

# CURRENT PULSE

SEPTEMBER



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PREPARATION

CHANAKYA IAS ACADEMY  
SECTOR 25 CHANDIGARH

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# Particularly Vulnerable Tribal Groups



The Ministry of Tribal Affairs requested the Registrar General and Census Commissioner of India (RGI) to consider enumerating particularly vulnerable tribal groups (PVTGs) separately in the upcoming Census.

## About Particularly Vulnerable Tribal Groups

- PVTGs are a sub-category of Scheduled Tribes (STs) and are more vulnerable among the tribal groups in India.
- The criteria for identifying Particularly Vulnerable Tribal Groups are:
  - A declining or stagnant population,
  - Geographical isolation,
  - Use of pre-agrarian practices (such as hunting and gathering),
  - Economic backwardness and relatively low literacy
- This category was created based on the recommendations of the Dhebar Commission (1960-61) — led by former Member of Parliament U N Dhebar.
- At present there are 75 tribal groups considered as PVTGs and they are currently spread across 18 states, and the Union Territory of Andaman and Nicobar Islands.
- As per the recent survey, there were an estimated 47.5 lakh PVTGs across India. Madhya Pradesh had the highest estimated population of PVTGs, followed by Maharashtra with an estimated population of 6.7 lakh, and Andhra Pradesh.
- Livelihoods: PVTGs depend on various livelihoods such as food gathering, Non Timber Forest Produce (NTFP), hunting, livestock rearing, shifting cultivation and artisan works.
- Welfare scheme for PVTGs
- PM JANMAN scheme: Under this the government rolled out the Rs 24,104 crore with an aim to improve the socio-economic status, health, education, livelihoods and amenities for PVTGs in more than 200 districts.

# Sample Registration Survey Statistical Report



**The Sample Registration System (SRS) Statistical Report 2023 reveals that seniors make up 9.7 per cent of the population, up from 8.6 per cent in 2011.**

## **About Sample Registration Survey Statistical Report**

- It is carried out by the Office of the Registrar General & Census Commissioner, India (ORGI).
- It provides the fertility and mortality indicators, also includes data on crude birth rate, crude death rate and infant mortality rates.

## **Key Highlights of the Sample Registration Survey Statistical Report**

- **Total Fertility Rate:** India's Total Fertility Rate (TFR) has fallen for the first time in two years to 1.9 in 2023
- It pointed out that 18 States and UTs had reported a TFR of below the replacement level TFR of 2.1.
- **Crude Birth Rate:** India's Crude Birth Rate (CBR) has declined 0.7-point from 19.1 in 2022 to 18.4 in 2023. (Highest CBR was in Bihar at 25.8, and the lowest was in Tamil Nadu at 12).
- **Ageing population:** 9.7 per cent of India's people are now aged 60 or above, a sharp increase in just over a decade. (Kerala leads the list. Almost 15 per cent of its population is above 60 years of age)
- **Sex ratio at birth:** It is noted that the sex ratio at birth (SRB) in the country stood at 917, denoting that 917 girls are born for every 1,000 boys in the population.

# National Institutional Ranking Framework



Recently, the union Minister of Education released the National Institutional Ranking Framework (NIRF) 2025.

## About National Institutional Ranking Framework

- It was started by the Union Ministry of Human Resource Development (now Ministry of Education) in 2015.
- This framework outlines a methodology to rank institutions across the country
- Parameters of National Institutional Ranking Framework
  - Teaching, learning and resources;
  - Research and professional practice;
  - Graduation outcomes;
  - Outreach and inclusivity; and peer perception.

## Key Highlights of National Institutional Ranking Framework 2025

- This year's rankings have been released across 17 categories – overall, SDGs institutes, universities, colleges, research institutions, engineering, management, pharmacy, medical, dental, law, architecture and planning, agriculture and allied sectors, open universities, skill universities, and state public universities.
- Indian Institute of Technology Madras retains its 1st position in Overall Category for the seventh consecutive year.
- Indian Institute of Science, Bengaluru tops the Universities Category for tenth consecutive.
- IIM Ahmedabad tops in Management subject retaining its first position for sixth consecutive year.
- All India Institute of Medical Sciences (AIIMS), New Delhi occupies the top slot in Medical for the eighth consecutive year
- IIT Roorkee retained its 1st position in Architecture and Planning for the fifth consecutive year.
- National Law School of India University, Bengaluru retains its first position in Law.
- Jamia Hamdard, New Delhi tops the ranking in Pharmacy for the second consecutive year.

# Doctrine of Contributory Negligence



The Andhra Pradesh High Court recently held that the doctrine of contributory negligence does not apply to criminal actions, and a driver who commits an accident by driving rashly and negligently, which leads to the death of a person, is liable under Section 304A of IPC, even if there has been a degree of negligence on part of the victim.

## About Doctrine of Contributory Negligence

- It operates on the principle that individuals have a duty to exercise reasonable care for their own safety and well-being.
- When someone fails to meet this duty and their actions or omissions contribute to their own injury or damages, they may be considered partially at fault for the harm suffered.
- Contributory negligence occurs when the plaintiff, through their own lack of care, contributes to the damage resulting from the defendant's negligence or wrongful conduct.
- The concept of Contributory negligence is based on the principles of “Volenti non-fit injuria”.
- The maxim means that the injury has suffered voluntarily and the defendant is not fully liable.
- It serves as a defence wherein the defendant must demonstrate that the plaintiff's failure to exercise reasonable care for their safety played a role in the harm suffered.
- For instance, if A, while travelling on the wrong side of the road, is struck by a vehicle driven recklessly by B coming from the opposite direction, A may be met with the defence of contributory negligence.
- The application of contributory negligence principles allows courts to assess the relative fault of each party and determine the appropriate allocation of liability and damages in such cases.
- But if both the plaintiff and the defendant take due care and all the measures to avoid the accident or the injury, then the plaintiff cannot sue the defendant for that.
- The Burden of Proof: The burden of proof is on the defendant to prove that the plaintiff is equally liable for the act and the plaintiff was not careful, due to which he suffered injuries.
- The defence of contributory negligence is not available when it is proved that the defendant has the duty to take full care and he is legally bound to take full care and diligence. So, if any injury is caused to the plaintiff, then the defendant will be held liable.
- For example- A and B were travelling in a bus, and A, in order to show something to B, pointed his hand outside the window, and the window suddenly got open, and A was injured. Although it was A's duty to not take out his hands from the window, the staff and the crew were liable, as it was their duty to check all the windows and the doors.
- While India does not have a specific statute codifying contributory negligence, courts often consider principles of fairness and equity in determining liability and apportioning damages.
- In India, the concept of comparative negligence is applied, where damages are allocated based on the comparative fault of each party involved and judges exercise discretion based on the facts and circumstances of each case.

# Doctrine of Escheat

The Supreme Court recently held that a State Government cannot invoke the doctrine of escheat under Section 29 of the Hindu Succession Act once a Hindu male has executed a Will, which has been declared to be valid and has been granted probate by a Court.



## About Doctrine of Escheat

- It is a significant legal concept that ensures no property is left without ownership, reverting it to the state if the original owner dies without legal heirs or fails to make a will.
- This legal process addresses the handling of unclaimed assets, protecting societal interests and maintaining order within the legal framework.
- The doctrine addresses two primary situations:
  - when a person dies intestate (without a will) and without heirs, and
  - when property remains unclaimed or abandoned for a specific period.
- The underlying principle of escheat is that property must always have an identifiable owner, and in the absence of heirs, the government assumes ownership.
- In modern legal systems, escheat serves as a way to maintain orderly succession and prevent assets from being wasted or misused.

## Historical Origins of Escheat

- Escheat originates from the Old French word “eschete,” meaning “to fall to”.
- The concept of escheat is rooted in the feudal system of medieval Europe, where land was held by tenants under a lord.
- If the tenant died without an heir or was convicted of certain crimes like treason, the land would escheat, or revert, to the lord.
- This system allowed for continuous control of land, ensuring that property remained within the hierarchy of the feudal structure.
- Over time, this evolved to include the monarch or the state as the ultimate recipient of property without heirs.

## Escheat in Modern Legal Systems

- In modern legal systems, escheat ensures that unclaimed or ownerless property does not remain in limbo but is transferred to the state.
- The state assumes ownership of such property, either permanently or temporarily, until rightful claimants can be found.
- Escheat laws vary across jurisdictions, with some countries having well-defined processes for handling unclaimed assets.
- In India, escheat is regulated primarily through Section 29 of the Hindu Succession Act, 1956, and Article 296 of the Constitution.
- These provisions outline the circumstances under which property escheats to the state, safeguarding against unclaimed or abandoned property.
- However, the Supreme Court made it clear that the doctrine of escheat under Section 29 of the Hindu Succession Act, 1956, is a remedy of last resort; it comes into play only when a person dies intestate and without any legal heirs.
- Where a valid will is executed and duly probated, the property must devolve strictly in line with the testator’s intent, leaving no room for the State to assert rights over the estate.

# **Economics**

# Securities Appellate Tribunal



US-based trading firm Jane Street Group recently filed an appeal in the Securities Appellate Tribunal (SAT) against the Securities and Exchange Board of India (Sebi) in the alleged market manipulation case.

## About Securities Appellate Tribunal

- The SAT is a statutory body established under the Securities and Exchange Board of India Act, 1992.
- As a quasi-judicial body, SAT's primary objective is to hear and dispose of appeals against orders passed by SEBI or by an adjudicating officer under the Act.
- It has jurisdiction over the whole of India and operates from Mumbai.
- The SAT also hears appeals against the following orders:
- Orders issued by the Insurance Regulatory and Development Authority of India (IRDAI) in relation to cases filed before it.
- Orders issued by the Pension Fund Regulatory and Development Authority (PFRDA) in relation to cases filed before it.
- Who can make an appeal?
- These appeals may be filed by any person aggrieved by SEBI's decisions, including market participants, listed companies, intermediaries, or investors.

## Securities Appellate Tribunal Composition

- The SAT consists of one Presiding Officer and such a number of judicial and technical members as the Central Government may determine.
- The person so appointed as the presiding Officer should meet the following requirements:
- The retired or sitting judge of the Supreme Court
- Chief Justice of the High Court
- Judge of the High Court, who has completed at least seven years of service as a judge in a high court.
- Judicial Member: Judge of the High Court for at least five years of service.
- Technical Member:
- Secretary or an Additional Secretary in the Ministry or Department of the Central Government or any equivalent post in the Central Government or a State Government; or
- Person of proven ability, integrity, and standing, having special knowledge and professional experience of not less than 15 years in the financial sector, including the securities market, pension funds, commodity derivatives, or insurance.
- The Presiding Officer and Judicial Members shall be appointed by the Central Government in consultation with the Chief Justice of India or its nominee.

## Securities Appellate Tribunal Tenure

- The tenure for the Presiding Officer and other members will be five years from the date of appointment, and they shall be eligible for re-appointment for another term of maximum five years.
- However, no presiding officer or member shall hold office after he/she has attained the age of 70.

## Securities Appellate Tribunal Powers

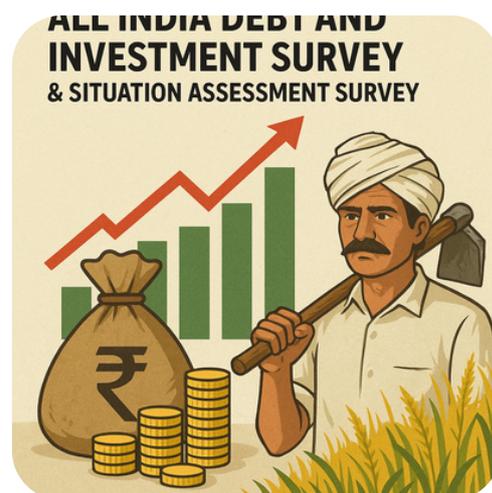
- SAT exercises the powers of a civil court and has the authority to summon and enforce the attendance of witnesses, receive evidence, and examine witnesses under oath.
- It also has the power to require the discovery and production of documents.

## Appeal against the Orders of the Securities Appellate Tribunal

- Every person aggrieved by any order or decision of SAT can file an appeal to the supreme court.
- An appeal can only be made on any question of law.

# All India Debt and Investment Survey & Situation Assessment Survey

The All India Debt and Investment Survey (AIDIS) and the Situation Assessment Survey (SAS) of Agricultural Households are scheduled to be conducted from July 2026 to June 2027.



## About All India Debt and Investment Survey (AIDIS)

- The AIDIS is one of India's most significant surveys on household finance.
- Previous AIDIS Surveys
- Its origins go back to the All India Rural Credit Survey (1951-52), later expanded to cover both debt and investment in 1961-62.
- Since then, the NSO has conducted AIDIS roughly once every decade, most recently in the 77th Round (2019) at the request of the Reserve Bank of India (RBI).
- The survey provides critical data on household indebtedness and asset ownership across both rural and urban areas.
- Significance of the Survey: Its findings are instrumental in shaping national accounts, assessing inequality in asset distribution, understanding credit markets, and informing policies of the RBI, MoSPI, and other government institutions.
- It is conducted by the National Statistics Office (NSO), under the Ministry of Statistics and Programme Implementation (MoSPI).

## About Situation Assessment Survey (SAS) of Agricultural Households

- The SAS of Agricultural Households, first launched in 2003.
- It is designed to assess the economic conditions of farming communities.
- It was expanded in 2013 to cover all agricultural households and further strengthened in the 2019 round.
- It now provides comprehensive insights into the livelihoods of agricultural households.
- The survey covers Household income and expenditure, Indebtedness and access to credit, Land and livestock ownership, Crop and livestock production, and use of technology and Access to government schemes and crop insurance. Farming practices
- Significance of Survey: The Ministry of Agriculture and Farmers Welfare, NITI Aayog, researchers, and financial institutions utilise the survey findings to shape policies and programmes aimed at agriculture and rural development.

# Perpetual Bonds

Indian Renewable Energy Development Agency Ltd (IREDA) recently said it has raised ₹453 crore at 7.70% per annum through its second issue of Perpetual Bonds, a step that strengthens its capital base for financing green energy projects.



## About Perpetual Bonds

- It is a fixed-income security that has no maturity date and theoretically pays interest forever.
- The perpetual bond means the issuer is under no obligation to redeem the principal amount at any point.
- Also known as "perps" or "consol bonds," these instruments represent a permanent source of capital for the issuer.
- It represents one of the purest forms of debt that closely resembles equity in certain aspects.
- With these bonds, investors do not receive the principal amount back unless the issuer opts to call the bond.
- This action involves returning the principal and discontinuing interest payments to bondholders.
- This call feature provides issuers with the flexibility to refinance if market conditions become favourable.
- Most modern perpetual bonds include call provisions that allow issuers to redeem them after a specified period, typically 5 to 10 years from issuance.
- To compensate for the indefinite tenure and higher risk, perpetual bonds generally offer higher interest rates.
- If the issuer goes bankrupt, perpetual bondholders get paid after other creditors but before shareholders, placing them in a middle priority tier.
- Perpetual bonds are highly sensitive to changes in interest rates, which can cause significant fluctuations in their market price.
- In India, banks are the primary entities that issue perpetual bonds to meet their capital requirements.
- Even though perpetual bonds do not provide principal repayment to investors, they can be an attractive investment option for individuals aiming to generate a stable income for a long period of time.
- From an accounting perspective, perpetual bonds often receive equity-like treatment on balance sheets, making them attractive for organisations looking to strengthen their capital structure without diluting existing shareholders' ownership.

# Certificate of Deposit (CD)

Issuance of certificates of deposit (CDs) by banks has fallen sharply in the last few months, pushing mutual funds to explore alternative money market instruments such as treasury bills and commercial papers to park funds.



## About Certificate of Deposit

- It is a fixed-income financial tool that is governed by the Reserve Bank of India (RBI) and is issued in a dematerialized form.
- It is a type of agreement made between the depositors and the banks, wherein the bank pays an interest on your investment.
- It is a short-term investment that comes with fixed investment amounts and maturity tenure ranging between 1-3 years.

## Features of Certificate of Deposit

- A CD in India can be issued for a minimum deposit of Rs. 1 lakh or in subsequent multiples of it.
- Eligibility Criteria:
  - CDs are issued by the Scheduled Commercial Banks (SCBs) and All-India Financial Institutions.
  - The Cooperative Banks and the Regional Rural Banks (RRBs) are not eligible for issuing a CD.
  - It is issued to individuals, corporations, companies, and funds, among others.
  - CDs could also be issued to NRIs but on a non-repatriable basis only.
- Maturity Period:
  - The maturity period of a CD can range between 7 days and 1 year when issued by commercial banks.
  - However, for other financial institutions, the maturity period ranges from 1 year to 3 years.
- CDs are offered at discount rates or floating rates, depending on the banks' requirements.
- Interest Rates: A CD offers a higher interest rate than savings accounts or some other fixed-term financial products.
- CDs in dematerialised form can be transferred through endorsement or delivery, similar to dematerialised securities. This feature enhances the liquidity and ease of transactions for CDs.
- Unlike some other financial instruments, there is no lock-in period for a CD. This flexibility allows investors to access their funds or reinvest after the agreed-upon term without restrictions.
- Since CDs do not have any lock-in period, CDs cannot be used as collateral, and banks can't buy back their own CDs before maturity.
- Banks have to maintain the statutory liquidity ratio and cash reserve ratio on the price of a CD.
- A CD is fully taxable under the Income Tax Act.
- A CD cannot be publicly traded.

# Pink Tax

While there are no specific laws in India to address the issue of Pink Tax, the National Consumer Disputes Redressal Commission ruled that companies must follow fair pricing policies and avoid gender-based price discrimination.



## About Pink Tax

- The Pink tax is neither a real tax nor is it a government-imposed fee.
- It is a term used to describe the extra cost that some companies charge for products marketed to women compared to similar products marketed to men.
- This means women might end up spending more money for the same product that men get for less.
- When companies charge more for pink (female) products compared to blue (male) versions, the extra revenue does not go to the government but benefits the companies themselves.
- Pink toys, haircuts, dry cleaning, razors, shampoos, body lotions, deodorants, facial care, skincare items, beauty care, clothing, T-shirts, jeans, salon services ,etc. suffer the tax.
- The term “Pink Tax” is believed to have originated in the U.S. in California in 1994.
- It emerged following the realisation that brands in various cities consistently charged women higher prices for goods and services than men.
- As per a study done in the U.S., personal care products targeting women were 13% costlier than men’s. Further, women’s accessories and adult clothing were 7% and 8% more expensive.

## Pink Tax in India

- The "pink tax" is not prohibited by law in India, and there are no set government regulations on this pricing practice.
- Female-targeted goods and services prices are determined based on market dynamics and demand.
- While there is limited research on the pink tax in India, surveys indicate price variations between products for women and men.
- While there are no specific laws in India to address the issue of Pink Tax, the National Consumer Disputes Redressal Commission ruled that companies must follow fair pricing policies and avoid gender-based price discrimination.

# Key Facts about Sudan

Recently, a landslide buried a remote mountain village in the Darfur region of Sudan.



## About Sudan

- It is the third largest country in Africa.
- Bordering Countries: South Sudan, Ethiopia, Eritrea, Egypt, Libya, Chad, and Central African Republic.
- It borders the Sahara on the north and extends southward to the forests of West Africa and the Congo River basin.
- It also has a significant coastline along the Red Sea.
- Relief: It is mainly composed of vast plains and plateaus that are drained by the Nile River and its tributaries.
- Much of Sudan consists of deserts and arid grasslands with little in the way of vegetation. Massive plains and plateaus cover most of the nation.
- Highest point: Jabal Marrah
- Natural Resources: Petroleum; small reserves of iron ore, copper, chromium ore, zinc, tungsten, mica, silver, gold; hydropower
- Capital City: Khartoum, which is located roughly in the centre of the country, at the junction of the Blue Nile and White Nile rivers.

# United Kingdom-India Infrastructure Financing Bridge



The U.K. India Infrastructure Financing Bridge (UKIIFB) recently marked its first anniversary by launching a report in the City of London.

## About United Kingdom-India Infrastructure Financing Bridge

- It is a collaborative initiative led jointly by NITI Aayog and the City of London.
- It aims to channel sustainable infrastructure investments into India, leveraging the UK's expertise in managing and structuring large-scale projects.
- The UKIIFB, agreed as part of the UK Economic and Financial Dialogue (EFD), was operationalised with a steering committee made up of representatives from the UK government's Treasury department, construction giants, and engineering and legal firms operating across both countries to drive forward the aim of getting mega infrastructure projects bid-ready.
- This committee will oversee the implementation of the initiative, focusing on projects such as national highways, regional rapid transport systems, and renewable energy ventures.
- UKIIFB Stakeholders will seek to jointly build a diverse investment and financing system that is long-term, stable, and sustainable with manageable risks.
- It is distinctly committed to sustainable infrastructure development, prioritizing environmentally friendly projects that are aligned with the core principles of the Sustainable Development Goals.

# Key Facts about Seychelles



Recently, the Indian Navy's First Training Squadron (1TS) comprising INS Tir, INS Shardul and ICGS Sarathi has completed a four-day visit to the Seychelles.

## About Seychelles

- It is an archipelagic island country located in the western Indian Ocean.
- It is located to the northeast of Madagascar and east of mainland Africa.
- Other major islands near Seychelles include Comoros and Mauritius to the south, and Maldives to the east.
- It consists of an archipelago of 115 islands (only 8 are permanently inhabited).
- It is composed of two main island groups: the Mahé group which is mountainous granitic islands and a second group are coralline islands.
- Mahe Group is volcanic with a narrow coastal strip and rocky, hilly interior; others are relatively flat coral atolls, or elevated reefs; sits atop the submarine Mascarene Plateau.
- Highest Point: The highest point in Seychelles is Morne Seychellois.
- Climate: The climate is tropical oceanic, with little temperature variation during the year.
- Capital City: Victoria
- UNESCO World Heritage sites: Aldabra Islands and Vallée de Mai National Park

# Evia Island



A magnitude 5.2 earthquake shook central Greece recently, with its epicenter located near Athens on Evia Island.

## About Evia Island

- Evia, or Euboea, is the second largest island in Greece, second only to Crete, and third in Europe (second only to Cyprus).
- The area of the island is a little more than 3500 sq.km.
- It is located in Central Greece, in the Aegean Sea.
- The island is separated from the Greek mainland by the Euboean strait.
- It is often referred to as a “mainland island” due to its close proximity to Athens, with many points of connection between the two.
- Evia's dramatic geography includes alpine mountains, lush forests, coastal wetlands, hidden canyons, and sun-soaked beaches.
- The main city on Evia is Halkida.
- It acts as the administrative and commercial heart of the island and is famously known for the unique phenomenon of the tidal currents in the narrow strait of Euripus, which changes direction multiple times a day.
- Evia's highest mountains are Dyrfi, Kandili, and Ohi.
- The climate of Evia is Mediterranean. Winters are mild but rainy, and summers are hot with plenty of sunshine.

# Strait of Malacca



Recently, India secured Singapore's support to its interest in patrolling the Malacca Strait.

## About Strait of Malacca

- It connects the Andaman Sea (Indian Ocean) and the South China Sea (Pacific Ocean).
- It runs between the Indonesian island of Sumatra to the west and peninsular (West) Malaysia and extreme southern Thailand to the east
- The Strait of Malacca's name was derived from the Malacca Sultanate, who governed the archipelago from 1400 until 1511.
- It links the Indian and Pacific oceans and is one of the busiest and most important shipping lanes in the world.
- Singapore, Malaysia, and Indonesia control the joint patrolling of Malacca Strait.

## Significance of Strait of Malacca

- Roughly 60% of India's seaborne trade and almost all of its LNG imports pass through the Malacca Strait.
- The route is also a choke point for Chinese shipping, which makes it strategically sensitive.

## What are the Malacca Straits Patrols?

- The MSP was launched in 2004 by Indonesia, Malaysia and Singapore to curb piracy, terrorism and trafficking in one of the world's busiest sea lanes. Thailand joined later.
- It consists of three coordinated layers:
- Malacca Straits Sea Patrol – regular joint naval patrols.
- Eyes-in-the-Sky – combined air patrols for surveillance.
- Intelligence Exchange Group – real-time data sharing among the four states.

# Red Sea

Recent undersea cable cuts in the Red Sea disrupted internet access in parts of Asia and the Middle East.

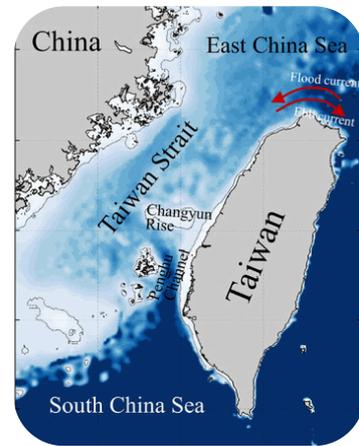


## About Red Sea

- It is a semi-enclosed inlet of the Indian Ocean between Africa and Asia.
- It is connected to the Arabian Sea and the Indian Ocean to the south through the Gulf of Aden and the narrow strait of Bab el Mandeb.
- The northern portion of the Red Sea is bifurcated by the Sinai Peninsula into the Gulf of Aqaba and the Gulf of Suez, where it is connected to the Mediterranean Sea via the famous Suez Canal.
- It is known for its hot and salty waters and is a crucial maritime route between Europe and Asia.
- The Red Sea's unique color changes are due to algae blooms. Geologically, it lies in a fault depression between the Arabian and North African tectonic plates.
- Bordering Countries: Egypt, Saudi Arabia, Yemen, Sudan, Eritrea and Djibouti.
- Five major types of mineral resources are found in the Red Sea region: petroleum deposits, evaporite deposits, sulfur, phosphates, and the heavy-metal deposits.
- Islands: Tiran Island, which is located near the mouth of the Gulf of Aqaba, and Shadwan Island, which is located at the entrance of the Gulf of Suez.

# Taiwan Strait

China's military recently said its forces had followed and warned a Canadian and an Australian warship, which were sailing through the sensitive Taiwan Strait, in a move it criticised as a provocation.



## About Taiwan Strait

- Taiwan Strait, also called Formosa Strait, separates continental Asia and the island of Taiwan.
- It extends from the South China Sea in the southwest to the East China Sea in the northeast.
- It runs between the coast of the Fujian (Fukien) Province and the island of Taiwan.
- It has an average width of 180 km, while its narrowest part is 130 km wide.
- It sits on Asia's continental shelf that runs along the entire stretch of the strait.
- It is relatively shallow. It has an average depth of about 490 ft and a minimum depth of 82 ft.
- Ports: The chief ports are Amoy in mainland China and Kao-hsiung in Taiwan.
- Rivers: Several rivers, including the Jiulong and Min rivers from China's Fujian Province, drain into the Taiwan Strait.
- Islands:
  - Kinmen and Matsu are two of the largest and most significant islands in the strait located off the Fujian coast of China.
  - The biggest islands along the Taiwan side include Penghu (or Pescadores), Xiamen, and Pingtan.
  - The Xiamen and Pingtan Islands are administered by the People's Republic of China, while the other three islands: Penghu (or Pescadores), Kinmen, and Matsu are under the administration of the Republic of China (Taiwan).
  - Penghu (or Pescadores) Island is the largest and most populous island in the Taiwan Strait.
- It serves as a busy navigational waterway, on which millions of tons of cargo are ferried annually.
- The strait is also one of the most important fishing grounds in China, and more than a hundred economically important fish species are found here.

# Papua New Guinea

Recently, as part of the 50th Independence Day celebrations of Papua New Guinea, the Indian Navy Band participated in the grand Military Tattoo at Port Moresby.



## About Papua New Guinea

- It is an island nation in Oceania located in southwestern Pacific Ocean.
- Its neighbors are: Indonesia to the west; Australia to the south and Solomon Islands to the south-east.
- It is bounded by the Pacific Ocean, Bismarck Sea, Solomon Sea, Coral Sea, Torres Strait and Gulf of Papua.
- Capital City: Port Moresby

## Geographical Features of Papua New Guinea

- It has several volcanoes and is prone to earthquakes and tsunamis.
- Much of the island nation is mountainous and covered in tropical rainforests.
- Highest Point: The highest point of Papua New Guinea is Mount Wilhelm – at an elevation of 14,793 ft (4,509 m).
- Rivers: Sepik River and Fly River
- Volcano: Rabaul Caldera is its most active volcano.
- Papua New Guinea's rainforests are rich in biodiversity, housing rare species such as birds of paradise, tree kangaroos, and the Queen Alexandra's birdwing butterfly.

## Government Structure of Papua New Guinea

- The country is a constitutional monarchy and a member of the Commonwealth.
- The British monarch, represented by a governor-general, is head of state, and the Prime Minister is head of government.

# Exercise ZAPAD 2025

An Indian Armed Forces contingent departed for the Mulino Training Ground, Nizhniy, Russia, to participate in the exercise ZAPAD 2025.



## About Exercise ZAPAD

- It is a multilateral joint military exercise.
- Participating forces from India: The Indian contingent consists of 65 personnel, including 57 from the Army, seven from the Air Force and one from the Navy.
- Aim: This exercise is aimed at enhancing military cooperation, improving interoperability, and providing a platform for participating armies to exchange tactics, techniques and procedures in the domains of conventional warfare and counter-terrorism operations.
- Focus area: It will focus on joint company level operations in open and plain terrain, wherein troops will undertake missions ranging from joint planning, tactical drills, and special arms skills.
- It will offer a valuable opportunity to hone joint operational capabilities, integrate emerging technologies, and operate in a multinational combat environment.
- Significance: It will further strengthen defence cooperation and foster camaraderie between India and Russia, thereby reinforcing the spirit of collaboration and mutual trust.

# Universal Postal Union (UPU)



**UPU** | UNIVERSAL  
POSTAL  
UNION

The 28th Universal Postal Congress, the supreme decision-making body of the Universal Postal Union (UPU), opened recently.

## About Universal Postal Congress

- It is a United Nations specialized agency and the postal sector's primary forum for international cooperation.
- It was established by the Treaty of Bern of 1874. It is the second oldest international organization worldwide.
- Headquarters: Bern, Switzerland.

## Functions of Universal Postal Congress

- It coordinates postal policies among member nations in addition to the worldwide postal system.
- It sets the rules for international mail exchanges and makes recommendations to stimulate growth in mail, parcel and financial services volumes and improve the quality of service for customers.

## Governance Structure

- The Congress: It is the supreme authority of the UPU and meets every four years.
- The Council of Administration: It ensures the continuity of the UPU's work between Congresses, supervises its activities and studies regulatory, administrative, legislative and legal issues.
- The Postal Operations Council: It is the technical and operational mind of the UPU and consists of 48 member countries elected during Congress.
- The International Bureau: Fulfilling a secretariat function, the International Bureau provides logistical and technical support to the UPU's bodies.

## Member Countries of Universal Postal Congress

- Any member country of the United Nations may become a member of the UPU.
- Any non-member country of the United Nations may become a UPU member, provided that its request is approved by at least two-thirds of the member countries of the UPU.
- Member countries: At present it consists of 192 member countries.

# Scarborough Shoal



The Philippines has reacted strongly to China's announcement of establishing a nature reserve in the South China Sea at the disputed Scarborough Shoal.

## About Scarborough Shoal

- It is a disputed atoll in the South China Sea, claimed by both China and the Philippines as part of their territory.
- It is located some 220 kilometers west of the Philippines' Island of Luzon.
- It is the largest atoll in the South China Sea, submerged at high tide with few rocks above sea level.
- What is the Dispute?
- China's claim: China, which now refers to the shoal as Huangyan Island, makes a historical claim to the area, stating that they can trace their ownership of the area back to the Yuan Dynasty of the 1200s.
- Philippines claim: The Philippines claim the area on the basis of geography, as it is much closer to the Philippines' main island of Luzon, which contains the capital, Manila, but lies over 500 miles from China.
- It is considered within the Philippines' 200-nautical mile exclusive economic zone, based on the 1982 United Nations Convention on the Law of the Sea (UNCLOS).
- Commercial Significance: The deep waters around the shoal make it a productive fishing area, rich in marine life, and the lagoon also contains many commercially valuable shellfish and sea cucumbers.

# International Electrotechnical Commission

India will host the 89th General Meeting (GM) of the International Electrotechnical Commission (IEC) from 15 to 19 September 2025 at Bharat Mandapam, New Delhi.



## About International Electrotechnical Commission

- It is a nonprofit organization which was established in 1906.
- It is the organization that prepares and publishes international Standards for all electrical, electronic and related technologies.
- IEC's mission is to promote, through its members, international cooperation on all questions of electrotechnical standardization and related matters.
- Its standards are developed in a consensus process by experts from the participating countries.
- IEC Standards are often used as a basis to globally harmonize technical requirements in IEC member and non-member countries.
- IEC standards reach over 150 countries.
- Governance: Standardization Management Board (SMB) is an apex governance body of IEC responsible for technical policy matters.
- The IEC works closely with the International Organization for Standardization (ISO) and the International Telecommunication Union (ITU).
- It is the world's leading body for developing international standards for electrical, electronic and related technologies, with a network of 30,000 experts worldwide.
- It is the fourth time India is hosting the prestigious IEC General Meeting, after 1960, 1997 and 2013.
- It is headquartered in Geneva, Switzerland.

# WTO Agreement on Fisheries Subsidies



Recently, the World Trade Organisation's agreement on Fisheries Subsidies came into force.

## About WTO Agreement on Fisheries Subsidies

- The Agreement on Fisheries Subsidies is the WTO's first multilateral agreement with environmental sustainability at its core.
- It prohibits government support to illegal fishing activities and overexploitation of stocks, contributing to the protection of marine life.
- It was adopted at the 12th Ministerial Conference (MC12) in 2022, in Geneva.
- The agreement establishes
  - The first global trade rules designed to curb harmful fisheries subsidies.
  - Prohibits subsidies that support illegal, unreported and unregulated (IUU) fishing, fishing activities targeting overfished stocks
  - It also covers fishing in areas of the high seas that are not covered by a regional fisheries management organisation.

## Implementation of the WTO Agreement on Fisheries Subsidies

- WTO Fish Fund: Ministers have established this fund to provide developing economies and least-developed countries (LDCs) with technical assistance and capacity-building needed to implement the new obligations and manage their own fisheries more sustainably.
- Seventeen members have pledged the equivalent of more than USD 18 million to the WTO Fish Fund.
- Following its entry into force this month, a Committee on Fisheries Subsidies will be created to monitor compliance, review members' notifications on their subsidy programmes.
- WTO members will be required to report details of their fishing subsidies, as well as data such as fish stock levels and conservation measures in place.

# International Labour Organisation

Recently, the Union Minister for Labour & Employment signed the Memorandum of Understanding between Government of India and International Labour Organisation (ILO) for collaboration to develop 'International Reference Classification of Occupations'.



**International  
Labour  
Organization**

## **About International Labour Organisation**

- It is a specialized agency of the United Nations (UN) dedicated to improving labour conditions and living standards throughout the world.
- It is the only tripartite U.N. agency that brings together governments, employers and workers' representatives of 187-member States.
- Member countries: It has 187 member states: 186 out of 193 UN member states plus the Cook Islands.
- In recognition of its activities, the ILO was awarded the Nobel Prize for Peace in 1969.
- Headquarter: Geneva, Switzerland.

## **History of International Labour Organisation**

- It was created in 1919, as part of the Treaty of Versailles that ended World War I
- In 1946, the ILO became a specialized agency of the newly formed UN.
- It is also a member of the United Nations Development Group (UNDP), a coalition of UN organization aimed at helping meet the Sustainable Development Goals.

## **Functions of International Labour Organisation**

- Policy Formulation: It forms international policies and programmes to promote basic human rights, improve working and living conditions, and enhance employment opportunities
- Creation of international labour standards backed by a unique system to supervise their application
- An extensive programme of international technical cooperation formulated and implemented in an active partnership with constituents, to help countries put these policies into practice in an effective manner
- Training, education, and research activities to help advance all of these efforts.

# Incentive Scheme to Promote Critical Mineral Recycling

The Union Cabinet recently approved a Rs.1,500 crore Incentive Scheme to develop recycling capacity in the country for the separation and production of critical minerals from secondary sources.



## About Incentive Scheme to Promote Critical Mineral Recycling

- It is part of the National Critical Mineral Mission (NCMM), which is aimed at building the domestic capacity of and supply chain resilience in critical minerals.
- The Scheme will have a tenure of six years from Financial Year 2025-26 to Financial Year 2030-31.
- Total Outlay: Rs.1,500 crore
- Features:
  - Eligible feedstock is e-waste, Lithium Ion Battery (LIB) scrap, and scrap other than e-waste and LIB scraps.
  - Expected beneficiaries will be both large, established recyclers, as well as small, new recyclers (including start-ups), for whom one-third of the scheme outlay has been earmarked.
  - The Scheme will be applicable to investments in new units as well as expansion of capacity and modernization and diversification of existing units.
  - The Scheme will provide incentive for the recycling value chain, which is involved in the actual extraction of critical minerals, and not the value chain involved in only black mass production.
  - The incentives include a 20% capital subsidy on plant and machinery for projects that commence production within the stipulated timeframe and an operational subsidy tied to incremental sales.
  - The operational support will be provided in tranches—40% in the second year and 60% in the fifth year—on meeting specific sales thresholds.
  - To ensure wider participation, the total incentive has been capped at ₹50 crore per large entity and ₹25 crore per small entity, with limits on operating subsidies of ₹10 crore and ₹5 crore, respectively.
- The Scheme incentives are expected to develop at least 270 kilotons of annual recycling capacity, resulting in around 40 kilotons annual critical mineral production, bringing in about Rs.8,000 crore of investment, and creating close to 70,000 direct and indirect jobs.

# Land Subsidence

Uttarakhand, already battered by natural calamities including cloudbursts, flash floods, and landslides across its mountainous regions, is now facing a new and terrifying phenomenon: widespread land subsidence in Chamoli's Nanda Nagar.



## About Land Subsidence

- Land subsidence is a gradual settling or sudden sinking of the Earth's surface.
- This geotechnical phenomenon occurs when the ground loses its ability to support the weight above it, leading to a downward shift.
- It can occur as a result of natural factors (e.g., volcanic or seismic activity, collapse of subsurface cavities, compaction of loose fine-grained deposits) or anthropogenic activities (e.g., excessive groundwater (GW) abstraction, mining, subsurface energy extraction).
- Although it is a gradual process, taking years to decades to develop, land subsidence presents serious socioeconomic, environmental, and security challenges globally.
- Impacts:
- Land subsidence can cause damage to infrastructure and lead to increased flood risks and permanent reduction in aquifers' storage capacity.
- It can also cause disturbance to water management and possible repercussions such as increased saltwater intrusion as a result of reduction in land elevation and changes in the gradient of streams and drains.
- High maintenance costs for roads, railways, pipelines, and buildings are only a few examples of stresses brought upon by land subsidence.
- Although land subsidence has been historically observed in low deltaic areas or coastal regions, it is being increasingly observed in large inland areas near densely urban, agricultural, and industrial areas with high groundwater demand.
- Excess groundwater extraction is believed to be one of the main causes of large-scale and high-magnitude land subsidence.
- Groundwater overexploitation compacts the underground reservoirs because water is the element partly responsible for holding up the ground.
- The excess water withdrawal leads to compaction of the underlying depleted porous formation, thus inducing land subsidence.
- The total global extent of land surface susceptible to subsidence has been estimated to be 12 million sq.km.
- Land subsidence has been observed all around the world, with major sites in the USA, China, Iran, Indonesia, Taiwan, Vietnam, Egypt, Japan, Mexico, and Italy.

# Key Facts about Beas River



The recent unprecedented rainfall in its catchment areas, the Beas river in Himachal Pradesh recorded its highest-ever inflow of water.

## About Beas River

- It was known as Vipas in the past, meaning the “Unfettered” river.
- It is a river in Himachal Pradesh and Punjab states, northwestern India.
- It is one of the five rivers that give Punjab (“Five Rivers”) its name.
- Origin: It rises 4,361 metres (14,308 ft.) above sea-level on the southern face of Rohtang Pass in Kullu at Beas Kund.
- Course: It traverses 470 kilometres before joining Sutlej at Harike, Punjab.
- Major Tributaries: The major tributaries of the Beas River are Bain, Banganga, Luni, and Uhal, along with Banner, Chakki, Gaj, Harla, Mamuni, Parvati, Patlikuhlal, Sainj, Suketi, and Tirthan.
- The Beas forms the world-famous valleys of Kullu and Kangra.
- The Beas catchment is under the influence of western disturbances that bring snowfall to the upper sub-catchment during winter and the monsoon provides around 70% of the annual rainfall during June - September.
- Dams: The Pong Dam, also known as the Beas Dam, is an earth-fill embankment dam constructed on the river Beas in the Kangra district of Himachal Pradesh.

# Blood Moon

Millions of people across Asia and Europe are expected to witness a total lunar eclipse that will turn the moon blood red.



## About Blood Moon

- A blood moon is the dramatic red glow of the moon during a total lunar eclipse.

## Occurrence of Blood Moon

- A blood moon occurs when Earth comes directly between the Sun and the moon.
- A process called Rayleigh scattering causes the moon to appear red instead of dark.
- This happens because shorter-wavelength light (blue) is scattered, while longer-wavelength red light passes through the Earth’s atmosphere, making the moon appear red.
- During totality, “the entire Moon falls within the darkest part of Earth’s shadow, called the umbra.
- When the Moon is within the umbra, it appears red-orange.” This colour shift is what earns the event its nickname, the “blood moon.
- Depending on external factors such as atmospheric conditions and light pollution, the moon, during a blood moon phase, may appear red, orange, or copper-coloured.

## What is Rayleigh Scattering?

- It was explained by the British Nobel laureate John William Strutt (Lord Rayleigh) in the 19th century.
- When light interacts with particles smaller than its wavelength, the intensity of the scattered light is inversely proportional to its wavelength.
- This is the reason the earth sky appears blue: it has the shortest wavelength in visible light.

# Avalanche

Three Army personnel, including two Agniveers, lost their lives recently in a major avalanche at the Siachen base camp in Ladakh.



## About Avalanche

- An avalanche is a large amount of snow that quickly moves down a slope.
- An avalanche can be deadly because it will bury or sweep away anything in its path.
- Large amounts of sliding rocks, earth, or other materials may also be called avalanches. But these are often known as landslides.
- Many different conditions make an avalanche possible.
- An avalanche is more likely to happen on a slope without trees or large rocks. These things help to keep snow in place.
- A weak layer of snow also makes an avalanche likely.
- Once the conditions are right, several things can start an avalanche.
- Heavy snowfall, strong wind, and rising temperatures all can loosen snow on a slope.
- Falling rocks or ice also can cause snow to slide.
- Even the movement of a skier, a snowboarder, or a snowmobile can trigger an avalanche.
- There are two main types of snow avalanches—sluffs and slabs.
- Sluff avalanches occur when the weak layer of a snowpack is on the top.
- A sluff is a small slide of dry, powdery snow that moves as a formless mass.
- Sluffs are much less dangerous than slab avalanches.
- A slab avalanche occurs when the weak layer lies lower down in a snowpack.
- This layer is covered with other layers of compressed snow.
- When the avalanche is triggered, the weak layer breaks off, pulling all the layers on top of it down the slope.
- These layers tumble and fall in a giant block, or slab.
- Avalanches vary in destructive power from harmless to large enough to destroy mature forests or flatten villages.
- When an avalanche stops, the snow becomes solid like concrete, and people are unable to dig out.
- People caught in avalanches can die from suffocation, trauma, or hypothermia.
- People in mountainous areas protect themselves from avalanches in several ways.
- Special fences help to hold snow in place.
- Barriers help to stop sliding snow or change its direction.
- Explosives help to clear snow from places where avalanches are likely to occur.

# Vishwamitri River



Following heavy overnight rainfall in the catchment area of the Vishwamitri River — the Vadodara Municipal Corporation (VMC) recently opened all 62 gates of Ajwa Reservoir to release 6,600 cusecs of water downstream to create a cushion in the reservoir.

## About Vishwamitri River

- It is a small non-perennial river, about 200 km in length, located in Gujarat.
- Course:
  - It originates from the western and southern slopes of the Pavagadh hills in eastern Gujarat.
  - The river flows westward, through Gujarat's third-largest city, Vadodara, after which it meets the two tributaries of Dhadar and Jambuva before draining into the Arabian Sea via the Gulf of Khambhat.
  - The highly meandering, sinuous river has a unique ecosystem bearing a plethora of beautiful ravines right from its beginning till its end.
- Porcupines, the common Indian civet, the jungle cat, cobras, pythons, the checkered keelback, and the Bengal monitor are some of the species found in the ravines on the banks of this river.
- Vishwamitri is also where the protected and vulnerable species of the Indian crocodile (*Crocodylus palustris*), also known as the mugger, resides.
- A survey by the Gujarat Forest Department in 2020 found that there were an estimated 300 muggers in the river within Vadodara's limits.
- Historically, the river has been central to Vadodara's development, with human settlements along its banks dating back to 1000 B.C.

## Key Facts about Mugger Crocodiles

- It is one of the 24 extant species of crocodylians found globally.
- The crocodile's common name comes from *magar*, which translates loosely to "water monster" in the Hindi and Urdu languages.
- Distribution:
  - The mugger's geographic range extends from extreme southeastern Iran eastward to Bangladesh and from Nepal and northern India south to Sri Lanka.
  - In India it is found in 15 Indian states, with the largest populations in the middle Ganges (Bihar-Jharkhand) and Chambal (Madhya Pradesh, Gujarat and Rajasthan) basins.
- Habitat: It is native to freshwater and inhabits marshes, lakes, rivers and artificial ponds.
- Conservation Status:
  - IUCN: Vulnerable
  - CITES: Appendix I.

# Permafrost

In a groundbreaking discovery in Siberia, scientists recently uncovered a 44,000-year-old wolf, nearly perfectly preserved in permafrost.



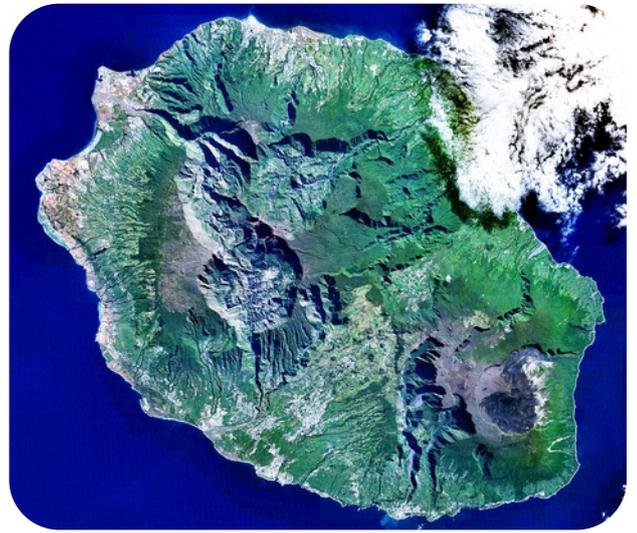
## About Permafrost

- Permafrost is any ground that remains completely frozen—32°F (0°C) or colder—for at least two years straight.
- Where are they found?
  - These permanently frozen grounds are most common in regions with high mountains and in Earth's higher latitudes—near the North and South Poles.
  - Permafrost can be found on land and below the ocean floor.
  - Permafrost thickness can range from one meter (about three feet) to more than 1,000 meters (about 3,281 feet), covering entire regions, such as the Arctic tundra, or a single, isolated spot, such as a mountaintop of alpine permafrost.
  - Permafrost covers large regions of the Earth. Almost a quarter of the land area in the Northern Hemisphere has permafrost underneath.
  - While two years is the minimum for permafrost consideration, some regions have had frozen ground for hundreds of thousands of years.
  - Scientists discovered the oldest known permafrost in Siberia, which has been frozen for the past 650,000 years.

## What Is Permafrost Made Of?

- Permafrost is made of a combination of soil, rocks, and sand that are held together by ice.
- The soil and ice in permafrost stay frozen all year long.
- Although the ground is frozen, permafrost regions are not always covered in snow.
- Near the surface, permafrost soils also contain large quantities of organic carbon—a material leftover from dead plants that couldn't decompose, or rot away, due to the cold.
- Lower permafrost layers contain soils made mostly of minerals.
- A layer of soil on top of permafrost does not stay frozen all year. This layer, called the active layer, thaws during the warm summer months and freezes again in the fall.
- In colder regions, the ground rarely thaws—even in the summer. There, the active layer is very thin—only 4 to 6 inches (10 to 15 centimeters). In warmer permafrost regions, the active layer can be several meters thick.
- A thawing permafrost layer can lead to severe impacts on people and the environment.
- For instance, as ice-filled permafrost thaws, it can turn into a muddy slurry that cannot support the weight of the soil and vegetation above it.
- Infrastructure such as roads, buildings, and pipes could be damaged as permafrost thaws.
- Additionally, organic matter (like the remains of plants) currently frozen in the permafrost will start to decompose when the ground thaws, resulting in the emission of methane and carbon dioxide into the atmosphere. This contributes to further global climate change.

# Reunion Island



**Ships of the Indian Navy's first training squadron (1TS), INS Tir and ICGS Sarathi, arrived at Réunion Island, while INS Shardul reached Port Louis, Mauritius, recently, as part of their long-range training deployment in the southwest Indian Ocean Region.**

## About Reunion Island

- It is a French island in the Western Indian Ocean.
- It lies about 680 km east of Madagascar and 180 km southwest of Mauritius.
- It covers an area of 2,511 sq. km.
- It is almost elliptical in shape, about 40 miles (65 km) long and 30 miles (50 km) wide.
- With Mauritius and Rodrigues Islands, they form the Mascarene Archipelago.
- Of volcanic origin, Réunion consists mostly of rugged mountains in an advanced state of dissection by short torrential rivers.
- The Marsouins and Galet Rivers are the two largest in the territory.
- It is home to the highest peak in the Indian Ocean, the Piton des Neiges, and one of the most active volcanoes on the planet, the Piton de la Fournaise.
- The capital is Saint-Denis, on the northern coast.
- Réunion's coast has no good natural harbours.
- It has a tropical climate.
- People:
  - Réunion was first settled in the 17th century by colonists from France.
  - Slave labourers were brought in from East Africa to work on plantations, and later Malays, Annamites, Chinese, and Malabar Indians were imported as indentured labourers.
  - Today the greatest proportion of the population is of mixed descent (African, European, and South Asian).
- As a French overseas territory, it has the same political status as other departments in mainland France. It is a key French military base for the Indian Ocean region.
- Languages: French, plus Reunion Creole
- Its economy is based largely on the export of sugar. Other products include meat and milk products, rum, molasses, tobacco, geranium essence, and vanilla.



# Penna River

**Eighteen youngsters stranded in the floodwaters of the Penna River in the Nellore district of Andhra Pradesh recently were rescued after a seven-hour operation.**



## About Penna River

- The Penna River, also known as Pennar, Pinakini, or Penneru, is a river in southern India that flows through the states of Karnataka and Andhra Pradesh.
- Course:
  - Origin: It rises in the Nandi Hills, an upland region on the Deccan plateau, in Karnataka's Chikkaballapur district.
  - It flows north into Andhra Pradesh state and turns east and then southeast.
  - After passage through a gap in the Eastern Ghats range, it again bends east toward the Coromandel Coast, emptying into the Bay of Bengal near the Nellore district.
- It has a total length of about 597 km.
- The river basin lies in the rain shadow region of the Eastern Ghats.
- The river is seasonal, becoming a torrent after the rains and a thin stream during dry periods.
- Tributaries:
  - The Penna River has several tributaries, most of which are seasonal.
  - Major ones include the Chitravati, Papagni, Cheyyeru, and Kunderu rivers.
- The Penna River is crucial to agriculture in parts of Andhra Pradesh, particularly the drought-stricken Rayalaseema region.
- Several irrigation projects, such as the Somasila, Mylavaram, and Gandikota projects, have been constructed to use the river's waters for farming and drinking purposes.

# Lake Natron

**Recently, Tanzania's government halted a planned large-scale soda ash mining project at Lake Natron.**



## About Lake Natron

- Location: It is a salt lake located on the border between Tanzania and Kenya.
- It is part of the eastern branch of the Great Rift Valley.
- It has a unique composition of warm waters and salt, caustic soda, and magnesite deposits that provide ideal conditions for flamingos to thrive.
- It was designated as a Ramsar Site of International Importance in 2001.
- Primarily, the lake is fed by the Ewaso Ng'iro River, which originates from the central region of Kenya.
- One of the most striking features of this Lake is its striking red coloration. The primary reason for its hue lies in its extreme alkalinity.
- It is the only reliable breeding ground for Lesser Flamingos in Africa, supporting up to 75 per cent of the world's population.
- Lesser flamingos feed on Lake Natron with Shompole volcano (situated on the border of Kenya and Tanzania) in the distance at the northern end of the lake.
- Threats: Several factors, including agriculture, pollution, and climate change, are threatening the beauty of this unique ecosystem.

# Almatti Dam

To set the stage for the implementation of the languishing Upper Krishna Project (UKP) phase III, the Karnataka Cabinet recently gave clearance for the acquisition of 1,33,867 lakh acres of land to facilitate the increase of Almatti dam's height from the present 519.16 metres to 524.256 metres.



## About Almatti Dam

- It is a hydroelectric project on the Krishna River in North Karnataka.
- The dam was completed in July 2005.
- It was built with the primary objectives of supplying irrigation and potable water to adjacent regions, generating hydroelectric energy, and managing flood risks in the area.
- The annual electric output of the dam is 713,000,000 kilowatts (KW).
- The dam holds a gross water storage capacity of 123.08 TMC at 519 meters MSL.
- Standing at a height of 52.5 meters and extending 3.5 kilometers in length, Almatti Dam serves as the principal reservoir of the Upper Krishna Irrigation Project; the 290 MW power station is located on the right side of the Almatti Dam.
- The facility uses vertical Kaplan turbines: five 55 MW generators and one 15 MW generator.
- Two separate facilities, namely, Almatti I Powerhouse and Almatti II Powerhouse, each separated by distance, do provide power generation capabilities.
- After generating power, water is released into the Narayanpur reservoir to meet the irrigation requirements downstream.
- 77 acres surrounding Almatti Dam have been developed into meticulously maintained gardens, including the Japanese Garden, Rock Garden, Mughal Garden, Gopal Krishna Garden, and Lavakush Garden.

# Carlsberg Ridge

The government recently signed a contract with the International Seabed Authority to explore polymetallic sulphur nodules in the Carlsberg Ridge.



## About Carlsberg Ridge

- It is a mid-oceanic ridge (a divergent plate boundary) located in the Indian Ocean.
- The ridge extends from the triple junction of the African, Indian, and Australian tectonic plates (where it connects to the Mid-Indian Ridge) northwest to the Gulf of Aden.
- The ridge separates the Arabian Sea to the northeast from the Somali Basin to the southwest.
- It marks the boundary between the Somali Plate and the Indian Plate.
- The mean depth of the Carlsberg Ridge is between some 6,000 and 12,000 feet (1,800 and 3,600 meters) below the sea surface, and it rises to a mean elevation of about 7,000 feet (2,100 meters) above the seafloor.
- The ridge turns westward around the island of Socotra and eventually connects with the East African Rift System by way of the Gulf of Aden.
- It is the most prominent mid-ocean ridge segment of the western Indian Ocean, which contains a number of earthquake epicenters.

# Debrigarh Wildlife Sanctuary



Odisha's Debrigarh Wildlife Sanctuary is all set to be declared India's newest tiger reserve.

## About Debrigarh Wildlife Sanctuary

- It is situated in the Bargarh district of Odisha.
- It is located near Hirakud Dam (the longest dam in India and the longest earthen dam in the world) on the Mahanadi River.
- It was declared a wildlife sanctuary in 1985.
- It finds a special mention because of noted freedom fighter Veer Surendra Sai.
- During his rebellion against the British, his base at Barapathara was located within the sanctuary.
- Vegetation: Most of the plant sanctuary is covered with mixed and dry deciduous forest.
- Flora: Major trees found here are Sal, Asana, Bija, Aanla, Dhaura, etc.
- Fauna:
  - Indian leopards, sloth bears, chousingha (four-horned antelope), sambar deer, gaurs (Indian bison), wild boars, and Indian wild dogs etc.
  - It is one of the most flocked wintering grounds of migratory birds that visit the sanctuary from far off places.
  - Some of the most prominent among them are the crested serpent eagle, Flower Peckers, red vented bulbul, tree pie, drongo and white eye oriental.

# Vulture Network Portal

Recently, an Assam-based foundation developed the Vulture Network portal.



## About Vulture Network Portal

- It is a cloud-based portal designed to serve as a comprehensive knowledge and awareness platform on vultures of India.
- It is first of its kind in India - to build a network of individuals engaged in saving the large scavenger birds.
- It was started by We Foundation India supported by dedicated partners such as the Assam Bird Monitoring Network and other organisations.
- Purpose: It was developed to compile scientific information, spread awareness, and provide freely downloadable outreach materials for anyone interested in conducting awareness campaigns.
- It focuses on the threats of carcass poisoning, harmful veterinary drugs such as diclofenac, and negative social perceptions, all of which continue to drive vulture population decline.
- It is disseminating information in local languages, beginning with Assamese.

## Vultures Found in India

- Slender-billed vulture(only about 800 mature individuals left) white-rumped vulture, red-headed vulture, Himalayan griffon, Indian vulture, cinereous vulture, Eurasian griffon, Egyptian vulture, and bearded vulture.

# Nilgiri Tea



**Nilgiri tea growers are facing a persistent cost price crisis of green tea leaves which is continuously haunting small growers in the region.**

## About Nilgiri Tea

- Nilgiri Tea is generally described as intensely aromatic, fragrant and flavored tea grown in the southern portion of the Western Ghats.
- It has been named after the Nilgiris or Blue Mountains where it is grown.
- It is mainly cultivated in Nilgiri district of Tamil Nadu and a small portion in Kerala and Karnataka.
- It was recognized with the Geographical Indication Tag in 2008.
- It is known for its delicate flavour and aroma, with notes of floral and citrus.
- It is a popular choice for iced tea and is often used in blends with other teas to create unique taste profiles.

## Required Climatic Conditions for Nilgiri Tea

- Altitude: Teas are grown at elevations ranging from 1000 to 2500 metre above sea level.
- Annual Rainfall: 150 to 230cm.
- Soil: Well drained Laterite soil
- It is grown throughout the year in Nilgiri and it also experiences two monsoons per year.

## Issues with Nilgiri Tea

- Pricing issue: Price for Green Tea Leaves (GTL) is dwindling these days.
- It is facing issues like over-reliance on Russian exports, poor quality management, adulteration and local market negligence.

# Corbett Tiger Reserve



**A special annual survey undertaken by the forest department of Uttarakhand to estimate the number of tigers in the Ramnagar division, adjoining Corbett Tiger Reserve, has shown a sharp jump over three years.**

## About Corbett Tiger Reserve

- It is located on the foothills of the Himalayas in Uttarakhand.
- It was originally established as Hailey National Park in 1936.
- It is not only the first national park in India, but also the first to come under the Project Tiger initiative.
- Terrain: The terrain is undulating with several valleys. The rivers Ramganga, Pallaen, and Sonanadi flow through the valleys.
- It is spread over the Bhabar and lower Shivalik regions with a deep-water table.
- The tract is porous with boulders and sand deposits.
- Vegetation: North Indian tropical moist deciduous forests and tropical dry deciduous forests:
- In general, the vegetation comprises sal and mixed forests, interspersed with grass lands and riparian vegetation.
- The grasslands are locally known as 'Chaur', which are an outcome of abandoned settlements or past clearings.
- Flora: Evergreen Sal and its combined trees, the Sheesham, and the Kanju are found extensively on the ridges.
- Fauna: Tigers and elephants, leopards, sambar, hog deer, spotted deer etc.

# Himalayan Brown Bear



A rare sighting of a Himalayan brown bear, reportedly with its family, in the Nelong and Jadung Valleys has sparked excitement within Gangotri National Park, Uttarakhand.

## About Himalayan Brown Bear

- It is the largest mammal found in the high-altitude regions of the Himalayas.
- It is one of the most ancient brown bear lineages.
- Scientific Name: *Ursus arctos isabellinus*
- It is also known as the “Himalayan Red Bear” and the “Isabelline Bear”. It is known as Denmo in the Ladakhi language.
- It is believed by some that the bear’s ability to walk upright probably gave rise to the legend of the Yeti or “Abominable Snowman.”

## Himalayan Brown Bear Distribution

- They are found in northwestern and central Himalayas, including Pakistan, India, Nepal, the Tibetan Autonomous Region of China, and Bhutan.
- They are found above the timberline, between 3,000 and 5,500 meters (9,800 and 18,000 feet) above sea level.
- In India, this species exists in small isolated populations in the fragmented alpine and subalpine habitats of Jammu and Kashmir, Himachal Pradesh, and Uttarakhand.

## Himalayan Brown Bear Features

- Males are larger than females, with an average length of 1.9 m and weight of 135 kg, in comparison to the female averages of 1.6 m and 70 kg.
- It has thick fur which is most often sandy or reddish-brown in colour.
- Food: Omnivorous, eating grasses, roots, bulbs and other plants, insects, and small mammals such as marmots, pikas, and voles.
- They hibernate in dens during the winter.
- They are solitary and only interact with each other to mate or fight over mates. The only exception to this is a mother and her cubs.
- Life span: 20 to 30 years in the wild.

## Himalayan Brown Bear Conservation Status

- IUCN Red List: Critically Endangered
- Wildlife (Protection) Act of 1972: Schedule I
- CITES – Appendix I

# Hilsa Fish



Bangladesh recently announced it has decided to export hilsa fish to India ahead of the Durga Puja festive season as a mark of “enduring Bangladesh-India friendship”.

## About Hilsa Fish

- It is a species of fish belonging to the Clupeidae family, which includes herring fish.
- It is also called Ilish and holds an exceptional position in the culinary customs and social practices of Bengal.
- It is a fish that is highly prized because of its delicate flavour, distinct taste, and silky texture.
- Scientific Name: *Tenualosa ilisha*

## Hilsa Fish Habitat and Distribution

- It is found in rivers and estuaries in Bangladesh, India, Pakistan, Myanmar, and the Persian Gulf area.
- Hilsa fish live in both saltwater and freshwater.
- They spend most of their lives in the ocean.
- However, when it's time to lay their eggs, they swim up into rivers. This journey is called a migration.
- They travel to rivers like the Padma River and Meghna River in Bangladesh.
- They also go to rivers in India, such as the Ganges River and Godavari River.
- Bangladesh produces around 70% of the world's ilish, making it a subject of public pride. Ilish is also the national fish of Bangladesh.
- The Hilsa fish helps Bangladesh's economy a lot. It makes up about 12% of all the fish caught in the country. It also adds about 1% to the country's total GDP.

## Hilsa Fish Appearance

- Hilsa fish have a silvery body.
- They are quite flat and have a pointed head.
- Hilsa can grow up to about 50 cm, weighing more than 3 kg.
- They are known for their many small bones.

## Hilsa Fish Conservation Status

- It is classified as 'Least Concern' under the IUCN Red List.

# Phosphate Rocks



The Union environment ministry's expert appraisal committee (EAC) has given its nod to carry out an environment impact assessment study for Birmania Rock Phosphate mine proposed in the potential Great Indian Bustard (GIB) area in Jaisalmer, Rajasthan.

## About Phosphate Rock

- It is the natural source of phosphorus, an element that provides nutrients to plants for their growth and development.
- Formation of phosphate rock: It is a sedimentary rock formed millions of years ago by the accumulation of organic matter on the ocean floor.
- Geographical Distribution: Its reserves are found in Africa, North America, Kazakhstan, the Middle East and Oceania.
- The world's largest deposits are located in Morocco, which is also one of the global leaders in phosphate extraction.
- Phosphate Rock Deposits in India: Phosphate rocks are majorly produced only from two States in India, namely Rajasthan and Madhya Pradesh.

## Uses of Phosphate

- Rock phosphate is the key raw material for DAP and NPK fertilizers. Currently, India is 90% dependent on imports for this raw material.
- Most of the phosphate rock mined throughout the world is used to produce phosphate fertilizer.
- It is also used as animal feed supplements.
- Industrial use: Elemental phosphorus and phosphoric chemicals derived from phosphate rocks find application in detergents, insecticides etc.

# Cicada

Scientists with the Botanical Survey of India (MoEF&CC), Southern Regional Centre, Coimbatore, said that resurgence of cicadas in Silent Valley is a telling sign of ecological upheaval.



## About Cicadas

- Cicadas are hemipteran insects known for their loud, complex and species-specific acoustic signals or songs.
- A cicada will have the best chance of survival if it can emerge from the ground when its predators are lying dormant.
- Cicadas are insects that spend most of their lives underground and emerge from the soil mainly to mate.
- Habitat: Most cicadas are canopy dwellers and are found in natural forests with large trees.
- Types: Scientists divide the over 3,000 cicada species into two groups: annual and periodical.
  - Annual cicadas: They emerge from the ground at different times each summer.
  - They're usually dark with greenish markings.
  - These insects avoid predators by camouflaging themselves in the trees and flying from hungry birds and moles.
  - Periodical cicadas: Only seven species of cicadas are in the periodical cicadas.
  - These bugs all emerge from the ground at the same time(Summer).
  - These groups appear after a dormant period of either 13 or 17 years.
- Ecological Significance: They prune mature trees, aerate the soil, and once they die, their bodies serve as an important source of nitrogen for growing trees.

# Mission Mausam

The Indian Meteorological Department (IMD) will install four additional radars under Mission Mausam in Jammu & Kashmir for more accurate, district wise specific weather forecasts.



## About Mission Mausam

- It was launched by the Ministry of Earth Sciences in 2024.
- It is implemented by the India Meteorological Department (IMD), the National Centre for Medium-Range Weather Forecasting (NCMRWF), and the Indian Institute of Tropical Meteorology (IITM).
- It aims to improve weather and climate services, ensuring timely and precise observation, modeling, and forecasting information for multiple sectors, including agriculture, disaster management, and rural development.

## Objectives of Mission Mausam

- To enhance India's capability in weather forecasting across various scales—short-term, medium-term, extended-range, and seasonal
- To develop high-resolution models for improved accuracy in predicting monsoon behaviour
- To strengthen observational networks with advanced radars, satellites, and automated weather stations
- To provide actionable advisories for agriculture, water resources, energy, health, and disaster management sectors
- To build capacity through research collaborations with national and international institutions

## Significance of Mission Mausam

- It marks a transformative milestone in India's efforts to address climate variability and its far-reaching socio-economic impacts.
- It supports sustainable development while safeguarding lives, livelihoods, and critical infrastructure.

# Vembanad Lake

Recently, it is observed that unchecked tourism, luxury houseboats, and decades of encroachment are pushing Vembanad Lake into ecological crisis.



## About Vembanad Lake

- Vemband is the largest lake in Kerala and the longest Lake in India.
- Other names: It is also known as Vembanad Kayal, Vembanad Kol, Punnamada Lake (in Kuttanad) and Kochi Lake (in Kochi).
- Source: The lake has its source in four rivers, Meenachil, Achankovil, Pampa and Manimala.
- It is separated from the Arabian Sea by a narrow barrier island and is a popular backwater stretch in Kerala.
- Famous Boat race in Lake: Vallam Kali (i.e Nehru Trophy Boat Race) is a Snake Boat Race held every year in the month of August in Vembanad Lake.
- In 2002, it was included in the list of wetlands of international importance, as defined by the Ramsar Convention.
- The Government of India has identified this lake under the National Wetlands Conservation Programme.
- The Kumarakom Bird Sanctuary is located on the east coast of the lake.

# Cyrtodactylus Vanarakshaka



Recently, a new species of bent-toed gecko, recorded from the montane forests of central Assam.

## About *Cyrtodactylus Vanarakshaka*

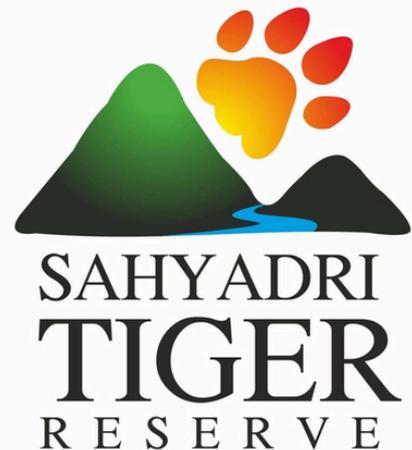
- It is a bent-toed gecko belonging to the *Cyrtodactylus khasiensis* group.
- It was spotted from the forested slopes of Dima Hasao's Jatinga, a unique ecological transition zone within the Barail Hills.
- It has been named after the Assam Forest Department.
- The word "vanarakshaka," derived from the Sanskrit words "vana" (forest) and "rakshaka" (protector), refers to the Assam Forest Department.
- The species is known for high levels of endemism and restricted distributions.
- This finding has increased the number of *Cyrtodactylus* species known from Assam to five.

## What is Gecko?

- These are reptiles and are found on all the continents except Antarctica.
- These colorful lizards have adapted to habitats from rainforests, to deserts, to cold mountain slopes.
- These are mostly small, usually nocturnal reptiles.
- Geckos are spread across six families: Carphodactylidae, Diploda Phyllodactylidae, and Sphaerodactylidae

# Sahyadri Tiger Reserve

Recently, the Union Environment Ministry has approved the capture of eight tigers from the Tadoba-Andhari and Pench reserves for their translocation to the Sahyadri Tiger Reserve in western Maharashtra.



## About Sahyadri Tiger Reserve

- It is located in the Sahyadri Ranges of the Western Ghats in Maharashtra.
- It is the first Tiger Reserve of Western Maharashtra and the fourth Tiger Reserve of the State spreading over two Protected Areas of Koyana Sanctuary (KWLS) and Chandoli National Park (CNP).
- The central portion of Sahyadri Tiger Reserve is occupied by the "Shivsagar" reservoir of the Koyana River and the "Vasant Sagar" reservoir of the Warana River.
- Terrain: The total area of STR is undulating, with steep escarpments along the western boundary.
- The most distinct feature is the presence of numerous barren rocky and lateritic plateaus, locally called "Sadas", with less perennial vegetation and overhanging cliffs on the edges, along with numerous fallen boulders with dense thorny bushes.
- Vegetation: The forest cover here is that of moist evergreen, semi-evergreen, moist, and dry deciduous vegetation.
- It is the only place where climax and near-climax vegetation are plentiful and prospects of adverse anthropogenic influence in the future are minimal.

## Flora and Fauna of Sahyadri Tiger Reserve

- There are many medicinal and fruit-bearing trees along with the commercial hard wood trees in the reserve.
- The most common floral species found here are Anjani (*Memecylon umbellatum*), Jambhul (*Syzygium cumini*), and Pisa (*Actinodaphaone Angustifolia*).
- The main carnivores are the tiger, leopard, and some lesser cats along with the wolf, jackal, and wild dog.
- The large herbivores are several deer species like Barking Deer, Sambar etc.

# National Forest Martyrs Day 2025

Tributes were paid to Forest Department personnel who died while engaged in conservation works during the National Forest Martyrs Day, observed recently.



## About National Forest Martyrs Day

- It is observed annually on September 11th in India to honor the sacrifices of those who have laid down their lives in defense of the country's forests and wildlife.
- The day honours protective environmentalists and personnel of the forest who have experienced certain risks in the process of conservation of natural resources.

## National Forest Martyrs Day History

- The day goes back to the memory of the Khejarli Massacre, which took place in 1730 in the Marwar Kingdom.
- The then Maharaja Abhai Singh demanded Khejri trees from the Bishnoi village of Khejarli to be cut down to provide timber for his new palace.
- However, his action was resisted by the Bishnoi community, which has always been very sensitive towards the natural community.
- Villagers under the leadership of Amrita Devi Bishnoi protested by hugging trees to safeguard them.
- Unfortunately, Devi and many other members of the village were slain while defending the trees.
- It was estimated that 363 of them died while protesting.
- Their legacy inspired later conservation movements, including the Chipko Movement, shaping India's environmental ethos. In recognition of this sacrifice, the Ministry of Environment, Forest and Climate Change of India declared September 11 as the National Forest Martyrs Day in 2013.

## Significance of the National Forest Martyrs Day

- It is a tribute to all those who defended nature against exploitation, from illegal logging to poaching.
- It underscores that forests are not just resources; they are lifelines that regulate the climate, purify air and water, and support biodiversity.
- The day is marked by memorial services, tree plantation drives, awareness campaigns, and educational events organised by the Ministry of Environment, state forest departments, and schools.
- Communities come together to honour martyrs and spread awareness about eco-conscious living.

# Isobutanol

The Automotive Research Association of India (ARAI) is working to explore the possibility of blending 10% isobutanol with diesel, Union Minister for Transport said recently.



## About Isobutanol

- Isobutanol, also called isobutyl alcohol, is an alcohol with the chemical formula  $C_4H_{10}O$  and one of the four isomers of butanol.
- It is a clear, colorless liquid with a characteristic odor.
- It is only moderately soluble in water.
- It is very flammable and has a flash point that is only slightly above normal room temperatures.
- Its vapors are heavier than air and can spread unnoticed along the ground.
- Skin contact, ingestion, and inhalation of isobutanol can be harmful to health.
- The compound causes skin irritation and severe eye damage, including loss of vision.

## Isobutanol Applications

- It is used as a solvent in the flavor, fragrance, pharmaceutical, and pesticide industries and as a chemical manufacturing ingredient for products such as lacquer, paint strippers, paint primer, and craft paints.
- It is an approved food additive and is also naturally occurring in some foods and many alcoholic beverages.
- Isobutanol may also be used as a biofuel because, like ethanol, it can be manufactured from plants. It can be made from ethanol using fermentation processes.
- It possesses some favorable properties that make it an attractive fuel for internal combustion engines.
- For instance, when compared to ethanol, isobutanol features a higher heating value.
- Isobutanol is less corrosive than ethanol and is much less hygroscopic, which enables it to be transported using the existing fuel infrastructure.
- Moreover, its addition to gasoline does not distort the fuel blend's vapor pressure to the same extent as ethanol does. All of this while having a high octane rating.

# Biodiversity Heritage Site

The government recently declared 8.6 acres of green cover at Cantonment Railway Colony as a biodiversity heritage site — the second in Bengaluru after Gandhi Krishi Vigyan Kendra (GKVK).



## About Biodiversity Heritage Sites

- BHS are rich biodiversity areas and are important components of local ecosystems which are being conserved and managed by the society.
- BHS are unique ecosystems having rich biodiversity comprising any one or more of the following components:
  - Richness of wild as well as domesticated species or intra-specific categories.
  - High endemism.
  - Presence of rare and threatened species, keystone species, and species of evolutionary significance.
  - Wild ancestors of domestic/cultivated species or their varieties.
  - Past pre-eminence of biological components represented by fossil beds and having significant cultural, ethical or aesthetic values and are important for the maintenance of cultural diversity, with or without a long history of human association with them.
- They may spread over terrestrial, aquatic, coastal and inland and marine ecosystems having rich biodiversity.
- Under Section-37 of the Biological Diversity Act, 2002, the State Government, in consultation with local bodies, may notify areas of biodiversity importance as BHS.
- State Governments are empowered to frame schemes for compensating or rehabilitating any person or section of people economically affected by such notification.
- The State Government, in consultation with the Central Government, may frame rules for the management and conservation of BHS.
- The creation of BHS may not put any restriction on the prevailing practices and usages of the local communities other than those voluntarily decided by them.
- The purpose of declaring BHS is to enhance the quality of life of the local communities through the conservation of such sites.
- In 2007, the Nallur Tamarind Grove in Bengaluru, Karnataka, was designated as India's first BHS.

# Murikooti Pacha



Researchers at the Jawaharlal Nehru Tropical Botanic Garden & Research Institute (JNTBGRI), Palode, have tapped into the wound-healing properties of the red ivy plant, known locally as “murikooti pacha”.

## About Murikooti Pacha

- Murikooti Pacha or Red Ivy plant (*Strobilanthes alternata*), belongs to the Acanthaceae family.
- Other names: Red Flame Ivy, Purple Waffle Plant.

## Habitat & Distribution of Murikooti Pacha

- It is native to tropical Asia, particularly Java.
- It is widely cultivated in India, Indonesia, China, and Japan.
- It thrives in moist, shaded environments and is commonly found in gardens and as ground cover.

## Applications of Murikooti Pacha

- Traditional practitioners use its leaf paste applied to fresh wounds, cuts, ulcers, and inflamed areas to promote healing and reduce inflammation.
- Also its leaf extracts are used traditionally to treat anemia, gallstones, prolonged menstruation, hemorrhoids, and diabetes.

## Key Features of Wound-Healing Pad

- The key ingredient in the multi-layered wound pad developed by the scientists is the acteoside molecule derived from the red ivy plant, which has high efficacy even at lower concentrations of 0.2%.
- It has been designed with a specially engineered electro-spun nanofiber layer, made from biodegradable and non-toxic polymers and is incredibly thin.
- Acteoside is a natural compound found in many plants and its pharmacological activities and therapeutic potential is well-known. This is the first time acteoside has been linked to the red ivy plant.
- Along with acteoside, it also incorporates the antibiotic neomycin sulfate, blended with FDA-approved polymers.

# Scarlet Dragonfly

In a recent discovery, a rare scarlet dragonfly has been spotted in the valleys of Munnar, somewhere in Kerala's Western Ghats.



## About Scarlet Dragonfly

- It is a species of dragonfly in the family Libellulidae.
- Scientific Name: *Crocothemis erythraea*
- Its common names include broad scarlet, common scarlet-darter, and scarlet darter.

## Scarlet Dragonfly Distribution

- It is a common species in southern Europe and throughout Africa.
- It also occurs across western Asia as far as southern China.
- Sometimes, these dragonflies travel far from their usual homes.

## Scarlet Dragonfly Habitat

- Scarlet dragonflies like to live near water.
- They can be found near many types of water, like rivers, streams, and ponds.
- They prefer sunny spots, not places that are too shady.

## Scarlet Dragonfly Features

- It can reach a length of 33–44 millimetres (1.3–1.7 in).
- These dragonflies have a flattened and rather broad abdomen.
- The adult male scarlet dragonfly has a bright scarlet red, widened abdomen, with small amber patches at the bases of the hindwings.
- Also the veins on the leading edges of the wings are red.
- Females and immatures are yellow-brown and have a conspicuous pale stripe along the top of the thorax.

## Scarlet Dragonfly Conservation Status

- It is classified as 'Least Concern' under the IUCN Red List.

# Tipeshwar Wildlife Sanctuary

Recently, a Forest Department team conducting a routine patrol at Tipeshwar Wildlife Sanctuary (TWS) discovered a poached pangolin.



## About Tipeshwar Wildlife Sanctuary

- Location: It is located in the district of Yavatmal, Maharashtra.
- Spanning across 148.63 sq.km., the sanctuary derives its name from the nearby 'Goddess Tipai' shrine located in the Tipeshwar village.
- Mainly, the sanctuary sprawls amongst the Patanbori and Parwa Ranges of the Pandarkawad Forest Division.
- Four rivers—Purna, Krishna, Bhima, and Tapti—flow gracefully through the sanctuary, earning it the poetic title “Green Oasis of Eastern Maharashtra.”
- The land here is rich with basaltic soil, a remnant of ancient volcanic activity.
- The sanctuary is home to several villages whose inhabitants rely on the forest for their daily livelihoods.
- Vegetation:
  - The place is quite hilly and undulating and thus has different types of vegetation cover that varies with the altitude.
  - The major forest type here is the ‘Southern Tropical Dry Deciduous Forests’.
- Flora:
  - The forests of Tipeshwar are dominated by teak, which forms about 60% of the canopy, alongside other tree species like Ain, Bija, and Dhawda.
  - The undergrowth features a variety of grasses, bamboo groves, and medicinal plants.
- Fauna: The place shelters a wide array of animals that include Hyena, Chital, Black buck, Sambar, Jackal, Wild boar, Peacock, Monkey, Blue bull, Wild cat, Bear and many more.

# National Botanical Research Institute

The National Botanical Research Institute (NBRI) recently achieved a breakthrough by cultivating the exotic flower, *Eustoma*, native to Mexico and America, in Odisha after successfully growing it on its campus in Lucknow.



## About National Botanical Research Institute

- It is amongst one of the constituent research institutes of the Council of Scientific and Industrial Research (CSIR).
- It is located in the city of Lucknow, Uttar Pradesh.
- It is a multi-disciplinary plant research centre of international repute, undertaking basic and applied R&D programmes in several strategically important areas of plant sciences.
- Originally set up as the National Botanic Gardens (NBG) by the State Government of Uttar Pradesh (U.P.), it was taken over by the CSIR in 1953.
- Though initially engaged in research work in the classical botanical disciplines, the NBG went on laying an increasing emphasis, in keeping with the national needs and priorities in the field of plant sciences, on its applied and developmental research activities.
- NBG was renamed as the NBRI, i.e., The National Botanical Research Institute in 1978.
- Objectives:
  - Basic and applied research on plant diversity and prospection, plant-environment interaction and biotechnological approaches for plant improvement.
  - Development of technologies for new plant and microbial sources of commercial importance.
  - Building up germplasm repository of plants of indigenous and exotic origin, including rare, endangered and threatened species
  - Providing expertise and assistance for identification, supply and exchange of plants and propagules, garden layout and landscaping.
  - Dissemination of scientific knowledge and technologies on plants and microbial resources through publications, training, capacity building and extension activities
- The NBRI R&D department has seven divisions under which they conduct various researches. Those seven divisions are
  - Plant Diversity, Systematics and Herbarium.
  - Pharmacognosy, Phytochemistry and Product Development.
  - Plant Ecology and Environment Technologies.
  - Molecular Biology and Biotechnology.
  - Plant Genetic Resources and Improvement.
  - Botanical Garden, Plant Conservation and Agro-technologies.
  - S & T Management.
- CSIR-NBRI is equipped with state-of-the-art laboratories to support R&D.
- CSIR-NBRI has a well-designed Botanic Garden spread over 25 hectares with documented collections of about 5,000 indigenous and exotic plant species and varieties.
- It has an herbarium with 253,103 reference collections of flowering and non-flowering plants of India and two field research stations at Banthra.
- The institute is known for its outstanding contributions to enriching the knowledge base on India's plant diversity, particularly in developing globally competent biotech and microbial technologies, herbal products, and plant databases.
- NBRI is recognized as a leading institute and referral center by different Ministries/Departments of the Government of India and the United Nations in matters related to the Convention on Biological Diversity (CBD), Traditional Knowledge, and Intellectual Property Rights.
- The Institute has been recognized by Government of India as one of the National Repositories for Indian flora under the National Biodiversity Authority and as per the provisions of the Biological Diversity Act, 2002.

# Erra Matti Dibbalu

Recently, Andhra Pradesh's Erra Matti Dibbalu (Red Sand Dunes) have been included in the UNESCO Tentative List of World Heritage Sites.



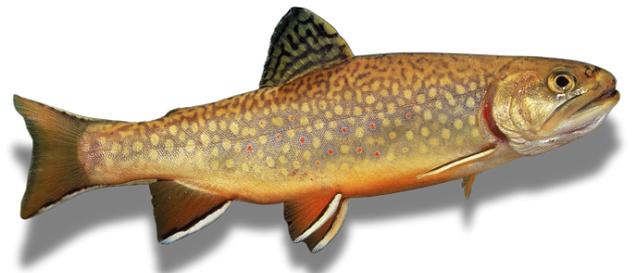
## About Erra Matti Dibbalu

- Erra Matti Dibbalu, also known as the Red Sand Dunes is located along the coast near Visakhapatnam in Andhra Pradesh.
- It was first documented by British geologist William King in 1886, these formations are regarded as rare coastal geomorphological features.

## Key Features of Erra Matti Dibbalu

- It is composed of sand, silt, and clay, with their distinct reddish hue resulting from natural oxidation over thousands of years.
- The uniqueness of this site is that the red sediments are a part of the continuation of the evolution of the earth and represent the late quaternary geologic age.
- They exhibit badland topography with different geomorphic landforms and features, including gullies, sand dunes, buried channels, beach ridges, paired terraces, the valley in the valley, wave-cut terrace, knick point and waterfalls.
- It is a lively scientific evolution site, which depicts the real-time effects of climate change.
- The site also has archaeological significance, as studies of artefacts indicate an Upper Palaeolithic horizon and on cross dating assigned to Late Pleistocene epoch, which is 20,000 BC.
- The site contains dendritic drainage patterns and sediment layers that record fluctuations in sea level and climatic changes over the late Quaternary period.
- Other similar sites: Only two other similar sites exist in the world, one in Sri Lanka and another in Tamil Nadu (Teri Sands).
- The Geological Survey of India (GSI) declared Erra Matti Dibbalu a National Geo-heritage Monument in 2016.
- Issues: Experts note that the site faces threats from tourism and filming activities

# Brown Trout



The Kashmir fisheries department plans to reintroduce the Brown trout back into the Valley for game.

## About Brown Trout

- The brown trout (*Salmo trutta*) is a species of salmonid ray-finned fish and the most widely distributed species of the genus *Salmo*.
- It has been widely introduced globally as a game fish.
- It is one of the world's worst invasive species outside of its native range.
- It is a cold-water fish that prefers cool and well-oxygenated water.
- Appearance: It usually grows to between 15 and 22 inches in length and between 1 and 5 pounds, the trout is considered a popular game fish..
- Breeding Season: October/November is the breeding season for this fish.
- It is best suited to freshwaters; this fish spends much of its time in crevices between boulders in streams.
- Distribution: The native range extends from northern Norway and White Sea tributaries in Russia in the Arctic Ocean to the Atlas Mountains in North Africa.
- The western limit of their native range is Iceland in the north Atlantic, while the eastern limit is in Aral Sea tributaries in Afghanistan and Pakistan.
- In India, the British first introduced the brown trout in the Valley's streams in 1900.
- Conservation Status: Least Concern (IUCN Red List)

# Koala



Recently, Australia approved the world's first vaccine to save koalas from Chlamydia.

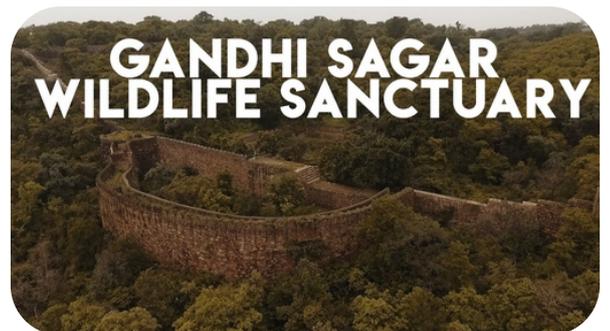
## About Koala

- Koala bear (*Phascolarctos cinereus*) is an arboreal herbivorous marsupial native to Australia.
- It is the only extant representative of the family Phascolarctidae and its closest living relatives are the wombats.
- Koalas are asocial animals, congregating only during the breeding season.
- They spend most of their time eating and sleeping in eucalyptus trees, and their paws have two opposing thumbs to help them grasp and climb up tree trunks.
- Distribution: Koalas are distributed across eastern and southeastern Australia, including northeastern, central, and southeastern Queensland, eastern New South Wales, Victoria as well as southeastern parts of South Australia.
- Habitat: They can be found in habitats ranging from relatively open forests to woodlands, and in climates ranging from tropical to cool temperate.
- Food: Koalas are herbivorous (folivorous) animals, feeding primarily upon the leaves of the eucalyptus tree.
- Conservation status: IUCN: Vulnerable
- Threats: These species are facing compounded threats from disease, habitat loss, climate change and road collisions.

## Chlamydia in Koalas

- Koalas suffer from both bacterium species *Chlamydia pneumonia* and *Chlamydia pecorum*.
- The disease occurs in koalas multiple ways, including through mating, infected discharges and at birth.
- It can cause eye infections, blindness, urinary tract problems, and even infertility.
- Infected koalas often become weak, dehydrated, and more vulnerable to predators and bushfires.
- In some areas of Australia, up to 70% of wild koalas carry the disease.
- Chlamydia spreads quickly in koalas because they live in overlapping territories and groom each other.

# Gandhi Sagar Wildlife Sanctuary



Madhya Pradesh wildlife officials have initiated plans to introduce a female cheetah to the Gandhi Sagar wildlife sanctuary.

## About Gandhi Sagar Wildlife Sanctuary

- Location: It is situated in northwestern Madhya Pradesh, along the Madhya Pradesh-Rajasthan border and lies within the Khathiar-Gir dry deciduous forests ecoregion.
- Key features:
  - It was declared a sanctuary in 1974, covering an area of 368 sq. km.
  - Rivers: The Chambal River flows through the sanctuary, dividing it into two parts.
  - It is a designated Important Bird and Biodiversity Area (IBA).
  - The sanctuary houses sites of historical and archaeological significance, such as Chaurasigarh, Chaturbhujnath Temple, Bhadkaji rock paintings, Hinglajgarh Fort, and Taxakeshwar Temple.
- Topography and Vegetation: The sanctuary includes hills, plateaus, and the catchment area of the Gandhi Sagar Dam.
- Vegetation: Northern tropical dry deciduous forest, Northern tropical dry mixed deciduous forest, Dry deciduous scrub.
- Flora: It mainly consists of Khair, Salai, Kardhai, Dhawda, Tendu, and Palash trees.
- Fauna: Chinkara, Nilgai, and Spotted Deer, Indian Leopard, Striped Hyena, and Jackal etc.

# Red Coral Kukri Snake



Recently, a rare Red Coral Kukri Snake species, last reported in 1936, was recently found trapped in a net in a village field near Pilibhit Tiger Reserve.

## About Red Coral Kukri Snake

- It is identified as *Oligodon kheriensis*.
- It is one of the rarest non venomous snake species.
- This nocturnal and fossorial snake is specialized with curved teeth like kukri (Nepalian Knife). Hence, they are called “Kukri”.
- Appearance: Its whole body including the head is uniform bright coral-red without any patterns and the underside is yellowish or pinkish hence it is one of the most distinct snakes of its range.
- Its head is short, not broader than the neck and bears an obtusely pointed snout.
- Distribution: It is widely distributed in lowlands (below 1500ft) of Himalayan foothills from Uttrakhand, Nepal, northern parts of Uttar Pradesh, Bihar and West Bengal to Sikkim and western Assam.

## Conservation Status of Red Coral Kukri Snake

- IUCN: Least Concern (LC)
- Wild Life Protection Act: Schedule –IV

## Key Facts about Pilibhit Tiger Reserve

- It is located in the state of Uttar Pradesh.
- It lies along the India-Nepal border in the foothills of the Himalayas and is part of the Terai Arc Landscape.
- Rivers: The river Gomti originates from the PTR, which is also the catchment of several others like Sharda, Chuka, and Mala Khannot.
- Habitat: The habitat is characterized by dense sal forests and tall alluvial grasslands, savannahs, and impenetrable swamps, maintained by periodic flooding from rivers.
- The Sharda Sagar Dam, extending up to a length of 22 km, is on the boundary of the reserve.
- It has a dry and hot climate, which brings a combination of dry teak forest and Vindhya Mountain soils.

# Eustoma

Recently, the National Botanical Research Institute (NBRI), a research arm of the Council of Scientific and Industrial Research (CSIR), has achieved a breakthrough by cultivating Eustoma flower in Odisha.



## About Eustoma

- It is commonly known as Lisianthus or Prairie Gentian or Texas Bluebell.
- It is a perennial herbaceous ornamental species that is used as a cut flower and is among the top ten popular cut flowers globally.
- The plant originates from the grasslands of North America.
- Features: It is admired for its wide colour range, long vase life and suitability for cut flowers and potted plants.
- Because of its enormous rose-like blossoms, long stems and extended vase life, its sales have increased dramatically in recent years, earning it the title of 'next rose'.
- Habitat: It typically grows in grasslands and disturbed areas, thriving in warm climates.
- Soil Required: Well drain, moisture-retentive soil and garden compost or well-rotted manure.
- It is native to Mexico, southern USA, Caribbean, and northern South America.
- It has a great cosmopolitan demand mainly for its large and attractive flowers, long and hard stem, wide range of colors.

# Saunders's Tern

Recently, Saunders's Tern was sighted at Adyar Estuary in Chennai.



## About Saunders's Tern

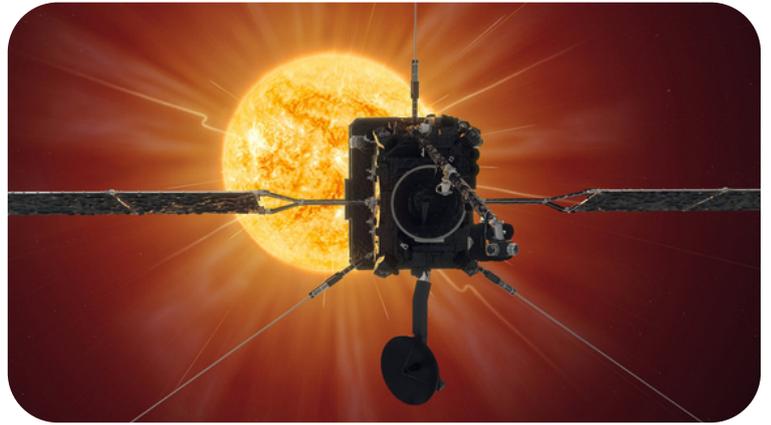
- Saunders's terns (*Sternula saundersi*) are a small, ground-nesting marine bird species.
- It is a species of bird in the family Laridae.
- It is sparsely resident along the shores of the north-western Indian Ocean.
- Geographical Range of Saunders's terns : Saunders's terns breeds in Red Sea and Persian Gulf to islands between India and Sri Lanka; apparently winters mainly Seychelles to Maldives and Cocos (Keeling) Island.
- Habitat: This species occupies a variety of coastal areas: estuaries, shallow tropical and subtropical inshore waters, tidal lagoons, and harbors.
- Food: Its diet comprises many kinds of marine animals, such as small fish, crustaceans, and mollusks.
- It nests on the ground up to 2 km inland on uncovered sandy sites, shingles, or dried mud.
- Breeding Season: The breeding season for the Saunders's tern is between March and June.
- Conservation Status of Saunders's terns : Least Concern ( IUCN Red List).

## Key Facts about the Adyar Estuary

- It is formed by the Adyar River at the point at which the river meets the Bay of Bengal.
- It lies between Santhome beach in the north and Elliots Beach in the south.

# Solar Orbiter Mission

According to a new study the European Space Agency's (ESA) Solar Orbiter Mission has traced the origin of Solar Energetic Electrons (SEEs) emerging from the Sun.



## About Solar Orbiter Mission

- It is a joint project of the European Space Agency and NASA which was launched in 2020.
- Objective: It explores the Sun and heliosphere from close up and out of the ecliptic plane.
- Payload: It carries six remote-sensing instruments to observe the Sun and the solar corona, and four in-situ instruments to measure the solar wind, energetic particles, and electromagnetic fields.

## What are Solar Energetic Electrons (SEE)?

- These are high-energy particles produced by the Sun.
- These particles play a key role in shaping the cosmic environment.
- Sources: They can be emitted during solar flares or coronal mass ejections
- Recent findings: It is observed that one type of SEE is tied to intense solar flares, explosive bursts from smaller patches of the Sun's surface, while another stems from coronal mass ejections (CMEs).
- Between November 2020 and December 2022, the Solar Orbiter observed more than 300 bursts of SEEs.
- Significance: It will deepen understanding of space weather.

# Iskander-K

Russia struck Ukraine's Cabinet building with an Iskander-K missile recently.



## About Iskander-K

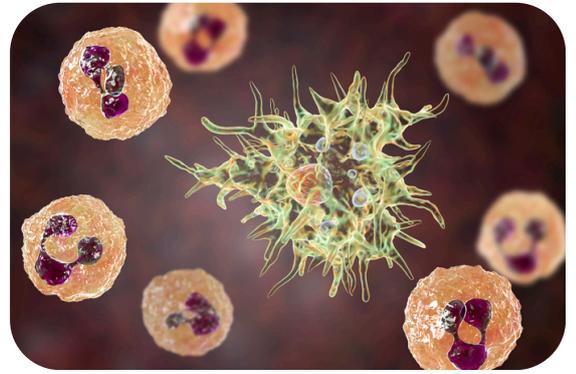
- It is a Russian-made mobile short-range cruise missile launcher vehicle based on an 8x8 military truck chassis.
- The design of the Iskander-K is very similar to the Iskander-M, which is a ballistic missile launcher vehicle.
- The Iskander-K, also referred to as SSC-8, entered service with the Russian Armed Forces in February 2017.
- It is designed to perform tactical-operational strikes.

## Iskander-K Features

- For the Iskander-K, the vehicle can be fitted with two to six container launcher units.
- The truck launcher can run at a maximum road speed of 70 km/h with a maximum cruising range of 1,000 km.
- The Iskander-K can launch two types of cruise missiles, including the 9M728 (SSC-X-7), also known as the R-500 and the 9M729 (SSC-X-8), a new long-range missile.
- The 9M728 cruise missile has a maximum firing range of 500 km, while the 9M729 cruise missile is designed to destroy land targets and is able to fly at a low altitude to reduce the risks of detection and complicate countermeasures.

# Acanthamoeba

Recently, it is revealed that Acanthamoeba is more widespread in Kerala's waterbodies than thought earlier.



## About Acanthamoeba

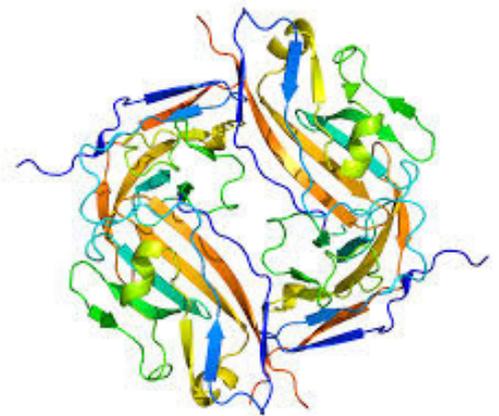
- It is a free-living amoeba, a kind of one-celled organism that lives in water, soil, and dust.
- It can also be found in swimming pools, hot tubs, drinking water systems, humidifiers, and in heating, ventilation, and air conditioning (HVAC) systems.
- It can cause serious infections of the brain, skin, eyes, and sinuses.
- It can infect parts of the body through cuts or skin wounds or from being inhaled into the lungs or nostrils. It can get into the eyes through contact lens use.

## Types of Infections Caused by Acanthamoeba

- Granulomatous amoebic encephalitis (GAE), which affects the brain and is almost always fatal
- Cutaneous acanthamoebiasis, a skin infection
- Acanthamoeba rhinosinusitis, an infection of the nasal cavity and sinuses
- Acanthamoeba keratitis: It is an eye infection that typically occurs in healthy people and can cause permanent vision loss.

# P-47 Protein

Researchers at the S. N. Bose National Centre for Basic Sciences (SNBNCBS) highlighted protein p47's unexpected ability to act as a "mechanical chaperone."



## About P-47 Protein

- It is a cofactor protein usually known as a helper for the cellular machine p97 (It is a powerhouse involved in moving and degrading proteins).
- It was long thought to be just an assistant known primarily for its role in protein trafficking, degradation, and membrane fusion.

## Highlight of the Study

- It is revealed that p47 can enhance the mechanical efficiency of protein extraction from the endoplasmic reticulum (ER) lumen into the cytoplasm.
- P47 stabilizes polypeptides under stress and guides them through narrow pores, reduces the risk of misfolding and improves the success of protein translocation.
- This finding represents the first direct, single-molecule evidence that cofactors like p47 possess autonomous, force-dependent chaperone-like activity.
- It is found that p47 is not just a passive helper for p97, it can directly stabilize proteins under force, effectively acting as a "mechanical chaperone."
- The findings suggest that targeting mechanical cofactors like p47 could lead to novel therapeutic strategies for diseases linked to protein instability.

# Graphite Spyware

Recently, the Trump administration has unfrozen a stalled Biden-era contract with Paragon Solutions, a Graphite spyware company founded in Israel.



## About Graphite Spyware

- Graphite spyware is designed to gain remote access to a mobile phone and essentially take control of it.
- Working: The user of the spyware can access the mobile user's photos, read their messages, and track their whereabouts and also monitor encrypted messages sent on platforms such as WhatsApp and Signal.
- The spyware also enables the phone to be used as a listening device by manipulating its recorder.

## What are Spywares?

- It is malicious software that enters a user's computer, gathers data from the device and user, and sends it to third parties without their consent.
- It collects personal and sensitive information that it sends to advertisers, data collection firms, or malicious actors for a profit.
- Some of the most commonly used types of spyware include:
- Adware: This sits on a device and monitors users' activity then sells their data to advertisers and malicious actors or serves up malicious ads.
- Infostealer: This is a type of spyware that collects information from devices. It scans them for specific data and instant messaging conversations.
- Keyloggers: Also known as keystroke loggers, keyloggers are a type of infostealer spyware.

# INS Androth

Recently, the Indian Navy has received the second indigenously built anti-submarine warfare-shallow watercraft INS Androth.



## About INS Androth

- It draws its name from Androth Island in the Lakshadweep archipelago.
- It is the second of eight anti-submarine warfare-shallow watercraft (ASW-SWC) built by Garden Reach Shipbuilders and Engineers (GRSE), Kolkata.
- The ASW SWC ships have been indigenously designed and constructed as per the Classification Rules of Indian Register of Shipping (IRS) at GRSE, Kolkata

## Features of INS Androth

- It is approximately 77 meters in length and it is the largest Indian Naval warship.
- Propulsion: The ship is propelled by a diesel engine-waterjet combination, which allows for high speed and efficient maneuverability in shallow waters.
- Armament: It is equipped with state-of-the-art lightweight torpedoes, indigenous ASW rockets, and advanced shallow water SONAR,
- It enables effective submarine detection and engagement in littoral zones.
- Significance: It strengthens the Indian Navy's Anti-submarine, coastal surveillance and mine laying capabilities.
- It is built by using over 80 percent indigenous content, reflecting growing domestic capabilities and reducing dependency on imports.

# Aspergillus Section Nigri

Agharkar Research Institute in Pune, an autonomous institute of the Department of Science & Technology, recently identified two novel species of *Aspergillus* section *Nigri* (commonly known as black aspergillus), *Aspergillus dhakephalkarii* and *Aspergillus patriciawiltshireae*.



## About *Aspergillus* Section *Nigri*

- *Aspergillus* section *Nigri* comprises filamentous fungi.
- It is a taxonomic group within the genus *Aspergillus*, characterized by its black-pigmented conidia (spores) and diverse metabolic capabilities.
- Their colonies usually appear black due to pigmented conidia.
- This section includes species that are significant in food spoilage, industrial applications, and human health, particularly in relation to mycotoxin production and opportunistic infections.
- While primarily sourced from soil, certain members of this group have been observed in various environments such as decaying organic material and on the surfaces of plants, contributing to food spoilage and diseases in maize, onions, grapes, and peanuts.
- Strains of *Aspergillus* section *Nigri* can colonize maize and small grains (which include wheat, triticale, spelt, etc.) during pre-harvest, harvest, or post-harvest storage phases.
- Their ability to colonize diverse substrates underscores the importance of understanding their taxonomy, ecology, and potential impacts on agricultural, and food safety.
- Some strains of *Aspergillus niger* are known to secrete ochratoxins –mycotoxins which can give rise to nephrotoxicity and renal tumours in a variety of animal species and are potentially hazardous to human health through their consumption.
- *A. niger* is one of the most widely used fungi in biotechnology.
- Production of citric acid, gluconic acid, and various enzymes (amylases, proteases, and cellulases).
- Used in food processing, pharmaceuticals, and bioengineering.

# AdFalciVax Vaccine

Recently, the Indian Council of Medical Research (ICMR) has granted non-exclusive rights for its multi-stage malaria vaccine, AdFalciVax, to five pharmaceutical companies.



## About AdFalciVax Vaccine

- It is India's first indigenous multi-stage malaria recombinant vaccine developed by the Regional Medical Research Centre (RMRC), Bhubaneswar, under the ICMR.

## Key Feature of the Vaccine

- The vaccine is designed to prevent Plasmodium falciparum infection in individuals and reduce community transmission.
- Plasmodium falciparum is the deadliest malaria parasite, difficult to control and responsible for widespread devastation
- AdFalciVax targets the parasite before it enters the bloodstream, stopping the infection at the transmission stage
- The vaccine uses Lactococcus lactis, a genetically engineered food-grade bacterial host, as its core technology
- It delivers a dual-antigen approach combining: PfCSP (Plasmodium falciparum circumsporozoite protein) to prevent infection and Pfs230 and Pfs48/45 fusion proteins to block transmission from humans to mosquitoes
- This dual-antigen approach makes AdFalciVax a multi-functional vaccine, aimed at both protecting individuals and halting the spread of malaria.
- Pre-clinical validation was carried out in collaboration with ICMR–National Institute of Malaria Research (ICMR-NIMR) and National Institute of Immunology (NII), Delhi, under the Department of Biotechnology.

# Zircon Missile



Russia recently said that it had fired a Zircon (Tsirkon) hypersonic cruise missile at a target in the Barents Sea.

## About Zircon Missile

- The 3M22 Zircon (Tsirkon), NATO code-named SS-N-33, is a scramjet-powered hypersonic cruise missile developed by Russia.
- Initially designed to target naval assets, the missile has evolved to include land-attack capabilities, making it an important tool for precision strike missions.
- It entered service in 2022, with initial deployments on Project 22350 Admiral Gorshkov-class frigates.

## Zircon Missile Features

- It has an estimated length of 9 meters (30 feet) and a diameter of 60 cm (24 inches), with an estimated weight of between 3,000 and 4,000 kg (3–4 tons).
- The missile is powered by a two-stage propulsion system.
- The first stage consists of a booster engine powered by solid fuel, which accelerates the missile to supersonic speeds.
- After reaching a certain speed, the scramjet engine in the second stage ignites, utilizing liquid fuel to accelerate the missile to hypersonic speeds.
- Its speed—reaching up to Mach 9—makes it extremely difficult to intercept.
- The operational range of the Zircon is reported to be around 400–450 km (250–280 miles) at low altitudes, while it can extend up to 1,000 km (620 miles) in a semi-ballistic trajectory.
- It is capable of carrying both conventional and nuclear warheads, providing it with a versatile role in modern warfare.
- The missile uses a combination of inertial navigation, radar homing, and plasma stealth to navigate towards its target.
- One of the key features of the Zircon is its ability to generate a plasma cloud during hypersonic flight, which absorbs radio waves and makes the missile more difficult to detect by radar. This phenomenon is known as plasma stealth.

# Polypropylene

Recently, the Prime Minister of India laid the foundation stone for a polypropylene (PP) plant at Numaligarh Refinery Limited (NRL) at Golaghat in Assam.



## About Polypropylene

- It is a thermoplastic polymer produced by the addition polymerization of propylene.
- It is a synthetic resin built up by the polymerization of propylene.
- It is one of the important families of polyolefin resins.
- Polypropylene is molded or extruded into many plastic products in which toughness, flexibility, light weight, and heat resistance are required.

## Properties of Polypropylene

- It is highly resistant to chemical corrosion, making it an excellent choice for packaging of cleaning products and bleaches.
- It is a commodity plastic with low density and high heat resistance.
- Flammability: PP is a highly flammable material.
- Density: PP is one of the lightest polymers among all commodity plastics.

## Application of Polypropylene

- It is widely used in polymer materials in the plastic manufacturing industry to produce various end products, especially plastic packaging.
- Polypropylene has high insulation properties too, making it safe to use for plastic casing in electrical goods and cables.
- It offers impressive chemical and biological-resistant properties and makes polypropylene an obvious choice for the medical industry.

# Ion Chromatography

Scientists recently devised a way to perform ion chromatography in the field.



## About Ion Chromatography

- Ion chromatography (IC), or ion exchange chromatography, is a powerful analytical technique used to separate and quantify ions in a sample.
- It separates charged molecules based on their affinity to the ion-exchange resin.
- Ion chromatography techniques of various types enable scientists to target specific ions or classes of ions, providing precise and sensitive analysis.
- It is of two types: cation exchange and anion exchange.
- Ion chromatographs are able to measure concentrations of major anions, such as fluoride, chloride, nitrate, nitrite, and sulfate, as well as major cations, such as lithium, sodium, ammonium, potassium, calcium, and magnesium, in the parts-per-billion (ppb) range.
- Concentrations of organic acids can also be measured through ion chromatography.

## How Does Ion Chromatography Work?

- Ion chromatography, a form of liquid chromatography, measures concentrations of ionic species by separating them based on their interaction with a resin.
- Ionic species separate differently depending on species type and size.
- Sample solutions pass through a pressurized chromatographic column where ions are absorbed by column constituents.
- As an ion extraction liquid, known as eluent, runs through the column, the absorbed ions begin separating from the column.
- The retention time of different species determines the ionic concentrations in the sample.

## Ion Chromatography Applications

- Drinking water analysis for pollution and other constituents.
- Determination of water chemistries in aquatic ecosystems.
- Determination of sugar and salt content in foods.
- Isolation of select proteins.

# Karma Puja

The Prime Minister of India wished all fellow countrymen, especially the tribal community on the occasion of Karma Puja.



## About Karma Puja

- It is also called Karam and Karam Parab - is one of the most important tribal festivals in India.
- It is related to the harvest and a tribute to the Karam tree. (Karam tree symbolises fertility, prosperity and everything that is auspicious).
- It is celebrated primarily in Jharkhand, Chhattisgarh, Odisha, Bihar, Madhya Pradesh, West Bengal, and Assam.
- It is popular especially among the Munda, Ho, Oraon, Baiga, Kharia, and Santhal peoples.
- It is traditionally celebrated on the Ekadashi tithi (eleventh day) which corresponds to August-September in the Gregorian calendar.
- How is it celebrated?
  - About a week prior to the festival, young women bring clear sand from the river and sow seven types of grains.
  - A Karam tree branch is planted in the courtyard or 'akhra' on the festival day.
  - Devotees come with jawa (hibiscus) flowers, and the pahan (priest) worships the Karam Raja. Dancing and singing of traditional Karam songs follow.
  - The festival concludes with the immersion of the Karam branch in a river or pond, and the jawa is distributed among the devotees.
  - At the end of the Karam festival, branches from sal or bhelua trees are often planted in the fields with the hope that the Karam Raja/ Devta will protect their crops.

# Apatani Tribes

The Apatani tribal women of Ziro Valley in Arunachal Pradesh are known for their facial tattoos and wooden nose plugs; banned in the 1970s, but still carried by only older women.



## About Apatani Tribe

- The Apatani, or Tanw, also known by Apa and Apa Tani, are a tribal group of people living in the Ziro valley in Arunachal Pradesh.
- Language: They speak a local language called Tani and worship the sun and the moon.

## Customs and Lifestyle of Apatani Tribe

- Festivals: They have major festivals like Dree, Myoko, Yapung and Murung.
- Dree is celebrated with prayers for a bumper harvest and prosperity of all humankind and Myoka celebrates friendship similar to modern friendship day.
- Tattooing and Nose plug: Apatani women are known for their distinctive facial tattoos and nose plugs — a tradition that began as a means of protection against abduction.
- The nose plugs, called Yaping Hullo, are made from wood found in the forest.
- The tattoos, known as Tippei, are done by the elder women when an Apatani girl is about 10 years old.
- They have been practising integrated rice-fish farming in their mountain terraces of Arunachal Pradesh since the 1960s.
- These tribal people principally use three rice varieties: Emeo, Pyape and Mypia.

# Bhil Tribe

A translated collection of folk tales of the Bhil tribe in Madhya Pradesh will be made available on the Ministry of Tribal Affairs' Adi Vaani website and the app.



## About Bhil Tribe

- Bhils are considered as one of the oldest tribes in India and identified as one of the Dravidian racial tribes of Western India and belong to the Australoid group of tribes.
- They are the most widely distributed tribal groups in India.
- The name 'Bhil' is derived from the word villu or billu, which according to the Dravidian language is known as Bow.
- Occupation: Nearly all of the Bhil engage in agriculture, some using the slash-and-burn (jhum) method but most employing the plow.
- Language: They speak Bhili (blend of Gujarati and Marathi), which is an Indo Aryan language.

## Distribution of Bhil Tribe

- They are mainly divided into two main groups: the central and eastern or Rajput Bhils.
- The central Bhils are found in the mountain regions in the Indian states of Madhya Pradesh, Maharashtra, Gujarat and Rajasthan.
- Bhils are also found in the north eastern parts of Tripura.

## Beliefs and Customs of Bhil Tribe

- Almost all Bhils practice ethnic religions that have been highly influenced by Hinduism.
- Most of them worship local deities like Khandoba, Kanhoba, Bahiroba, and Sitalmata. Some worship the Tiger God called 'vagudev'.
- Main festivals: The Baneshwar fair is the main festival celebrated among the Bhils. This fair is held during the period of Shivratri and is dedicated to Baneshwar Mahadev also known as Lord Shiva.

# Langkhun Festival

Recently, Tiwa tribesmen celebrated the Langkhun festival in Umsowai village in Karbi Anglong district of Assam.



## About Langkhun Festival

- It is a socio-religious event celebrated by the Tiwa community in Assam.
- During this festival the people pray for a good crop in the upcoming Rabi crop season.
- The members of the community make offerings and pray to the gods for a good harvest during this festival.
- Cultural events including music and dance are also part of the event.
- Significance: The Tiwa Langkhun festival has great cultural significance and the community prays for a good harvest

## Key Facts about Tiwa Tribe

- The Tiwa people are also called Lalung and they live in Assam and Megalaya states in northeastern India.
- There are Hill Tiwas and Plains Tiwas.
- Hill Tiwas: They live in the Karbi Anglong District of Assam and in Megalaya. They speak a Tibeto Burman language.
- Plains Tiwas: They live in the southern bank of the Brahmaputra Valley. They speak Assamese.
- Society: They have a matrilineal system of society where a Tiwa boy goes to a girl to marry her. This system is called "Kobea Liwa."
- The main festivals of Tiwa tribes are: Tiwa Bihu, Jon Beel Mela, Sagramisawa, Langkhunpuja etc.

# Bonda Tribe

The Odisha Governor recently underscored the need for comprehensive development of Bondaghati, home to the Bonda tribe, a Particularly Vulnerable Tribal Group (PVTG).



## About Bonda Tribe

- The Bondas are exclusively found in the Malkangiri district of Odisha and are mostly concentrated in the Khairaput block of the district.
- It is a particularly vulnerable tribal group (PVTG) and one of the oldest tribes of India.
- They are also known as Bondo, Bondas, Bonda Paraja, and Bhonda.
- They are considered one of the first settlers in India, with their lineage tracing back to the Austroasiatic race.
- Language:
  - The Bonda people speak Remo, a language belonging to the Austroasiatic linguistic family.
  - This is distinct from mainstream Indian languages, making it difficult for outsiders to communicate with them.
- The Bondas are divided into two groups because of their distinct cultural practices:
  - The Lower Bondas, who live in the Malkangiri district in south Odisha and border Andhra Pradesh and Chhattisgarh, and
  - The Upper Bondas, who live in the remote villages of the district's hilly terrain.
- The social organization is hierarchical, with a council of elders that makes important decisions for the community, ensuring the transmission of their traditions and cultural norms.
- The Bonda people live in small villages organized around communal spaces where ceremonies and meetings take place.
- Bonda architecture is characterized by mud and thatched roof houses, designed to adapt to the mountainous environment and climatic conditions.
- The art of the Bonda is expressed mainly through the creation of decorative tools and utensils, in addition to their colorful fabrics and jewelry.
- They have an interesting dressing style – ladies are semiclad and wear different sorts of rings and pieces of jewelry around their bodies, while the men convey deadly attires.
- Religion: The religion of the Bonda people is animistic, focused on the worship of nature and ancestral spirits.
- Occupation: Their economy is based mainly on subsistence agriculture, hunting, and gathering.
- Only 6% of Bondas are literate. The life expectancy of the tribe is so low they are nearly extinct.

# Ho Tribe

Recently, adivasis from the Ho tribe staged a protest in Jharkhand's West Singhbhum district against district administration for interfering in their traditional self-governance system called Manki- Munda system.



## About Ho Tribe

- The Ho or Kolha people are an Austroasiatic Munda ethnic group of India.
- They call themselves the Ho, Hodoko and Horo, which mean 'human' in their own language.
- Distribution: They are mostly concentrated in the Kolhan region of Jharkhand, Odisha, West Bengal and Bihar.
- Language: Ho people speak the Ho language, an Austroasiatic language closely related to Mundari.
- Occupation: The majority of the Ho tribe is involved in agriculture, either as land owners or labourers, while others are engaged in mining.
- Women have higher status among the Ho than they do in most tribes.
- Most villages have a dedicated dancing ground, called akhra, usually consisting of a cleared space of hard ground under a spreading tree.
- Traditional Ho music incorporates native instruments including a dama (drum), dholak, dumeng (mandar), and the rutu (flute).

## Belief system of Ho Tribe

- Over 90% of the Ho practices the indigenous religion Sarnaism.
- They have a village priest called a deuri.
- They have a spirit doctor called a deowa who makes sacrifices to these spirits and gods. Much of this happens in a sacred grove outside the village.

## What is the Manki- Munda system?

- The Munda, or the head of the village, was responsible for resolving socio-political disputes at the village level.
- Each village had one Munda, appointed hereditarily.
- The Manki headed the pidh, which generally consists of 8 to 15 villages. If cases were not resolved by the Munda, they moved upwards to the Manki.
- The Manki and Munda had no responsibilities for revenue or land-related issues.
- The system was purely an internal, self-governing mechanism, with no sovereign authority outside or the concept of paying taxes.

# Birhor Tribe

Around 550 residents, mostly belonging to the Birhor tribe, of Fulwariya hamlet in Koderma district would soon receive electricity supply, ending nearly eight decades of darkness.



## About Birhor Tribe

- The Birhor are a forest-dependent semi-nomadic tribal community concentrated in the eastern central Indian state of Jharkhand.
- Some of them are also found in Chhattisgarh, Odisha, and West Bengal.
- The Birhor community is one of eight Particularly Vulnerable Tribal Groups (PVTGs) identified in Jharkhand.
- The term "Birhor" is derived from the words "Bi", meaning "Jungle", and "hor", meaning "man"; thus, it means "the man living in Jungle" or "people of Jungle".
- They belong to the Porto-Australoid stock.
- Religion: The Birhor follow a mixture of animism and Hinduism.

## Birhor Tribe Language

- The Birhor tribes have their own language, known as Birhor, which belongs to the Munda group of languages of the Austroasiatic language family.
- Their language has similarities with the Santali, Mundari, and Ho languages.
- However, due to increased contact with other communities and the influence of mainstream languages, many Birhor people are bilingual or trilingual, with proficiency in Hindi, Bengali, or other regional languages.

## Birhor Tribe Ethnology

- The Bihors are of short stature, with long heads, wavy hair, and broad nose.
- They claim they have descended from the Sun and believe that the Kharwars, who also trace their descent from the Sun, are their brothers.
- Ethnologically, they are akin to the Santals, Mundas, and Hos.

## Birhor Tribe Society

- They typically live in small, close-knit communities, and their social organization is primarily based on kinship ties.
- The tribe is divided into several clans, and each clan has its own leader who plays a crucial role in resolving disputes and maintaining social harmony within the community.
- They live in small settlements in the forest or on the outskirts of villages.
- The temporary Birhor settlements are known as tandas or bands.
- These consist of at least half a dozen huts of conical shape, erected with leaves and branches.
- Birhor society is characterized by a strong sense of community, cooperation, and mutual support.

## Birhor Tribe Economy

- The "primitive subsistence economy" of the Bihors has been based on nomadic gathering and hunting, particularly for monkeys.
- They make ropes out of the fibres of a particular species of vine, which they sell in the markets of the nearby agricultural people.
- Some of them have settled into stable agriculture.
- According to socio-economic standing, the Bihors are classified into two groups. While the wandering Bihors are called Uthlus, the settled Bihors are called Janghis.
- The Birhor tribe has a rich knowledge of traditional medicine and uses various medicinal plants found in the forest for treating common ailments.

# Red Fort

A 'black crust' is forming on the walls of the Red Fort due to high levels of air pollution, a recent study has found.



## About Red Fort

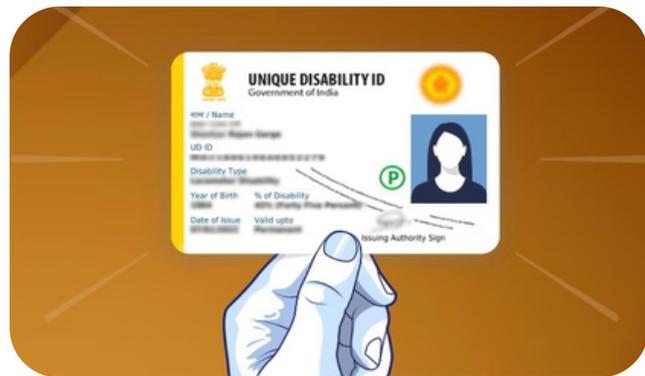
- The Red Fort, or Lal Qila, is a Mughal fort located in Delhi, India.
- Formerly known as Quila-e-Mubarak, or the Blessed Fort, the Red Fort lies along the banks of the river Yamuna, whose waters fed the moats surrounding the fort.
- It was built as the palace fort of Shahjahanabad – the new capital of the fifth Mughal Emperor of India, Shah Jahan.
- Shah Jahan constructed it in 1639. It was designed by architects Ustad Ahmad Lahauri and Ustad Hamid.
- Named for its massive enclosing walls of red sandstone, it is adjacent to an older fort, the Salimgarh, built by Islam Shah Suri in 1546, with which it forms the Red Fort Complex.
- The fort complex served as the residence of Mughal Emperors for nearly 200 years, until 1857.
- The fort was designated a UNESCO World Heritage site in 2007.
- From the fort each year on Independence Day (August 15), the Indian prime minister participates in a flag-raising ceremony and delivers a televised address to the country.

## Red Fort Architecture

- The Red Fort's massive red sandstone walls, which stand 75 feet (23 metres) high, enclose a complex of palaces and entertainment halls, projecting balconies, baths and indoor canals, and geometrical gardens, as well as an ornate mosque.
- The planning of the palace is based on Islamic prototypes, but each pavilion reveals architectural elements typical of Mughal buildings, reflecting a fusion of Persian, Timurid, and Hindu traditions.
- The fort is octagonal, with the north-south axis longer than the east-west axis.
- Among the most famous structures of the complex are the Hall of Public Audience (Diwan-i-'Am), which has 60 red sandstone pillars supporting a flat roof, and the Hall of Private Audience (Diwan-i-Khas), which is smaller and has a pavilion of white marble.
- The marble, floral decorations, and double domes in the fort's buildings exemplify later Mughal architecture.
- It has 2 principal gates–Lahore Drawaza and Delhi Darwaza along its western and southern sides, respectively.

# Unique Disability ID (UDID) Card

Less than 40% of India's projected population of Persons with Disabilities (PwDs) have been issued a Unique Disability ID (UDID) Card, which enables access to government benefits, data show.



## About Unique Disability ID (UDID) Card

- A UDID card is a single document of identification for Persons with Disabilities (PwDs).
- It is the universal ID that is accepted all across the country.
- As per the Rights of Persons with Disabilities (RPwD) Act, 2016, UDID cards can be issued by home district hospitals as well as the hospital where the PwD is taking medical treatment.
- The UDID card has a total of 18 digits/characters.
- The first 2 characters represent State Code, the next 2 digits for the district code, the next 1 digit for the CMO code, the next 2 digits for disability type, the next 4 digits for year of birth of PwD, the following 6 digits for running number, and the last digit for check sum which is involved for security reasons.
- Three types of colour-based UDID Cards are issued based on the severity of the disability:
  - White Card: When the disability percentage of a PwD is below 40%.
  - Yellow Card: When the disability percentage of a PwD is above 40% but on or below 80%
  - Blue Card: When the disability percentage of a PwD is above 80%.

## Unique ID for Persons with Disabilities Project

- The UDID Project is initiated by the Department of Empowerment of Persons with Disabilities, Ministry of Social Justice & Empowerment.
- It is being implemented to create a national database of PwDs and issue a Unique Disability Identity Card (UDID) to each individual.
- It also aids in tracking the physical and financial progress of beneficiaries across various administrative levels — village, block, district, state, and national.
- It aims to build a comprehensive end-to-end system for issuing Universal IDs and Disability Certificates. This system includes:
  - Nationwide availability of PwD data through a centralized web application.
    - Online application submission for Disability Certificate/UDID card (offline submissions are also allowed and digitized later).
    - Efficient assessment process by hospitals or Medical Boards to calculate disability percentage.
    - Elimination of duplicate PwD records.
    - Online renewal and update of information by or on behalf of PwDs.
    - Management Information System (MIS) reporting framework.
    - Integrated management of various government benefits/schemes for PwDs.
    - Support for additional disabilities in the future (currently 21 disabilities, subject to updates).

# Global Peace Index 2025

Iceland has once again secured its position as the most peaceful country in the world, as per the 2025 Global Peace Index (GPI)



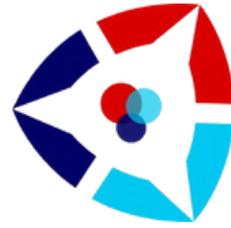
## About Global Peace Index

- Produced by the Institute for Economics & Peace (IEP), the GPI is the world's leading measure of global peacefulness.
- It ranks 163 independent states and territories according to their level of peacefulness, covering 99.7 percent of the world's population.
- It uses 23 qualitative and quantitative indicators to measure the state of peace across three domains: the level of Societal Safety and Security; the extent of Ongoing Domestic and International Conflict; and the degree of Militarisation.

## Highlights of Global Peace Index 2025

- It is the 19th edition of the GPI.
- It finds that global peacefulness continues to decline and that many of the leading factors that precede major conflicts are higher than they have been since the end of WWII.
- More countries are increasing their levels of militarisation.
- There are currently 59 active state-based conflicts, the most since the end of WWII and three more than the prior year.
- Last year, 17 countries recorded over 1,000 conflict deaths.
- Additionally, the successful resolution of conflicts is lower than at any point in the last 50 years.
- Conflicts that ended in a decisive victory fell from 49 percent in the 1970s to nine percent in the 2010s, while conflicts that ended through peace agreements fell from 23 percent to four percent over the same period.
- This year's results found that the average level of global peacefulness deteriorated by 0.36 percent.
- Iceland remains the most peaceful country in the world, a position it has held since 2008. It is joined at the top of the index by Ireland, Austria, New Zealand, and Switzerland.
- Russia, for the first time, is the least peaceful country in the world on the 2025 GPI, followed by Ukraine, Sudan, Democratic Republic of the Congo, and Yemen.
- Western and Central Europe is the most peaceful region in the world, home to eight of the ten most peaceful countries, although its peacefulness has been falling over the last four years.
- South America was the only region in the world to record an improvement in peacefulness last year.
- The Middle East and North Africa (MENA) region remains the world's least peaceful region.
- South Asia, the second least peaceful region globally, experienced the largest regional decline in peacefulness.
- India was ranked 115 on the GPI 2025, up one position from its 2024 spot.
- The most peaceful Asian countries were Singapore (6th), Japan (12th), Malaysia (13th), Bhutan (21st), and Mongolia (37th).

# Innovations for Defence Excellence



Recently, the Innovations for Defence Excellence - Defence Innovation Organisation has inked an MoU with EdCIL (India) Limited to foster the development of dual-use cutting-edge technologies, driven by the new ASPIRE (Accelerating Strategic Progress in Research and Education) program.



## About Innovations for Defence Excellence

- It is the flagship initiative launched in 2018 by the Ministry of Defence, Govt of India
- Objective: The objective of the scheme is to cultivate an innovation ecosystem in the Defence and Aerospace sector by collaborating with startups, innovators, MSMEs, incubators, and academia.
- Funding: It will be funded and managed by a 'Defence Innovation Organization (DIO)'
- Defence Innovation Organization has been formed as a 'not for profit' company as per the Companies Act 2013 for this purpose, by the two founder members. Defence Public Sector Undertakings (DPSUs) Hindustan Aeronautics Limited (HAL) and Bharat Electronics Limited (BEL).
- iDEX functions as the executive arm of DIO, carrying out all the required activities while DIO provides high level policy guidance to iDEX.
- It offers grants and support for R&D with significant potential for future adoption in Indian defence and aerospace
- It is currently engaged with over 650 start-ups and MSMEs.

# MY Bharat



Union Minister of Sports and Youth Affairs stated that MY Bharat Aapda Mitras will be mobilised to provide rescue operations in the flood-affected areas of Punjab and Himachal Pradesh.

## About MY Bharat

- It is an autonomous body that has been set up by the Department of Youth Affairs, Ministry of Youth Affairs and Sport.
- MY Bharat's digital platform provides equitable access to opportunities for youth to actualize their aspirations and build Viksit Bharat.
- It is meticulously designed to cater to the needs of the dynamic youth demographic, aged between 15 and 29 years.
- This platform offers a wealth of resources, mentorship programs, experiential learning opportunities, networks, and invaluable industry connections.

## Key Facts about MY Bharat Aapda Mitras

- They are trained by the National Disaster Management Authority (NDMA) under the Aapda Mitra programme.
- Aapda Mitra programme is a unique initiative under MY Bharat, offering structured NDMA-certified disaster response training to young volunteers.
- It equips them with skills in search and rescue, first aid, crowd management, and emergency coordination, making them valuable assets during natural calamities.
- These youth volunteers will work at the grassroots to ensure that food, medical aid, and essential supplies reach villages cut off due to floods and landslides.

# Niveshak Didi Initiative



Recently, the Investor Education and Protection Fund Authority (IEPFA) successfully launched Phase II of its flagship financial literacy initiative – Niveshak Didi at Hyderabad.

## About Niveshak Didi Initiative

- Aim: The initiative is aimed at deepening financial awareness and empowering rural communities, particularly women.
- It is based on the ideology of women for women as rural area women feel more comfortable to share their queries with a female itself.
- Nodal Ministry: Ministry of Corporate Affairs
- Launched by: Investor Education and Protection Fund Authority
- Significance: It serves as a catalyst for bridging knowledge gaps and building confidence in communities.

## Key Facts about Investor Education and Protection Fund Authority

- It was established in 2016 under the Companies Act, 2013.
- It empowers individuals to make informed financial choices and fosters a financially aware citizenry.
- Nodal Ministry: Ministry of Corporate Affairs

## Functions of Investor Education and Protection Fund Authority

- It manages the Investor Education and Protection Fund (IEPF) and promotes investor awareness and financial protection.
- Make refunds of shares, unclaimed dividends, matured deposits/debentures etc. to investors and promote awareness among investors.
- It is dedicated to safeguarding investor interests by facilitating the return of unclaimed shares and dividends and advancing financial literacy nationwide.
- Initiatives: Niveshak Didi, Niveshak Panchayat, and Niveshak Shivir,

# Kapas Kisan App



Recently, the Union Minister of Textiles launched a new mobile application Kapas Kisan app.

## About Kapas Kisan App

- It is developed by the Cotton Corporation of India (CCI), under the Ministry of Textiles,

## Features of Kapas Kisan App

- It facilitates seamless procurement of cotton from Farmers under the Minimum Support Price scheme.
- It empowers farmers with self-registration, slot booking and payment tracking.
- It provides facility of payment tracking by farmers - bringing greater transparency, convenience and speed to the cotton procurement process.
- It allows farmers to securely register themselves for selling cotton under MSP
- Digital scheduling at designated procurement centres to reduce waiting time and crowding, Real-time status updates on quality assessment, accepted quantities, payment processing User-friendly interface with support for multiple Indian languages.

## Advantages of Kapas Kisan App

- Protect cotton farmers against any distress sales through assured MSP procurement,
- Reduce manual paperwork and save time at procurement centres.
- Enhances transparency and improves planning by allowing farmers to choose convenient time slots.

# WHO Model Lists of Essential Medicines



**World Health Organization**

Recently, the World Health Organization (WHO) released updated editions of its Model Lists of Essential Medicines (EML), adding new treatments for various types of cancer, diabetes, and obesity associated with comorbidities

## **About WHO Model Lists of Essential Medicines**

- It acts like a register of minimum medicine needs for every health-care system.
- It is updated every two years by the Expert Committee on Selection and Use of Essential Medicines.
- History of the Essential Medicines List
- The first country in the world to compose its EML was Tanzania in 1970.
- Then in 1975, the World Health Assembly requested WHO to assist member states in selecting and procuring essential medicines, assuring good quality at reasonable cost.
- Subsequently, the first WHO model list of essential medicines was published in the year 1977 which contained 186 medicines.
- WHO selects essential medicines based on public health relevance, evidence of benefits and harms, and with consideration of costs, affordability and other relevant factors.
- Globally, over 150 countries have national essential medicines lists based on the WHO Model List.

## **What are Essential Medicines?**

- As per the World Health Organisation (WHO), Essential Medicines are those that satisfy the priority health care needs of the population.
- The list is made with consideration to disease prevalence, efficacy, safety and comparative cost-effectiveness of the medicines.
- Such medicines are intended to be available in adequate amounts, in appropriate dosage forms and strengths with assured quality. They should be available in such a way that an individual or community can afford.

# Combined Commanders' Conference (CCC) 2025



The Prime Minister will inaugurate the Combined Commanders' Conference (CCC) 2025 in Kolkata, West Bengal.

## About Combined Commanders' Conference

- The CCC is the apex-level brainstorming forum of the Armed Forces, bringing together the nation's top civil and military leadership to exchange views at the conceptual and strategic levels.
- CCC 2025 will be held in Kolkata, West Bengal, from September 15 to 17, 2025.
- The central theme for this year's conference is "Year of Reforms – Transforming for the Future".
- The CCC 2025 will focus on Reforms, Transformation & Change and Operational Preparedness.
- Together, these reflect the Armed Forces' commitment to institutional reforms, deeper integration, and technological modernisation, while sustaining a high level of multi-domain operational readiness.
- The deliberations will seek to further strengthen the Armed Forces, which are agile and decisive in an increasingly complex geo-strategic landscape.
- Continuing with the tradition of inclusive engagement, the conference will feature interactive sessions with officers and personnel of various ranks from the Armed Forces, ensuring that field-level perspectives enrich the discussions at the highest level.
- The conference will also be attended by the Defence Minister, the National Security Adviser, the Minister of State for Defence, the Chief of Defence Staff, and the Defence Secretary.

# Adi Sanskriti Platform

Recently, the Ministry of Tribal Affairs unveiled the Beta Version of Adi Sanskriti at Bharat Mandapam, New Delhi, during the National Conference on Adi Karmayogi Abhiyan.



## About Adi Sanskriti Platform

- It is a pioneering digital learning platform for tribal artforms, preserving heritage, enabling livelihoods, and connecting India's tribal communities with the world,
- Objective
- It is envisioned as the world's first Digital University to preserve and promote the culture and traditional knowledge of tribal communities.
- It functions as an online marketplace for the world to access products made by tribal artisans.
- The platform integrates three major components:
- Adi Vishwavidyalaya (Digital Tribal Art Academy): It is currently offering 45 immersive courses on tribal dance, painting, crafts, music, and folklore.
- Adi Sampada (Socio-Cultural Repository): It is a collection of over 5,000 curated documents across five themes, covering paintings, dance, clothing & textiles, artefacts and livelihood.
- Adi Haat (Online marketplace): It is currently linked with TRIFED, this will evolve into a dedicated online marketplace for tribal artisans, enabling sustainable livelihoods and direct consumer access.
- It is being built in close partnership with State Tribal Research Institutes (TRIs).
- States involved in its first phase: TRIs from Andhra Pradesh, Assam, Bihar, Chhattisgarh, Goa, Gujarat, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Odisha, Rajasthan, Tamil Nadu, Telangana, and Uttar Pradesh.
- These states have contributed to the documentation, content curation, and digital mapping of tribal artforms.

# INS Aravali

Recently, the Indian Navy commissioned its latest Naval Base, INS Aravali, at Gurugram.



## About INS Aravali

- It is named after the Aravali mountain range.
- It is designed to strengthen the Navy's information and communication infrastructure.
- It is located at Gurugram, Haryana.
- Motto: It is guided by the motto 'Maritime Security through Collaboration'.
- It is designed to support naval information and communication centres that are critical to India's maritime security, command and control operations, and Maritime Domain Awareness (MDA).
- It embodies a spirit of cooperation with other naval units, MDA centres, and allied stakeholders.
- It marks a strategic step forward in the Navy's efforts to enhance situational awareness and inter-agency coordination across India's maritime domain.
- The emblem reflects the base's commitment to safeguarding India's maritime interests through constant readiness and innovation.
- It also fulfill the India's collaborative vision of MAHASAGAR, or Mutual and Holistic Advancement for Security and Growth Across Regions.
- Symbolism of the crest: It features a central mountain symbol, representing the steadfast strength of the Aravali range, and a rising sun, signifying eternal vigilance, resilience, and the dawn of advanced technological capabilities in communications and domain awareness.
- Strategic Role: It would strengthen India's role as the Preferred Security Partner in the Indian Ocean Region.

# Fast Track Immigration- Trusted Traveller Programme



Recently, the Union Home Minister launched the Fast Track Immigration-Trusted Traveller Programme (FTI-TTP) at 5 more airports.

## About Fast Track Immigration-Trusted Traveller Programme

- It is an initiative to speed up the Immigration clearance process for eligible persons from the following categories: Indian Nationals and Foreign Nationals holding OCI Cards.
- It was first launched at Delhi's IGI Airport in 2024.
- Purpose: It has been introduced with the purpose of facilitating international mobility with faster, smoother and secure immigration clearances.

## FTI-TTP Enrollment Process

- The FTI-TTP has been implemented through an online portal, <https://ftittp.mha.gov.in>.
- To enroll in this program, applicants must register online on the portal by filling in their details and uploading the required documents.
- The biometrics of registered applicants are collected at the Foreigners Regional Registration Office (FRRO) or while passing through the airport.
- Immigration Clearance Process
  - Boarding Pass Scan: Registered travellers scan their boarding pass at the e-gates to retrieve flight details.
  - Passport Scan: The passport is scanned to confirm the traveller's identity.
  - Biometric Authentication: Biometrics is authenticated at the e-gates.
  - Automated Clearance: Once verified, the e-gate opens, completing the immigration process automatically.
  - Validity of Registration: It is valid until the passport's expiry or five years, whichever comes first, with an option for renewal.
  - Till now, this facility has been started at 13 airports across the country.
  - Nodal agency: The Bureau of Immigration, under the Ministry of Home Affairs, is the nodal agency responsible for implementing the programme.

# AI-Based Weather Forecasting Program

The Ministry of Agriculture and Farmers' Welfare (MoAFW) launched AI-based monsoon forecasts via SMS (m-Kisan) to nearly 3.8 crore farmers across 13 states this year.



## About AI-Based Weather Forecasting Program

- It was launched by the Ministry of Agriculture and Farmers' Welfare.
- Under this initiative AI-based monsoon forecasts were sent using the m-Kisan portal.
- This is the first-of-its-kind targeted dissemination of AI weather forecasts to date.
- These AI-based forecasts distributed by the MoAFW correctly identified 20 days' pause in monsoon progression.
- The government sent updated information to farmers every week until continuous rains arrived in their area.
- AI Models used
- The forecasts used were a blend of two open-access models—Google's Neural GCM and European Centre for Medium-Range Weather Forecasts' (ECMWF) Artificial Intelligence Forecasting Systems (AIFS).
- Significance: It centers specifically on the needs of farmers by providing tailored weather forecasts in easy to understand language and helps them make informed farming decisions.

## What is m-Kisan Portal?

- It is a platform which provides web-based mobile advisory to farmers with the technological backstopping from Research Institutes and Agricultural Universities supporting farmers.
- It enables all Central and State government organizations in agriculture and allied sectors to provide information/services/advisories to farmers by SMS in their language, preference of agricultural practices and location.
- Through this portal messages are tailored to the farmer's language, location, and preferred practices, helping them stay updated on weather, crops, pest control, and government schemes.

# PLI Scheme for White Goods



Recently, the government has re-opened the application window for the production-linked incentive (PLI) scheme for white goods.

## About PLI Scheme for White Goods

- It is designed to create a complete component ecosystem for Air Conditioners and LED Lights Industry in India and make India an integral part of the global supply chains.
- It is implemented as a pan India scheme and is not specific to any location, area or segment of population.
- Objectives: It proposes a financial incentive to boost domestic manufacturing and attract large investments in the White Goods manufacturing value chain.
- Its prime objectives include removing sectoral disabilities, creating economies of scale, enhancing exports, creating a robust component ecosystem and employment generation.
- Incentives: The scheme will extend an incentive of 4-6% on incremental turnover over base year (2019-20) of goods sold in India and exported to global markets, to eligible companies for a period of 5 years.
- Eligibility
- Applicants can be any company that should be incorporated in India under the provisions of the Company Act, 2013.
- Eligibility shall be subject to the achievement of thresholds of net incremental sales of Eligible Products for the respective financial year over the base year and cumulative incremental investment in the preceding financial year.
- Any entity availing benefits under any other PLI Scheme of Govt. of India will not be eligible under this scheme for the same products.
- Duration : It is to be implemented over FY 2021-22 to FY 2028-29
- Nodal Ministry: The scheme was notified by the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry.

# Frontier 50 Initiative

Recently, the NITI Aayog launched the Frontier 50 Initiative to amplify grassroots adoption of technology and scale impact creation.



## About Frontier 50 Initiative

- It will support 50 Aspirational Districts / Blocks to pick use cases from the Repository and deploy those frontier technologies that have potential to accelerate saturation of services across ADP/ABP themes.
- Launched by: NITI Aayog under its Frontier Tech Hub.
- The Frontier Tech Repository showcases 200+ impact stories from across India in four sectors – Agriculture, Healthcare, Education, and National Security.
- It brings to life how states and startups are deploying technology with the purpose to transform livelihoods.

## What is NITI Frontier Tech Hub?

- It has been established to anticipate mega technology shifts and chart India's readiness to unlock their potential for inclusive growth, supply chain resilience, and national security.
- It convenes leading experts across government, industry, and academia to assess frontier technologies—such as AI, quantum, and biotechnology.
- It evaluates AI, quantum, and biotechnology opportunities and risks for India, and designs strategies to harness them for Viksit Bharat@2047.

# Exercise Pacific Reach 2025



Indian Navy's latest indigenously designed and constructed Diving Support Vessel (DSV) INS Nistar is participating in Exercise Pacific Reach 2025 in Singapore.

## About Exercise Pacific Reach 2025

- It is a multinational conducted in Singapore.
- It is a biennial exercise which will witness participation of more than 40 nations.
- The exercise is mainly conducted in two phases, including the harbour and sea phases.
- Focus of the Exercise: The harbour phase will involve in-depth discussions on submarine rescue systems, Subject Matter Expert Exchanges (SMEE), a medical symposium and cross-deck visits between the participating nations.
- The Sea phase of the exercise would witness INS Nistar and Submarine Rescue Unit (E) engaging in multiple intervention and rescue operations with participating assets in the South China Sea.

## Key Facts about INS Nistar

- It was commissioned on 18 Jul 2025.
- It was developed by HSL, Visakhapatnam, under the Ministry of Defence's 'Aatmanirbhar Bharat' initiative.
- The ship with its Side Scan Sonar, Work & observation class ROVs and expansive deep sea diving systems will be carrying out the role of mothership (MoSHIP) for Deep Submergence Rescue Vehicle (DSRV).
- Diving and Rescue Capabilities
  - Integrated Saturation Diving System (ISDS): Enables diver deployment at depths up to 300 meters, supporting underwater repairs, salvage, and rescue operations.
  - Remotely Operated Vehicles (ROVs): These can be deployed for underwater surveillance and recovery missions in deep waters.
  - Side Scan Sonar and Integrated Platform Management System (IPMS): Aid in locating submerged vessels or wreckage and managing onboard systems, respectively.
  - Submarine Rescue System: Especially crucial for submarine emergencies, allowing the timely and safe recovery of personnel from disabled submarines.