 309 km/hour.**

Key points:

- Tropical cyclones are also called hurricanes or typhoons, depending on the region.
- A tropical cyclone is a rapidly rotating storm that begins over tropical oceans, and they can vary in speed, size, and intensity.
- Tropical cyclones are the second-most dangerous natural hazards, after earthquakes.

Saffir-Simpson (SS) wind scale

- The Saffir-Simpson Hurricane Wind Scale is a **1 to 5** rating based only on a hurricane's maximum sustained wind speed.
- This scale does not take into account **other potentially deadly hazards such as storm surge, rainfall flooding, and tornadoes.**

Closing Ceremony of International Year of Millets

- The **Food and Agriculture Organization (FAO)** recently hosted the closing ceremony of the **International Year of Millets (IYM) 2023 at its headquarters in Rome.**

Key points:

- Throughout the year, the celebration highlighted **millets' nutritional benefits, their adaptability to adverse climates,** and their role in creating **sustainable market opportunities.**
- Millets are **small-grained, annual, warm-weather cereals** belonging to the grass family.
- **In India, Jowar (Sorghum), Bajra (Pearl Millet), and Ragi (Finger millet) are the important millets cultivated.**
- These crops are particularly important in **semiarid tropics due to low rainfall and poor soil fertility.** Compared to major cereal crops, millets have higher nutrient content and are tolerant to drought and extreme weather conditions.

International Year of Camelids

- **2024 is designated by the UN as the International Year of Camelids.**

Key points:

- These animals, including **camels, llamas, alpacas, vicuñas, and guanacos,** play a crucial role in the lives of millions of families, particularly pastoralists, living in **dryland and mountainous rangeland ecosystems worldwide**.
- The Year aims to **raise awareness among the public and policymakers about the vital role of camelids in ecosystem protection, biodiversity conservation, food security, and climate change adaptation.**
- The resolution for the International Year of Camelids was proposed by **Bolivia and presented by Ecuador,** the Country Chair of the Group of Latin American and Caribbean Countries (GRULAC), at the UN General Assembly on 17 October 2017.
- **The resolution was approved upon recommendation by the FAO (Food and Agriculture Organization of the UN).**
- The visual identity of the IYC was unveiled at a side event titled **"Towards the International Year of Camelids: perspectives and challenges"** during the FAO Conference on Sustainable Livestock Transformation in September 2023.
- **FAO officially launched the IYC 2024 on 4 December 2023, in Rome, Italy.**
- The first international event of the IYC2024 was the International Workshop on **Camelid Pastoralism, held on 5–10 January 2024, in Sadri, Rajasthan, India,** hosted by Lokhit Pashu-Palak Sansthan (LPPS), the League for Pastoral Peoples (LPP), and the Godwar camel pastoralist milk producers.

Katchatheevu Island Dispute

- The controversy surrounding **Katchatheevu Island's transfer to Sri Lanka has resurfaced** with Prime Minister Narendra Modi's recent remarks on social media.

Background:

- The historical background of Katchatheevu, **a small, uninhabited island located in the Palk Strait, between India and Sri Lanka,** adds complexity to its political significance, particularly in Tamil Nadu.

About:

- **Katchatheevu, a 285-acre island**, has been a point of contention since the **early medieval period,** transitioning through control by various entities, including the **Jaffna kingdom, the Ramnad zamindari,** and eventually becoming part of the Madras Presidency during British rule.
- Disputes over its ownership persisted into the 20th century, with both India and Sri Lanka laying claim to it.
- In **1974, then-Prime Minister Indira Gandhi, as part of the Indo-Sri Lankan Maritime agreement, relinquished India's claim over Katchatheevu to Sri Lanka.**
- The decision, perceived by many as **unilateral and without consulting Tamil Nadu,** sparked protests.
- **Despite provisions allowing Indian fishermen access to the island, issues regarding fishing rights remained ambiguous, leading to ongoing tensions between Indian and Sri Lankan fishermen.**

Bridge fuel

- Natural gas has been termed a **'bridge fuel' for nations seeking to move away from coal and oil dependence towards renewables and electrification.**
- It is considered cleaner than other fossil fuels, especially coal, as it emits 50% less CO2 into the atmosphere.

Key points:

- The **Intergovernmental Panel on Climate Change has stressed the urgency of phasing out coal over reducing gas usage** for the 1.5°C pathway, which is challenging for coal-dependent Global South countries.
- The aim of using a **bridge fuel is to replace current fossil fuel-dependent energy sources** as we move towards a cleaner, more renewable energy economy without greenhouse gas emissions.
- The duration of this transition and the choice of energy source for the bridge are subjects of debate.
- Natural gas is a bridge fuel **because it produces fewer greenhouse gases during combustion. However, other factors to consider for a bridge fuel include its impact on national energy independence and its ability to reduce pollution-related costs.**

Read more about the Natural Gas and its properties.

Leap Second

- The **Earth's slowing rotation may lead to the first-ever negative leap second in**

Coordinated Universal Time (UTC), according to a recent study published in Nature.

- This phenomenon is attributed to **climate change,** which is causing the melting of ice caps and rising sea levels, **resulting in a slower Earth rotation.**

Key points:

- **Leap seconds are added to UTC to keep it synchronized with Earth's rotational spee**d over millions of years.
- If Earth continues to rotate slower, a **UTC minute might need to be 61 seconds long for the planet to catch up.**
- Initially scheduled for **2026, the need for a leap second has been postponed to 2029,** marking the first negative leap second.
- This adjustment **poses a challenge, as time meteorologists are uncertain how to cope with a missing second**, as stated by Felicitas Arias, former director of the Time Department at the International Bureau of Weights and Measures.

About:

- **Leap seconds have been used since 1972** to align official time with atomic clocks due to Earth's inconsistent rotation speed.
- However, a panel of scientists and government representatives **decided in 2022 to end leap seconds by 2035 due to complications in computing caused by leap seconds.**
- The exact timing of a negative leap second is uncertain, contingent upon **Earth's current rotation rate.**
- The **International Earth Rotation and Reference Systems Service** will determine when a leap second will be introduced based on the **Earth's ongoing rotation speed.**
- Astrogeophysicist Christian Bizouard noted that the speculation regarding the need for a negative leap second hinges on the Earth's rotation continuing at its current rate.

VVPAT

- In recent developments, the **Supreme Court has announced its decision to consider a series of petitions aimed at directing the Election Commission of India to implement mandatory cross-verification procedures for Electronic Voting Machines (EVMs) prior to the upcoming Lok Sabha elections.**
- This process entails the **thorough counting of all Voter Verifiable Paper Audit Trail (VVPAT) slips alongside the electronic count.**

About:

- Introduced during the 2014 Lok Sabha elections, the **Voter Verifiable Paper Audit Trail (VVPAT) system** provides an additional layer of transparency and verification to the electoral process.
- Linked directly to the **EVM, the VVPAT produces a paper slip visible to the voter, displaying the selected party's name and symbol.**
- This allows voters **to confirm the accuracy of their vote, with a transparent window facilitating visual confirmation of the printed slip.**
- The securely stored paper slips serve as tangible evidence in the event of electoral disputes, ensuring the integrity of the voting process.

Fish otolith ornaments

- Ornamental jewelry made from **fish otoliths has recently entered the market, created by a group of enthusiastic fisherwomen in Vizhinjam.**
- These women were trained by scientists from the **Central Marine Fisheries Research Institute (CMFRI).**

Otoliths:

- Otoliths are **hard, calcium carbonate structures located behind the brain of bony fish.**
- They are **small, feather-like flakes** that can be fashioned into **jewelry.**
- Among fish, halibut otoliths are larger, making them more commonly used for this purpose.
- Otoliths have been historically regarded as lucky **stones by the Romans and Egyptians and are still utilized in countries like Brazil.**
- They have been worn as protective amulets and fashioned into jewelry.
- Otoliths can be stored in test tubes or vials, either dry or in a clarifying liquid.
- Another method is to affix them with transparent nail varnish to a slide or with two-sided sticky tape to a sheet of acetate.

Sannati Bhuddist site

- Discovered by the Archaeological Survey of India (ASI) in the 1990s, the Sannati Buddhist

site, located near **Kanaganahalli in Karnataka's Kalaburagi district, underwent significant restoration in 2022.**

Key points:

- **Situated along the banks of the Bhima river,** the site is also home to the revered **Chandrala Parameshwari Temple,** adding to its historical and cultural importance.
- Evidence suggests that the **site saw significant development across three distinct phases - during the Maurya, Early Satavahana, and Later Satavahana periods,** spanning from the 3rd century B.C. to the 3rd century A.D.
- Notable findings include an inscription in the **elegant Prakrit language, inscribed using the Brahmi script.**
- Additionally, a stone sculpture portraying **Mauryan Emperor Ashoka**, accompanied by his retinue, stands as a poignant testament to a bygone era. The inscription **"Raya Asoko"** unequivocally identifies the noble figure depicted.
- The archaeological excavation has **unearthed approximately 60 dome slabs adorned with exquisite sculptural motifs.**
- These artifacts depict a **rich tapestry of narratives, including timeless Jataka stories,** episodes from the life of the **Buddha,** portraits of **Shatavahana monarchs, and representations of esteemed Buddhist missionaries dispatched by Emperor Ashoka.**

Educational Legacy:

- Adjacent to the Sannati site lies the ancient Nagavi Ghatikasthana, renowned as the Takshashila of the South.
- This esteemed educational center flourished during the illustrious reigns of the Rashtrakuta and Kalyana Chalukya dynasties, serving as a beacon of knowledge and enlightenment between the 10th and 12th centuries.

Pelagia noctiluca

- **Venomous jellyfish blooms** were recently observed along the Visakhapatnam coast in Andhra Pradesh.

Key points:

- **Pelagia noctiluca,** also known as the mauve stinger, **purple-striped jellyfish, or oceanic jelly, derives its name from Latin.**
- "Pelagia" means **"of the sea," "nocti" means "night," and "luca" means "light."**
- In German, it translates to "night light," referring to its reddish color and bioluminescence.
- Pelagia noctiluca is venomous and can cause varying degrees of illness such as diarrhoea, extreme pain, vomiting, and anaphylactic shock. Scars from its stings can remain for years.
- In **January 2024, a Pelagia noctiluca bloom was spotted in Phuket, Thailand,** prompting a safety warning. Previously, a bloom had damaged penned salmon at a fish farm in Ireland.

Kodaikanal Solar Observatory (KSO)

- The Indian Institute of Astrophysics (IIA) recently celebrated the **125th anniversary of the Kodaikanal Solar Observatory (KSO) on April 1st.**

Key points:

- Established in **1899 in Kodaikanal, Tamil Nadu**, the KSO stands as a testament to **India's commitment to solar studies and its impact on global weather patterns.**
- **The idea for such an observatory emerged in the late 19th century,** spurred by the Great Drought of 1875-1877, which underscored the need for understanding **solar dynamics to interpret weather phenomena accurately.**
- Recognizing India's geographical importance, the **Solar Physics Observatory was approved in August 1893,** with the foundation stone laid by Lord Wenlock in 1895. Formal observations commenced on March 14, 1901.

About:

- Positioned amidst the **Palani Hills of Tamil Nadu,** the KSO was strategically chosen for its **optimal atmospheric conditions and high-altitude, dust-free environment, facilitating precise solar observations.**
- Over time, the observatory's instrument arsenal evolved, from **early focus on sunspots and solar radiation to the incorporation of advanced tools like the H-alpha telescope and the White Light Active Region Monitor (WARM).**

Discoveries:

- Among its notable discoveries, the **KSO identified the Evershed Effect,** shedding light on sunspot dynamics.
- Moreover, it expanded its research scope beyond solar studies to encompass cosmic rays, radio astronomy, ionospheric physics, and stellar phenomena.

IIA

- The **Indian Institute of Astrophysics**, established in 1971 and headquartered in Bengaluru, oversees the Kodaikanal Solar Observatory.
- As an autonomous research institute fully funded by the **Department of Science and Technology,** it spearheads groundbreaking research in astronomy, astrophysics, and related disciplines, further enhancing India's stature in the realm of space science.

Rakhigarhi

- The National Council for Education Research and Training (NCERT) recently revised the history syllabus for Class 12, emphasizing that **the Harappans were indigenous to the Rakhigarhi site in Haryana's Hisar district, an Indus Valley site.**

Key points:

- **Rakhigarhi in Hisar** is known as the largest archaeological site from the pre-Harappan period, with the **Archaeological Survey of India (ASI) conducting multiple excavations at the site.**
- In 2022, ASI excavated mounds 1, 3, and 7 at Rakhigarhi, with 13 trenches being excavated in total.
- Findings indicated the **presence of an industrial society, a planned city with a complex street system on raised platforms, houses with extensive layouts, and a drainage system.**

Glacial Lake Outburst Flood

- The Uttarakhand government is concerned about the **increasing risk of Glacial Lake Outburst Floods (GLOFs) due to rising temperatures.**
- This risk was demonstrated by devastating events in the Kedarnath valley in 2013 and parts of Chamoli in 2021.
- To address this, the government **has formed two expert teams to assess the risk posed by five hazardous glacial lakes in the region.**
- **These lakes are susceptible to GLOFs, which have caused several disasters in the Himalayan states recently.**

Key points:

- The National Disaster Management Authority (NDMA) has identified **188 glacial lakes in the Himalayan states that could potentially breach due to heavy rainfall, with 13 in Uttarakhand.**

GLOF:

- GLOFs occur when water from **glacial lakes—large bodies of water formed by glacier melt—abruptly discharges.**
- As glaciers retreat, they leave depressions that fill with meltwater, creating lakes.
- The glacier's **retreat enlarges and destabilizes these lakes, which can lead to breaches.**
- GLOFs can be triggered by various events, such as glacial calving or landslides, and can cause devastating flooding downstream, submerging valleys and destroying infrastructure.

Recent findings:

- Recent years have seen an increase in GLOF events in the **Himalayan region due to global warming and rapid infrastructure development in vulnerable areas**.
- Studies indicate that **millions of people in India and Pakistan face the risk of GLOFs**.
- Uttarakhand has experienced **two major GLOF events, one in 2013 and another in 2021,** leading to significant loss of life and livelihoods.
- Based on available data and research, **Uttarakhand has categorized its 13 glacial lakes into three risk levels: 'A', 'B', and 'C'**.
- Five lakes are classified as **highly sensitive ('A' category),** including Vasudhara Tal in the Dhauliganga basin in Chamoli district and four lakes in Pithoragarh district.
- These lakes are at elevations ranging from 4,351 to 4,868 meters, with areas ranging from 0.02 to 0.50 square kilometers.
- The **rising surface temperatures could exacerbate the situation in Uttarakhand**.
- A study predicts that the **state's annual average maximum temperature may increase by 1.6-1.9 degrees Celsius between 2021-2050, potentially increasing the risk of GLOFs.**

Gravity hole' in the Indian Ocean

In the Indian Ocean, there exists a peculiar phenomenon known as a **'gravity hole,'** where the

Earth's gravitational pull is weaker, resulting in a **depression in the sea level by over 328 feet.**

Reason behind formation:

- This anomaly has long puzzled geologists, but **recent research claims to have uncovered its origins: plumes of magma** from deep within the Earth, akin to those forming volcanoes.
- A recent study in **Geophysical Research Letters has outlined these findings.**

Influence of Earth's Shape and Density:

- The Earth's irregular shape and density variations play a significant role in shaping surface features and gravitational pull. Density variations help determine the hypothetical water level equilibrium on the surface under the influence of gravity

Characteristics of the Gravity Hole

- Known officially as the **Indian Ocean geoid low,** this circular depression covers approximately **1.2 million square miles,** originating from the southern tip of India.
- First observed in **1948 by Dutch geophysicist Felix Andries Vening Meinesz** during a gravity survey, it has remained a mystery despite ongoing research efforts.

Future Implications:

- The future of the **Indian Ocean geoid low** remains uncertain, dependent on shifts in **Earth's mass anomalies.**
- While Cardiff University professor Huw Davies finds the research intriguing and anticipates further investigation, University of Florida geology professor Dr. Alessandro Forte expresses concerns about the study's modeling approach and discrepancies between projected and actual geoids.

Changpa Tribe

- Climate activist **Sonam Wangchuk and Leh Apex Body (LAB)** decided to cancel the **Pashmina border march,** which aimed to raise awareness about the **challenges faced by the Changpa nomadic tribes.**

About:

- The **Changpa, also known as Champa,** are a **semi-nomadic group** primarily located in the Changtang plateau of **southeastern Ladakh.**
- They share linguistic and cultural similarities with Tibetans and follow **Tibetan Buddhism.**
- Their traditional lifestyle revolves around **high-altitude pastoralism,** with yak and goat herding being their primary occupations.
- **Identification:** Changpa families live in conical yak-skin tents called **reboo.** These tents typically house the family deity and a picture of their spiritual leader, often the Dalai Lama.
- **Nomadic vs. Settled:** Nomadic Changpa are known as Phalpa, while those who have settled in fixed locations are called Fangpa.
- **Livelihood:** Rearing animals and selling their produce, such as milk, hair, and meat, is the primary source of income for many Changpas.
- **Changra Goats:** Changpa rear Changra goats, which produce the highly valued Pashmina (Cashmere) fiber, known for its softness and warmth.
- **Buddhist Beliefs:** Despite their reliance on animal husbandry, Changpa's Buddhist beliefs prohibit them from killing animals for meat. They only use animals that have died naturally for meat and hides.
- **Official Status: In 1989, the Indian government granted the Changpa official recognition as a scheduled tribe.**

Glycaemic Index

- A recent international study suggests that adhering **to diets with a low glycaemic index (GI) and low glycaemic load (GL) may help prevent the onset of type 2 diabetes.**

About:

Glycaemic Index (GI):

- GI ranks **carbohydrate-containing foods** based on their post-meal blood glucose response.
- Foods are ranked on a **scale of 0 to 100**, with pure glucose having a value of 100.
- The lower a **food's GI, the slower it raises blood sugar levels.**
- Foods high in fiber or fat typically have a lower GI, while processed foods tend to have a higher GI.

Glycaemic Load (GL):

- GL considers both the **quality and quantity of carbohydrates in a specific food.**
- It is the product of the GI and the amount of carbohydrate in a serving.

Types of Diabetes:

- **Diabetes is a chronic disease** caused by either the pancreas not producing enough insulin or the body not effectively using the insulin it produces.
- **Type 1 Diabetes:** This autoimmune condition involves the immune system attacking insulin-producing beta cells in the pancreas, resulting in little to no insulin production. It is often diagnosed in children and young adults.
- **Type 2 Diabetes:** This type is primarily caused by the body's ineffective use of the insulin it

produces, often due to excess body weight and physical inactivity.

Total solar eclipse

- During the Total Solar Eclipse on **April 8, 2024, North America, Mexico, and Canada experienced a momentary plunge into darkness.**
- The crew members of the International Space Station had a unique perspective, capturing the Moon's shadow cast over Earth.

Solar eclipse and its different types:

- A solar eclipse occurs when the **Moon moves between Earth and the Sun, blocking sunlight either fully or partially.**
- There are **four types of solar eclipses: total, annular, partial, and hybrid.**
- In a total solar eclipse, the **Moon completely blocks the Sun, darkening the sky, and observers may see the Sun's corona.**
- An **annular solar eclipse** happens when the Moon covers the Sun's center, leaving a ring of fire visible.
- A **partial solar eclipse** occurs when the Moon partially covers the Sun, creating a crescent shape.
- Both partial and annular eclipses have regions outside the Moon's shadow seeing a partial eclipse.
- The partial solar eclipse is the most common type.
- The **hybrid solar eclipse is rare,** shifting between total and annular as the Moon's shadow moves.

How often does a solar eclipse take place?

- Solar eclipses occur during the **new moon phase when the Moon and Sun align on the same side of Earth.**
- A new moon happens **approximately every 29.5 days due to the Moon's orbit around Earth.**
- Solar eclipses don't occur every month but **rather between two to five times annually.**
- The Moon's orbit is tilted about five degrees relative to Earth's orbit around the Sun, causing the Moon's shadow to often miss Earth, r**esulting in fewer opportunities for solar eclipses.**
- Nodes are points where the Moon's orbit intersects with Earth's orbit, creating opportunities for solar eclipses when the new moon crosses these nodes.

Why is a total solar eclipse so rare?

- Total solar eclipses **occur about once every 18 months.**
- A specific location on **Earth experiences a total solar eclipse only once every 400 years.**
- Total eclipses are rare because they require being within the umbra, the darkest part of the shadow, which covers less than one percent of the Earth's surface during an eclipse.
- **Due to the large portion of Earth being water and uninhabited land, it's rare for many people to witness a total solar eclipse at once.**

Kala Azar

- India has successfully eliminated **visceral leishmaniasis, commonly known as kala-azar,** meeting the target set by the **National Centre for Vector Borne Diseases Control (NCVBDC).**
- Initially aiming for elimination by 2010, India extended the target until 2023 due to persistent challenges.
- Kala-azar, a **vector-borne disease transmitted through sandfly bites, has been a significant health challenge in states like Bihar, Jharkhand, West Bengal, and Uttar Pradesh**

Key points:

- According to the NCVBDC, India reported only **520 cases of kala-azar in 2023,** meeting the World Health Organization's (WHO) elimination criteria, which defines elimination as no block in the country reporting more than one case per 10,000 people.
- **In 2020, India accounted for 18% of the global burden of kala-azar.**

About:

- Visceral leishmaniasis, commonly known as kala-azar (KA), derives its name from the **late nineteenth century in India.**
- The term "kala-azar" translates to **"black disease,"** describing the **greyish or blackish discoloration of the skin that occurs during infection**.
- This name comes from the Hindi word for black (kala) and the Persian word for disease (azar).
- Kala-azar is a slowly progressing indigenous disease caused by a **protozoan parasite belonging to the genus Leishmania.**
- In India, Leishmania donovani is the **sole parasite responsible for causing this disease.**
- The parasite primarily infects the reticuloendothelial system and is commonly found in **high numbers in the bone marrow, spleen, and liver.**

Evolution and Essentials of India's Climate Policy

- India's approach to climate policy is **deeply rooted in its commitment to inclusive growth, poverty eradication, and adherence to UNFCCC principles.**
- The evolution of this policy traces back to significant global events like the **Rio Summit of 1992,** which catalyzed the formation of international frameworks for addressing climate change and biodiversity.

Global Context and Over-exploitation:

- Climate change, now a **global crisis, stems from unsustainable practices** predominantly driven by developed nations.
- Studies indicate that the **US and Europe,** along with other wealthy nations, have significantly exceeded their fair share of resource consumption, exacerbating ecological damage.

India's Position and Climate Policy Determinants:

- India, despite **being home to a substantial population, has managed to stay within its sustainability limits.**
- Its climate policy is **shaped by five key factors: geography, population dynamics, environmental impacts, worldview, and strategic actions.**

Geographical Significance:

- The Indian landmass has an area of **3.28 million sq km**, accounting for **2.4%** of the world's geographical land surface area and **4%** of the world's freshwater resources.
- India is the **seventh largest country in the world**.
- It is one of the **17** mega-biodiverse countries, having four biodiversity hotspots, **10** bio-geographic zones, and **22** agro-biodiversity hotspots.
- India's vast landmass and abundant freshwater resources position it **uniquely on the global stage.**
- With its **rich biodiversity and unique seasonal cycles,** India faces challenges in maintaining ecological harmony amid climate change-induced disruptions.

Population Dynamics:

- With nearly **one-sixth of the world's population**, India holds a diverse array of species.
- The human to land ratio is very low in India at **0.0021 sq km.**
- However, its population density and land scarcity **necessitate careful land and water management strategies for sustainable survival.**

Conclusion:

- India's climate policy is a **multifaceted response to the complex challenges posed by climate change.**
- By understanding its unique geopolitical position, demographic dynamics, and environmental imperatives, India seeks to navigate towards a sustainable future while upholding principles of equity and collective responsibility.

Volcanic vortex rings

- Mount Etna, **Europe's largest volcano, has been generating unique smoke rings known as volcanic vortex rings,** which are rare phenomena similar to smoke rings blown by some cigarette smokers.
- These rings have attracted attention due to their unusual occurrence.

Mount Etna:

- Situated on the **east coast of Sicily,** Mount Etna is the **highest point in Italy south of the Alps** and one of the most active volcanoes in Europe.
- It has **five craters at its summit,** responsible for most eruptions, along with over 300 vents contributing to **"flank" eruptions.**
- Since **1600,** Mount Etna has experienced **at least 60 flank eruptions and numerous summit eruptions**, with notable ones in 2006, 2007-08, 2012, 2018, and 2021 for the summit, and in 2001, 2002-03, 2004-05, and 2008-09 for the flanks.
- **Designated a UNESCO World Heritage Site since 2013, Mount Etna has a documented eruptive history dating back 500,000 years.**

Vortex rings:

- **Volcanic vortex rings are formed when gas**, primarily **water vapor,** is rapidly released through a vent in a **volcano's crater, resulting in circular rings.**
- First documented at **Mount Etna and Vesuvius** in Italy in 1724, these rings have been observed at various volcanoes worldwide in modern times.
- Etna is well-known for regularly producing volcanic vortex rings, with observations of **"dozens of gas rings every day"** above the volcano in July 2023.

- According to volcanologist Boris Behncke, **"no volcano on Earth produces as many vapor rings as Etna."**
- Recently, a new vent opened on the **northeastern edge of the Southeast Crater,** leading to the production of numerous steam rings, though this does not necessarily indicate an imminent eruption, as experts suggest changes in the conduit's properties could alter the ability to form these rings.

105 years of Jalliwala Bagh Massacre

- **April 13, 1919**, marked a dark chapter in B**ritish colonial history as Brigadier General Reginald Dyer** ordered troops to open fire on a peaceful gathering in **Jallianwala Bagh, Punjab**.
- The indiscriminate shooting resulted in the deaths of hundreds, if not thousands, of men, women, and children, leaving a scar on the nation's conscience.
- **In 2024, India observes 105th anniversary** of the Jallianwala Bagh Massacre which serves as a poignant reminder of the **sacrifices made in the pursuit of freedom.**
- The repercussions of this atrocity continue to reverberate **through history, influencing political discourse and public memory.**

Legacy of Jallianwala Bagh Massacre

- The Jallianwala Bagh site, now a **national monument,** serves as a poignant reminder of the sacrifices made in the struggle for Indian independence.
- The massacre left a permanent scar on **Indo-British relations** and **galvanized the Indian nationalist movement**, paving the way for future resistance against colonial rule.

Wayanad Wildlife Sanctuary:

- Wayanad Wildlife Sanctuary is located in **Wayanad**, **Kerala**.
- Established in: **1973**.
- **Objective**: Conserving the biological heritage of the region.
- It is an **integral part** of the **Nilgiri Biosphere Reserve**. The **Western Ghats**, **Nilgiri Sub-Cluster**, including all of the **sanctuary**, is under **consideration by the World Heritage Committee** for selection as a **World Heritage Site**.
- **Geographical Features**: The sanctuary includes four **hill ranges**: **Sulthan Bathery**, **Muthanga**, **Kurichiat**, and **Tholpetty**.
- **Rivers and Highways**: The **Kabini river**, a **tributary of the Kaveri River**, flows through the sanctuary.
- **Habitat and Ecosystem**:The sanctuary is home to both **moist** and **dry deciduous trees** and **semi-evergreen forests**.
- **Endangered Animals/Species**: It is home to **gaur**, **Indian elephant**, **deer**, and **Bengal tiger**. It also hosts the **dhole or Asiatic wild dog**, an **endangered** large carnivore.
- **Ecological Importance**: Home to over 3,700 known species and a significant population of **Asian elephants**.
- **Challenges and Threats**: The sanctuary is battling the **encroachment of alien plant species**. Human pollution, cutting of trees, forest fire, wildlife population resulting food deficiency, disturbances in the community forest, illegal poaching were the major threats to wildlife.

Need for time standard for moon's surface

- The need for a **standardized time system on the Moon has arisen due to the fact that time on the Moon behaves differently from time on Earth.**
- This difference is a **consequence of Einstein's Theory of General Relativity,** which explains that gravity can bend both space and time.
- As the **Moon has less gravity than Earth**, time moves slightly faster there.
- To address this, NASA is working on creating a time standard that can be used by various international organizations and private companies operating on the lunar surface.

About:

- Establishing a **lunar time standard involves deploying atomic clocks on the Moon.**
- These clocks will need to be placed at multiple locations due to factors like the **Moon's rotation and the presence of mascons,** which are dense areas beneath the lunar crust that affect the local gravity field and thus the flow of time.
- By combining the outputs of these clocks using an algorithm, a precise virtual timepiece for the Moon can be created, which can then be synchronized with **Coordinated Universal**

Time (UTC) for seamless operations between the Earth and the Moon.

Standard time on Earth:

- **On Earth, UTC serves as the basis for most timekeeping systems and time zones**.
- Countries adjust their local time by adding or subtracting hours from UTC based on their position relative to the **Greenwich meridian.**
- This meridian, located in **Greenwich, England, serves as the prime meridian from which longitudes are measured.**
- Countries to the west of the Greenwich meridian subtract hours from UTC, while countries to the east add hours.
- This system allows for a **globally coordinated time standard despite the Earth's varying rotational speeds at different latitudes.**

Jiadhal River

- The Jiadhal River, a tributary of the Brahmaputra River in northern India, is facing the adverse effects of climate change, disrupting its once tranquil flow.

Key points:

- **Originating in the sub-Himalayan mountains of Arunachal Pradesh at an altitude of 1247m**, the river courses through a narrow gorge in **Arunachal Pradesh before entering the plains of Assam's Dhemaji district,** where it flows in braided channels.
- It finally meets the **Brahmaputra near Selamukh in Lakhimpur district.**
- However, due to the construction of an embankment over the Kherkutiya Suti of the Brahmaputra, **the river now merges with the Subansiri River.**
- Spanning a total length of **187 km, the river's topography transitions from hilly terrain in the upper basin (Himalayan range) to a plain area in the middle and downstream.**
- The Jiadhal River's catchment area covers 1053.20 sq.km., **with 696.80 sq.km. in Assam and 356.4 sq.km. in Arunachal Pradesh.**
- It receives heavy rainfall, leading to a significant silt load from its **1346 sq. km catchment area during the rainy season.**
- This results in the considerable rise of its riverbed as the silt deposits on its bed in the plains.
- Known for **its frequent course changes and devastating floods, the Jiadhal River exemplifies a flashy river, causing floods with a sudden, high discharge over a short time (a few hours to a day) and carrying a high sediment load and debris.**

The Great Indian Bustard

- The **Supreme Court of India** has recently **recognised a fundamental right to be free from the adverse impacts of climate change**.
- This judgment has attracted significant attention, particularly from environmentalists, with a focus on its implications for the protection of the **Great Indian Bustard**.

About The Great Indian Bustard:

- The Great Indian Bustard is considered a **flagship species of grassland ecology**, indicating the health of the ecosystem.
- The majority of its population is **found in Rajasthan** and **Gujarat**, with smaller populations in **Maharashtra**, **Karnataka**, and **Andhra Pradesh**.
- The species is listed as **Critically Endangered** according to the **International Union for Conservation of Nature (IUCN)**.
- It is protected under **Schedule I of the Wildlife Protection Act, 1972**.
- The species is listed in **Appendix I** of both the **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)** and the **Convention on Migratory Species (CMS)**, indicating it is among the most endangered species in the world.

Nagorno-Karabakh region

- Russian peacekeepers have started withdrawing from **Nagorno-Karabakh**, **a territory disputed between Azerbaijan and Armenia**.
- The conflict has affected ties between Russia and Armenia, with Armenia suspending its participation in the Moscow-led **Collective Security Treaty Organisation (CSTO).**

About Nagorno-Karabakh region:

- **Geography:** Nagorno-Karabakh is a **landlocked**, mountainous, and forested region located in the **South Caucasus region**. It is **internationally recognized as part of Azerbaijan**.

- **Control**: Most of the region is controlled by Armenian separatists, despite being part of Azerbaijan territory since the Soviet era.
- **Current Status**: **The area, while remaining in Azerbaijan**, is **governed by separatist Armenians** who have declared it a republic called the "**Nagorno-Karabakh Autonomous Oblast**". The Armenian government supports the region politically and militarily but does not recognize it as independent.
- **Peace Efforts**: **The Organization for Security and Co-operation in Europe (OSCE) Minsk Grou**p, chaired by **France**, **Russia**, and **the US**, has tried to get the two countries to reach a peace agreement for several years.

Electronic voting machines (EVMs)

- The **Election Commission of India (EC) assured** that it is **impossible to tamper with Electronic Voting Machines (EVMs)** at **any stage**.
- The court was hearing **petitions seeking cross-verification of 100% EVM votes with VVPAT paper slips**. **Currently**, **cross-verification of EVM-VVPAT** happens **only in five randomly selected polling booths in a constituency**.

About EVMs:

- Electronic Voting Machines (**EVMs**) are **used to record and tally votes in an electronic format**, **replacing traditional paper ballots** and **manual counting methods**.
- **Purpose**: To streamline the voting process, enhance accuracy, and speed up the tallying of election results.
- **EVM Components**: Typically consists of two units, the **control unit** and the **balloting unit**, linked by a cable. The **control unit is operated by election officials**, while **voters interact with the balloting unit**.
- The Electronic Voting Machines (EVMs) were **first used in India in 1982** during a **by-election in the Parur Assembly** constituency of **Kerala**.

About Voter-Verified Paper Audit Trail (VVPAT):

- VVPAT is a system that provides a **physical printout of the voter's ballot** as it was **cast electronically**.
- It serves as a **means for voters to verify that their vote has been recorded accurately** and to **audit the electronic results**.
- It was **first** introduced in India **in the 2014 Lok Sabha elections**.

Fourth global mass coral bleaching

- The **fourth global mass coral bleaching event** has been **triggered by extraordinary ocean temperatures**, as stated by the **US National Oceanic and Atmospheric Administration (NOAA)**.
- This event could have **serious consequences for ocean life** and **millions of people** who rely on reefs for food, jobs, and coastal defence.

Key points:

- The **primary reason** behind the **soaring temperatures** is the **rising emissions of heat-trapping greenhouse gases (GHGs)** such as **carbon dioxide** and **methane** in the atmosphere.
- Nearly 90% of the extra **heat trapped by GHGs has been absorbed by the oceans**.

About Corals:

- **Coral Reefs**: Coral reefs are **large underwater structures composed** of the **skeletons of colonial marine invertebrates called coral**.
- **Types**: The three main types of coral reefs are **fringing reefs**, **barrier reefs**, and **atolls**.
- **Composition**: Reefs are built by and made up of thousands of tiny animals called **coral polyps**, which **secrete a hard exoskeleton of calcium carbonate**.
- Corals are classified as either **hard coral** or **soft coral.** Hard corals are the architects of coral reefs.
- Coral reefs, also referred to as "**rainforests of the sea**", have existed on the Earth for nearly 450 million years.
- **Australia's Great Barrier Reef is the largest in the world**, stretching across 2,028 kilometres.

Did you know:

- **Coral Bleaching**: The phenomenon where **coral colonies lose their vibrant color**s due to the expulsion of **symbiotic zooxanthellae algae** from their tissues, leaving them white or pale. This is usually a **stress response**.

- **Primary Causes**: Major factors include **increased sea temperatures**, **solar irradiance**, **ocean acidification**, **pollution**, and **changes in sea level**.

Fossils prehistoric snake found in in Gujarat

- Researchers at **IIT Roorkee discovered fossils** of one of the **largest snakes**, named **Vasuki Indicus**, in **Kutch**, **Gujarat**.
- The snake likely lived 47 million years ago during the **Middle Eocene period**.

Key points:

- Vasuki Indicus belonged to the now-**extinct Madtsoiidae snake family** but represents a unique lineage from India.
- The researchers found 27 pieces of a well-preserved vertebral column of the snake at the **Panandhro Lignite Mine in Kutch**.

World Earth Day 2024

Why in the news?

- Earth day is dedicated to **demonstrating support for environmental protection**.

About World Earth Day 2024:

- **Date**: Earth Day will be observed on **April 22**, 2024.
- **Theme**: The theme for 2024 is "**Planet vs. Plastics**", focusing on **reducing plastic pollution and its impact on human and environmental health**.
- **Goals**: The aims include a **60% reduction in plastic production by 2040**, **phasing out single-use plastics** by **2030**, and **promoting innovative technologies** for a **plastic-free future**.
- **Negotiations**: Concurrent with Earth Day, the fourth round of negotiations for the **United Nations Global Plastic Treaty** will take place, aiming for stringent commitments against plastic pollution.

Think:

- Know about the **Global Plastic Treaty**

Places in news: Rafah crossing

- **Israeli strikes** occurred overnight in the **southern Gaza city of Rafah**.
- The strikes resulted in the death of 22 people.

About Rafah crossing:

- **Location and Function**: Rafah Crossing is the **only border crossing between Egypt and the Gaza Strip**. It serves as the **primary passage for Gazans to access the outside world** and for the delivery of humanitarian aid.
- **Control**: The crossing is controlled by **Egypt**, following an **agreement with Israel made in 2007**.

Mpox or Monkeypox

- A study published on April 18 by **Nature Communications** extensively **sequenced the genome of the mpox virus** implicated in the **2022 outbreak** using **advanced genome sequencing technologies**.

About Mpox:

- It is a **DNA virus**.
- **Cause**: Mpox is caused by the **monkeypox virus**, which is a **member of the Orthopoxvirus genus** in the family **Poxviridae**.
- **Transmission**: The **virus can spread from person to person** through **close contact with respiratory secretions, skin lesions of an infected person**, or **recently contaminated objects**. Transmission can also occur via droplets during prolonged face-to-face contact.
- **Vaccination**: Vaccines used for smallpox such as the **JYNNEOS** (also known as Imvamune or Imvanex) vaccine are effective against Mpox.

Think:

- Know about **genome sequencing technologies**.

C-CAMP joins BFI Biome Virtual Network Program

- The **Centre for Cellular and Molecular Platforms (C-CAMP)** has joined the **Blockchain for Impact (BFI) Biome Virtual Network Program**.
- The BFI-Biome Virtual Network aims to nurture cutting-edge **biomedical science** and innovation and **accelerate the impact of transformative scientific advances in India**.
- **C-CAMP has a robust pipeline of biomedical innovations in several critical areas such as**
  - Infectious disease diagnostics,
  - Antimicrobial resistance,
  - Cell therapy,
  - Immuno-oncology,
  - Regenerative tissues, and
  - Digital health tech.

Places in news: Black sea

- The **Ukrainian army** announced that it **hit and damaged the Russian ship 'Kommunua'** in the city of **Sevastopol by the Black Sea**.

About Black sea:

- The Black Sea is a large **inland sea** located at the **southeastern extremity of Europe**.
- **It has various countries bordering it:**
  - Ukraine,
  - Russia,
  - Georgia,
  - Turkey,
  - Bulgaria and
  - Romania.

Glacial Lake Outburst Floods (GLOF)

- **ISRO's long-term satellite imagery** from 1984 to 2023 **shows significant changes in glacial lakes** in the **catchments of Indian Himalayan river basins**.
- It provides valuable insights for **understanding glacial lake dynamics**, which are essential for assessing environmental impacts and developing strategies for **Glacial Lake Outburst Floods (GLOF)** risk management and climate change adaptation in glacial environments.

About Glacial Lake Outburst Floods (GLOF:

- Glacial Lake Outburst Floods (GLOF) are a phenomenon that occurs **when large bodies of water, located in front of, on top of, or beneath a melting glacier, expand**.
- These situations become more dangerous due to the fact that **glacial lakes are primarily dammed by unstable ice or sediment composed of loose rock and debris**.
- If the boundary around these lakes breaks, it can result in massive amounts of water rushing down the mountainside, potentially **causing flooding in downstream areas**.

Kalesar Wildlife Sanctuary

- The **Supreme Court** recently issued a **stay on the construction of four proposed dams** were to be constructed inside the **Kalesar Wildlife Sanctuary**.

About Kalesar Wildlife Sanctuary:

- **Location**: The sanctuary is **situated in the Shivalik foothills of the Himalayas in Haryana**, with the **Yamuna River running to its east**.
- **Topography**: The landscape varies from plains to hills, interspersed with **narrow valleys locally called 'khols'**. These **valleys house seasonal rivulets**, known as **'soats'**, which remain dry for most of the year.

Tiger Conservation Coalition

- The **Sustainable Finance for Tiger Landscapes Conference** was recently held.
- **Bhutan** and the **Tiger Conservation Coalition** made a significant **commitment of US$1 billion for the conservation of tigers**.

About Tiger Conservation Coalition:

- The Tiger Conservation Coalition is a **group of NGOs** that has worked for many years to **conserve tigers**.
- The **eight NGOs** in the coalition include
  - The Environmental Investigation Agency (EIA),
  - Fauna & Flora,
  - The International Union for Conservation of Nature and Natural Resources (IUCN),
  - Panthera,
  - TRAFFIC,
  - United Nations Development Programme (UNDP),
  - Wildlife Conservation Society (WCS), and
  - World Wide Fund for Nature (WWF).
- The members co-developed **Tiger Conservation Landscapes 3.0**, an **integrated habitat modelling system to measure and monitor changes in tiger habitat** at range-wide, national, biome, and landscape scales in near real-time.

Coalition for Disaster Resilient Infrastructure (CDRI)

- The Prime Minister of India recently addressed the **6th edition of the International Conference on Disaster Resilient Infrastructure (ICDRI)**.
- The conference was organized by **Coalition for Disaster Resilient Infrastructure (CDRI)**.

About Coalition for Disaster Resilient Infrastructure (CDRI):

- CDRI is a **multi-stakeholder global partnership** that **includes national governments**, **UN agencies** and **programmes, multilateral development banks and financing mechanisms**, the **private sector**, and **academic and knowledge institutions**.
- It was launched during the **United Nations Climate Action Summit** in **2019** in New York.
- The objective of CDRI is to **promote the resilience of infrastructure systems to**

climate and disaster risks, thereby ensuring sustainable development.

- **The international organisations include**
  - The Asian Development Bank (ADB),
  - World Bank Group,

- The discovery could improve understanding of how the **madtsoiid species** evolved in different climates and the **factors that contributed to large body sizes**.
- **Much like present-day pythons and anacondas**, Vasuki Indicus killed its prey by suffocation.
- The name **Vasuki refers to the mythical snake** often **depicted around the neck of the Hindu god Shiva**.