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SC RECOMMENDS CENTRE TO DEVELOP POLICY FOR PROTECTING SACRED GROVES

Context

- The Supreme Court has directed the Union Government to create a comprehensive policy for the protection and management of sacred groves across the country.

What are Sacred Groves?

- Sacred groves are patches of trees or forest areas that are **traditionally protected by local communities** for their religious, cultural, and ecological significance.
- **They are known by diverse names:** Devarakadu in Karnataka, Kavu in Kerala, Sarna in Madhya Pradesh, Oran in Rajasthan, Devrai in Maharashtra, Umanglai in Manipur, Law Kyntang/ Law Lyngdoh in Meghalaya, Devan/Deobhumi in Uttarakhand etc.
- **Sacred groves preserve** biodiversity, regulate climate, conserve water, support livelihoods, protect cultural heritage, and promote environmental awareness.

Threats to Sacred Groves

- **Urbanization and Encroachment:** Increasing human settlements and infrastructure development have led to the loss of sacred grove areas.
- **Deforestation and Resource Exploitation:** Unsustainable extraction of wood, medicinal plants, and other resources threatens the ecological balance.
- **Cultural Erosion:** Changing socio-cultural values and diminishing community practices weaken traditional protections.

Supreme court ruling

- There is a need for a nationwide survey of sacred groves under the guidance of the **Ministry of Environment, Forest and Climate Change (MoEF&CC).**
  - The survey must identify the area and extent of the groves.
- The court recommended protection of sacred groves under the **Wildlife Protection Act, 1972**, particularly through **Section 36-C**, which enables the declaration of "community reserves."
- The preservation of these groves was seen as critical for maintaining biodiversity and safeguarding the cultural heritage of entire communities.

India's Current Policy on forest protection

- Under the **Wildlife Protection Act, 1972**, state governments can declare any private or community land as a community reserve to protect biodiversity and cultural values.
- **The National Forest Policy of 1988** encourages local communities to protect and improve forest patches through customary rights.
- The Supreme Court, through the **T.N. Godavarman Thirumulpad case** and other judgments, has reinforced the role of communities in protecting forest ecosystems.

Constitutional Safeguards

- **Directive Principles of State Policy (DPSP): Article 48A** of the Constitution directs the State to protect and improve the environment and to safeguard the forests and wildlife of the country.
- **Fundamental Duties: Article 51A(g)** enjoins citizens to "protect and improve the natural environment including forests, lakes, rivers, and wildlife, and to have compassion for living creatures."

Examples of Successful Community Efforts

- **Piplantri Village, Rajasthan:** Local efforts transformed barren land into lush green groves, demonstrating the power of community-driven conservation.
- **Mawphlang sacred grove:** Located in the **East Khasi Hills** district of **Meghalaya,** this grove is a popular tourist destination and an important educational center

Way Ahead

- Sacred groves should be granted legal protection under the **Wildlife Protection Act, 1972** and declared as community reserves.
- The government must recognize and empower local communities and tribes under the **Forest Rights Act, 2006**, as custodians of sacred groves.
- Communities should be given the authority to regulate excess exploitation or harmful activities within sacred groves.

Source: TH

RADHAKRISHNAN PANEL RECOMMENDS RESTRUCTURING OF NTA

Context

- A high-level committee of experts, headed by former chairperson of ISRO K. Radhakrishnan, has recommended **restructuring of the National Testing Agency (NTA).**

Need For the Reforms

- **Question Paper Leaks and Malpractices:** Compromised exam security leads to question paper leaks, giving unfair advantages to some students. For Example: **NEET-UG Paper Leak, UGC Net irregularities etc**
  - Manipulation of marks, like arbitrary awarding of grace marks, creates an uneven playing field.
- **Exam Cancellations and Technical Glitches:** Frequent exam cancellations due to these issues lead to delays, added stress, and financial burdens for aspirants.
- **Lack of Transparency:** Variations in difficulty levels across different exam sessions raise concerns about fairness and comparability.
- **Normalization Issues:** The process of normalizing scores to account for varying difficulty levels can be opaque and lead to disputes.
- **Other Challenges:** Like allegations of political interference, instances of corruption, like the Vyapam scam etc.
- **Loss of Trust:** These problems erode public trust in the examination system and its ability to conduct fair assessments.

Key Recommendations of Panel for Exam Reforms

- **Examinations Conducted:** NTA from **2025** will conduct only entrance exams for higher education institutions and **not recruitment exams.**
- **Restructuring of NTA:** 10 new posts covering administration, digital infrastructure, IT security being created in an effort aimed at an **error-free examination process for students.**
- **Digi- Exam:** On the lines of Digi-Yatra, to make the examination process foolproof, authentication at the stages of application, test, admission.
- **Governing Body:** It recommended to set up an empowered and accountable governing body with three designated sub-committees to oversee test audit, ethics and transparency, nomination and staff conditions.
- **Coordination Committee:** It recommends that Coordination Committees at State and District levels may be set up with specified roles and responsibilities.
- **Test Centres:** The panel also recommended usage of **Kendriya Vidyalayas (KVs) and Jawahar Navodaya Vidyalayas (JNVs) across the country as test centres.**
- **Secure Question Paper Transportation:** This includes the use of secure courier services, sealed by authorized officials and validated by the NTA before dispatch.
  - Containers must be locked, monitored during transit, and handed over at test centers under CCTV surveillance and NTA supervision.
- **Online Examinations:** On the recommendations of the Panel, the government plans to introduce computer adaptive testing for future entrance exams.

Public Examination (Prevention of Unfair Means) Act, 2024

- The Act broadly defines **"unfair means"** to include various malpractices, such as:
  - Leaking question papers or answer keys,
  - Assisting candidates during exams (unauthorized communication, providing solutions),
  - Tampering with computer networks or resources,
  - Impersonating candidates,
  - Conducting fake examinations or issuing fake documents,
  - Tampering with documents for merit lists or ranks.
- **Penalties and Punishments:**
  - Individuals:
    - Imprisonment ranges from 3 to 10 years depending on the offense's severity.
    - Fines up to Rs. 1 crore for organized crimes.
  - Service providers:
    - Fines up to Rs. 1 crore for involvement in malpractices.
    - Barring from conducting public examinations for 4 years.
    - Personal liability for directors/ management involved.

- Organized crimes:
  - Harsher penalties, with imprisonment between 5 and 10 years and a minimum fine of Rs. 1 crore
  - The institution involved can face property attachment and forfeiture
- **Investigation:**
  - All offences under the Act are cognisable, non-bailable, and non-compoundable.
  - An officer not below the rank Deputy Superintendent or Assistant Commissioner of Police will investigate the offences under the Act.
  - The Central Government may transfer the investigation to any Central Investigating Agency.

Source: TH

INDIA: TOP RECIPIENT OF REMITTANCES

In News

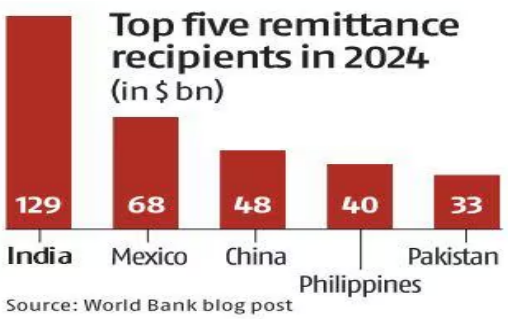
- India is the **largest recipient of remittances** in 2024, with an estimated inflow of $129 billion, followed by Mexico, China, Philippines, and Pakistan.

Do you know ?

- Remittances refer to the money sent by individuals working abroad back to their families and communities in their home country.
- These funds are typically transferred through banks, online platforms, or money transfer services.

Growth in Remittances

- The growth rate of remittances in 2024 is estimated at 5.8%, up from 1.2% in 2023.



  - Official remittances to low- and middle-income countries (LMICs) are expected to reach $685 billion in 2024.
  - **South Asia is** expected to see the highest increase in remittances (11.8%), driven by strong flows to India, Pakistan, and Bangladesh.
- Remittances continue to outpace other financial flows, including **Foreign Direct Investment (FDI)**.
  - FDI has **declined by 41% over the past decade**, while remittances have increased by 57%.
- **Key Driver:**The recovery of job markets in high-income OECD countries, especially the United States, has been the key driver, with foreign-born worker employment increasing by 11% above pre-pandemic levels.
  - This recovery has particularly boosted remittances to Latin America and the Caribbean.

Importance of Remittances

- **Stabilize the national economy :** Remittances contribute to the GDP of many developing countries, providing foreign currency that helps stabilize the national economy and balance of payments.
- **Poverty Alleviation:** They provide a stable source of income for millions of households, supporting daily living expenses, education, healthcare, and housing.
- **Development and Investment:**Remittances often fund small businesses, agricultural activities, and infrastructure projects, fostering local economic development and job creation.
- **Cultural Exchange:** Migrant workers often maintain strong ties with their home countries, contributing to cultural exchange and strengthening diaspora connections.

Challenges

- **High Transaction Costs:** Despite technological advancements, the cost of sending remittances remains high in some corridors, reducing the amount received by beneficiaries.
- **Dependence on Remittances:** Over-reliance on remittances can create economic vulnerabilities, with countries becoming dependent on external funds rather than developing sustainable local economies.
- **Regulatory Barriers**: Stringent financial regulations and anti-money laundering measures can complicate and delay remittance transfers**.**

Conclusion and Way Forward

- Remittances are a lifeline for millions of families and a significant contributor to global economic stability and development. While challenges remain, ongoing innovations in financial technology and efforts to reduce transaction costs hold promise for enhancing the efficiency and impact of remittances.
- Migration pressures, driven by demographic trends, income gaps, and climate change, are expected to continue driving remittance growth.
- Countries need to leverage remittances for poverty reduction, financing health and education, financial inclusion, and improving capital market access for both state and non-state enterprises.

Source :BS

JAPAN-INDIA STARTUPS TO STUDY LASER-EQUIPPED SATELLITE TO TACKLE SPACE DEBRIS

Context

- Space startups in Japan and India had agreed to jointly study using **laser-equipped satellites** to remove debris from orbit.
  - It will use laser energy to stop the rotation of space junk by vaporising small parts of its surface, making it easier for a servicing spacecraft to rendezvous.

What is Space debris?

- **Space debris are defined as** all non-functional, man-made objects, including fragments and elements thereof, in Earth orbit or re-entering into Earth's atmosphere.
- **Kessler Syndrome:** It is a theoretical scenario in which a cascade of collisions between artificial objects in low Earth orbit leads to a rapidly increasing amount of space debris, making the use of near-Earth space impossible for an extended period of time.

Dangers of space junk

- According to NASA, debris can travel at speeds of up to **18,000 mph,** which is 10 times faster than the speed of a bullet.
- **The International Space Station has experienced damage** from a two-inch piece of space junk striking one of its components in **2021.**

International agreements on space debris

- **The Space Liability Convention of 1972:** It defines responsibility in case a space object causes harm.
  - The treaty says that "a launching State shall be absolutely liable to pay compensation for damage caused by its space objects on the surface of the earth or to aircraft, and liable for damage due to its faults in space.
- **Zero Debris Charter:** Twelve nations and the European Space Agency (ESA) have signed the **Zero Debris Charter** at the ESA/EU Space Council. It aims to become **debris neutral in space by 2030**.
- **Absence of law:** However, there is no law against space junk crashing back to earth.

Missions on Removing Space Debris

- **RemoveDebris mission:** It is the European Space Agency's debris removal demonstration mission in the low Earth orbit (LEO) that aims to test and validate multiple active debris removal technologies.
- **Space Debris Removal System (SDRS):** It is a proposed mission by the Russian Space Agency (Roscosmos) to demonstrate the feasibility of removing space debris from low Earth orbit.
- **Cleanup Mission:** It is China National Space Administration's (CNSA) to demonstrate the feasibility of cleaning up space debris using a combination of active and passive methods.

Steps taken by India

- **Project NETRA (Network for space object Tracking and Analysis),** an early warning system, was initiated by ISRO to help detect space hazards to Indian satellites.
  - The project is expected to give India its own capability in **space situational awareness (SSA)**, something that other space powers already have.
  - The SSA is used to predict threats from debris to Indian satellites.
- **The ISRO System for Safe and Sustainable Operations Management (IS4OM)** was established in 2022 to continually monitor objects posing collision threats and to mitigate the risk posed by space debris.

Source: TH

SUPREME COURT EXPANDS NIA POWERS

Context

- Recently, the Supreme Court of India has expanded the investigative powers of the **National Investigation Agency (NIA).**

Supreme Court Ruling

- A Bench of the Supreme Court, comprising Justices B.V. Nagarathna and N. Kotiswar Singh, interpreted **Section 8 of the NIA Act, 2008** to mean that the **agency's powers are not confined to scheduled offences alone**.
- It has expanded the NIA's powers to include the **investigation of non-scheduled offences if they are connected to scheduled offences**, and allowed the NIA to probe a **broader range of criminal activities** linked to its primary investigations.

About the National Investigation Agency (NIA)

- It is the **primary counter-terrorist task force of India**, was established in 2009, after the enactment of **National Investigation Agency Act, 2008.**
  - It is functioning as the **Central Counter Terrorism Law Enforcement Agency in India** under the **Union Ministry of Home Affairs.**
- It was created to investigate and prosecute offences affecting national security, such as terrorism, smuggling of arms, and other serious crimes.
- It is **headquartered in New Delhi.**

Key Provisions of the NIA Act

- The NIA is empowered to **investigate and prosecute offenses listed in the Schedule of the Act**, which includes *acts of terrorism, offenses against the state, and other crimes that threaten national security.*
- **Jurisdiction and Powers:** The NIA has the **authority to investigate offenses across India**.
  - The **NIA (Amendment) Act, 2019** allowed the NIA **to investigate crimes committed outside India** if they involve Indian citizens or affect Indian interests.
  - It also empowered the agency to investigate offenses related to *human trafficking, cyber terrorism, and the Explosive Substances Act*, among others.
- **Special Courts:** The Act mandates the establishment of Special Courts for the **trial of scheduled offenses.** These courts have the authority to *conduct trials, pass judgments, and impose penalties.*

Offences Under the National Investigation Agency Act 2008

- **Scheduled Offences:** These are specific crimes **listed in the schedule of the NIA Act.** These offences are considered **severe threats to national security and integrity**, and the NIA is empowered to investigate and prosecute them. These include:
  - Terrorism-related offences under the Unlawful Activities (Prevention) Act (UAPA);
  - Offences under the Atomic Energy Act, 1962;
  - Offences under the Anti-Hijacking Act, 1982;
  - Offences under the Suppression of Unlawful Acts against Safety of Civil Aviation Act, 1982;
  - Offences under the Suppression of Unlawful Acts against Safety of Maritime Navigation and Fixed Platforms on Continental Shelf Act, 2002;
  - Offences under the Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005;
  - Offences under the SAARC Convention (Suppression of Terrorism) Act, 1993;
  - Offences under the Explosive Substances Act, 1908;
  - Offences under the Information Technology Act, 2000 (related to cyber terrorism).
- **Non-Scheduled Offences:** These are **not explicitly listed in the schedule of the NIA Act**. For example: Narcotic Drugs and Psychotropic Substances (NDPS) Act offences.

Implications of the Ruling

- **Enhanced Investigative Reach:** The NIA can now investigate a wider array of offences, ensuring a more comprehensive approach to tackling complex criminal networks.
- **Strengthening National Security**: By allowing the NIA to probe related non-scheduled offences, the ruling enhances the agency's ability to dismantle organized crime and terrorism networks.

- **Legal Clarity:** The decision provides clear legal guidance on the scope of the NIA's powers, which can help streamline future investigations and prosecutions.

Source: IE

WASTE WATER MANAGEMENT IN INDIA

Context

- "Waste to Worth: Managing India's Urban Water Crisis through Wastewater Reuse" report has been published jointly by the **Centre for Science and Environment (CSE) and National Mission for Clean Ganga (NMCG).**

Major Highlights

- A meagre **28% of the urban wastewater** and sewage generated in India undergoes treatment while the rest flows directly into rivers, lakes and land.
- **20% of groundwater blocks** are in critical condition or overexploited; 55% of the households have either open or no drains and 91% of 302 river stretches are polluted.
- **Recommendations:**
  - India's urban water crisis could ease if all the wastewater is treated and reused.
  - The Jal Shakti Ministry has mandated that cities must recycle and reuse at least 20% of the water they consume.

What is Wastewater?

- Wastewater is **used water** that has been contaminated by various substances and is typically generated from **domestic, industrial, commercial, and agricultural activities.**
- It includes water that has been used for **activities such as bathing, cooking, washing, and industrial processes.**
- **Wastewater can contain a variety of pollutants, including:**
  - **Organic matter:** Such as food scraps, soap, detergents, and human waste.
  - **Chemicals:** From cleaning products, industrial processes, or agricultural runoff.
  - **Biological contaminants:** Bacteria, viruses, and other pathogens.
  - **Nutrients:** Such as nitrogen and phosphorus from human waste, fertilizers, or detergents.

Challenges with Wastewater Management:

- **Pollution:** Untreated or inadequately treated wastewater often contaminates rivers, lakes, and groundwater, leading to serious water pollution.
- **Health Risks:** Polluted water carries diseases like cholera, dysentery, and typhoid, affecting millions, particularly in rural areas and informal settlements.
- **Overloaded Infrastructure:** Many cities lack sufficient wastewater treatment facilities, leading to large volumes of untreated sewage being dumped into water bodies.
- **Water Scarcity:** Wastewater often goes untreated in regions facing water scarcity, further depleting already limited freshwater resources.
- **Industrial Discharge:** Industrial effluents, often toxic, are sometimes released directly into water sources without proper treatment, aggravating pollution levels.

Usage of Waste Water After Treatment

- **Agriculture:** Treated wastewater can be used for irrigation, reducing the dependency on freshwater sources for farming, especially in water-scarce areas.
- **Industrial Use:** It can be used in industrial processes like cooling, washing, and cleaning, reducing the demand for potable water in industries.
- **Urban Landscaping:** It can irrigate parks, gardens, and public green spaces, contributing to better urban planning and reducing water consumption.
- **Recharging Groundwater:** It can be used for artificial groundwater recharge, helping to restore depleting aquifers.
- **Non-potable Domestic Uses:** It can be used for non-drinking purposes helping reduce the pressure on municipal water supplies.

Government Initiatives

- **Namami Gange Program:** Launched to clean and rejuvenate the Ganges, this initiative focuses on wastewater treatment, sewerage infrastructure, and riverfront development to reduce pollution and improve water quality.
- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** Aimed at improving urban infrastructure, this mission focuses on providing sewage networks, wastewater treatment plants, and enhancing drainage systems in cities.

- **Swachh Bharat Mission (Urban):** This initiative includes the construction of individual and community toilets, solid waste management, and wastewater treatment facilities to improve sanitation and reduce water contamination.
- **National River Conservation Plan (NRCP):** Focuses on the treatment of wastewater entering rivers and improving water quality through the establishment of sewage treatment plants and intercepting drains.
- **National Framework for Safe Reuse of Treated Water for states:** The framework gives guidelines for the formulation of State reuse policy and is intended to build appropriate market and economic models for the reuse of treated waste water.
- **State-Specific Programs:** Many states have their own schemes for wastewater treatment, such as the Yamuna Action Plan and projects for treating industrial effluents.

Conclusion

- India has the potential to treat and **reuse 80% of the wastewater generated,** thereby improving water security and sustainably increasing revenue in several sectors.
- A large-scale recharge of groundwater in Kolar district of Karnataka, with treated wastewater pumped from Bengaluru, has helped improve groundwater quality and agricultural production and could serve as a model for other states and districts.

Source: BS

FIRST-EVER GANGES RIVER DOLPHIN TAGGING

In News

- The **Ganges River Dolphin (Platanista Gangetica)** has been **satellite-tagged for the first time** by the **Wildlife Institute of India (WII).**

Rationale

- The satellite tagging aims to **gather critical data on the dolphins' seasonal and migratory patterns**, range, distribution, and **habitat utilization**, especially in fragmented or **disturbed river systems**. This information is vital for formulating effective conservation strategies.

About Ganges River Dolphins (also called 'susu')

- **Scientific Name:** Platanista Gangetica .
- **Discovery:** Officially discovered in 1801.
- **Habitat and Distribution:** Ganges and Brahmaputra rivers & their tributaries in India, Bangladesh and Nepal.
- **Characteristics**: **Only live in freshwater** & does not have a crystalline eye lens, rendering it effectively blind.
  - Navigation and hunting through a highly developed **'sonar system'**, using **echolocation (ultrasonic sounds).**
  - The body is a brownish colour and stocky in the middle.
- **Significance:**
  - Indicator of the health of the entire river ecosystem.
  - Controlling and maintaining healthy fish and crustacean populations
  - GOI declared **National Aquatic Animal in 2009**
- **Threats:** Habitat degradation via pollution, construction etc.
  - Accidental deaths via entanglement in the nets (bycatch), Poaching.
- **Conservation Status:** Endangered (IUCN), Schedule I of Wildlife Protection Act, 1972.
  - Appendix I of CITES

Steps Taken

- **Project Dolphin:** Conservation of dolphins & aquatic habitat through the use of technology (Pollution reduction & sustainable fishery).
- **National Ganga River Dolphin Day:** October 5 (this day it was declared National Aquatic Animal in 2009).
- **Dolphin Sanctuary:** Vikramshila Gangetic Dolphin Sanctuary (VGDS) (Bihar)
- **Conservation Action Plan for Dolphins:** By the Wildlife Institute of India launched in 2016.

Source: TH

NEWS IN SHORT

ANNUAL SAHITYA AKADEMI AWARDS

Context

- Hindi poet Gagan Gill and English writer Easterine Kire are among the 21 recipients of the **annual Sahitya Akademi Awards.**

Sahitya Akademi Awards

- Every year since its inception in **1954**, the Sahitya Akademi Award prizes the most outstanding books of literary merit published in any of the **24 major Indian languages.**
- The first Awards were given in **1955**.
- The award includes an engraved copper plaque, a shawl, and a cash prize.
  - The plaque was designed by the Indian film-maker **Satyajit Ray.**

Sahitya Akademi

- It is India's national academy of letters, established in **1954** by the Government of India.
- It is an autonomous institution under the **Ministry of Culture,** and its headquarters are located in New Delhi.
- Its primary role is to promote Indian literature in various languages, preserve the nation's literary heritage, and foster literary activities in the country.

Source: TH

IMD'S INITIATIVES FOR WEATHER FORCASTING

In Context

- The India Meteorological Department (IMD) has taken a lot of steps to address the growing challenges posed by climate change, including rising global temperatures and extreme weather events.

IMD's Initiatives For Weather Forcasting

- **Impact-Based Forecasts (IBF):** IMD has shifted to Impact-Based Forecasting, focusing on what the weather will do rather than what it will be (Potential Impacts & guidelines)
- **Climate Hazard & Vulnerability Atlas:** Developed an online atlas for 13 hazardous meteorological events, aiding in planning and disaster risk reduction.
- **Mobile App Services:** IMD has introduced user-friendly mobile applications for disseminating weather-related information:
  - **UMANG App:** Provides seven IMD services, including current weather, city forecasts, and cyclone alerts.
  - **MAUSAM App:** Offers weather forecasts for the general public.
  - **Meghdoot App:** Specializes in agromet advisories for farmers.
  - **Damini App:** Sends lightning alerts to reduce lightning-related casualties.
- **Collaboration with NDMA:** Guidelines for preparedness were created in collaboration with the National Disaster Management Authority (NDMA) and state governments.
  - **Common Alert Protocol (CAP) is developed by NDMA** and implemented by IMD to disseminate real-time warnings for extreme weather events.

Source: PIB

HENDERSON DOCTRINE

Context

- In a recent case, the Supreme Court explained Henderson doctrine, a natural corollary of the Indian doctrine of **constructive Res-judicata codified in Explanation IV of Section 11 of the Code of Civil Procedure (CPC).**

About

- The Henderson Doctrine, originating from the **1843** English case **Henderson v. Henderson**, asserts that once a matter has been litigated, it should not be revisited in subsequent proceedings.
- **It prevents the re-litigation of issues** that were or could have been addressed in the original proceedings.
- This principle aims to instill a sense of sanctity toward judicial determinations and prevent the exploitation of procedural rules to fragment disputes or prolong litigation.

Source: LiveLaw

INDIA SETS UP ITS FIRST DIABETES BIOBANK

Context

- India has established its **first biobank** for diabetes in **Chennai.**

About

- **A biobank is a facility** that collects, processes, stores, and distributes biological samples, such as blood, tissues, and DNA.
- **The Indian Council of Medical Research (ICMR)**, in collaboration with the **Madras Diabetes Research Foundation (MDRF),** has launched this diabetes biobank.

- **This initiative aims** to advance scientific studies on diabetes, focusing on its causes, variations, and complications in the Indian population.

Significance of the Biobank

- **Support for Scientific Research:** It will enable researchers to access a diverse range of biospecimens from individuals with various types of diabetes, including Type 1, Type 2, and gestational diabetes.
- **Identification of Biomarkers:** The biobank can help in the discovery of novel biomarkers for early diagnosis of diabetes.
  - Biomarkers are critical for developing personalized treatment and management strategies.
- **India** is known as the **diabetes capital of the world,** with over **10 crore** diabetes cases and around **13.6 crore** pre-diabetes cases.

Types of diabetes

- **Type 1 diabetes:** The body does not make insulin since the immune system attacks and destroys the cells in your pancreas that make insulin.
  - Type 1 diabetes is usually **diagnosed in children and young adults,** although it can appear at any age.
  - People with type 1 diabetes need to take insulin every day to stay alive.
- **Type 2 diabetes:** The body does not make or use insulin well.
  - One can develop type 2 diabetes at any age, even during childhood. However, this type of diabetes occurs most often in middle-aged and older people.
  - Type 2 is the **most common** type of diabetes.

Source: TH

VARMAM THERAPY

Context

- The National Institute of Siddha (NIS) has set a Guinness World Record for providing Varmam therapy to 567 individuals simultaneously.

What is Varmam therapy?

- Varmam therapy, a unique and traditional **healing modality within the Siddha system of medicine**, has long been revered for its effectiveness in treating various health conditions.
- It is particularly renowned for its ability to provide rapid relief for **musculoskeletal pain, injuries, and neurological disorders.**
- **The Varmakalai** (the martial art form associated with Varmam) in Siddha medicine, is a scientifically grounded therapeutic practice used to treat acute and chronic diseases, including stroke, arthritis, and trauma-related injuries.

National Institute of Siddha (NIS)

- National Institute of Siddha is an institute for **study and research of Siddha medicine** operating under the **Ministry of AYUSH.**
- **It was established in 2005** at Tambaram, Chennai, India.

Source: PIB

GOLAN HEIGHTS

In News

- The Israeli government decided to double its population on the **occupied Golan Heights,** citing continued threats from Syria despite the fall of President Bashar al-Assad.

About Golan Heights

- The Golan is a fertile, 1,200-square-kilometer plateau, important for its water resources, fertile soil, and strategic position **overlooking Israel, Lebanon, and Jordan.**
- **Historical Context:** Israel captured the Golan Heights from Syria in the 1967 Six-Day War and annexed it in 1981, a move not recognized internationally.
  - In 2019, former President Donald Trump recognized Israeli sovereignty over the Golan, though most countries have not supported the annexation.
- **Current Population:** About 31,000 Israelis live in the Golan, mostly involved in farming and tourism. The region also has a Druze population of 24,000, many of whom identify as Syrian.

- **Significance:**
  - **Strategic Overlook:** Dominates northern Israel, crucial for military observation and defense.
  - **Water Security:** Vital source of freshwater for Israel.
  - **Defensive Barrier**: Natural barrier protecting Israel.
  - **Agriculture:** Fertile land for crops and vineyards.

Sources : DD News

MILKWEED FIBER

Context

- The Ministry of Textiles has urged Japanese brand Uniqlo to expand its R&D into new natural fibers, including **milkweed.**

About: Milkweed

- Milkweed (Asclepias syriaca L) belongs to the **genus Asclepias** of the family Aselepiadaceae and is also known as **stubborn weed**.
- In India, it is found as a **wild plant** in the states of **Rajasthan, Karnataka and Tamil Nadu**.
- It tolerates light shade but thrives in full sun, growing up to 1.5 meters (5 feet) tall.
- Its use as a **milkweed fibre** was found in **Europe** during the 18th century and was also used as a **filling for life jackets** during World War II.
- In more recent years, the insulation, floatation, and absorption qualities of the fibers have gained recognition for their market potential.

Do you know?

- Milkweed is the only food source for the **monarch butterfly caterpillar**, an iconic but declining species of North America.
- Native Americans, in the 1880's, used this plant as a **contraceptive and snakebite remedy**.

Source: PIB

SYNTHETIC MIRROR BACTERIA

Context

- The international group of Nobel laureates and other experts warn that mirror bacteria would present an **"unprecedented risk" to life on Earth.**

About

- **Synthetic mirror bacteria** is a concept where synthetic biology tools are used to engineer bacteria that exhibit mirrored or chiral behaviors, structures, or molecular products.
  - They are constructed from **mirror images of molecules found in nature.**
- **Application:** In drug development, materials science, and environmental remediation.
- **Concerns Raised:**
  - They can cause lethal infections.
  - The researchers doubt the microbes could be safely contained or kept in check by natural competitors and predators.
  - Existing antibiotics are unlikely to be effective on them.
- The scientists recommend that research with the goal of creating mirror bacteria not be permitted.

Source: TG

KISAN KAVACH

In News

- The Union Minister of State for Science and Technology launched "Kisan Kavach".

About "Kisan Kavach"

- It is I**ndia's first anti-pesticide bodysuit** designed to protect farmers from harmful pesticide exposure.
- **Development**: Kisan Kavach was developed by BRIC-inStem, Bangalore, in collaboration with Sepio Health Pvt. Ltd.
- **Technology**: The suit uses advanced fabric technology that deactivates harmful pesticides upon contact through nucleophilic mediated hydrolysis, providing protection against pesticide toxicity.
- **Affordability:** The bodysuit is priced at 4,000, lasts up to a year, and is washable and reusable.
- **Significance:** To safeguard farmers from pesticide-induced toxicity, which can lead to serious health issues such as breathing disorders, vision loss, and even death.

Source: IE

BHARATGEN

Context

- BharatGen is a multimodal multilingual large language model initiative, developing advanced

generative AI models **tailored to India's linguistic, cultural, and socio-economic diversity.**

About

- It is the first Government-funded **Multimodal Large Language Model Initiative.**
- **Aim:** To ensure that generative AI models adequately represent India's diverse linguistic landscape.
  - It reduces reliance on foreign technologies and strengthens the domestic AI ecosystem for startups, industries, and government agencies.
- **The four key distinguishing features of BharatGen are:**
  - the multilingual and multimodal nature of foundation models;
  - bhartiya data set based building, and training;
  - open-source platform and
  - development of an ecosystem of generative AI research in the country.
- BharatGen has launched an initiative called **"Bharat Data Sagar"**, focusing on primary data collection.
  - This data collection attempts to meet the requirement that training data is available for Indian languages that are less represented.

Source: PIB

SUGAR PRODUCTION DOWN BY 17%

Context

- Sugar production in the current 2024-25 marketing year (October-September) reached **61.39 lakh tonnes** as against 74.05 lakh tonnes in the corresponding period of the preceding year.

Sugar Production in India

- **India** has been the **largest consumer** and **second largest producer** of sugar in the world.
- **Production process:** Sugar is produced from sugarcane by crushing the crop, extracting the juice, boiling it to form a syrup, crystallizing it, and centrifuging the raw sugar crystals.
- **Location of Sugar Industry in India:** Sugar industry is broadly distributed over two major areas of production:
  - Uttar Pradesh, Bihar, Haryana and Punjab in the north and
  - Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh in the south.

Geographical Conditions for Sugarcane Growth

- **Climate:** Requires **hot (21°-27°C)** and **humid (75-150 cm)** conditions.
  - Excess rainfall reduces sugar content; insufficient rain produces fibrous crops. Cool, dry winters aid ripening.
  - **South India has tropical climate** which is suitable for higher sucrose content giving higher yield per unit area as compared to north India.
- **Temperature:** Above 20°C with clear skies thickens juice.
- **Soil:** Prefers moisture-retentive soil but depletes fertility over time.

Source: TH

JETSON ORIN NANO SUPER

In News

- Leading graphic processing units (GPUs) maker Nvidia introduced the **Jetson Orin Nano Super.**

Jetson Orin Nano Super

- It is a compact **generative AI supercomputer** with improved performance and a software upgrade.
- It fits in the **palm of hand, offers powerful AI capabilities** for developers and students to create AI tools.
- It is designed to make AI more accessible for businesses of all sizes, enabling small businesses to deploy AI solutions efficiently.
- It is suitable for a variety of applications including smart surveillance, robotics, smart retail, healthcare, AI-powered smart homes, autonomous vehicles, research, content creation, and more.

Source :IE

DARK COMETS

In News

- NASA researchers have identified additional dark comets and Oumuamua-like objects (these objects are believed to be messengers from afar), expanding our understanding of these intriguing celestial phenomena.

- **What are Dark Comets?** Dark comets are celestial objects that:
  - Resemble asteroids but **behave like comets.** They spin rapidly, dispersing escaping gas and dust in multiple directions.
  - Have limited surface material to form visible tails, making them harder to detect.
  - Unlike typical **comets or asteroids, dark comets exhibit deviations** in their orbit. These deviations cannot be attributed to the **Yarkovsky effect**, a phenomenon where the uneven emission of heat energy alters the path of celestial objects.

Source: IndiaToday

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