

Factly Weekly

Compilation

2026

**For UPSC CSE Prelims
Exam**

August 2026

INDEX

Ceuta and Melilla	5
Pradhan Mantri Surya Sarovar Yojana (PM-SSY).....	5
Deep Submergence Rescue Vessel (DSRV) NIPUN	7
Alaknanda River	8
Samudra Manthan (Natiponal Offshore Exploration Scheme).....	9
Madura Island	10
Pellet Guns	11
Protein Language Models (pLMs)	12
Leptospirosis.....	13
Pseudecheneis likimroensis and Likimro River	15
Cyclosporiasis	16
Nitrosamines as Hidden Carcinogens	17
Key Facts About Uzbekistan.....	18
Kamlang Tiger Reserve	19
Ujh Multipurpose Project.....	20
Phoenix Species Project	21
Panari Hydropower Project and Baghain River.....	22
Ranipur Tiger Reserve	24
Hexavalent Vaccine	25
Kisan Credit Card-Modified Interest Subvention Scheme (KCC-MISS).....	25
Indigenous African Swine Fever (ASF) Vaccine.....	26
Closing Auction Session (CAS)	28
COSPAR Vikram Sarabhai Medal - 2026.....	29
Inventory-based Cross-border E-Commerce Export Framework	31
Key Facts about Lesotho	32
Bonda Tribe and Ringa Weaving Tradition	33
Asan Wetland Conservation Reserve	35
Dr. M. S. Swaminathan Award for Environment Protection 2026.....	36
Kamaladevi Chattopadhyay	37
HYDERACENE	38
Dhabaleswar Temple.....	39
Roselle (Hibiscus sabdariffa).....	40
Ural Mountains	41
Mecca Defence Pact.....	42

Factly Monthly Compilation August 2026

Sowa-Rigpa and Bhoti-Language Manuscripts	44
Explosive Ordnance Disposal (EOD) Exercise 2026.....	45
Key Facts about Bolivia	45
Bank in a Box	47
Sonai Rupai Wildlife Sanctuary	47
Quit India Movement.....	49
Indian Peacock.....	50
National Scholarship Portal	51
Dirac Medal 2026	52
QS World University Rankings 2027	53
S.H.I.N.E. Initiative	54
Container Manufacturing Assistance Scheme (CMAS).....	55
Zaskar Range.....	56
NGOPV Shruti	57
Moon Base Program of NASA	58
Hallaniyat Islands.....	59
Babirusa/Pig-Deer	61
De-reservation.....	62
Ramganga River.....	63
About Hanle Wetland and Tso Kar.....	64
Pradhan Mantri National Dialysis Programme (PMNDP) and Dialysis.....	65
Key Facts About Kenya	67
Kuril Islands	68
Merchant Discount Rate (MDR).....	69
Southern African Customs Union (SACU)	71
Revamped India Code Portal.....	72
SraVaani	73
Exercise MAITREE-XV (2026)	75
Royal Indian Navy Mutiny of 1946.....	76
Madan Lal Dhingra	78
Friedreich's Ataxia (FRDA)	79
Logistics Data Bank (LDB)	80
E. coli Found in Railway Station Water	81
Communal Award.....	82
Rotating Detonation Engines (DREs)	83

Factly Monthly Compilation August 2026

Hara Mangrove Forests	84
Incentive Scheme for Promotion of Domestic PNG Connections.....	85
Lantana Camara.....	86
Bad Cholesterol.....	87
Microbial Ecology and Soil Microbes.....	88
Helicase: The DNA Separator	90
Maveeran Ondiveeran.....	91
Pradhan Mantri Janjatiya Vikas Mission (PMJVM)	92
Zonal Councils	93
RK-251.....	94
Apong.....	95
Terrier Cyber Quest 2026.....	96
Ervebo Vaccine.....	98
India's First-ever Guide to Grasslands and Other Open Natural Ecosystems	99
Definition of 'Industry' and 'Triple Test'	100
Satokosia Tiger Reserve.....	101
Long-tailed Marmot (Marmota caudata).....	102
H1N1 Virus.....	102
Political Clearance for CMs.....	104
India's First Blue Bond	105
Dimna Lake.....	106
Mission CosmoCube	107
Narwhals	108
Lake Erie.....	109
Barren-land Fallacy	110
Operation Black Hawk.....	110
Jojari River	111
Cloud and AI Skilling Initiative	112
Lakshadweep Islands	113
Garbhini Mitra Course	115
GENESIS NextGen Startup Summit	116
Demand for a Gorkha State	117
Crete Island.....	118
NJ-05, NJ-50 and NJ-100	119
Gut Microbiome	120

Factly Monthly Compilation August 2026

Sanskrit Poet Kalidasa	121
Peppara Wildlife Sanctuary	122
BhoteKoshi, Lendhe River and Trishuli River.....	123
SAFE (Security Action for Europe) Defence Fund.....	123
Genome-Edited Rice Varieties – DRR Dhan 100 Kamala and Pusa DST Rice 1	124
Waterspouts	125
UN Committee on the Elimination of Racial Discrimination (UNCERD).....	127
Rajghat Excavations.....	127
Rajbhasha Utkrishtta Sammaan.....	128
Key Facts About Palau	129
Barrier Lake	130
Grand Chess Tour (GCT).....	131
Australian Merino and Gaddi Sheep.....	131
Kalagarh Tiger Reserve.....	133
Mahatma Ayyankali	134
Mandakini river	135
Integrated Fertilizer Management System (iFMS)	135
PM e-Bus Sewa Scheme	136
Peptides, Proteins and Hormones	137
Mission Rangeen Machhli 2031.....	139

Ceuta and Melilla

News: Thousands of migrants who risked their lives to enter Spain's North African enclave of Ceuta from Morocco turned back almost as quickly as they arrived.

About Ceuta



Source – Britannica

- **Location:** Ceuta is a small autonomous Spanish city and exclave located on the northern coast of Africa, bordered directly by Morocco.
- It forms the European Union's only shared land border with mainland Africa, along with the nearby city of Melilla.
- It spans roughly 19 sq. km. at the Mediterranean entrance to the Strait of Gibraltar.
- **Governance:** Administered as an autonomous city of Spain.
- **The Border Barrier:** The city is separated from Morocco by a heavily secured double fence equipped with barbed wire and modern detection systems.

Pradhan Mantri Surya Sarovar Yojana (PM-SSY)

News: The Union Cabinet chaired by the Prime Minister Shri Narendra Modi approved the 'Pradhan Mantri Surya Sarovar Yojana (PM-SSY)'.

About Pradhan Mantri Surya Sarovar Yojana (PM-SSY)

The infographic features a blue and white color scheme. At the top right is the PIB logo. The title 'Pradhan Mantri Surya Sarovar Yojana (PM-SSY)' is in bold blue text. Below it, a blue box contains the subtitle 'A Step Towards a Sustainable Energy Future'. The main content consists of five bullet points, each preceded by a blue line segment. To the right of the text is a photograph of a house with solar panels on its roof. At the bottom right is a portrait of Prime Minister Narendra Modi. A vertical label on the right side of the infographic reads 'CABINET DECISION 01-07-2025'.

Pradhan Mantri Surya Sarovar Yojana (PM-SSY)

A Step Towards a Sustainable Energy Future

- Cabinet approves **Pradhan Mantri Surya Sarovar Yojana** for development of floating solar photovoltaic projects with energy storage systems
- Total Budgetary Outlay: **₹5,070 crore**
- Scheme aims to develop **5,000 MW of Floating Solar PV projects** with co-located Energy Storage Systems of at least 10,000 MWh storage capacity
- Projects will be sanctioned from **FY 2026–27 to FY 2030–31**, with financial support continuing up to FY 2032–33
- **Central Financial Assistance (CFA) of ₹ 1 crore** per MW will be provided for eligible Floating Solar Photovoltaic projects after successful commissioning

CABINET DECISION 01-07-2025

Source: PIB

- It is a **scheme for the development of Floating Solar Photovoltaic (FSPV) Projects** with Energy Storage Systems (ESS).
- **Aim:** It aimed at **accelerating floating solar power by providing central financial assistance of up to ₹1 crore per MW for projects installed** on reservoirs and other water bodies.
 - It is also designed to **address two of the biggest constraints** facing ground-mounted solar projects: **acquiring large contiguous parcels of land and the rising costs associated with rehabilitation and resettlement.**
- **Budget:** It has a total budgetary outlay of **Rs.5,070 crore.**
- **Duration:** It will be **sanctioned during FY 2026-27 to FY 2030-31**, with disbursement of financial support continuing up to FY 2032-33.
- **Target:** It targets **5,000 MW of floating solar capacity by 2030-31.**
- **Coverage:** **All States and Union Territories** will benefit through this scheme.
- **Nodal Ministry:** Nodal ministry for the scheme is **Ministry of New and Renewable Energy.**
- **Implementing agency:** It is to be implemented by the **Solar Energy Corporation of India.**
- **Features:**
 - It envisages the **development of 5,000 MW of Floating Solar Photovoltaic projects** with co-located Energy Storage Systems having a minimum **storage capacity of two hours i.e.,10,000 MWh.**
 - Under the scheme, **Central Financial Assistance (CFA) of Rs. One crore per MW will be provided for eligible Floating Solar Photovoltaic projects** after successful commissioning.

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- Additionally, **CFA of up to Rs.50 lakh per project will be available for undertaking feasibility studies**, including bathymetry and hydrography assessments, environmental studies, and other preparatory activities required for de-risking the project development.
- **Expected outcome:**
 - It would enhance the **floating Solar PV capacity in the country by 5,000 MW**, which is presently around 700 MW only.
 - These projects would **provide an opportunity to gainfully utilize existing reservoirs & industrial ponds**, and eliminate competition for scarce land resources.
 - The **integration of an energy storage system** will help strengthen grid reliability. The scheme would help in the **reduction of around 10 million tonnes of CO₂ emissions annually**.
 - It would help in the **generation of approximately 16,000–17,000 full-time equivalent employment opportunities** across the project value chain.
 - It would also **promote domestic manufacturing of floatation systems as well as the entire value chain of the projects**, like PV cells, modules, energy storage systems, etc., and support the vision of Aatmanirbhar Bharat.
 - It will contribute **to renewable energy capacity addition, support the achievement of national energy and climate objectives**, and facilitate **optimal utilisation of water resources**.

Deep Submergence Rescue Vessel (DSRV) NIPUN

News: Recently, 'Deep Submergence Rescue Vessel (DSRV) NIPUN' was delivered to the Indian Navy at Visakhapatnam.

About Deep Submergence Rescue Vessel (DSRV) NIPUN

- 'Nipun' is the **second Diving Support Vessel (DSV)**.
- **Built by:** It was built by **Hindustan Shipyard Limited** was delivered to the Indian Navy in 2026.
- It **draws her name from Sanskrit signifying 'one who is adept, capable, and well versed in a particular discipline'**.
- **Features:**
 - It is **highly specialised and is capable of undertaking deep sea dive operations and rescue operations at sea**.
 - It is **installed with state-of-the-art Dive Equipment** and has capability to undertake **Deep Sea Saturation Diving**.
 - A side diving stage has also been provided for undertaking **Diving Operations**.
 - Its **operational capabilities are further enhanced by Remotely Operated Vehicles (ROVs)**, which facilitate **diver monitoring, underwater inspection, and salvage missions**.
 - It would also **serve as the Mother Ship for the Deep Submergence Rescue Vessel (DSRV)**, to evacuate personnel in case of an emergency in a submarine.

About Deep Submergence Rescue Vessel (DSRV)

- A diving support vessel (DSV) is a **specialised ship used as a floating base** for professional underwater work, deep-sea salvage and submarine rescue operations.
- It features **advanced dynamic positioning, saturation diving systems and deployment gear** for remotely operated vehicles.

- India's **first indigenously designed and constructed diving support vessel** was [INS Nistar](#), which was commissioned in 2025.

Alaknanda River

News: The Alaknanda River at Rudraprayag has crossed the warning level due to continuous rainfall, prompting authorities to issue a high alert.

About Alaknanda River

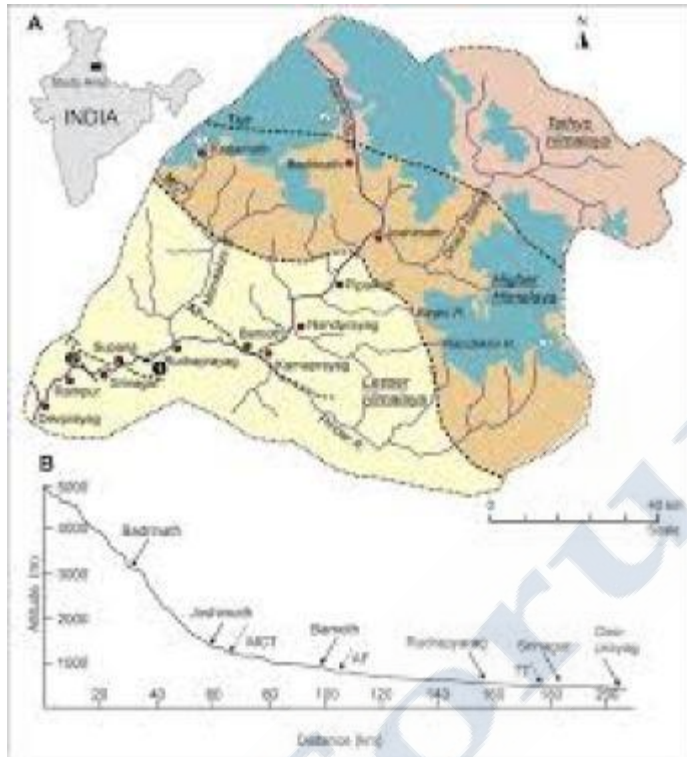


Figure 1. Source: Research Gate

- The Alaknanda is a **Himalayan river** of **Uttarakhand** and the **major river** of Northern India.
- **Origin and course of river:** It originates from the **snouts of the Satopanth and Bhagirathi Kharak glaciers**, descending from the **Chaukhamba massif** in **Chamoli district** of Uttarakhand.
 - From there it flows for about **195 km** through **Chamoli, Rudraprayag, Pauri Garhwal, and Tehri Garhwal** districts in Uttarakhand.
 - It meets the **Bhagirathi River** at **Devprayag (Tehri Garhwal district)**, from whence the river is known as '**Ganga**'.
- **Basin area:** Alaknanda River basin **spans an area of about 10,882 km**.
 - The basin falls under the **Trans-Himalaya, Himalaya and Gangetic Plain** biogeographic zones.
- **Protected area along the basin:** **Valley of Flowers National Park and Nanda Devi National Park, both UNESCO World Heritage Sites** situated in the **Alaknanda River basin**.
- **Tributaries:** Its major tributaries are the **Dhauliganga, Nandakini, Pindar, Mandakini and Saraswati**.
- **Tributary of:** It is a tributary of the **Ganga River**.
- **Religious significance:** According to Hindu mythology, it is considered one of the sacred streams that formed when the celestial Ganga descended to Earth, and was divided by Lord Shiva's (one of the three supreme Hindu deities) matted locks.
 - '**Panch Prayag**' are the five sacred confluences along the **Alaknanda River**, where it is joined by its major tributaries.
 - In chronological order, these are **Vishnuprayag (with the Dhauliganga), Nandaprayag (with the Nandakini), Karnaprayag (with the Pindar), Rudraprayag (with the Mandakini), and Devprayag (with the Bhagirathi, after which the river is known as the Ganga).**

- **Dham situated on river: Badrinath Dham**, situated along the Alaknanda River, is one of the Char Dham pilgrimage sites **established by Adi Shankaracharya**.
- **Dams on the river:** There are many operational dam and Hydro Electric projects in the Alaknanda basin namely **Tapovan, Tharali, Vishnuprayag, Srinagar** etc.

Samudra Manthan (National Offshore Exploration Scheme)

News: The Union Cabinet chaired by the Prime Minister Shri Narendra Modi has approved 'Samudra Manthan (National Offshore Exploration Scheme)'.

About Samudra Manthan (National Offshore Exploration Scheme)



Source: Ministry of Petroleum and Natural Gas

- Samudra Manthan is a **comprehensive initiative to accelerate offshore oil and gas exploration and production across the entire exploration value chain**.
- It adopts an **integrated approach to accelerate offshore hydrocarbon exploration and production**.
- **Aim:** It aims to **increase India's domestic oil and gas production from around 62 MMTOE to 80 MMTOE annually** and **expand the country's hydrocarbon resource base from 1.6 billion TOE to 2.2 billion TOE**.
 - **Note:** The additional production has the potential to reduce crude oil imports by nearly ₹1 lakh crore annually, strengthening India's energy security and reducing import dependence.
- **Nodal Ministry:** It is a **Central Sector Scheme of the Ministry of Petroleum & Natural Gas**.
- **Budget outlay:** It has an approved outlay of **Rs.84,084 crore**.
- **Implementation Duration:** It has implementation during up to **FY 2030-31**.
- **Features:** The scheme includes:
 - **Large-scale acquisition, processing and interpretation** of high-quality seismic data.

- **Accelerated exploratory drilling in deepwater** and ultra-deepwater areas.
- **Scientific drilling** in frontier sedimentary basins.
- **Development of common offshore production** and evacuation infrastructure.
- **Establishment of an integrated Oil & Gas Manufacturing** and Services Zone.
- Dedicated provisions for **digital programme management, capacity building, technology adoption, stakeholder engagement** and international outreach.
- **Key Components of the scheme:**
 - Acquisition and processing of modern offshore seismic data
 - Drilling of 60 deepwater exploration wells
 - Development of common offshore infrastructure hubs to facilitate commercialisation of discoveries; and
 - Establishment of Oil and Gas Manufacturing and Services Zones to promote domestic manufacturing and localisation of critical equipment and services
- **Expected outcomes:**
 - **Reserve accretion of over 600 Million Metric Tons of Oil Equivalent (MMTOE).**
 - Significant **increase in offshore exploration and domestic oil and gas production** and development of a globally competitive ecosystem for offshore technologies and services.
 - **Increased investments across the exploration and production value chain**, driving innovation and long-term economic growth.
 - The scheme is **expected to enhance India's long-term energy security by unlocking offshore energy resources**, strengthening technological capabilities and creating sustainable economic value.
 - **Large-scale employment generation and strengthening of indigenous manufacturing** under the Make in India and Atmanirbhar Bharat initiatives.

Madura Island

News: At least five people died and 41 remained missing after a passenger ferry caught fire near Indonesia's Madura Island during its voyage.

About Madura Island



Source – ResearchGate

- **Location:** Madura Island is an **Indonesian island** in the **Malay Archipelago**, located off the **northeastern coast of Java**.
- **Separation:** Madura Island is **separated from Java** by the **narrow Madura Strait** and forms **part of East Java Province**
- **Connectivity:** Madura is **connected to Java** by the **Suramadu Bridge**, the **longest bridge in Indonesia**.
- **Geography:**
 - **Topography:** The island is **mostly lowland with a relatively flat and undulating surface**, making it warmer and drier than mainland East Java.
 - **Geology:** Madura is part of the **northern limestone mountains of Java** and has **lower, rougher, and rounder limestone hills**.
- **Soil:** The soil is **generally dry and infertile**.
- **Climate:** The climate **resembles eastern Java**, but the **island is warmer and drier because it is closer to the equator**.
- **Key Features:**
 - **Salt Island:** Madura is **known as Pulau Garam (Salt Island)** because of its historically large-scale salt production.
 - **Bull Racing:** Madura is **renowned for Karapan Sapi**, a traditional bull racing competition that features decorated cattle and attracts large crowds.
 - **Administrative Division:** Madura is **administered as part of East Java Province** and is **divided into Bangkalan, Sampang, Pamekasan, and Sumenep regencies**.

Pellet Guns

News: The Supreme Court examined petitions on pellet gun use after students and workers suffered serious injuries during a crowd-control incident in Delhi.

About Pellet Guns



Source – TH

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- **Pellet guns** are **12-bore pump-action shotguns** classified as **less-lethal kinetic projectile weapons** used for **crowd control and dispersal**.
- **Working Mechanism:**
 - **Loading:** A **cartridge containing hundreds of small pellets** is loaded into the pellet gun before firing.
 - **Firing Process:** When the trigger is pulled, the **propellant inside the cartridge burns and produces high-pressure gases that push the pellets through the barrel**.
 - **Pellet Dispersion:** After leaving the barrel, the **pellets spread over a wide area** instead of travelling as a single projectile.
 - This wider spread makes the exact point of impact of each pellet difficult to control.
- **Key Features of Pellet Guns:**
 - **Wide Pellet Spread:** A single 12-bore cartridge releases about 500 pellets that spread across a wide area after leaving the barrel.
 - **Less-Lethal Design:** Pellet guns are intended to disperse violent crowds **without causing immediate fatalities**, but they **can cause serious injuries at close range**.
 - **Variable Ammunition:** They can **fire metal, rubber, or plastic pellets** according to operational requirements and force escalation protocols.

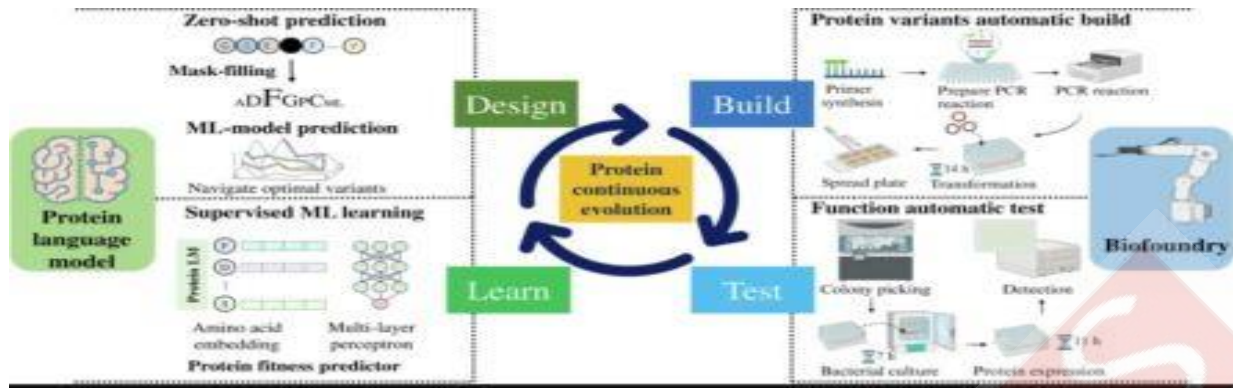
Pellet Guns in India

- **Manufacturing:** Pellet gun ammunition **used by security forces** in India is associated with **production at the Ordnance Factory, Ishapore**.
- **Protocols:** Pellet guns must be **used only as a last resort after other non-lethal methods fail**.
 - Security personnel **must follow graded force** and, as far as practicable, **aim below the waist** while using minimal force.
- **Operational Deployment:** The Union Government **introduced pellet guns in 2010 as a less-lethal crowd-control option**.
 - They were **first used by the Jammu and Kashmir Police** in Sopore and **later adopted by the CRPF and Rapid Action Force (RAF)**.
- **Use in Public Order:** Pellet guns have been used **during crowd-control operations in Jammu and Kashmir** and have also been **reported in Manipur in 2023** and the **Punjab-Haryana farmers' protests in 2024**.
- **Indigenous Alternative:** Following concerns over pellet gun injuries, **India developed plastic bullets through the DRDO's Terminal Ballistics Research Laboratory (TBRL), Chandigarh**, as a **safer alternative to metallic pellets**.

Protein Language Models (pLMs)

News: Scientists at Duke University developed Raygun, an AI system that can shrink, enlarge, and extensively rewrite proteins, and published the study in Nature on July 29.

About Protein Language Models (pLMs)



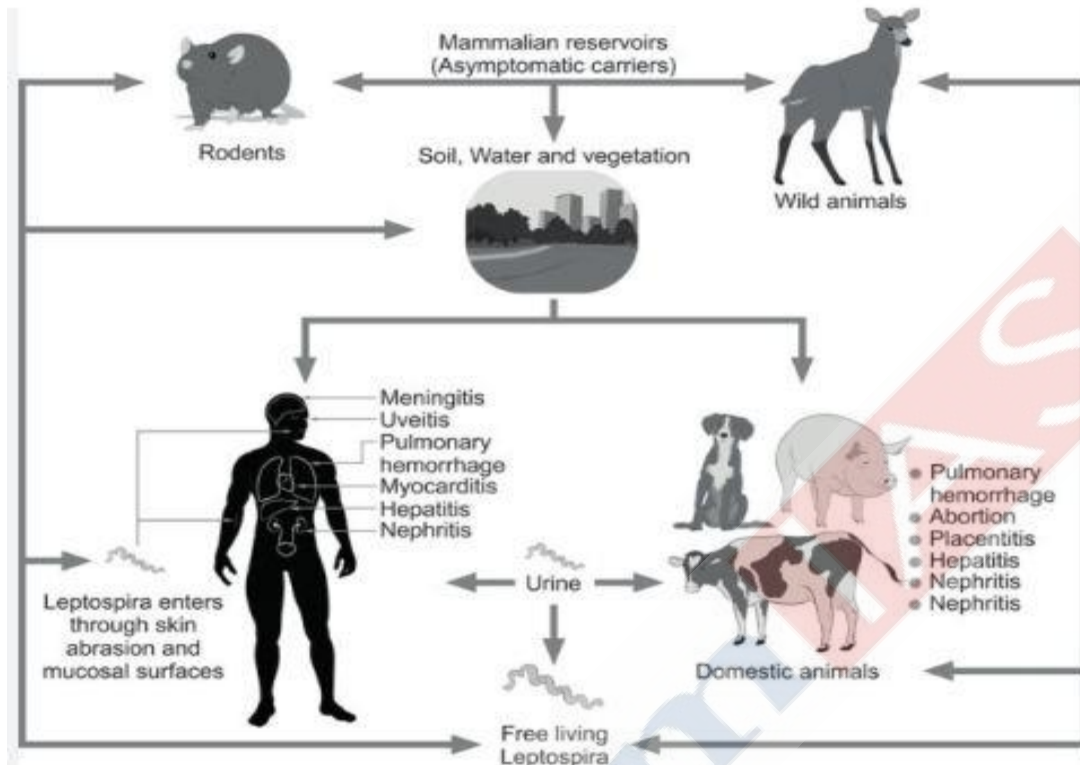
Source – ScienceDirect

- **Protein Language Model (pLM)** is a special type of artificial intelligence that studies protein sequences to understand their structure and function.
- **Core Analogy:**
 - **Proteins as Sentences:** A pLM treats amino acids as words and a protein sequence as a sentence to understand biological information.
 - **Learning Biological Grammar:** The model learns the grammar and syntax of protein sequences by studying large collections of protein sequences from many organisms.
 - **Language-Based Prediction:** The model predicts a missing amino acid in a sequence.
 - just as language models predict the next word in a sentence. Just as a language model learns that “The cat sat on the ___” should be completed with “mat” or “chair” (not “economic”).
 - **Linking Sequence and Function:** The learned patterns help the model connect protein sequences with their structure and biological function.
 - **Learning Without Rules:** The model discovers these patterns automatically without being explicitly taught biological rules.
- **Key Applications of pLMs:**
 - **Protein Structure and Function:** The model predicts a protein’s three-dimensional structure, stability, binding ability, and role in the cell, helping scientists understand mutations.
 - **Protein Design:** The model designs new proteins with desired properties, including enzymes for plastic waste, biofuel production, and therapeutic proteins.
 - **Medicine:** The model speeds up drug discovery and supports personalized medicine by explaining how genetic variations affect protein function.
 - **Biotechnology:** The model helps develop better enzymes, sustainable materials, advanced diagnostic tools, and improves industrial manufacturing processes.

Leptospirosis

News: Leptospirosis cases and mortality begin surging with the arrival of the southwest monsoon in Kerala.

About Leptospirosis



Source – ResearchGate

- **Leptospirosis is a tropical zoonotic disease.**
- It is also commonly known as “rat fever” or “flood fever.”
- **Causing bacteria:** It is caused by the bacterium **Leptospira** that can be found in **contaminated water or soil.**
- **How it spreads:** It is caused by the **Leptospira** bacteria, which is spread through the urine of infected animals such as rodents, cattle, dogs and cats.
 - During the monsoon, contaminated urine and animal waste mix with floodwater and mud, allowing the bacteria to enter the body through even small cuts, abrasions or cracked skin.
- **Transmission:**
 - It impacts both humans and animals.
 - It rarely transmit from Person-to-person.
 - **Note:** In India, it began to be reported in **Kerala since 1989** and has been endemic in the State for the past three decades or more. It has **now become the communicable disease with the highest mortality profile.**
- **Symptoms:** Common symptoms of leptospirosis include **high fever, severe headache, chills, muscle pain, and vomiting.** Other symptoms are **jaundice, red eyes, abdominal pain, diarrhoea, and skin rashes.**
 - If left untreated, it can lead to **serious complications such as kidney damage, meningitis, liver failure, respiratory distress, and, in severe cases, death.**
- **Treatment:** It is treated with antibiotics. In severe cases, patients may require **intravenous (IV) antibiotics** to effectively manage the infection and prevent complications.

- **Prevention:**

- It is advised to wear waterproof footwear in flooded areas and wash and dry feet thoroughly after exposure.
- Clean and cover cuts or wounds promptly.
- Control rodents and maintain hygiene.
- Drink safe water, especially after floods.

Pseudecheneis likimroensis and Likimro River

News: A new catfish species, *Pseudecheneis likimroensis*, has been discovered in Nagaland's Likimro River and described in the Journal of Ichthyology.

About *Pseudecheneis likimroensis*



Source – Mongabay

- ***Pseudecheneis likimroensis*** is a newly discovered **catfish species** named after the fast-flowing **Likimro River of Nagaland**, where it was first collected.
- **Local name:** The fish is **locally known as Nupedro**.
- **Location:** It was **discovered in the Likimro River in Kiphire district, Nagaland**, along the India–Myanmar border.
- **Discovery:** Researchers from **Kohima Science College and the Zoological Survey of India** identified the species.
- **Key Features of *Pseudecheneis likimroensis*:**
 - **Rheophilic Nature:** It belongs to a **rheophilic genus of catfishes** that is **adapted to life in swiftly flowing hill streams**.
 - **Body Adaptation:** It has a **dorso-ventrally flattened body** that helps it **survive in fast-flowing mountain streams**.
 - **Adhesive Structures:** It possesses **specialised adhesive organs with ridges separated by grooves** that **enable it to cling to rocks in strong water currents**.
 - **Feeding Habit:** It is **carnivorous and feeds on insects, larvae, and other organisms attached to rocks**.
 - **Physical Size:** The holotype measured about 11.53 cm, while the **largest recorded specimen measured about 13.19 cm**.

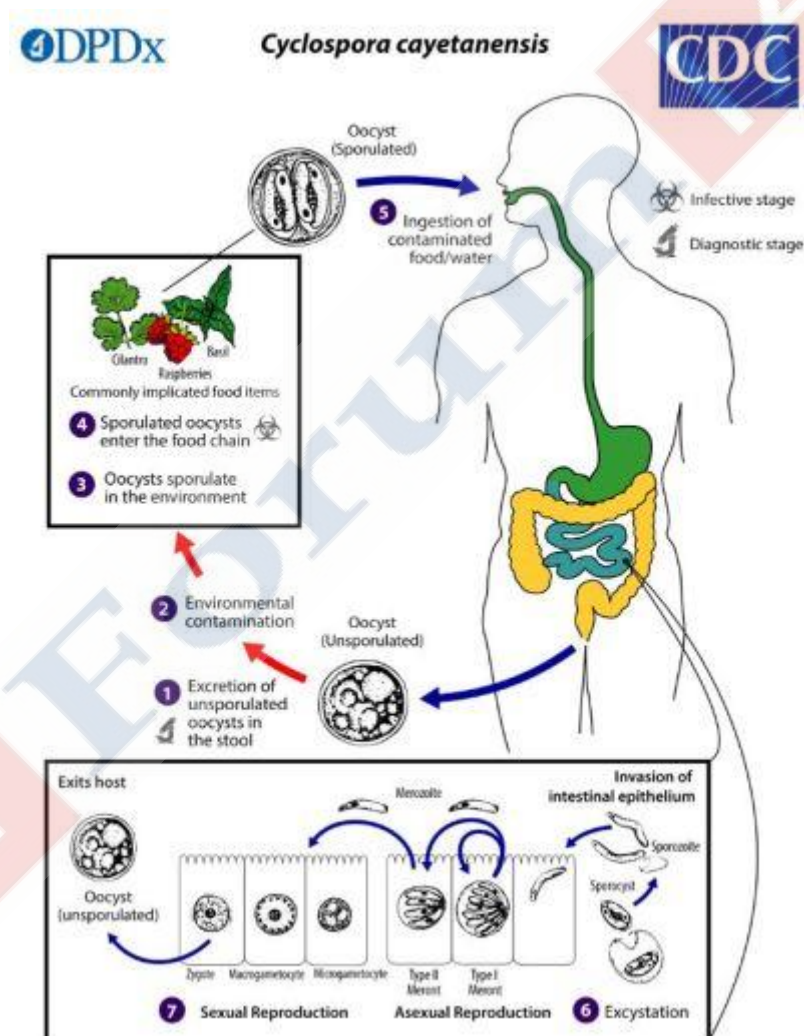
About Likimro River

- **Likimro River** is a **fast-flowing mountain river** that supports **rich freshwater biodiversity**.
- **Location:** It flows through the **eastern part of Kiphire district in Nagaland**.
- **Origins:** The river **originates near Mount Saramati**, the highest peak in Nagaland.
- **Tributary:** It is a **tributary of the Tizu River**, which later joins the **Chindwin-Irrawaddy river system in Myanmar**.
- **Nature:** The river has **pristine water with many boulders and rocky stretches**, making it suitable for hill-stream fishes.

Cyclosporiasis

News: The U.S. is investigating a major cyclosporiasis outbreak linked to contaminated lettuce, with Michigan reporting over 11,000 cases and two deaths.

About Cyclosporiasis



Source – CDC

- **Cyclosporiasis** is a **foodborne intestinal illness**.
- It is caused by ***Cyclospora cayetanensis***, a **microscopic coccidian protozoan parasite**.

- **Mode of Transmission:** The infection spreads **through the faeco-oral route** by **consuming food or water contaminated with faeces**.
 - It does **not spread directly from person to person**.
- **Symptoms:** Watery **diarrhoea**, fatigue, weight loss, stomach cramps, and dehydration are common symptoms.
- **Impacts:**
 - Untreated infection **may persist for weeks and cause hospitalization due to dehydration**.
 - It may lead to **malabsorption** (reduced absorption of nutrients by the intestine), **cholecystitis** (inflammation of the gallbladder), and **reactive arthritis** (joint inflammation).
- **Treatment:** Confirmed cases are treated with the **antibiotic trimethoprim-sulfamethoxazole (TMP-SMX) for 7–10 days**, along with **aggressive hydration**.
 - People living with **HIV may require longer treatment**.
- **Prevention:**
 - **Food Safety:** **Cooking temperature at 70°C**, **wash fruits and vegetables** thoroughly under clean running water, and **discard the outer leaves of leafy vegetables** before eating.
 - **Hygiene:** Maintain **strict hand hygiene**, as **chemical sanitisation alone may not completely eliminate** the Cyclospora parasite.
- **Vulnerable Groups:** **Children, older adults, immunocompromised people**, and people with underlying health conditions face a higher risk of severe illness.

Nitrosamines as Hidden Carcinogens

News: Nitrosamines have gained attention because they are hidden chemicals present in foods, water, pharmaceuticals, and tobacco that are linked to cancer risk.

About Nitrosamines as Hidden Carcinogens



Source – DTE

- **Nitrosamines** are **organic compounds** that contain **alkyl** and an **aryl group** with the following **nitrogen and oxygen group: N-N=O**.
- **Formation:** They are formed when **amines react with nitrites or nitrates** under conditions such as **high temperature, acidic environment, or the presence of oxidizing agents**.
- **Major Sources of Exposure:**
 - **Food & Beverages:** **Fried, grilled, cured, and processed meats** are the major dietary sources.
 - They are also found in **processed fish, cocoa, beer, and other alcoholic drinks**.
 - **Water Contamination:** Nitrosamines form **during water disinfection and wastewater treatment**.
 - **NDMA (N-nitrosodimethylamine)** is a **potent carcinogen** detected in **drinking water** sources, including India.
 - **Pharmaceuticals & Cosmetics:** Some **medicines and cosmetics** may contain **nitrosamines**.
 - **Tobacco Products:** Tobacco smoke is an important source of human exposure.
- **Impacts:**
 - **Cancer Risk:** **Long-term exposure, even at very low concentrations**, is linked to an increased **risk of stomach, colon, pancreatic, and colorectal cancers**.
 - **Other Health Effects:** Nitrosamines can also **cause liver damage, respiratory problems, and reproductive toxicity**.
- **Carcinogenicity:**
 - **Metabolic Activation:** Nitrosamines are **not carcinogenic by themselves**.
 - They become **harmful after cytochrome P450 enzymes** convert them into **highly reactive compounds**.
 - **DNA Damage:** These **reactive compounds bind to DNA** and form **DNA adducts**.
 - This process **causes mutations** that can **initiate the development of cancer**.
 - **Oxidative Stress:** During **metabolism**, nitrosamines also **generate reactive oxygen species (ROS)**.
 - These **damage DNA, proteins, and lipids**, further **promoting the initiation and progression of cancer**.

Key Facts About Uzbekistan

News: India and Uzbekistan have agreed to expand their strategic partnership by strengthening cooperation in critical minerals, mining, trade, energy, infrastructure, defence and education during a recent high-level talks.

Key Facts About Uzbekistan



Source: World Atlas

- **Location:** Uzbekistan is a **landlocked country** in **Central Asia**.
 - It is also one of **only two doubly landlocked countries in the world (the other being Liechtenstein)**, meaning it is surrounded entirely by landlocked nations.
- **Bordering nation:** It is the **only central located Asian country** that shares direct land borders with **all four other post-Soviet Central Asian states** (Kazakhstan, Kyrgyzstan, Tajikistan, and Turkmenistan), as well as **Afghanistan to the south**.
- **Topography:**
 - Its topography is about **80% sandy, scrubby desert**, including the **massive KyzylKum desert**.
- **Mountains:** Its **southeast and northeast mountains** are **foothills and lower mountains of the Tian Shan Range** are an **extension of the Himalayas**.
- **Valleys:** The **Fergana Valley**, between the northeast and southeast mountain ranges, is the most **desirable agricultural land and climate in all of western Asia**.
 - In the far west, Uzbekistan is dominated by vast lowlands, the **Amu Darya River valley**, the **Ustyurt Plateau**, and the southern half of the **Aral Sea**.
- **River:** Significant rivers of Uzbekistan include the **Amu Darya and the Syr Darya**.
- **Lake:** Major lakes include **Lake Ayddrkul and Lake Sarykamish**.
- **Lowest Point:** The lowest point of the country is **Lake Sarykamish**.
- **Highest Point:** Its highest point is **Adelunga Toghi**.

Kamlang Tiger Reserve

News: India added Glaw Lake as Arunachal Pradesh's first Ramsar Site, located within Kamlang Tiger Reserve, raising India's total Ramsar Sites to 101.

About Kamlang Tiger Reserve



Source – India Map

- **Kamlang Tiger Reserve** is a **protected area in Arunachal Pradesh** and forms **part of the Eastern Himalayan Biodiversity Hot Spot**.
- **Location:** It is located in the **southeastern part of Lohit District in Arunachal Pradesh near the border with Myanmar**.
- **Bounded by:** It is bounded by **Namdapha National Park in the south**, the **Lang River in the north**, the **Lati River in the west**, and the **Tawe River in the east**.
- **Naming:** It is **named after the Kamlang River**, which flows through the reserve and **joins the Brahmaputra**.
- **Establishment:** It was established as **Kamlang Wildlife Sanctuary in 1989**.
- **Status:** It is the **50th Tiger Reserve of India** and was **declared an Eco-Sensitive Zone (ESZ) in 2024**.
- **Topography:** It includes **dense tropical forests, grasslands, rivers, and hills**.
- **Vegetation:** It has **tropical wet evergreen forests in the lower areas** and **subtropical, temperate, and alpine vegetation in higher elevations**.
- **Flora:** The reserve has **more than 150 tree species** and **49 orchid species**, including **Amoora wallichii, Gmelina arborea, Terminalia chebula, and Canarium resiniferum**.
- **Fauna:** It supports **tigers, snow leopards, clouded leopards, leopards, elephants, hoolock gibbons, slow lorises, giant squirrels, flying squirrels, hornbills, deer, wild boar, and other wildlife**.
- **Indigenous Community:** The **Mishmi, Digaro Mishmi, Miju Mishmi, Hishmi, Digaru, and Mizo communities** live around the reserve.

Ujh Multipurpose Project

News: The status and phased implementation roadmap of the Ujh Multipurpose Project (MPP) has been revised in Kathua district of Jammu & Kashmir.

About Ujh Multipurpose Project



Source: New Indian Express

- It is a **multipurpose**(Hydropower, Irrigation and Drinking) **River valley scheme** and is first of its kind in Jammu and Kashmir.
- **Associated river:** The proposed project is on the **River Ujh**, which is one of the main **tributaries of River Ravi**.
- **Generation capacity:** It is designed to generate around **186 MW to 212 MW of electricity**.
- **Features:**
 - It is expected to **provide irrigation to nearly 90,000 hectares of agricultural land in Kathua and Samba districts** of Jammu & Kashmir and Pathankot and **Gurdaspur districts of Punjab**.
 - The project will **also supply drinking water** to Kathua district and provide industrial water availability.
 - The project is **expected to strengthen agricultural productivity, improve water security**, create new opportunities for economic development and contribute to the overall socio-economic progress of the Union Territory.
 - It also has an **important security and border-management dimension** and is **backed by the Ministry of Home Affairs** to restrict unregulated water flows and plug vulnerable cross-border infiltration routes along the riverbed.

Phoenix Species Project

News: The Phoenix Species Project was launched as a global initiative with a \$200 million commitment to recover 100 highly threatened species.

About Phoenix Species Project



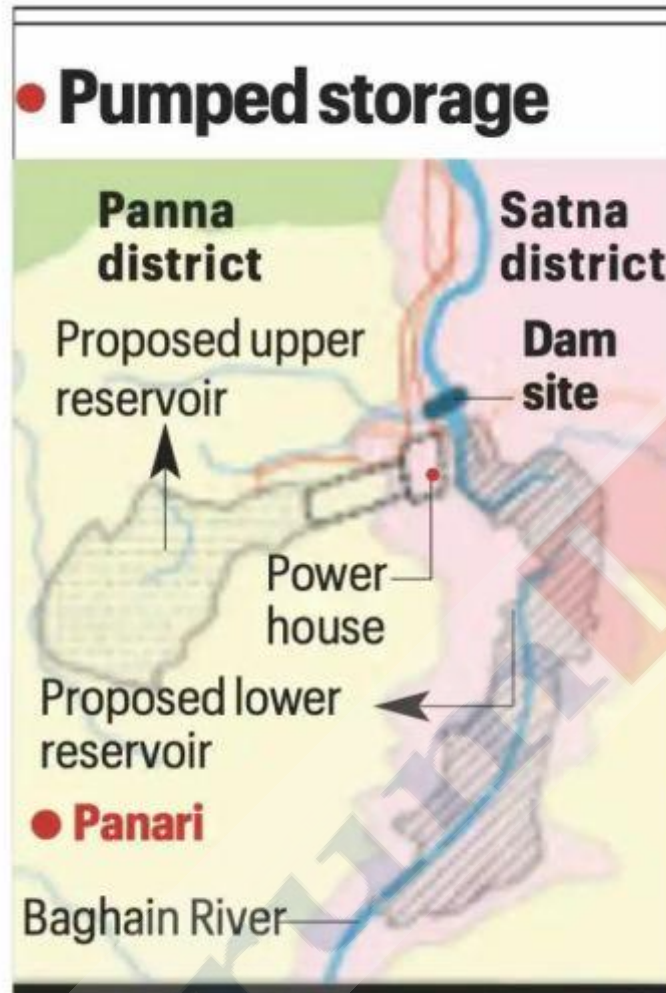
Source – Al Dia News

- **Phoenix Species Project** is a **global initiative to recover 100 species** facing imminent extinction **across different countries and habitats.**
- **Launched by:** The project was launched **Leonardo DiCaprio's Re:wild and the Bezos Earth Fund**, with support from, **Age of Union and the Todd Graves Family Foundation.**
- **Partners:** The project works with the **IUCN Species Survival Commission** as the **global knowledge partner.**
- **Funding:** The initiative begins with a **\$200 million commitment**, making it the **largest single philanthropic initiative dedicated only to recovering threatened species.**
- **Target Categories:** The project focuses on **species listed as Critically Endangered (CR) or Extinct in the Wild (EW) on the IUCN Red List.**
- **Species Coverage:** The project covers **mammals, amphibians, reptiles, birds, fish, invertebrates, and plants across diverse habitats.**
- **Recovery Measures:** It supports **conservation breeding, head-starting, translocations, disease management, non-native species control, and habitat restoration.**
- **Collaborative Approach:** Recovery plans are **tailored to each species and location** through collaborates with **Indigenous Peoples, local communities, scientists, conservationists, and governments.**

Panari Hydropower Project and Baghain River

News: The Standing Committee of the National Board for Wildlife (SC-NBWL) recommended wildlife clearance for the Panari Pumped Storage Project in the Panna–Ranipur Tiger Corridor.

About Panari Hydropower Project



Source – IE

- **Location:** The project is located in Satna and Panna districts of Madhya Pradesh.
- **Objective:** The project aims to develop a Pumped Storage Project (PSP) by using water from the Baghain River for recirculating power generation.
- The project lies within the Panna–Ranipur Tiger Corridor, which connects [Panna Tiger Reserve](#) with [Ranipur Tiger Reserve](#).
- **Capacity:** The project has a proposed capacity of 1,800 MW (16,200 MWh) with 9-hour storage capacity.
- **Water Source:** It will utilize the water from the nearby Baghain River.
- **Conservation Measures:** The proposal includes wildlife overpasses, wildlife underpasses, box culverts, road realignment, a ₹41 crore Wildlife Conservation Plan, and a ₹49.95 crore Catchment Area Treatment Plan.

About Baghain River

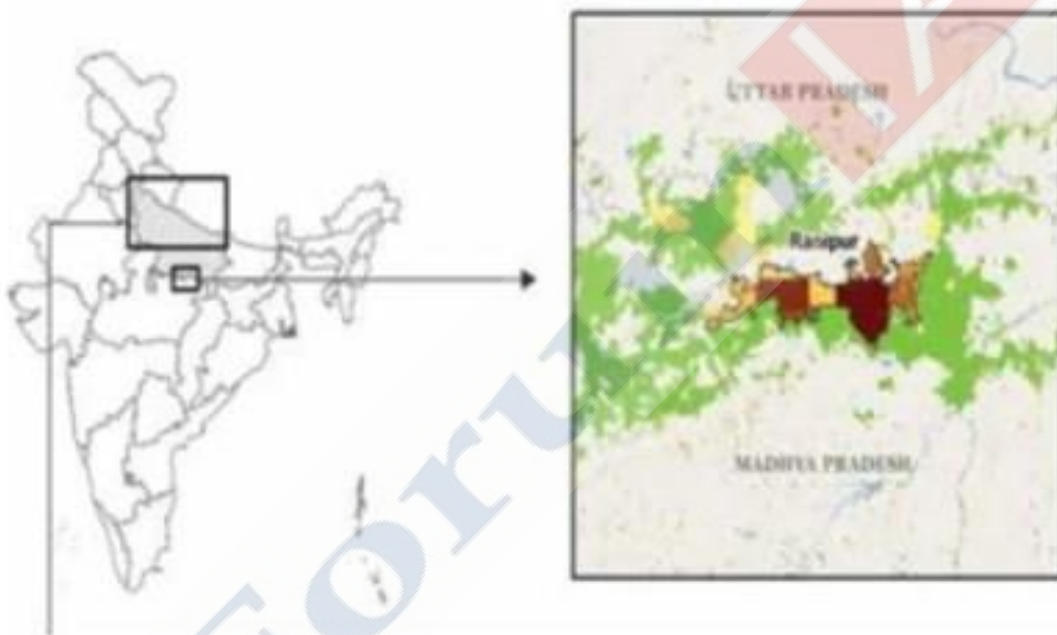
- **Origin:** The river originates from Panna Hill in Panna (Vindhyan Supergroup) in Madhya Pradesh.
- **Course:** It flows through the Bundelkhand plateau and marginal/central Ganga plains.
- **Confluence:** The river joins the Yamuna River near Chilla village in Banda district, Uttar Pradesh.

- **Geological Significance:** The basin includes the **Bundelkhand Gneissic Complex, Vindhyan Supergroup, and alluvial deposits.**
 - It also shows lithological variation, **moderate basin elongation, and moderate to highly permeable and easily erodible alluvial terrain.**
- **Biodiversity:** The river basin lies **within the Panna–Ranipur Tiger Corridor**, which supports the movement of tigers, leopards, dholes, wolves, sloth bears, gaurs, sambars, and chitals.

Ranipur Tiger Reserve

News: The SC-NBWL recommended clearance for the Panari Pumped Storage Hydropower Project despite concerns raised over its location in the Panna–Ranipur Tiger Reserve corridor.

About Ranipur Tiger Reserve



Source: Research Gate

- **Location:** It is located in the **Chitrakoot district of Uttar Pradesh.**
- It is the **fourth tiger reserve of UP**, after Dudhwa, Pilibhit and Amangarh (buffer of Corbett Tiger Reserve).
- **Declared year:** It was declared a **tiger reserve in 2022.**
 - In **1977**, it was established as a **wildlife sanctuary.**
- **Area:** It spans an **area of across 529.89 square kilometres (sq km).**
- **River flowing through:** The **Betwa** and Dhasan rivers pass through the area.
- **Vegetation:** It has **tropical dry deciduous forests.**
- **Flora:** The area is covered by **dense, deciduous forest** and a variety of vegetation which includes **Tendu, Mahua, Bamboo, Dhak, Gooseberry, Wood Apple, Sal** etc.
- **Fauna:** It is home to species such as **tigers, leopards, sloth bears, spotted deer, sambhar, chinkara** and a number of birds and reptiles.

Hexavalent Vaccine

News: In a recent finding, it was found out that introducing the hexavalent vaccine under the [Universal Immunisation Programme](#) could reduce the number of injections, ease pressure on health workers and improve programme efficiency.

About Hexavalent Vaccine

	Pentavalent	vs.	Hexavalent
DISEASE PROTECTION:	Diphtheria, tetanus, pertussis, hepatitis B, and Haemophilus influenzae type B (Hib)		Five diseases for pentavalent + polio
VACCINE DOSES NEEDED FOR PROTECTION AGAINST 6 DISEASES	 3 doses of the pentavalent vaccine + 3 doses of the inactivated polio vaccine (IPV)		 3 doses of the hexavalent vaccine

Source: Sabin Vaccine Institute

- **About:** A hexavalent (six-in-one) vaccine is a combination vaccine that protects infants against diphtheria, tetanus, pertussis (whooping cough), Hepatitis B, Haemophilus influenzae type b (Hib), and polio in a single injection.
- **Doses:** It is expected to be given as three doses at six, ten, and 14 weeks, with a booster dose given between the child's first and second birth date.
- **Benefits:**
 - It simplifies pediatric immunization schedules by reducing the number of injections and clinic visits required.
 - It also improves vaccination coverage and promotes timely completion of the immunization schedule.
 - Fewer injections make the vaccination process more acceptable to parents by reducing pain and discomfort for children.
 - They reduce logistical challenges by simplifying vaccine storage, handling, and administration.
 - They help lower healthcare costs through more efficient vaccine delivery.

Kisan Credit Card-Modified Interest Subvention Scheme (KCC-MISS)

News: A third-party ISEC assessment found that KCC-MISS reduced farmers' interest burden and improved agricultural value addition across diverse agro-regions.

About Kisan Credit Card-Modified Interest Subvention Scheme (KCC-MISS)



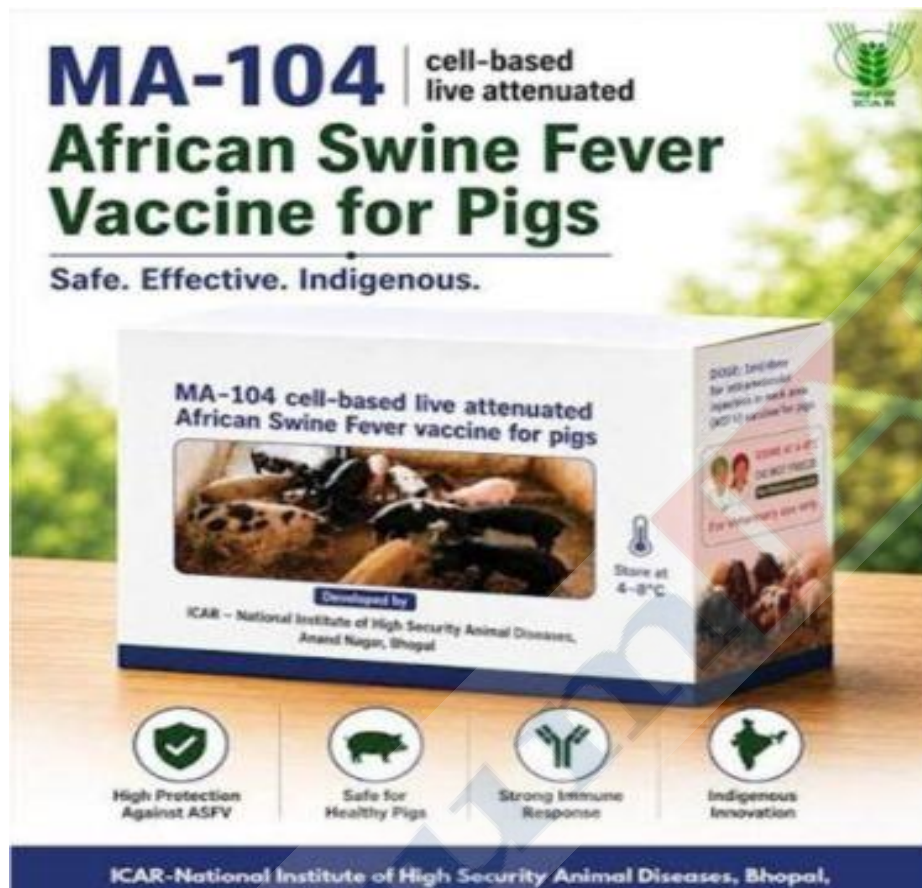
Source – DD India

- **Type:** Kisan Credit Card-Modified Interest Subvention Scheme (KCC-MISS) is a Central Sector Scheme, launched in 2006-07.
- **Nodal Ministry:** It is under the Ministry of Agriculture and Farmers' Welfare.
- **Implementation:** It is jointly implemented and monitored by the Reserve Bank of India (RBI) and the National Bank for Agriculture and Rural Development (NABARD).
 - It operates through Public Sector Banks, Regional Rural Banks, Cooperative Banks and Private Sector Banks.
- **Aim:** It aims to ensure the availability of affordable short-term credit for agriculture and allied activities through Kisan Credit Cards.
- **Features:**
 - **Concessional Credit:** Farmers receive short-term KCC loans up to ₹3 lakh at 7% interest, with 1.5% interest subvention to eligible lending institutions.
 - **Prompt Repayment Incentive:** Farmers who repay loans on time receive up to 3% incentive, reducing the effective interest rate to 4%.
 - **Collateral-free Loans:** The scheme provides collateral-free loans up to ₹2 lakh.
 - **Support for Allied Activities:** The interest benefit for loans taken exclusively for animal husbandry or fisheries is available up to ₹2 lakh.
 - **Flexible Credit Facility:** The scheme provides a revolving KCC credit facility for up to five years with flexible withdrawals.
 - **Relief During Calamities:** It provides interest relief during natural calamities, with extended support in severe disasters.

Indigenous African Swine Fever (ASF) Vaccine

News: India developed its first indigenous MA-104 cell line-based live attenuated African Swine Fever (ASF) vaccine to protect pigs against ASF.

About Indigenous African Swine Fever (ASF) Vaccine



Source – PIB

- **Indigenous African Swine Fever (ASF) Vaccine** is India's first indigenous MA-104 cell line-based live attenuated vaccine developed to protect pigs against African Swine Fever Virus (ASFV) Genotype II.
- **Developed by:** It is developed by ICAR–National Institute of High Security Animal Diseases (ICAR–NIHSAD), Bhopal.
- **Key Features:**
 - **MA-104 Cell Line:** The vaccine uses the widely available MA-104 cell line, which **removes dependence on proprietary manufacturing platforms** and **supports large-scale production at lower cost**.
 - **Validation:** The vaccine **successfully completed laboratory testing and field validation** for safety, efficacy, genetic stability, sterility, purity, immunogenicity, and virulence reversion.
 - **Dosage:** It is recommended for **healthy pigs above eight weeks of age**, followed by a **booster dose after 14 days**.

About African Swine Fever (ASF)

- **African Swine Fever:** It is a highly **contagious viral disease** that **affects domestic pigs and wild boar**.
- **Cause:** It is caused by the **African Swine Fever Virus (ASFV)**, a DNA virus of the Asfarviridae family.

- **Symptoms:** The disease causes **high fever, haemorrhages**, and mortality rates that may approach 100 percent.
- **Human Infection:** The disease does **not infect humans or other livestock species**.
- **Distribution:** India reported its first ASF outbreak in Assam and Arunachal Pradesh in January 2020, and the disease has since spread to several States and Union Territories.
- **International Status:** African Swine Fever (ASF) is a listed disease under the **World Organisation for Animal Health (WOAH)**
 - It is covered under its **Terrestrial Animal Health Code**. Member countries are required to notify WOA of ASF outbreaks.
- **Treatment:** There is **no treatment for ASF**, and **prevention depends on strict biosecurity measures** and culling of infected animals.

Closing Auction Session (CAS)

News: SEBI has introduced the Closing Auction Session (CAS) for eligible F&O stocks, effective from 3 August 2026, replacing the existing closing price methodology.

About Closing Auction Session (CAS)



Source – Trading View

- **Closing Auction Session (CAS)** is an **auction-based session** to **determine the official closing price** of eligible F&O stocks.
- **Introduced by:** It is introduced by **Securities and Exchange Board of India (SEBI)**.
- **Implemented by:** The **National Stock Exchange (NSE)** and **BSE** are implementing CAS simultaneously.
- **Effective from:** It is effective from **3 August 2026**.

- **Aim:** It's aims is to **improve price discovery, transparency, execution of large orders**, and ensure that the **closing price better reflects overall market demand and supply**.
- **Working Mechanism:**
 - **Start of the Auction Session:** The **Closing Auction Session (CAS)** begins at **3:15 P.M.** for eligible stocks in the Futures and Options (F&O) segment.
 - At the start of the session, the **system calculates a reference price based on the Volume Weighted Average Price (VWAP) of trades executed during the last 30 minutes** of the Continuous Trading Session (CTS).
 - **This reference price serves as the starting point for the auction.**
 - **Order Collection:** During the auction window, **eligible buy and sell orders are collected instead of being executed immediately**.
 - The order entry **window closes at a randomly selected time between 3:28 P.M. and 3:30 P.M.** to discourage last-second order placement and support a fair price discovery process.
 - **Price Discovery:** Then, the stock exchange determines a single **equilibrium price**, which is the **price at which the maximum number of shares can be traded**.
 - **This price better reflects the overall market demand and supply.**
 - **Trade Execution and Closing Price:** All eligible trades are **executed at the equilibrium price**.
 - This **equilibrium price becomes the official closing price of the stock for that trading day**.
- **Key Features:**
 - **Auction-based Price Discovery:** The **official closing price** is determined through a **single equilibrium price**.
 - **Initial Coverage:** CAS **initially applies only to stocks with available F&O contracts**.
 - **Existing Method for Others:** Securities not covered under CAS will continue with the existing VWAP-based closing price methodology.

About Continuous Trading Session (CTS)

- **Order Execution:**
 - In the **Continuous Trading Session (CTS)**, buy and sell orders are matched and **executed immediately whenever prices match**.
 - In contrast, the **Closing Auction Session (CAS)** first collects all eligible orders and **executes them together at a single equilibrium price**.
- **Closing Price:**
 - **Earlier**, the **official closing price** was determined using the Volume Weighted Average Price (VWAP) of **trades executed during the last 30 minutes of CTS**.
 - **Under CAS**, the closing price is determined through an **auction-based mechanism**.
 - **Applicability:** Securities **not covered under CAS** will continue to trade under the existing CTS.

COSPAR Vikram Sarabhai Medal – 2026

News: Astrophysicist Annapurni Subramaniam has been awarded the COSPAR Vikram Sarabhai Medal – 2026 for her contributions to space research.

About COSPAR Vikram Sarabhai Medal – 2026



Source – ETV Bharat

- **COSPAR Vikram Sarabhai Medal** is an international medal that recognizes outstanding contributions to space research by scientists working for developing countries.
- **Awarded by:** It is awarded jointly by the Committee on Space Research (COSPAR) and the Indian Space Research Organisation (ISRO).
- **Established:** The medal was constituted in 1990 in honour of Vikram Sarabhai, the founder of India's space programme.
- **Frequency:** The medal is presented biennially.
- **Eligibility Requirements:** A candidate's relevant work must have been carried out mainly during the five-year period ending one year before the COSPAR Scientific Assembly where the medal is presented.
 - The award is open to candidates from any country.
- **2026 Recipient:**
 - **Awardee:** Annapurni Subramaniam received the COSPAR Vikram Sarabhai Medal – 2026.
 - **Contribution:** She was recognized for her work in stellar physics, including studies on star clusters, nearby galaxies, and for serving as the calibration scientist for the Ultra-violet Imaging Telescope (UVIT) onboard AstroSat.
 - **Significance:** She is the fourth Indian to receive this medal and the first Indian woman scientist to receive this honour.
 - She is also the third female recipient of the COSPAR Vikram Sarabhai Medal.
 - **Other Indian Recipients:** Other Indian recipients of this medal are UR Rao (1996), Gurbax Singh Lakhina (2014) and Anil Bharadwaj (2024).

About Committee on Space Research (COSPAR)

- **Committee on Space Research (COSPAR)** is an international scientific body affiliated with the International Science Council (ISC).
- **Establishment:** It was established in 1958.

- **Objectives:** It promotes scientific research in space at the international level, encourages the exchange of scientific results and information, and provides an open forum for scientists to discuss issues related to space research.
- **Scientific Assembly:** COSPAR organizes its Scientific Assembly every two years, bringing together about 2,000–3,000 scientists from around the world.

Inventory-based Cross-border E-Commerce Export Framework

News: Government has notified Inventory-based Cross-border E-Commerce Export Framework under Foreign Trade Policy 2023.

About Inventory-based Cross-border E-Commerce Export Framework



Source: PIB

- The Government of India has operationalised the Inventory-based Cross-border E-Commerce Export Framework under the Foreign Trade Policy (FTP), 2023.

- It is to **establish a structured mechanism for inventory-based cross-border e-commerce exports of goods** manufactured or produced in India.
- **Features:**
 - **Export Mechanism:** Eligible e-commerce entities **can undertake export-only inventory operations through a registered Exporter-on-Record (EOR)**, who procures goods from Indian Sellers-on-Record (SORs) only against confirmed overseas orders and exports them in its own name.
 - **Role of the Exporter-on-Record:** The Exporter-on-Record is **responsible for export documentation, customs clearance, destination-country regulatory compliance, product testing and certification, packaging, labelling, order fulfilment, logistics, and reverse logistics.**
 - **Benefits for Indian Sellers:** The framework **enables Indian sellers to access international markets** while allowing them to focus on manufacturing, production, and innovation by outsourcing export-related processes to the EOR.
 - **Timely Payments and Transparency:** The framework **guarantees timely payments to Sellers-on-Record within the prescribed timeline**, irrespective of payment received from overseas buyers, and provides sellers with visibility into final sale prices, order status, and shipment tracking.
 - **Export Benefits:** Export rebates and refunds **must be shared with Sellers-on-Record in proportion to the Free on Board (FOB) value of their goods**, ensuring that export incentives are passed on to the actual producers.
 - **Safeguards for Export Operations:** The framework **permits procurement of export inventory only against confirmed overseas orders, prohibits speculative inventory creation**, requires digital identification and segregation of export inventory for complete traceability, and prohibits diversion of export inventory into the domestic market.
 - **Handling of Returned Goods:** Returned or rejected consignments must be **re-exported, returned to the seller, or disposed of strictly in accordance** with the prescribed procedures.
 - **Compliance Requirements:** The framework **mandates annual compliance certification and maintenance of digital records** to strengthen transparency, accountability, and regulatory oversight.
- **Expected Outcomes:** The framework is expected **to increase the participation of Indian manufacturers, traders, and MSMEs in global e-commerce supply chains** by reducing compliance costs, improving market access, ensuring transparency, and strengthening the delivery of export benefits.

Key Facts about Lesotho

News: India and Lesotho reviewed the full spectrum of their bilateral relationship during the sixth meeting of the India-Lesotho Joint Bilateral Commission for Cooperation (JBCC) held in New Delhi.

Key Facts about Lesotho



Source – Geologydotcom

- **Location:** It is a **landlocked** country located in southern Africa.
- **Largest enclave:** It is **entirely surrounded by South Africa**, making it the largest of only three sovereign enclaves in the world, the others being San Marino and Vatican City.
- **Climate:** It has **temperate climate** with cold, dry winters and hot, wet summers.
- **Terrain:** It is mostly **highland** with plateaus, hills, and mountains with over 80% of its **land above 1,800 m**.
- **Mountain range:** It is situated in the **Maloti Mountains**, gaining the nickname **‘The Mountain Kingdom’**.
 - It is the **only independent state in the world** that lies **entirely above 1,400 m** in elevation.
- **Peaks:** The **Thabana Ntlenyana (3,482 m)** of Maloti Mountains is the highest peak in the country and of the southern Africa.
- **Rivers:** The **Orange River**, one of the longest rivers in Africa, rises in the **Lesotho Highlands**.
 - The **Caledon River** forms part of the **western border with South Africa** and is an important tributary of the **Senqu River**.
- **Polity:** The Government is a **parliamentary constitutional monarchy**.
- **Capital:** Its capital is **Maseru**, which is also the largest city of Lesotho.

Bonda Tribe and Ringa Weaving Tradition

News: The Bonda tribe of Odisha continues to preserve the centuries-old Ringa weaving tradition, which remains an important symbol of its cultural identity.

About Bonda Tribe



Source – NewsDarpan

- The **Bonda tribe** is **one of India's oldest** Particularly Vulnerable Tribal Groups (**PVTGs**), known for preserving its distinct cultural traditions.
- **Location:** They are exclusively found in the **Malkangiri district of Odisha** and are mainly concentrated in the **Khairaput block**.
- **Key Aspects:**
 - **Other Names:** The tribe is also known as **Bondo, Bondas, Bonda Paraja, and Bhonda**.
 - **Population:** The tribe has a population of **about 7,000 people**.
 - **Origin:** They are considered **among the first settlers in India**, with **Austroasiatic lineage**.
 - **Language:** They **speak Remo**, an **Austroasiatic language** that is **different from mainstream Indian languages**.
 - **Art and Culture:** The tribe is known for **making decorative tools, utensils, colourful fabrics, and jewellery**.
 - **Ringa Weaving Tradition:** **Bonda women preserve the tradition of weaving the Ringa**, which represents their cultural identity and is **passed from one generation to another**.

About Ringa Weaving Tradition

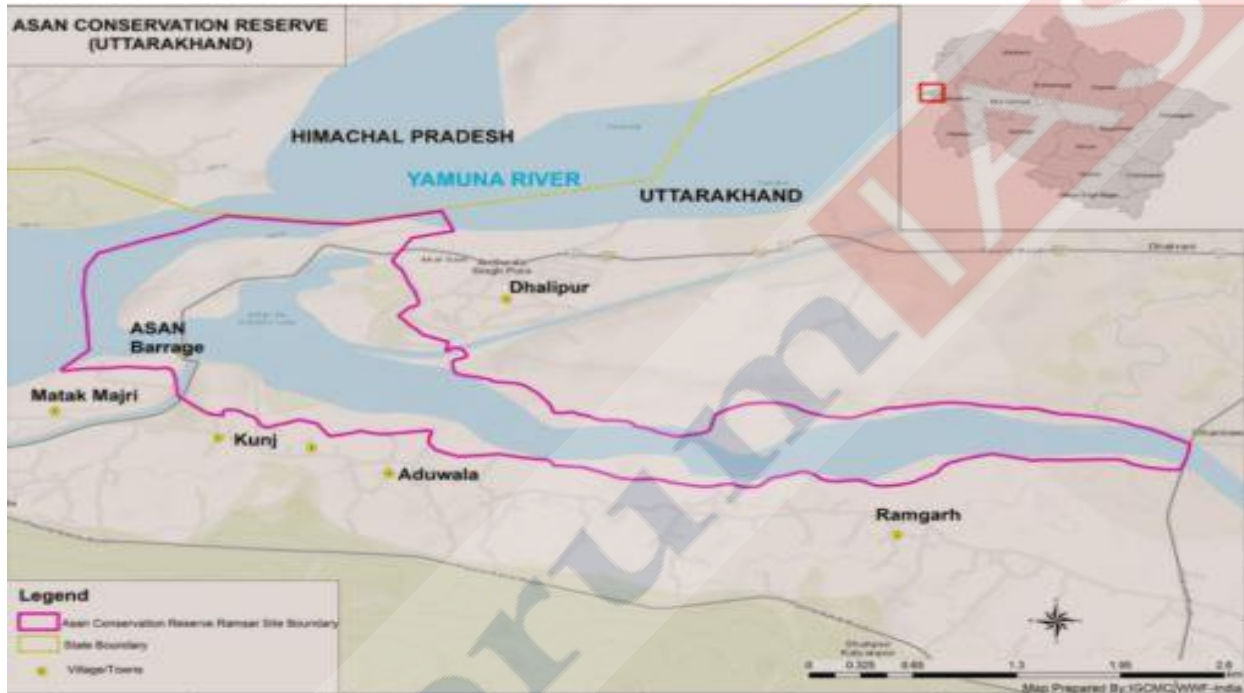
- **Ringa Weaving Tradition:** It is a **handwoven wraparound skirt** that has remained the **central symbol of Bonda cultural identity for generations**.
- **Geographic Region:** It is practised in the **Malkangiri district of Odisha**.
- **Key Aspects:**
 - **Cultural Importance:** It is **mainly woven for personal and community use rather than trade**.
 - **Design:** It is recognized for its **bold horizontal stripes in red, maroon, black, white, and blue**, and it is made for **everyday use with durable fabric**.
 - **Materials:** It was earlier woven from **bark fibre of the Kerang tree**, but **cotton yarn gradually replaced it**, while its **visual identity remained unchanged**.

- Women learn weaving from their mothers and grandmothers and continue the tradition across generations.

Asan Wetland Conservation Reserve

News: The Supreme Court clarified that a direction banning mining activities within a 10 km radius of the Asan wetland conservation reserve would apply to other wetland conservation reserves across the country for the sake of parity.

About Asan Wetland Conservation Reserve



Source – WWF India

- **Location:** It is situated in **Dehradun district, Uttarakhand**, along the **Asan River**, which **flows into the Yamuna River**.
- It was **declared a Conservation Reserve in 2005** under **Section 36A of the [Wildlife \(Protection\) Act, 1972](#)**.
- **Ramsar Site:** It is the **first Ramsar site in Uttarakhand**.
- It is listed as an **Important Bird Area (IBA)** by the **Bombay Natural History Society (BNHS)** and **BirdLife International**.
- **Avian Species**
 - **Strategically located** within the **Central Asian Flyways (CAF)**, the reserve homes **330 bird species**, including **critically endangered species** like the **red-headed vulture**, **white-rumped vulture**, and **Baer's pochard**.
 - Other **vulnerable or endangered species** include the **Egyptian vulture**, **steppe eagle**, and **Indian spotted eagle**.
- **Fish Diversity:** It supports **49 fish species**, including the **endangered *Putor mahseer* (Tor putitora)**.

Dr. M. S. Swaminathan Award for Environment Protection 2026

News: Two women changemakers, P. Pechiyammal and Govindhammal, received the Dr. M.S. Swaminathan Award for Environment Protection 2026 in Chennai.

About Dr. M. S. Swaminathan Award for Environment Protection 2026



Source – TH

- It is a **national award** that **recognises grassroots individuals, community champions, or organisations** for outstanding environmental protection efforts.
- **Instituted By:** It is instituted by **M.S. Swaminathan Research Foundation (MSSRF)**.
- **Partners:** The award is presented in partnership with **CavinKare Pvt. Ltd. and the Rotary Club of Madras East**.
- **Objective:** The award recognises and encourages grassroots leaders who **preserve natural ecosystems, clean marine pollution, promote climate-resilient farming**, and maintain a **balance between development and ecological conservation**.
- **Eligibility:**
 - It is open to **individuals, local community workers, smallholder farmers, fisherfolk, and non-governmental organisations across India**.
 - Candidates **must demonstrate measurable improvements** in marine waste management, sustainable farming, seed preservation, or biodiversity restoration.

Recipients of Dr. M.S. Swaminathan Award for Environment Protection 2026:

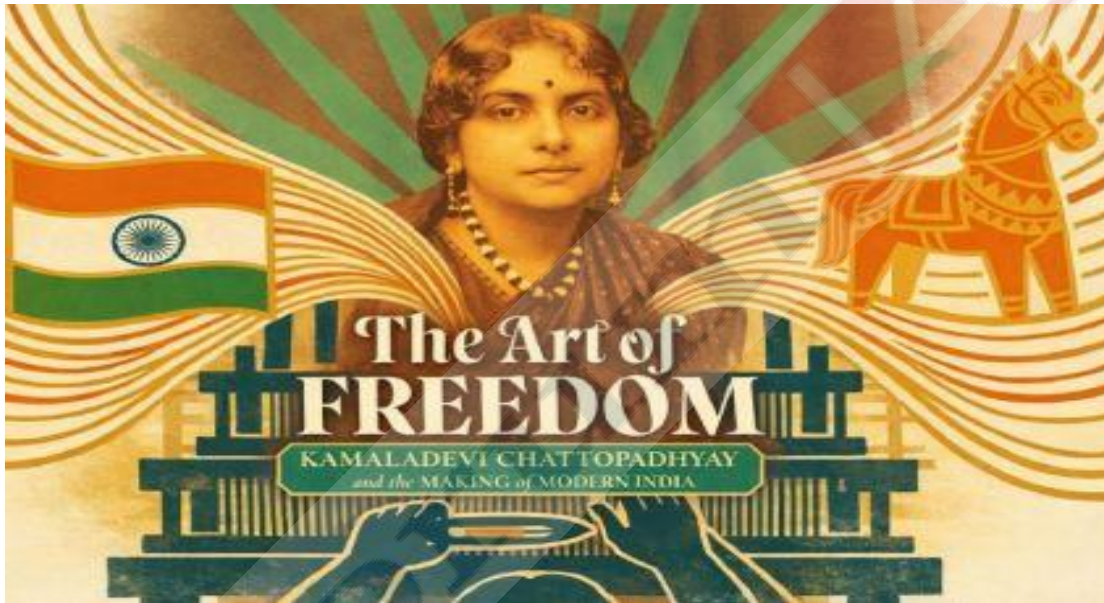
- **P. Pechiyammal:**
 - **Region:** She belongs to **Ramanathapuram, Tamil Nadu**.
 - **Field:** She works in **marine conservation and ocean plastic management**.
 - **Contribution:** She led community efforts to **remove abandoned fishing nets from coastal waters and shorelines**.
 - Her work **helped protect coral reefs, turtles, and fish** by reducing ghost-net entanglement.
- **Govindhammal:**

- **Region:** She belongs to Villupuram, Tamil Nadu.
- **Field:** She works in **sustainable and climate-resilient agriculture**.
- **Contribution:** She promoted **organic farming, improved soil health, and encouraged climate-resilient agricultural practices**.
 - She also **strengthened Farmer Producer Companies**, which improved the **bargaining power of farmers** and helped them get better returns for their produce.

Kamaladevi Chattopadhyay

News : Kamaladevi Chattopadhyay, popularly known as “Hatkargha Maa” (Mother of Handlooms), is remembered for her exceptional contribution to Indian handlooms and handicrafts.

About Kamaladevi Chattopadhyay



Source – Swarajya Mag

- **Kamaladevi Chattopadhyay (1903–1988)** was a **freedom fighter, social reformer, feminist**, and a leading force behind the **revival of Indian handicrafts, handlooms, and theatre**.
- **Early Life:**
 - **Birth:** She was **born on 3 April 1903 at Mangalore** to Ananthaya Dhareshwar and Girijamma.
 - Her father was the **District Collector of Mangalore**.
 - **Family Background:** She was **born into a Saraswat Brahmin community**.
 - Her parents were **progressive thinkers and participated in the freedom struggle**.
 - **Inspired by:** She was **deeply inspired by Gandhian ideas of non-violence**.
- **Role in the Freedom Struggle:**
 - **Entry into Politics:** She joined the **Indian National Congress in 1923** and became the **first woman in India to contest a legislative election in 1926**.
 - **Salt Satyagraha:** She **opposed Mahatma Gandhi's decision to exclude women from the Salt March**.
 - She **sold “freedom salt” in defiance of the British salt laws**.

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- She became the **first woman arrested during the Salt Satyagraha**.
 - **Nationalist Organisation:** She **headed the women's wing of the Hindustani Seva Dal** and trained hundreds of women volunteers for nationalist protests.
 - **Socialist Politics:** She **helped found the Congress Socialist Party** and became its President in 1936.
- **Socio-Political & Feminist Milestones:**
 - **Women's Leadership:** She **contested the Madras Provincial Legislative Assembly election** with the support of the **Women's Indian Association** and narrowly lost.
 - **Women's Rights:** She **co-founded the All India Women's Conference with Margaret Cousins**.
 - She later led the organisation to promote women's education, voting rights, and campaigns against child marriage.
 - **International Role:** She **represented Indian women internationally**, attended the **International Alliance of Women in Berlin in 1929**, and supported equality between nations.
 - **Author:** She wrote on women's rights from 1929, and her book **Indian Women's Battle for Freedom** was published in 1982.
- **Post-Independence Cultural Renaissance:**
 - **Handicrafts and Handlooms:** She revived Indian handicrafts and handlooms by **establishing the All India Handicrafts Board**.
 - **Support for Artisans:** She founded the **Central Cottage Industries Emporium (1952)** to connect rural artisans directly with urban buyers.
 - **Institution Building:** She played an important role in establishing the **National School of Drama, the Sangeet Natak Akademi, and the Indian Cooperative Union**.
 - **Refugee Rehabilitation:** Through the **Indian Cooperative Union**, she helped **develop Faridabad** to rehabilitate tens of thousands of Partition refugees.
- **Major Awards & Recognition:**
 - **Padma Bhushan:** She received the **Padma Bhushan in 1955**.
 - **Ramon Magsaysay Award:** She became the **first Indian woman to receive the Ramon Magsaysay Award in 1966**.
 - **Padma Vibhushan:** She was honoured with the **Padma Vibhushan in 1987**.
- **Legacy:** She is affectionately **remembered as "Hatkargha Maa" (Mother of Handlooms)** for her exceptional contribution to Indian handlooms and handicrafts.

HYDERACENE

News: The University of Hyderabad (UoH) has secured an Indian patent for HYDERACENE.

About HYDERACENE

- HYDERACENE is a **novel polymer-based material** developed for use in solid rocket propellants for defence and space applications.
- It has been patented under the title **"Synthesis of Novel Burn Rate Catalyst, Ferrocene Polyethylene Glycidyl Grafted Hydroxyl-Terminated Polybutadiene via Ring-Opening Polymerization."**

- **Developed by:** It has been developed by **Prof. Tushar Jana (School of Chemistry)** with co-inventors **Dr. Mutyalanaidu Ganivada and Sourav Jana.**
- **Properties:**
 - It has been developed as an **indigenous alternative to BUTACENE**, a commercially available **polymer-based burn-rate modifier used in solid rocket propellants** in the aerospace and defence sectors.
 - Unlike conventional solid propellant formulations, which require separate binder and burn-rate catalyst materials, **HYDERACENE combines both functions in a single polymer molecule.**
 - This improves **long-term stability by preventing the catalyst from separating from the binder over time** and enables more controlled and efficient combustion in solid rocket motors.
- **Application:** It is intended for **use in solid rocket propellants employed in rockets, missiles** and other solid-propellant propulsion systems.
- **Benefits:**
 - It could strengthen **India's self-reliance in strategic defence technologies.**
 - This **invention could reduce India's dependence on imported strategic materials**, which cost about `50,000-`60,000 per kilogram.

Dhabaleswar Temple

News: President Droupadi Murmu offered prayers at Dhabaleswar Temple during the final engagement of her three-day visit to Odisha.

About Dhabaleswar Temple



Source – India Temple

- **Location:** It is located on a **hillock-like island in the River Mahanadi near Cuttack, Odisha.**
- **Dedicated to:** The temple is a **Hindu temple** dedicated to **Lord Shiva.**
- **Naming:** The name is linked to the **legend of Shiva turning a black calf white.**

- “Dhabala” means **white** and “Ishwar” means **God**, giving the name **Dhabaleswara**, or “White Lord.”
- **Constructed by:** The temple structure was constructed during the rule of **the Somavamshi dynasty** by **King Yayati Keshari**.
- **Key Features**
 - **Antiquity:** Its historic **stone carvings** associated with the **early 10th and 11th centuries**.
 - **Architecture:** The temple follows the **Kalinga style of architecture** and has a **sandstone structure** with a **square plan and pyramidal roof**.
 - **Temple Chambers:** It has **three main chambers**, with the **central chamber** housing the **idol of Lord Shiva**.
 - **Jagamohan:** The temple has a **beautiful entrance known as Jagamohan**, decorated with **intricate carvings of animals, birds and mythological figures**.
 - **Distinctive Roof:** Its **two-tiered roof made of terracotta tiles** is a distinctive feature of the temple.
 - **Religious Importance:** **Bada Osha**, observed just **before Kartika Purnima**, is an **important religious occasion** that attracts devotees in lakhs.

Roselle (*Hibiscus sabdariffa*)

News: On the International Day of the World’s Indigenous Peoples, Roselle (*Hibiscus sabdariffa*) highlights Indigenous food biodiversity and climate resilience.

About Roselle (*Hibiscus sabdariffa*)



Figure 2. Source – Plant Good Seed

- Roselle is scientifically known as **Hibiscus sabdariffa** and belongs to the **Malvaceae family**.
- **Local Name:** It is locally known as **Bhenda Dal** in **Odisha’s Malkangiri district**.
 - It is also **called Mesta** in the **Indian subcontinent**.
- **Distribution:** It is **indigenous to India and Malaysia**.
 - It is cultivated in **tropical and subtropical regions**, including **China, Thailand, Indonesia, Saudi Arabia, Vietnam, Sudan, Egypt, Nigeria and Mexico**.
- **Key Features**
 - **Climate Resilience:** It grows on uplands and hill slopes with **minimal external inputs** and can **grow on marginal land** with **relatively little water**.
 - **Food Uses:** Its tender **leaves** are cooked as **saag** or combined with **pulses and vegetables**.
 - Its **red flower cups** are used for **pickles, chutneys and refreshing drinks**.
- **Nutritional Value:** It contains **vitamin C, anthocyanins, flavonoids, polyphenols, iron, calcium and dietary fibre**.
- **Multiple Uses:** Its dried calyces are used to **prepare tea, syrup, jams and jellies**, while different plant parts are used for **food, fibre, cosmetics and medicines**.

Ural Mountains

News: Ukrainian long-range drones struck a warehouse in the Ural Mountains, over 2,000 km from the Russia-Ukraine border.

About Ural Mountains



Source – Britannica

- The **Ural Mountains** are a major **physiographic boundary** between Europe and Asia.
- **Location:** They extend across **western Russia** and **slightly into northwestern Kazakhstan**, continuing northward **towards the Arctic Ocean**.
- **Boundaries:** The range **extends about 2,500 km** from the bend of the Ural River in the south to the Pay-Khoy Ridge in the north.
- **Geological Age:** The mountains **formed around 250–300 million years ago** during the **Uralian orogeny** and are **among the world's oldest** preserved mountain ranges.
- **Key Features:**
 - **Physiography:** The Ural Mountains are **divided into five sections**– Polar, Nether-Polar, Northern, Central and Southern Urals, with distinct relief and climate.
 - **Peak:** The **Nether-Polar Urals** contain the **highest peaks**, including **Mount Narodnaya** and **Mount Karpinsk**.
 - The **Central Urals** are the **lowest section**, while the **Southern Urals** consist of **several parallel ridges**.

- **Major River:** The Ural River flows along the Southern Urals.
 - while rivers such as the **Kama draining towards the Caspian Sea**, while the **Pechora drains towards the Arctic Ocean**.
- **Climate:** The climate is continental, with the western slopes receiving more moisture than the eastern slopes.
- **Transport Corridor:** Historic routes and modern railways, including parts of the Trans-Siberian Railway, cross the Urals and connect Europe and Asia.
- **Vegetation:** The Ural Mountains show a **north-south transition from tundra to taiga, mixed forests and steppe**, influenced by latitude, altitude and climate.
- **Flora:** The tundra has **mosses, lichens, dwarf birch and cloudberry**; the taiga has spruce, **fir, pine, larch and Siberian cedar**; southern mixed forests contain oak, elm and linden, while southern steppes support feather grass, clover and fescue.
- **Fauna:** The region supports **Arctic fox, reindeer, brown bear, lynx, wolverine, elk**, sable and various fish species.

Mecca Defence Pact

News: Saudi Arabia, Pakistan and Turkey signed the Mecca Joint Defence Agreement in Mecca to strengthen collective security amid tensions.

About Mecca Defence Pact

Source – ToI

- **Mecca Defence Pact** is a joint defence agreement between **Saudi Arabia, Pakistan and Turkey**.
- The agreement is named the “**Mecca Joint Defence Agreement**”.
- **Aim:** The pact aims to **strengthen collective deterrence** against aggression and **promote peace, security and stability in the region** and beyond.
- **Regional Context:** The pact comes amid **rising tensions between Iran and Saudi Arabia**, with Iran and allied groups targeting Saudi Arabia and other Gulf countries.
- **Earlier Cooperation:** The pact builds on the **2025 Saudi Arabia-Pakistan defence agreement**, which provided for mutual defence in case of an attack.
- **Features:**
 - **Mutual Defence:** An armed attack against any one of the three countries would be regarded as an attack against all three.
 - **Defence Cooperation:** The pact provides for enhancing all aspects of defence cooperation among the three countries.

- **Strategic Weight:** Turkey has NATO's second-largest military, Saudi Arabia is the Gulf's leading military power and major oil exporter, while Pakistan is the world's only nuclear-armed Muslim-majority country.
- **No Specific Obligations:** The agreement does not specify the commitments or obligations of each country, making its practical application uncertain.

Sowa-Rigpa and Bhoti-Language Manuscripts

News: Ayush Minister Prataprao Jadhav urged global recognition of Sowa-Rigpa as an evidence-based system and preservation of ancient Bhoti manuscripts documenting its knowledge.

About Sowa-Rigpa

- **About:** Sowa-Rigpa is a **system of medicine** which is **one of the oldest medical traditions** across the world.
 - It is also known as the **Amchi System of medicine and Tibetan medicine**.
- **Terminology:** The term Sowa-Rigpa means **Knowledge of Healing**. It derives its meaning from the **Bhoti Language**.
- **Origin:** The Buddha is said to be the originator of this Tibetan system of medicine.
- **Practised in:** This system was reinforced in the **Trans-Himalayan region** and is popular in **Himalayan societies such as Ladakh, Himachal Pradesh (Spiti and Lahoul), Jammu and Kashmir, West Bengal (Darjeeling), Arunachal Pradesh, and Sikkim**.
 - It is practised in **some parts of China, the Himalayan regions of India, Mongolia, Nepal, Russia, and Bhutan**.
- More than 75 percent of the Sowa-Rigpa tests **have been derived from the Ashtanga Hridaya**. It is a famous exposition of Ayurveda.
- **Medicine used:** Many **medicines of Indian origin**, such as **Ashwagandha, Guggulu, Triphala, Ashok, Haridra, etc.**, are used in the Sowa-Rigpa system for treatment purposes.
- **Literature:** **Gyud-Zi or the Four Tantras** was the **fundamental textbook** of this form of medicine.
- **Recognition:** Recognised under **India's Ayush framework**, it has evolved over centuries across the Trans-Himalayan region and remains an important repository of traditional medical knowledge.
 - **National Institute of Sowa-Rigpa** is the country's **apex institution for education, research and healthcare in the Sowa-Rigpa system**.

About Bhoti-Language Manuscripts



Figure 3. Source: The News Himachal

- Bhoti-language manuscripts are **historical and religious texts** written in the **traditional Bhoti script** (derived from the Tibetan script).
- It was **closely tied to Buddhism**, and it was used extensively in the **monasteries for religious texts, teachings, and scriptures**.
- Notably, Bhoti-language manuscripts also contain **centuries-old Sowa-Rigpa knowledge**.

Explosive Ordnance Disposal (EOD) Exercise 2026

News: The Indian and US navies will conduct the Indian Navy–US Navy Explosive Ordnance Disposal Exercise 2026 from 10 to 14 August 2026.

About Explosive Ordnance Disposal (EOD) Exercise 2026



Figure 4. Source – AIR

- **Participant:** It is a **bilateral** training exercise **between the Indian Navy and US Navy**.
- **Held at:** It will be conducted at the **Southern Naval Command in Kochi, Kerala**.
- **Aim:** The exercise aims to enhance **interoperability, strengthen professional cooperation, promote collaborative learning and operational synergy**, and improve the ability of both navies to **respond to complex and evolving Explosive Ordnance Disposal (EOD) challenges**.
- **Edition:** The **2026** engagement is the **eighth edition**.
 - The **two navies** have conducted joint Salvage and EOD exercises since **2005**.
- **Duration:** The **five-day exercise** will be held from 10 to 14 August 2026.
- **Key Aspects:**
 - **Expert Exchange:** **Subject Matter Expert Exchanges** will support **sharing contemporary EOD methods, emerging technologies, and best practices**.
 - **Practical Training:** **Cross-training, equipment demonstrations, and scenario-based practical exercises** will provide practical learning.
 - **Operational Understanding:** Personnel will gain insights into each other's capabilities, operational concepts, and employment approaches.

Key Facts about Bolivia

News: India has dispatched an 8 MT consignment of life-saving and essential medicines to Bolivia in support of its public healthcare capacity.

Key Facts about Bolivia



Source: World Atlas

- **Location:** Bolivia is a **landlocked country** in **west-central South America**.
- It is the **5th largest country** in South America.
- **Physiography:**
 - **Mountains:** The **western half** of Bolivia is covered by the **Andes Mountains**.
 - The **Cordillera Occidental** in the west is a long line of mostly bleak, dormant volcanoes. The **Cordillera Central** lies in the middle.
 - The **Cordillera Oriental** in the east is a **massive range of beautiful, snow-capped granite mountains**.
 - **Plateau:** **Altiplano** is a **high plateau** that lies between these three mountain ranges
 - **Plains:** The **southeast of Bolivia** consists of **semi-arid plains** that become swampy during heavy rains.
 - **Salt Flats:** The **Altiplano** has several **salt flats**, which are the dried remains of ancient lakes.
 - The **Uyuni Saltpan (Salar de Uyuni)** is the **largest**, covering almost **3,500 sq. miles**.
 - **Highest Point:** The highest point in Bolivia is **Nevado Sajama**.
 - **Lake:** **Lake Titicaca** is Bolivia's most important lake.
 - It is located in the **western part** of the country along the border with **Peru**.
 - **Lake Poopo** is a **salty lake and the largest inland lake in Bolivia**.
 - **Important Rivers:** Important rivers include the **Beni, Desaguadero, Guapore, Madre de Dios, and Mamore**.

Bank in a Box

News: Union Home Minister Amit Shah launched 'Bank in a Box' as part of initiatives to modernize the technology and cybersecurity of Urban Cooperative Banks.

About 'Bank in a Box'

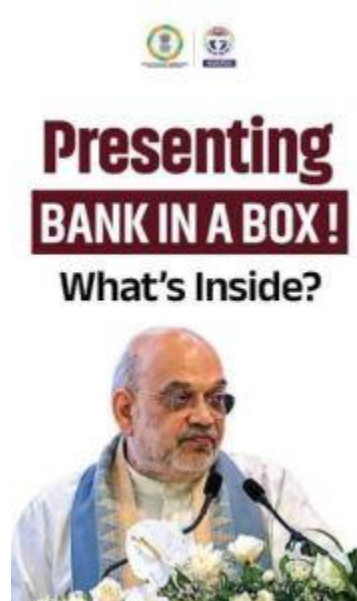


Figure 5. Source – Ministry of Cooperation

- **Bank in a Box** is an **integrated service bundle** that enables even small Urban Cooperative Banks to **provide modern banking services** without heavy technology investment.
 - It enables financial institutions to **rapidly deploy and operate fully functional banking services** through cloud-based platforms.
- **Launched by: Ministry of Cooperation**
 - It is **developed under the National Urban Cooperative Finance and Development Corporation (NUCFDC)** umbrella framework for Urban Cooperative Banks.
- **Aim:** It aims to **help small Urban Cooperative Banks access modern banking technology**, digital payments, cloud services and regulatory compliance solutions at affordable costs.
- **Features:**
 - **Integrated services:** It includes **core banking, digital payments, cloud infrastructure** and regulatory compliance solutions.
 - **Modern technology:** It supports services such as **Sahkar CBS, loan origination, Sahkar Cloud and AI-based fraud prevention.**
 - **Cybersecurity:** The related **Security Operations Centre** will provide **round-the-clock cyber monitoring and security support.**
- **Cost efficiency:** Shared services can **reduce the cost of expensive systems** that individual banks would otherwise maintain separately.

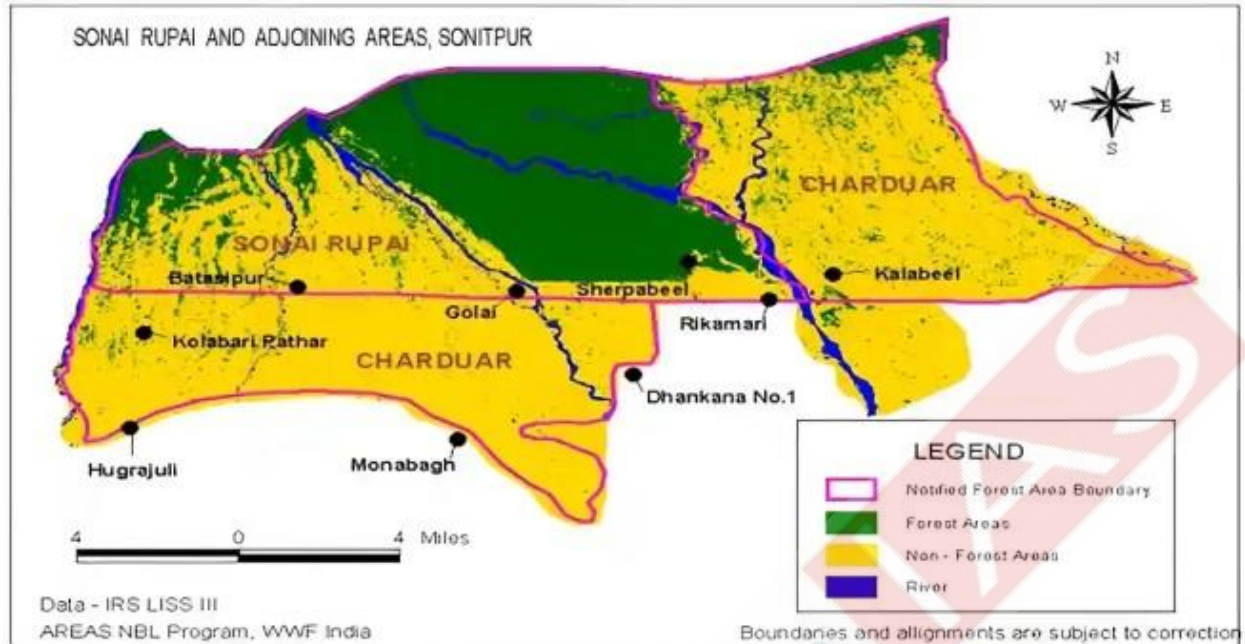
National Urban Co-operative Finance and Development Corporation Limited (NUCFDC)

- NUCFDC serves as the **apex umbrella organisation and self-regulatory body** for Urban Cooperative Banks (UCBs) in India.
- **RBI Recognition:** NUCFDC is officially recognized by the **Reserve Bank of India (RBI).**
- **Aim:** Its framework aims to **transform and stabilize the cooperative banking sector** through critical capital, modern technology and enhanced governance.
- **Shared Banking Support:** NUCFDC **provides UCBs with technology, training, compliance support and modern software**, while shared services and collective contracts help provide banking infrastructure at affordable rates.

Sonai Rupai Wildlife Sanctuary

News: Assam Finance Minister inaugurated the newly constructed Kalamati Wildlife Range Office at Sonai Rupai Wildlife Sanctuary in Sonitpur.

About Sonai Rupai Wildlife Sanctuary



Source – National Parks

Aspects	Details
Location	- It is a protected area located in the Indian state of Assam. - It is situated in the foothills of the Eastern Himalayas. - It is known as the “Jewel of Assam”.
Neighbouring protected areas	It is bordered by the Pachnoi River to the west, Jia Gabharu to the east, the Doimara Reserve Forest in Arunachal Pradesh to the north, and the revenue village and Charduar Reserve Forest of Sonitpur to the south.
Status	It was declared a wildlife sanctuary in 1998 .
River flowing through	- There are four perennial rivers that flow through the sanctuary – Dolsiri, Gabharu, Gelgeli, and Belsiri. - During the rainy season, several wetlands known as “bheels” can also be seen.
Flora	- The forests type in the sanctuary comprises tropical evergreen, semi-evergreen and moist deciduous forests. - Hollang, Mekai, Dhuno, Udiyam, Nahar, Samkothal, Bheer, Hollock, Nahor are found in the sanctuary.
Fauna	The sanctuary is primarily known for its Elephant and Indian bison populations.

	● It hosts a variety of other animals including deer, the one-horned rhinoceros, leopards, tigers, and some rare species of cats. ● The avian life in the sanctuary features endangered species such as the White Winged Wood Duck, along with commonly seen birds like woodpeckers, hill mynas, Indian rollers, nightjars, horned owls, and more.
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Quit India Movement

News: Prime Minister, Home Minister and Defence Minister of India paid tribute to the freedom fighters who participated in the Quit India Movement and the [Kakori Train Action](#).

About Quit India Movement

- The **Quit India Movement** is also known as the **August Movement** was a movement launched at the **Bombay session of the All India Congress Committee**.
- **Launched by:** It was launched by **Mahatma Gandhi on 8 August 1942**, demanding an end to British rule in India.
 - It demanded an immediate end to British rule in India, as highlighted by the **“Do or Die”** slogan.
- **Figures involved:** Beside Gandhi, other leaders including **Jawaharlal Nehru, Maulana Abul Kalam Azad, Vallabhai Patel, Govinda Ballabh Pant, Syed Mahmud, Acharya J.B. Kripalani, Sankar Rao Deo, Hare Krishna Mahatab, Prafulla Chandra Ghose, Pattabhi Sitaramaya, Asaf Ali and Acharya Narendra Dev** were also involved.
- **Causes of the Quit India Movement:** The immediate cause for the Quit India Movement was the **failure of the Cripps Mission and the hardships caused during World War II**.
- **Phases of the Quit India Movement:** The Quit India Movement can be broadly divided into **three phases**:
 - **First Phase:** The movement initially remained **largely non-violent and involved civil disobedience, strikes and boycotts**.
 - The British government responded with widespread repression and arrested almost all major Congress leaders, including **Mahatma Gandhi, who remained imprisoned until 1945**.
 - **There was widespread urban uprising, boycott of goods, and shop picketing.**
 - **Second Phase:** The movement gradually became **more aggressive and violent**, with attacks on government buildings, offices and other symbols of British authority, communication was hampered.
 - Railway tracks and stations were destroyed, causing significant infrastructural damage.
 - **Britishers also retaliated vehemently, issuing fines, lathi charges, and jail.**
 - **Third Phase:** The final phase witnessed the emergence of **parallel or independent governments** in several parts of the country, including **Ballia, Satara and Tamluk**.
- **Successes of the Quit India Movement**
 - **Women’s Participation:** Women played a significant role in the movement. **Aruna Asaf Ali** hoisted the national flag at Gowalia Tank Maidan, while **Usha Mehta** operated an underground radio station to spread the message of the movement.

- **Emergence of Future Leaders:** The movement brought several future national leaders to prominence, including **Biju Patnaik, Aruna Asaf Ali, Ram Manohar Lohia, Sucheta Kriplani and Jayaprakash Narayan**, many of whom supported the movement through underground activities.
- **Limitations of the Quit India Movement**
 - The movement **lacked the support of several important organisations and sections of society.**
 - The British received support from the **Princely States, British Indian Army, Indian Civil Services, Viceroy's Council, Indian Imperial Police and the All-India Muslim League.**
 - The **Hindu Mahasabha and the Muslim League** also opposed the movement.

Indian Peacock

News: India recently donated five Indian peafowls—four blue males and one white male—to the United Nations Office at Geneva.

About Indian Peacock



Source – ETV Bharat

- The **Indian Peacock** is India's national bird and a large, colourful member of the **pheasant family**.
- **Scientific Name:** Its scientific name is **Pavo cristatus**.
- **Habitat:** It occurs in **deciduous forests, shrublands, grasslands, forest edges and agricultural areas**, including areas near **human settlements with water sources**.
- **Distribution:** It is **native to India and Sri Lanka**.
- **Characteristics:**
 - The male is called a **peacock**. The female is called a **peahen**, while young ones are called **peachicks**.
 - **Appearance:** The male has **bright blue feathers and a long, iridescent tail train with eye-shaped spots**,
 - Female has **brown plumage, a shorter tail and slight green accents on the neck**.
 - **Sexual Dimorphism:** Males and females differ clearly in their **physical appearance**.
 - **Behaviour:** It is **generally ground-dwelling but roosts on trees at night**.

- **Males defends its territory** and forms harems during the breeding season.
- **Diet:** It is **omnivores** and feeds on seeds, fruits, flowers, **insects, small reptiles and small mammals**.
 - It may also eat crops near agricultural areas.
- **Breeding:** It is **polygamous**, and its breeding season usually **coincides with the monsoon**.
 - **Males displays its feathers to attract females**.
- **Vocalization:** It is **known for its loud 'may-yow' call**.
- **Conservation Status**
 - **IUCN Red List: Least Concern**
 - **Schedule I of the Wildlife (Protection) Act, 1972**

National Scholarship Portal

News: Union Minister for Agriculture and Farmers' Welfare and Rural Development released scholarship and fellowship funds for agriculture students across the country through the National Scholarship Portal.

About National Scholarship Portal (NSP)



Figure 6. Source: National Informatics Centre

- The **National Scholarship Portal (NSP)** is a **one-stop platform** that provides a **range of scholarship-related services**, including student applications, application processing, approval, sanction and disbursement of scholarships.
- It has been **implemented as a Mission Mode Project (MMP)** under **Digital India**.
- **Nodal ministry:** The nodal ministry is the **Ministry of Electronics and Information Technology (MeitY)**.
- **Aim:** It aims to **provide a single platform for all scholarship-related services**, from student application to the processing, sanction and direct disbursement of scholarships.
- **Objective:** It seeks to **create a Simplified, Mission-oriented, Accountable, Responsive and Transparent (SMART) system** for the faster and more effective processing of scholarship applications and the direct transfer of funds to beneficiaries' accounts without leakages.
- **Benefits**
 - **Simplified process for students:** It provides information on all available scholarships under a single platform and enables a single integrated application for different scholarships.
 - **Improved transparency:** The system identifies and suggests scholarship schemes for which a student is eligible. It also helps reduce duplicate applications and processing to the maximum extent possible.

- **Standardisation:** It maintains master data on institutions and courses at the national level and also supports standardised scholarship processing.
- **Decision Support System (DSS):** It serves as a decision support system for ministries and departments by providing updated information whenever required.
- **Monitoring and Management Information System (MIS):** It provides a comprehensive MIS to monitor every stage of scholarship distribution, from student registration to the final delivery of funds.

Dirac Medal 2026

News: Four physicists, including Indian physicist Deepak Dhar, have been awarded the Dirac Medal 2026 for contributions to statistical mechanics and theoretical physics.

About Dirac Medal 2026



Source – ICTP

- **Origin:** The Dirac Medal was **first awarded in 1985** by the **International Centre for Theoretical Physics (ICTP)**.
- **Naming:** It is **named after P.A.M. Dirac**, one of the greatest physicists of the 20th century.
- **Frequency:** The Medal is **awarded annually on August 8**.
- **Eligibility:** It is awarded to scientists who have **made significant contributions to theoretical physics**.
 - The Medal is **not awarded to Nobel Laureates, Fields Medallists, or Wolf Foundation Prize winners**.

Recipients of Dirac Medal 2026

- The **2026 Dirac Medal** was awarded to four physicists –
- **Deepak Dhar:**
 - **Country:** He is from **Uttar Pradesh, India**.

- **Affiliation:** He is an **Indian National Science Academy (INSA)** distinguished **professor** at the **International Centre for Theoretical Sciences**, in **Bengaluru**.
- **Contribution:** He made **pioneering contributions to statistical physics**, especially through his exact solution of the **Abelian sandpile model**.
 - His work showed **how simple interactions can produce complex behaviour** and **how small events can sometimes trigger large changes in a system**.
 - His research has also been **used to understand phenomena such as earthquakes, traffic jams and fluctuations in financial markets**.
- **Other Achievements:** In **2022**, he became the **first Indian to receive the Boltzmann Medal**.
 - He also received the **Padma Bhushan in 2023** and the **Shanti Swarup Bhatnagar Prize in 1991**.
- **Bernard Derrida:** He made important contributions to **statistical mechanics, spin glasses and non-equilibrium physics**.
 - His **Random Energy Model** showed how systems with **many possible configurations can sometimes be dominated by a small number of favourable configurations**.
 - His work has **also contributed to neural networks, optimisation and the study of driven systems**.
- **Marc Mézard:** He made major contributions to the **study of disordered systems and spin glasses**.
 - He helped **develop the cavity method** with **Giorgio Parisi and Miguel Virasoro**.
 - He later **applied these ideas to computer science, optimisation, information processing and neural networks**.
 - His recent work **also focuses on machine learning, deep networks and generative models**.
- **Haim Sompolinsky:** He pioneered the use of statistical physics to **study neural circuits, memory and brain function**.
 - He helped **establish theoretical and computational neuroscience by applying statistical mechanics to neural networks**, including the **Hopfield model**.
 - His later work **examined biological and artificial networks, neural representations and deep networks**.

About International Centre for Theoretical Physics (ICTP)

- ICTP is an **international research institute** working in the **fields of physical and mathematical sciences**.
- **Established:** It was **established in 1964**.
- **Framework:** It functions **under a tripartite agreement involving the Italian Government, United Nations Educational, Scientific and Cultural Organization (UNESCO), and International Atomic Energy Agency (IAEA)**.
- **Status:** ICTP is a **UNESCO Category 1 Institute**.
- **Location:** It is **located in Trieste, Italy**.

QS World University Rankings 2027

News: The number of Indian higher education institutions featured in the QS World University Rankings 2027 has increased.

About QS World University Rankings 2027

- **QS World University Rankings 2027** indicates that **the increase marks a significant expansion in India's global university presence** since the establishment of the [National Institutional Ranking Framework \(NIRF\)](#).
- Of the **52 Indian institutions ranked globally**, 26 improved their positions, nine remained unchanged, and 15 declined.
 - **Two institutions entered the rankings for the first time.**
- **Highest-Ever Rankings:** 18 Indian institutions achieved their **best-ever rankings**, including 13 non-IIT institutions.
- **IIT Performances:**
 - **IIT Delhi:** Rose **5 places to 118th**, matching the highest-ever position achieved by an Indian institution.
 - **IIT Bombay:** Fell **5 places to 134th**.
 - **IIT Madras:** Rose to **170th**.
 - **IIT Kharagpur:** Rose to **205th**.
- **IISc Bengaluru:** Ranked **221st**.
- **VIT and BITS Pilani:** VIT climbed **94 places to 597th**, while BITS Pilani rose **93 places to 575th**.
- **Other Major Gains:** IIT Hyderabad gained **76 places**, Jamia Millia Islamia rose **more than 75 places to 686th**, and Shoolini University climbed **51 places to 452nd**.

About QS World University Rankings

- It is an **annual global ranking of universities** published by **Quacquarelli Symonds (QS)**, a leading higher education analytics organization.
- **Aim:** It aims to **help students, academics, and employers compare** the performance of universities worldwide.
- **Methodology**
 - The QS World University Rankings use a **structured approach to assess institutions** across the globe.
 - Each ranking is built on a **set of measurements** that help evaluate different aspects of university performance. These measurements are grouped as follows:
 - **Lens:** A collection of indicators linked by a common theme, such as research or employability.
 - **Indicator:** A specific area of performance, such as Citations per Faculty or Employer Reputation. Institutions are scored and ranked on each indicator, which contributes to their overall rank.
 - **Metric:** A detailed calculation within an indicator, used to generate precise scores.

S.H.I.N.E. Initiative

News: The Department of Health Research-Indian Council of Medical Research will organise the second edition of S.H.I.N.E. on 11–12 August 2026 across 83 locations.

About S.H.I.N.E. Initiative



Figure 7. Source – DD News

- **S.H.I.N.E.** stands for **Science, Health and Innovation for NextGen Explorer**.
 - It is a **nationwide student outreach programme**.
 - **Launched by:** The initiative was launched by the Indian Council of Medical Research (**ICMR**) in **August 2025** as an **annual initiative**.
 - **Goal:** It aims to **ignite scientific curiosity**, foster **innovation**, and **inspire students to pursue careers in biomedical research, science and public health**.
 - **Beneficiaries:** It invites **students of Grades 9 to 12** from **government, government-aided and private schools across India**.
 - **Alignment with:** The initiative is aligned with **India's Viksit Bharat 2047 vision** and the **Prime Minister's call for students to spend "One Day as a Scientist."**
- **Key Features:**
 - **Scientific Exposure:** Students can explore **research through guided laboratory tours, research exhibitions, poster walks, video presentations and live demonstrations**.
 - **Interaction with Scientists:** Students can **interact directly with ICMR scientists** and learn about their research, expertise and work in public health.
 - **Nationwide Reach:** The 2026 edition will be **held across 83 locations**.

Container Manufacturing Assistance Scheme (CMAS)

News: The Government has proposed a ₹10,000 crore Container Manufacturing Assistance Scheme in the Union Budget 2026–27 to strengthen domestic container production.

About Container Manufacturing Assistance Scheme (CMAS)



Source – PIB

- **Container Manufacturing Assistance Scheme (CMAS)** is a targeted initiative to build a competitive domestic container manufacturing industry through financial and institutional support.
- **Ministry involved:** The scheme is associated with the **Ministry of Ports, Shipping and Waterways**.
- **Aim:** The scheme aims to **reduce import dependence, strengthen supply-chain resilience** and develop a **globally competitive container manufacturing ecosystem in India**.
- **Key Features:**
 - **Financial outlay:** The scheme has an **outlay of ₹10,000 crore** over five years.
 - **Production capacity:** The initiative targets an **annual domestic manufacturing capacity of around 10 times the existing container production capacity up-to 7.5 lakh Twenty-foot Equivalent Units (TEUs)**.
 - It is expected to **generate a market opportunity of nearly ₹80000 lakh crore** while positioning India as a reliable producer of internationally competitive shipping containers.
 - **Greenfield support:** The scheme provides **capital assistance for setting up new Greenfield manufacturing facilities** to expand domestic production.
 - **Brownfield support:** It supports the **expansion of existing Brownfield manufacturing units** and provides operational assistance to improve their competitiveness.
 - **Infrastructure and skills:** It supports **testing infrastructure, skilling and capacity building** to strengthen the container manufacturing value chain.
- **Employment and Manufacturing Opportunities:** It has the potential to generate around **3,000 direct jobs** and more than **50,000 indirect jobs** across container manufacturing and allied industries.

Zaskar Range

News: A new study found that glaciers in the Zaskar region of Ladakh are moving more slowly than they did 30 years ago.

About Zaskar Range



Figure 8. Source – ResearchGate

- The Zaskar Range is an important Trans-Himalayan mountain range in Ladakh.
- **Location:** The range is located mainly in the Kargil and Leh regions of Ladakh, with extension towards Himachal Pradesh.
- **Boundary:** It lies south of the Ladakh Range and north of the Great Himalayan Range.
- **Extension:** It extends from the Suru Valley in the northwest to the Tso Kar basin in the southeast.
- **Separation:** It forms a natural divide between the Indus Valley in the north and the Zaskar Valley in the south.
- **Formation:**
 - **Geological division:** It belongs to the Tethys Himalaya and mainly contains folded and thrust

sedimentary and metamorphic rocks.

- **Plate convergence:** It formed due to the **convergence of the Indian Plate with the Eurasian Plate**, which uplifted the Himalayan mountain system.

- **Ancient sea:** Marine fossils show that the region was once part of the ancient Tethys Sea.
- **Key Features:**
 - **Climate:** It has a cold desert climate, with long, extremely cold winters, short summers and very low rainfall.
 - **Physiography:** The range has barren slopes, deep valleys, steep gorges, glaciers and high-altitude peaks,
 - It's elevations generally ranging from 3,500 m to over 7,000 m.
 - **Key Peak: Kamet (7,756 m) in Uttarakhand** is the highest peak of the broader Zaskar Range.
 - **Major Passes:**
 - **Pensi La Pass:** It connects the Suru Valley of Kargil with the Zaskar Valley and is known as the gateway to Zaskar.
 - **Shingo La Pass:** It connects the Zaskar Valley with the Lahaul region of Himachal Pradesh.
 - **Other important passes** include Fotu La, Wakha La, Kanji La, Charchar La, Ruberang La and Taglang La.
 - **Major Rivers:** The [Zaskar River](#) is formed by the Doda and Lungnak rivers near Padum and joins the Indus near Nimmu.
 - **Other significant rivers** draining the range include the Khurana River and Suru River.
 - **Glaciers:** The Drang-Drung Glacier, located near Pensi La, is one of the largest glaciers in Ladakh and provides meltwater to the Zaskar river system.
 - **Vegetation:** Vegetation is sparse and includes alpine grasses, shrubs, mosses and steppe vegetation adapted to high altitude and aridity.

NGOPV Shruti

News: Next Generation Offshore Patrol Vessel (NGOPV), 'Shruti' was launched marking a significant milestone in Indian Navy's pursuit towards indigenous shipbuilding

About NGOPV Shruti



Source: BW Businessworld

- **Yard 3037 (*Shruti*)** is the **second Next Generation Offshore Patrol Vessel (NGOPV)** of the four NGOPVs to be constructed as part of the Indian Navy's 11-ship
 - **Yard 3039 (*Sanghmitra*)** was the first NGOPV. It was launched in 2026.
 - The ship has been named '**Sanghmitra**' after the daughter of **Emperor Ashoka**.
- **Named after:** *Shruti* is named after **India's ancient civilisational heritage**, specifically referring to the four Vedas.
- **Build by:** Garden Reach Shipbuilders & Engineers (**GRSE**), Kolkata
- **Features:**
 - **Design:** The crest design of the ship depicts the **constellation of Ursa Major** and a **red and white coloured light house**.
 - **Size:** They will be **much larger and have greater endurance and firepower**.
 - These will be about **113 meters long and 14.6 meters wide, with a displacement of 3,000 tons**.
 - **Speed:** They will **achieve speeds of up to 23 knots** and have an endurance of 8,500 nautical miles at a cruising speed of 14 knots.
- **Application:** These **indigenously designed and built ships** will augment the existing vessels for **multi-domain operations**, such as **maritime surveillance, search and rescue, protection of offshore assets, humanitarian assistance and disaster relief (HADR)** and **anti-piracy missions**.

Moon Base Program of NASA

News: NASA has invited ISRO to join its Moon Base program during the 9th India-US Civil Space Joint Working Group meeting in Bengaluru.

About Moon Base Program of NASA



Source – AIR

- **Moon Base Programme** is part of NASA's broader [Artemis Programme](#), which seeks to **build a permanent lunar outpost near the Moon's South Pole**.
- **Aim:** The program aims to **learn how humans can live and work on the Moon** and **prepare for future exploration from the Moon to Mars**.
- **Key Features:**

- The Moon Base program will be **built step by step** through robotic and human missions **using a phased approach**.
- **Phase One (Now–2029)**: In this phase, **robotic missions will explore the lunar South Pole**, demonstrate new technologies, and **gather knowledge needed for future development**.
 - This phase will also help **identify suitable locations, improve mission capabilities, and reduce risks** before astronauts arrive.
- **Phase Two (2029–2032)**: It will **deploy early power systems, cargo transportation, logistics, and communications** to support long-term operations.
- **Phase Three (2032 and Beyond)**: It will establish a **permanent lunar outpost with habitats, power, communications, transportation, and other critical capabilities for extended human operations**.
- **Commercial and Global Participation**: The program will combine government efforts, private innovation, and global collaboration.

About NASA's Artemis Programme

- **Artemis**: It is a **NASA-led Moon exploration programme**.
 - It **established in 2017**, to re-establish human presence on the Moon and support future Mars missions.
- **Artemis I to Artemis IV**:
- **Artemis I**: It was an **uncrewed test mission in 2022** that **successfully tested the Space Launch System (SLS) and Orion in lunar orbit**.
- **Artemis II**: It will conduct the **first crewed test flight of SLS and Orion around the Moon**.
- **Artemis III**: It will **send humans to explore the region near the lunar South Pole**.
 - It is scheduled to make the **first human landing on the Moon since the Apollo programme, probably by 2028**.
- **Artemis IV**: It will introduce the **first lunar space station and a more powerful SLS rocket**.

Hallaniyat Islands

News: A recent crude oil spill from the tanker Caroline Bezengi poses a serious threat to the pristine nature reserve surrounding Oman's Hallaniyat Islands.

About Hallaniyat Islands



Source: Research Gate

- **Location:** The islands of al Hallaniyyat are **located in the north east of Dhofar (South of Oman).**
- **Administrative control:** It is administratively under **Wilayat Shalim and al Hallaniyyat Islands of Sultanate of Oman.**
- It is an **archipelago** made up of **four main islands and small rocky islets.**
 - The four islands are named as **Al-Hasikiyah, Al-Sawda, Al-Hallaniyah, Qarzawit, and Al-Qibliyah.**
 - **Al Hallaniyyat** is the **biggest island** among the four islands and is occupied by 250 persons.
- **Physiography:**
 - The four main islands are **generally hilly but with some flat areas**, especially on the most easterly and most westerly islands.
 - There are also **some small, rocky islets.**
 - The **terrain is very rugged in some islands**, and there is a massive limestone cliff at the northeastern side of the **Hallaniyyat Islands.**
 - The islands are characterized by rocky **sub littoral mixed coral and phaeophyte, and coastal cliffs** with predominantly sandy sub littoral.
- The area overlaps with the **Halaaniyaat Islands Key Biodiversity Area and the Oman Arabian Sea Ecologically or Biologically Significant Marine Area.**
- **Flora and Fauna:** Shallow waters contain highly diverse and **largely undisturbed corals, sponges, seaweeds, algae, fish, and other marine life.**
 - The islands are an important nesting area for **Loggerhead turtles. Green turtles** are also present.

- The surrounding waters support several **marine mammals, including dolphins and whales.**

Babirusa/Pig-Deer

News: Chester Zoo in the United Kingdom recorded the birth of a babirusa as its wild populations face a rapid decline due to African swine fever.

About Babirusa/Pig-Deer



Source – DTE 1

- They are **unusual wild pigs** commonly known as “pig-deer”.
- **Species:** Since 2001, scientists have recognized **three extant species: Buru babirusa, North Sulawesi babirusa and Togian babirusa.**
- **Habitat:** They inhabit **tropical rainforests, lowland and hill forests, swamps and wetlands,** especially areas near riverbanks and ponds with aquatic plants.
- **Distribution:** Babirusas are found **exclusively on Indonesian islands, including Sulawesi, Togian, Sula and Buru.**
 - The **Buru babirusa** is found on **Buru, Mangole and Taliabu** in the **Maluku region.**
- **Characteristics:**
 - **Distinctive Tusks:** Males have **upper canine teeth** that grow through the snout and curve backward towards the forehead.
 - **Sparse Hair:** Babirusas are **much less hairy than other pigs**, while the **Buru babirusa** has a **distinctive golden-brown coat.**
 - **Unusual Snout:** They **cannot root in the ground like other pigs** because they **lack a rostral bone in the snout.**
 - **Diet:** They are **omnivorous** and feed on leaves, roots, fruits and animal matter.
 - **Reproduction:** Females usually give **birth to only one or two piglets**, making **population recovery difficult after major declines.**
- **Ecological Role:** They help in **seed dispersal, nutrient cycling and soil aeration.**
- **Conservation Status**
 - **International Union for Conservation of Nature (IUCN):** **Vulnerable** but it is **expected to be uplisted to Critically Endangered.**

De-reservation

News: The National Commission for Scheduled Castes will review Central government de-reservation proposals received over the last three years.

About De-Reservation



Source – TNIE

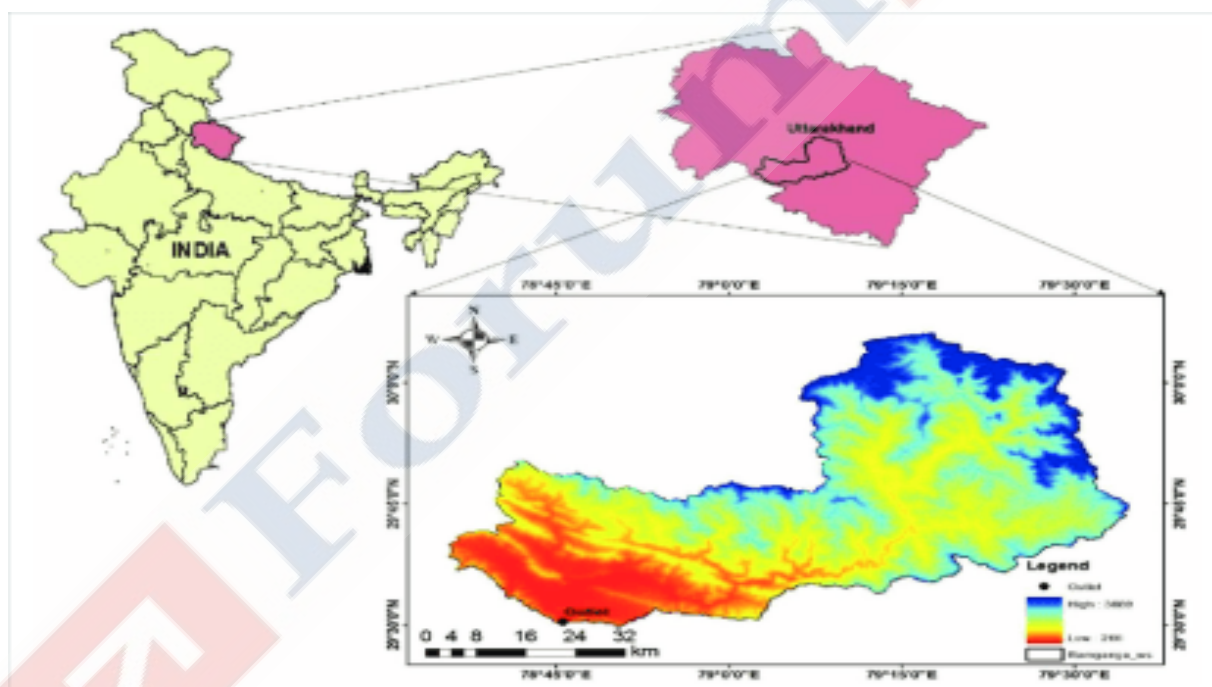
- **De-reservation:** It is the process of filling a reserved vacancy as an unreserved vacancy, under specific conditions..
- **Regulated by:** De-reservation in Central government recruitment is regulated through Department of Personnel and Training (DoPT) rules and procedures.
- **Constitutional Framework:** Articles 15(4), 16(4), 16(4A) and 16(4B) provide the constitutional framework for reservation in services, promotions and unfilled reserved vacancies.
- **The General Ban:** There is a general ban on de-reserving posts.
 - In direct recruitment, it is prohibited for Group B, C and D posts and permitted only for Group A services when leaving a vacancy would harm public interest.
- **Backlog Rules:** Article 16(4B) allows unfilled Scheduled Caste and Scheduled Tribe vacancies to be filled in the succeeding year.
 - These backlog vacancies are exempt from the 50% yearly cap on reservations.
- **Procedure for De-reservation:**
 - **Proposal Submission:** The concerned recruiting Department or Ministry submits a de-reservation proposal to the relevant National Commission, and the Department of Personnel and Training (DoPT).
 - **Commission Examination:** The proposal is first examined by the relevant National Commission for Scheduled Castes, Scheduled Tribes or Other Backward Classes.
 - **Committee Review:** It is then examined by a Committee of Secretaries, the DoPT and the Social Justice Ministry.
 - **Final Decision:** For direct recruitment vacancies, the final decision rests with the Minister of Personnel and Training.

- **Promotion Vacancies:** The concerned recruiting Department or Ministry has the final say in de-reserving promotion vacancies.
 - **However**, after submitting the proposal to the National Commission and DoPT, it must wait for at least one month for their comments.
 - **If no comments are received within one month**, it may take a decision on de-reservation.
- **Alternate Efforts:** The National Commission for Scheduled Castes (NCSC) has suggested **exploring deputation or short-term contracts to fill reserved vacancies before de-reservation.**
- **Current Issue:**
 - **Comprehensive Review:** The NCSC has decided to **comprehensively review all de-reservation proposals received from the Centre over the last three years** because it found **consistent shortcomings** in such proposals.

Ramganga River

News: The district administration has intensified relief and rescue efforts as rising Ganga and Ramganga waters flood villages in Uttar Pradesh.

About Ramganga River



Source: Research Gate

- The **Ramganga River** is an important river of **northern India**.
- **Origin:** It originates from **Doodhatoli ranges in the district of Pauri Garhwal, Uttarakhand**.
 - **Main source:** Its main source is the glaciers near the **Namik Glacier and the Pindari Glacier**.
 - It rises at an altitude of about **3,100 m in the lower Himalayas** near the Lohba village in the **Garhwal district of Uttaranchal**.
- **States through which it flows:** It flows from Almora and Pauri district in **Uttarakhand** and Kalagarh, Bijnore, Moradabad, Rampur, Bareilly, Shahjahanpur in **Uttar Pradesh**.

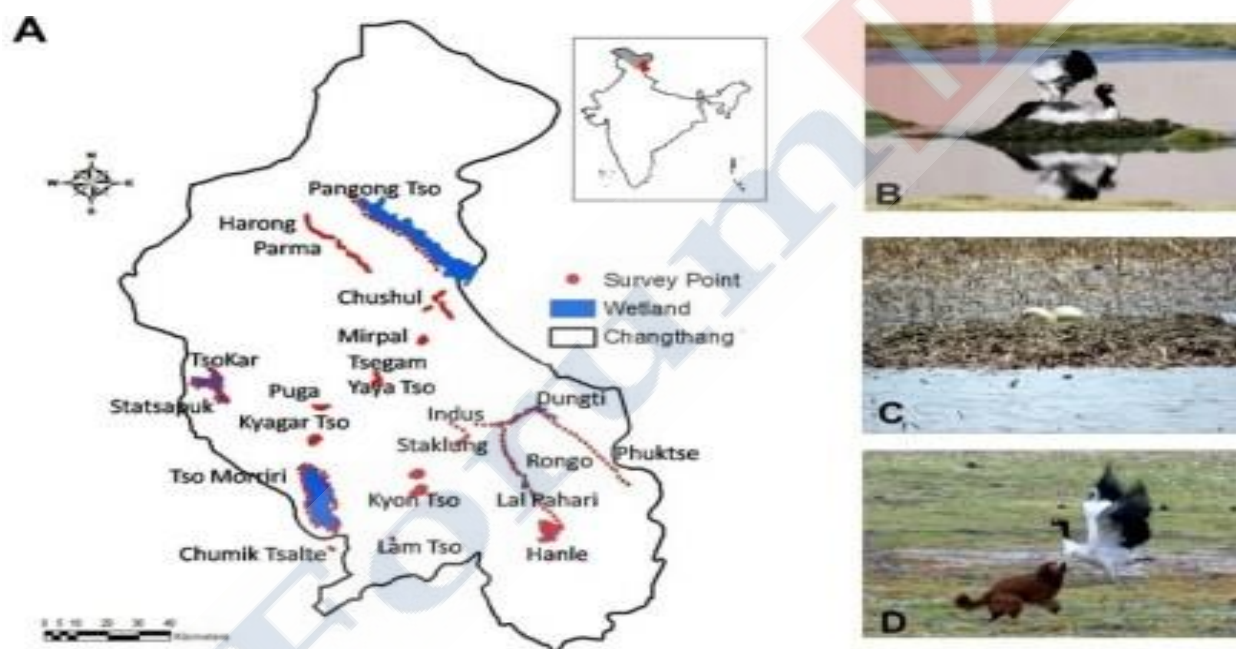
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- It is bounded by **Ganga Basin in West** and **South-West**, while **Gomti Basin in North-East to South-East** and slightly touching **Ghaghra Basin in upper North-East**.
- It flows by **Corbett National Park**.
- **City situated on the bank:** Bareilly city is situated on the **bank of the River in Uttar Pradesh**.
- **Total Length:** Its total length of River is **596 Km** and has a **catchment of 32,493 sq. km**.
- **Tributaries:** **Khoh, Gagan, Aril, Kosi and Deoha (Garra)** are major tributaries of Ramganga.
- **Tributary of:** It is a major tributary joining **Ganga near Kannauj**.
- **Dam associated:** **Kalagarh dam** (embankment dam) is situated in its basin.

About Hanle Wetland and Tso Kar

News: Bombay Natural History Society sterilizes over 2,950 Dogs to Protect Black-Necked Cranes and Wildlife in areas of Hanle Wetland and Tso Kar, Ladakh.

About Hanle Wetland



Source: Research Gate

- It is a thriving **high-altitude wetland oasis** in the **cold desert of Ladakh**.
- **Location:** It is located in **Hanle village in Ladakh**, near the **border with China**.
 - **Hanle Valley** falls within the **Changthang Wildlife Sanctuary**.
- **River associated with:** It is a complex of fast flowing streams, stagnant pools, saline marshes, seasonally flooded marshes, and bogs along the **Hanle river**.
- These wetlands are **frozen from November to April** and are fed by **snowmelt in summer**.
- **Vegetation:** The **marshes, grasslands and steppes** support vegetation such as **forbs and hardy grasses**, including **Krascheninnikovia ceratoides**, locally known as '**gyab-shen**'.
- **Flora:** The freshwater pools shelter species such as **Hydrilla, Myriophyllum, Potamogeton**, and an **edible aquatic lichen**.
- **Fauna:** It provides a vital refuge for wildlife, including the **endangered Black-necked Crane**, elusive **Pallas's cat**, and the rare **Tibetan gazelle**.

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- It also offers **moist soil and habitats suitable** for small burrowing mammals like **marmots and pikas**.

About Tso Kar

- **Location:** It is a **high altitude wetland** situated in the **Changthang region of Ladakh**.
- It consists of **two connected lakes**:
 - **Startsapuk Tso** (a **freshwater** lake of about 438 hectares to the south) and
 - **Tso Kar** (a **hypersaline** lake of 1800 hectares to the north).
- **Named after:** It is called **Tso Kar, meaning white lake**, because of the white **salt efflorescence** found on the margins due to the **evaporation** of highly saline water.
- **Fauna:** Numerous threatened species inhabit this wetland, including the **endangered saker falcon** and **Asiatic wild dog or dhole**, and the **vulnerable snow leopard**.
- **Recognition:** It was designated a **Ramsar site in 2020**.
 - The **Tso Kar Basin is an A1 Category Important Bird Area (IBA)** as per Bird Life International and a key staging site in the **Central Asian Flyway**.
- **Important Breeding Ground:** The site is one of the most important breeding areas of the **Black-necked Crane** in India.
 - It is also the **major breeding area** for **Great Crested Grebe Bar-headed Geese, Ruddy Shelduck, Brown-headed Gull, Lesser Sand-Plover, and many other species**.

Pradhan Mantri National Dialysis Programme (PMNDP) and Dialysis

News: The Union Minister of State for Health and Family Welfare has informed Lok Sabha about Pradhan Mantri National Dialysis Programme (PMNDP).

About Pradhan Mantri National Dialysis Programme (PMNDP) and Dialysis



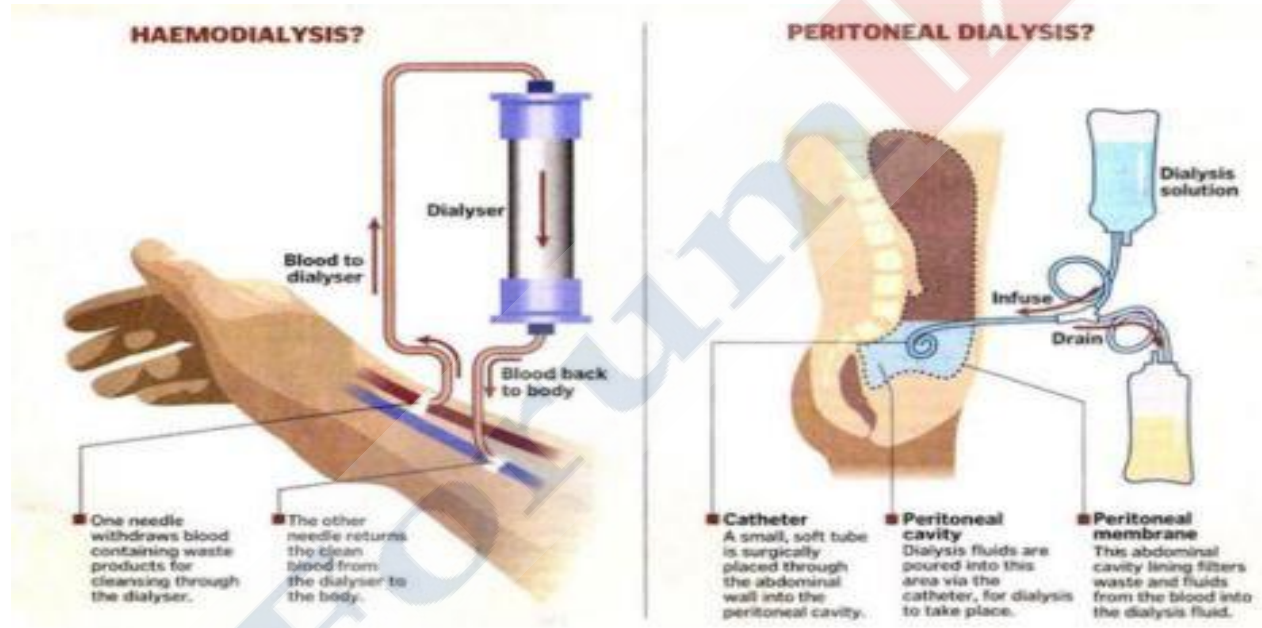
Source – MoHFW

- The **Pradhan Mantri National Dialysis Programme (PMNDP)** was rolled out on **07th April 2016** as part of the **National Health Mission (NHM)**.
- **Nodal Ministry:** Ministry of Health and Family Welfare
- **Aim:** It aims to improve access to **haemodialysis services** by establishing **dialysis centres in District Hospitals** and other **health facilities** across the country and providing **free dialysis services to eligible patients**.
- **Beneficiaries:** The scheme targets people living **Below Poverty Line (BPL)** at the district hospitals in the country.

- **Key Features**

- The **guidelines** for Programme envisage the provision of **dialysis services** in **PPP (Public Private Partnership) mode**.
- **Dialysis centres** under PMNDP are **established** based on **proposals received** from the **States/UTs in their annual Programme Implementation Plans (PIPs)**.
- **Financing: For Below Poverty Line (BPL) economic group: 100% expenses are directly covered** under **NHM** by the government.
 - **For non-BPL patients:** They can **get treated** at the **district hospitals** by **paying the same rates as paid by the government for the BPL patient**.
- **PMNDP portal:** The PMNDP portal (IT platform) was launched on **05 May 22** to **integrate all the dialysis centres** operational in the **state under NHM** and **facilitate building of renal registry** and ensuring **portability** within the state (**one state one dialysis**) and later **throughout the country** (**One Nation-One Dialysis**).

About Dialysis



Source – Cauvery Hospital

- **Dialysis** is a procedure that **removes waste and fluids** from the **body** that the **kidneys are not able to remove**.
- It also aims to keep the **body in balance** by **correcting the levels of various toxic substances in the blood**.
- **Without dialysis**, all patients with complete **kidney failure** would die from the **build-up of toxins** in the bloodstream.
- **Types of Dialysis:** There are **two main types** of dialysis –
 - **Hemodialysis (HD/Blood Dialysis):** In HD, the **blood is filtered** through a **machine** that **acts like an artificial kidney** and is **returned back into the body**.
HD **needs to be performed** in a **designated dialysis center**.
It is usually **needed about 3 times per week**, with **each episode** taking about **3-4 hours**.

- **Peritoneal dialysis (PD/Water Dialysis):** In PD, the **blood is cleaned** without being removed from the body.

- The **abdomen sac (lining)** acts as a **natural filter**.
- A **solution** (mainly made up of **salts and sugars**) is **injected** into the **abdomen** that encourages **filtration** such that the **waste is transferred from the blood to the solution**.

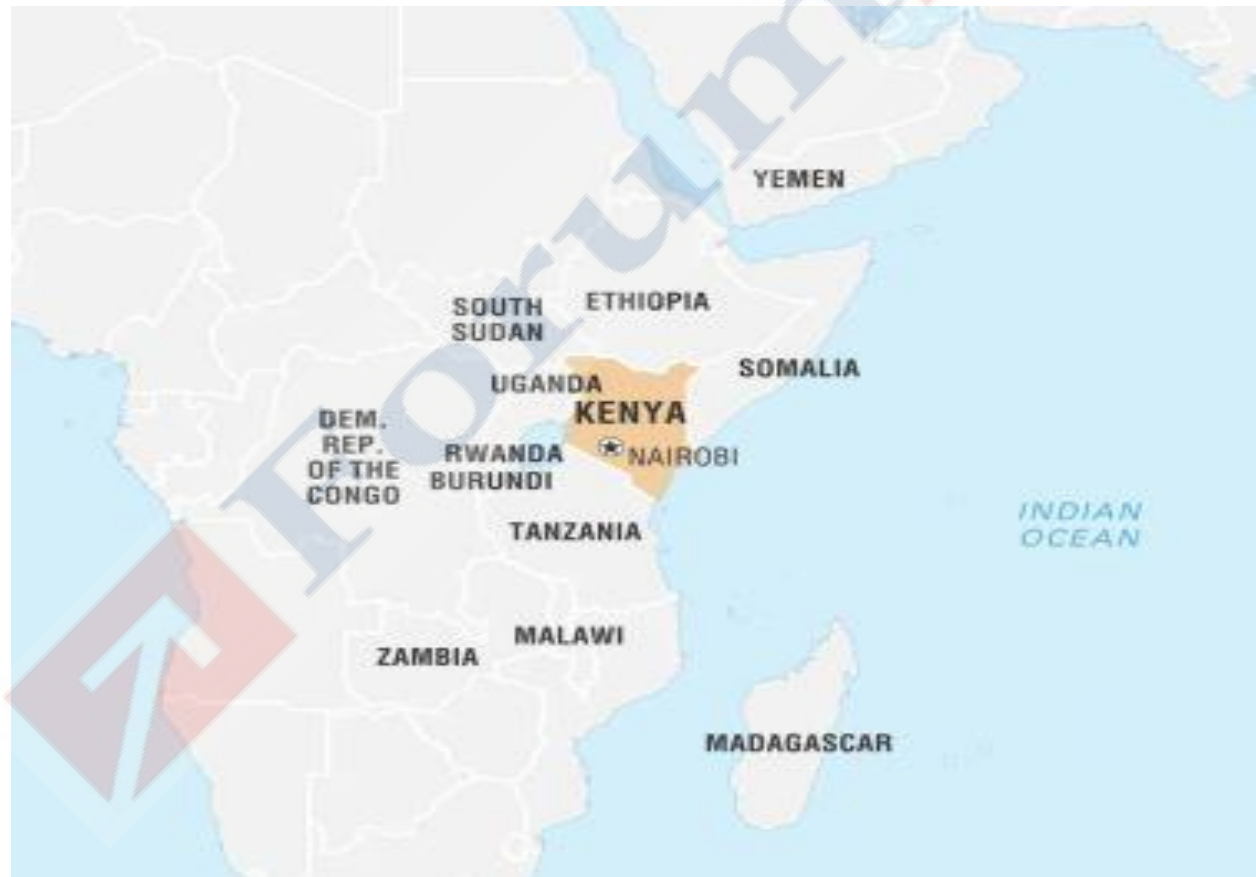
There are 2 types of PD – Continuous Ambulatory Peritoneal Dialysis (CAPD) and Automated Peritoneal Dialysis (APD).

- CAPD needs to be **done 3 to 5 times every day**, but **does not require a machine**.
- APD uses an **automated cyclor machine** to perform **3 to 5 exchanges** during the **night** while the patient is **asleep**.

Key Facts About Kenya

News: India and Kenya discussed parliamentary cooperation and bilateral ties, with Kenya supporting India's permanent membership of the United Nations Security Council.

Key Facts About Kenya



Source – Britannica

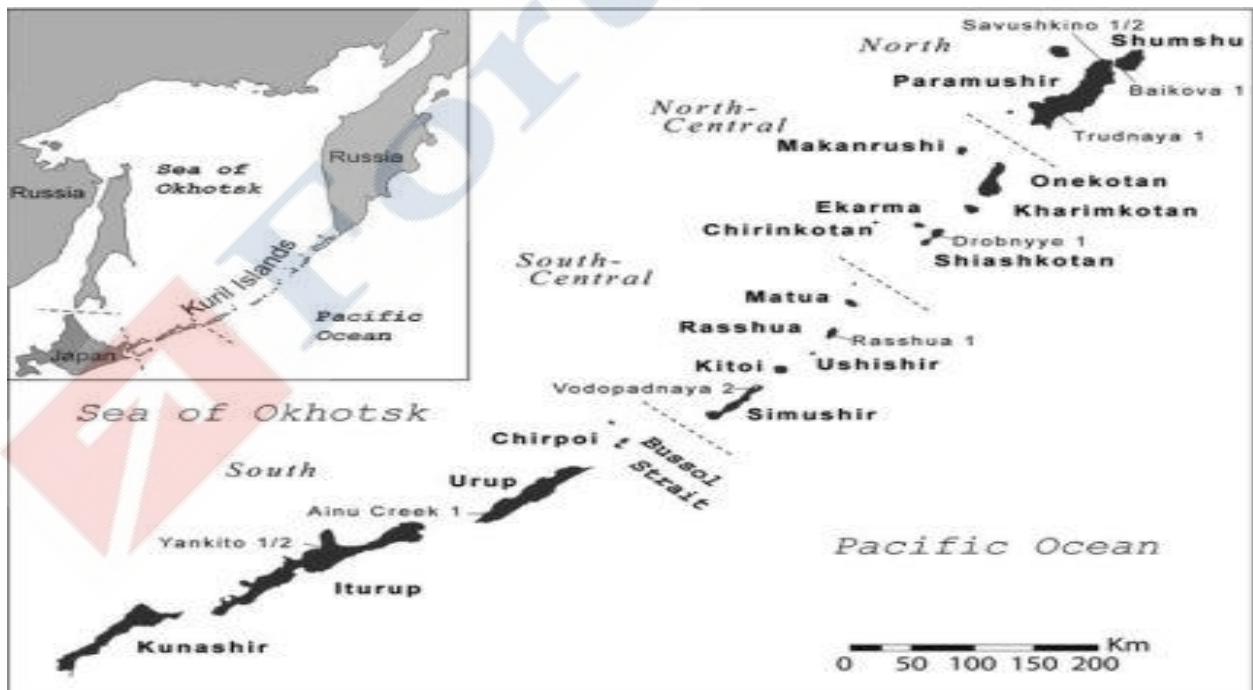
- **Location:** Kenya is in East Africa and is **bisected** by the **Equator**.

- **Land Boundaries:** It shares land boundaries with **South Sudan, Ethiopia, Somalia, Tanzania and Uganda.**
- **Maritime Boundary:** Kenya lies along the **Indian Ocean to the east, with a coastal plain.**
- **Capital:** **Nairobi**
- **Climate:** Kenya has **dry, rainy, and low-precipitation periods**, with high temperatures in arid regions.
- **Physiography:** Kenya includes the **Lake Victoria basin, Rift Valley and highlands, eastern plateau, arid areas, and coast.**
- **Mountain:** Major highlands include the **Mau Escarpment and Aberdare Range.**
 - **Mount Elgon** lies near **Uganda.**
 - **Highest Peak:** **Mount Kenya** is the highest peak at 5,199 metres.
- **Important Rivers:** The **Tana River**, Kenya's longest river, flows towards the **Indian Ocean,**
- **Important Lakes:** **Lake Victoria**, shared with **Uganda and Tanzania**, is **Africa's largest lake.**
 - **Lake Turkana** is Kenya's largest **Rift Valley lake.**
- **Vegetation:** The highlands have **evergreen forests and short grass.**
- **Flora:** Highland vegetation includes **cedar, podo, tree heaths, tree groundsel, and giant lobelia.**
- **Fauna:** Kenya has diverse wildlife, including **lions, elephants, cheetahs, rhinoceroses, and hippopotamuses.**

Kuril Islands

News: Russian President Vladimir Putin visited Iturup, one of the disputed southern Kuril Islands claimed by Japan.

About Kuril Islands



Source – ResearchGate

- **Location:** The **Kuril Islands** are an island group in the Russian Far East, stretching from the southern tip of Russia's Kamchatka Peninsula to northeastern Hokkaido in Japan.
- **Boundary:** They form the boundary between the Pacific Ocean and the Sea of Okhotsk.
- **Geographical Extent:** The archipelago extends for about 1,300 km and covers over 15,600 sq. km.
- **Composition:** The archipelago comprises 56 islands, along with several islets and rocks.
- **Division:** The islands are divided into the Greater and Lesser Kuril Chains.
- **Geology:** The islands are part of the Pacific Ring of Fire and contain over 100 volcanoes, including 35 active volcanoes.
- **Natural Features:** The islands have many hot springs, while earthquakes and tidal waves are common.
- **Climate:** The climate has long, cold, snowy winters and cool, wet and foggy summers.
- **Vegetation:** Vegetation ranges from tundra in the north to dense forests in the south.
- **Major towns:** Kurilsk, Severo-Kurilsk and Yuzhno-Kurilsk are important towns.
- **Dispute:**
 - **Sovereignty:** Japan claims the four southern islands – Etorofu, Kunashiri, Shikotan and Habomai – as its Northern Territories, while Russia administers them as the South Kurils.
 - **Background:** The Soviet Union seized the islands at the end of World War II and expelled Japanese residents by 1949.
 - **Impact:** Russia and Japan have never formally concluded a peace treaty since the end of World War II.

Merchant Discount Rate (MDR)

News: The government is exploring ways to make UPI financially sustainable by restoring MDR for selected transactions or introducing tiered incentives.

About Merchant Discount Rate (MDR)

What is **MDR** & How It Works



Merchant Discount Rate (MDR) is the fee that a merchant pays to accept payments made through credit cards, debit cards, and certain digital payment systems.

It is usually charged as a percentage of the transaction value and is deducted before the merchant receives the payment.

Suppose you buy a product worth Rs 1,000 using a credit card.

- Customer pays: Rs 1,000
- Merchant receives: Rs 980-990 (depending on the MDR)
- Rs 10-20 is deducted as MDR



Deducted MDR is shared among:

 Issuing bank (bank that issued your card)	 Acquiring bank/ payment aggregator (merchant's bank or payment processor)	 Card network (Visa, Mastercard, RuPay, etc.)
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Source – ToI

- **Merchant Discount Rate (MDR)** is the **fee charged to merchants for accepting digital payments**.
- **Purpose:** It **covers costs** incurred by **banks, payment processors, payment gateways, and other payment infrastructure** participants.
- **Mechanism:**
 - **Payment Process:** When a customer makes a digital payment, the merchant usually receives the transaction amount after MDR is deducted.
 - Example: On a ₹10,000 transaction with a 2% MDR, ₹200 is deducted and the merchant receives ₹9,800.
- **Major Components:** MDR consists of **different fees paid** to the entities involved in processing and completing a digital payment.
 - **Payment Processor Fee:** Payment processors **charge fees for handling transactions between merchants and banks**.
 - **Interchange Fee:** Card issuers **charge fees** for processing transactions.
 - **Assessment Fee:** Card networks **charge fees** for using their payment processing services.
 - **Markup Fee:** This fee is **divided among entities involved in the transaction**.

- **Key Features:**

- **Percentage-based:** MDR is generally calculated as a percentage of the transaction value.
- **Variable:** MDR is not a single fixed rate and can differ across payment modes, providers and applicable arrangements.
- **Additional Charges:** Payment processors may charge additional fees for fraud prevention, chargeback handling and customer support.
- **Settlement:** MDR charges are automatically deducted from the merchant's account when the transaction batch is settled.
- **Business Cost:** Merchants must consider MDR as part of their business costs while setting their prices.
- **UPI Position:** UPI and RuPay debit card transactions were exempted from MDR under the government's zero-MDR framework in January 2020.

Report of Parliament's Standing Committee on Finance on MDR

- **Committee's Recommendation:** The Committee has called for a self-sustaining, tiered MDR framework for higher-value merchant transactions.
- **Reason:** The ₹2,000 crore government support covers only around 10% of the industry's actual operating costs, while estimated operational expenditure is ₹20,700 crore.
- **Earlier Recommendation:** The Committee had earlier asked the Department of Financial Services to examine the long-term financial viability of defined-benefit and incentive-based schemes.
- **Legal Action:** Following its earlier recommendation, legislative provisions enabling a tiered MDR structure have now been introduced.
- **Early Implementation:** The Committee has urged faster notification and implementation because inadequate support may affect investment in cybersecurity, fraud prevention and payment infrastructure.
- **Safeguards:** The framework should protect small merchants and person-to-person transfers while moving towards a self-sustaining digital payments ecosystem.

Southern African Customs Union (SACU)

News: India has signed the Terms of Reference (ToR) for negotiations on a Preferential Trade Agreement (PTA) with SACU.

About Southern African Customs Union (SACU)



Source – SACU

- **Southern African Customs Union (SACU)** is an African regional economic organisation and the world's oldest customs union.
- **Established:** It was established in 1910 and re-established in 1969.
- **Members:** It comprises South Africa, Namibia, Botswana, Eswatini (formerly known as Swaziland) and Lesotho.
- **Headquarters:** It's headquarters is located in Windhoek, Namibia.
- **Key Features:**
 - **Function:** The five members share customs revenues and coordinate trade policies and decision-making.
 - **Common Customs Territory:** It allows the free movement of goods among member states without internal tariffs.
 - **Common External Tariff:** A Common External Tariff (CET) applies to goods imported from territories outside SACU.
 - **Regional Linkage:** All SACU members also participate in the Southern African Development Community (SADC).

India-SACU Preferential Trade Agreement (PTA)

- India has signed the **Terms of Reference (ToR)** for negotiations on a Preferential Trade Agreement (PTA) with SACU.
- **Key Areas:** The proposed PTA will cover **eight broad subject areas**, including trade in goods, market access, customs, sanitary and phytosanitary measures, trade remedies, technical barriers to trade, rules of origin and dispute settlement.

Revamped India Code Portal

News: Union Minister of State (Independent Charge) for Law and Justice recently launched the revamped India Code Portal.

About Revamped India Code Portal

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Figure 9. Source: IndiaAI

Revamped India Code Portal is a revamped portal to make access to laws simpler, faster and more citizen-centric.

- **Nodal Ministry:** Ministry of Law and Justice

- **Aim:** It is aimed at making access to laws simpler, faster and more citizen-centric.

- **Features:**

- **Technology Driven features:** It introduces a range of technology-driven features, including artificial intelligence (AI)-assisted search and interaction, semantic and speech-based search, improved navigation, multilingual access and enhanced linkages between different legislative documents.

- **Efficient Search and Navigation:** The upgraded platform enables users to search and navigate legislation more efficiently, access amendments and legislative history, and find links between Acts and relevant subordinate legislation.

- **Integration with the e-Gazette Ecosystem:** It also incorporates integration with the e-Gazette ecosystem, improved document viewing, QR-enabled access and

a structured mechanism for citizen feedback.

- **AI-Assisted Multilingual Access:** It features an AI-assisted multilingual access to laws in all 22 languages included in the Eighth Schedule to the Constitution.
- **Semantic and Speech-Enabled Search:** It also supports semantic and speech-enabled searches, enabling users to find legal information through more natural and accessible forms of interaction.

SraVaani

News: IISc researchers, with ARTPARK and Google, have released SraVaani, a multilingual speech recognition model for Indian languages.

About SraVaani



Source – IISc

- **SraVaani** is a **multilingual Indian speech recognition model** designed to **support regional and non-scheduled Indian languages**.
- **Developed by:** It was developed by **researchers at the Indian Institute of Science (IISc)'s SPIRE Lab**, in collaboration with **ARTPARK**.
- **Supported by:** **Google** supported its development.
- **Based on model:** SraVaani is **based on Project Vaani**, one of IISc's major programmes to understand the linguistic diversity of India.
- **Key features:**
 - **Speech recognition architecture:** It uses a **FastConformer-based architecture** for automatic speech recognition.
 - **Wide language coverage:** It covers **20 scheduled languages** and **45 regional languages** and dialects, including **Garo, Angika, Chakma, Kokborok, Tulu, Bundeli and Bajjika**.
 - **Pan-India coverage:** It includes languages from the **Northeast, eastern, western, northern, southern and central regions**, along with **English and Sanskrit**.
 - **Strong performance:** It was evaluated on **eight public benchmark datasets** and achieved the **lowest average word error rate among the systems evaluated**.
 - For Garo, it recorded a 9.5% word error rate, compared with 69.4% for the next-best system.
 - **Open access:** It is **freely available on Hugging Face** under an **MIT licence**, along with a demo and fine-tuning code.

- **Wider applications:** SraVaani can support further work in **regional-language AI**, low-resource **speech-to-text**, **automatic language detection**, **dialect recognition** and **sovereign AI applications**.

Exercise MAITREE-XV (2026)

News: The Indian Army contingent departed for Thailand to participate in the 15th edition of the India-Thailand Joint Military Exercise **MAITREE-XV (2026)**.

About Exercise MAITREE-XV (2026)



Source – DD News

- It is a **military** exercise between **India and Thailand**.
- **Started in:** Exercise MAITREE was instituted in **2006**.
- **Aim:** The aim of Exercise MAITREE is to **foster Military Cooperation between India and Thailand**.
- **2026 Host:** The exercise will be conducted from **18 to 31 August 2026** at **Vibhavadi Rangsit Camp, Surat Thani, Thailand**.
 - **2025 Edition:** Last edition of the same exercise was conducted at **Foreign Training Node, Umroi, Meghalaya in September 2025**
- **Features**
 - **Contingents:** The **Indian Army** and **Royal Thai Army** contingents comprise **85 personnel** each.
 - The **Indian Army contingent** is represented primarily by **troops from 9 Gorkha Rifles**, while the **Royal Thai Army** contingent comprises personnel from the **3rd Battalion, 25th Infantry Brigade, 5th Division**.
 - The exercise will **involve company-level joint training** focused on operations in **jungle and semi-urban terrain**.
- **Significance**

- The Exercise will **enhance combined capabilities** in executing Joint Counter Insurgency/ Terrorist Operations in **Jungle and semi-urban environment** under **Chapter VII of United Nations Charter**.
- The training will include **field exercises, combat discussions, lectures, demonstrations** and a culminating validation exercise.
- The contingents will also **exchange operational experience** and showcase **contemporary equipment and technologies** employed during joint operations.

Royal Indian Navy Mutiny of 1946

News: Over eight decades ago, on February 18, 1946, more than 1,000 Royal Indian Navy sailors in Bombay revolted against British rule. The uprising quickly spread to other naval bases across British India and became known as the Royal Indian Navy Mutiny.

About Royal Indian Navy Mutiny of 1946



Source: PMO India : Report Card

● Background

- The Royal Indian Navy (RIN) was **established in 1934** as a small naval force.
- During the Second World War, **the strength of the Navy increased from fewer than 2,000 personnel to nearly 30,000 personnel**.
- After the war, **Indian sailors expected recognition, better employment opportunities, and improved treatment for their services**.
- However, **the British government planned to reduce the Navy to around 11,000 personnel after the war**.
- This decision created frustration, insecurity, and a sense of loss of status among the sailors.

● Causes of the Mutiny

- **Indian sailors were unhappy** because **they faced racial discrimination and unequal treatment** from British officers.

- They complained **about poor-quality food and inadequate living conditions**.
- They also **demand better pay and equal treatment** compared with British sailors.
- The **trials of Indian National Army (INA) soldiers** increased nationalist and anti-British feelings among the sailors.
- Several smaller incidents of unrest had already taken place in the Royal Indian Navy between 1942 and 1945.
- **Immediate Cause of the Mutiny**
 - The immediate events leading to the mutiny took place at **HMIS Talwar, a naval training establishment** in Bombay. Sailors had written slogans like **“Quit India”** and **“Down with the British”** to express their anger.
 - **Commander Arthur Frederick King** insulted the Indian sailors, reportedly **calling them “sons of coolies.”**
 - The sailors **complained about his behaviour**, but King refused to properly address their complaint, increasing their anger.
 - **On February 18, 1946, the sailors went on strike, marking the beginning of the Royal Indian Navy Mutiny.**
- **Spread of the Mutiny**
 - The mutiny spread rapidly because **many protesting sailors worked in the Navy’s communication branch** and **used wireless messages to inform other naval bases**.
 - It **spread from Bombay to Karachi, Kolkata, Visakhapatnam, Jamnagar, and other naval centres**.
 - About **78 ships and 20 shore establishments** **joined the strike**, involving nearly 20,000 naval personnel.
 - The **sailors formed a Naval Strike Committee** to lead the movement, removed British flags, and displayed Congress and Muslim League flags.
 - They also identified **themselves with the Indian National Navy and the Azad Hind movement**.
- **Demands of the Sailors**
 - **Disciplinary action against Commander King** for insulting behaviour.
 - **Better-quality food** and improved living conditions.
 - **Equal pay and allowances** with British sailors.
 - **Fair employment opportunities** after leaving the Navy.
 - **Protection from punishment** for participating in the strike
 - **Access to military canteens** previously restricted to British personnel.
 - **Withdrawal of British forces** from Indonesia.
 - **Fair treatment and trials** for Indian National Army prisoners.
- **Support from the Public**
 - The **mutiny received strong support from sections of the Indian public**, especially in Bombay.
 - The protests spread to **other cities, including Kolkata, Ahmedabad, Madras, and Visakhapatnam**.
 - **Dock workers, mill workers, railway workers, students, and other groups** joined the protests.
 - **Public transport was disrupted**, and many shops and businesses were closed.
 - Local citizens also provided food to the protesting sailors.

- **British Response**

- The British authorities responded **to the mutiny with military and police force.**
- **Police firing** took place on February 22, 1946, and resulted in hundreds of deaths and many injuries.
- Most of the **people killed during the violence** were civilians rather than naval personnel.
- Some sections of the **Royal Indian Air Force and the Indian Army** also showed signs of **unrest or reluctance** to suppress the movement.

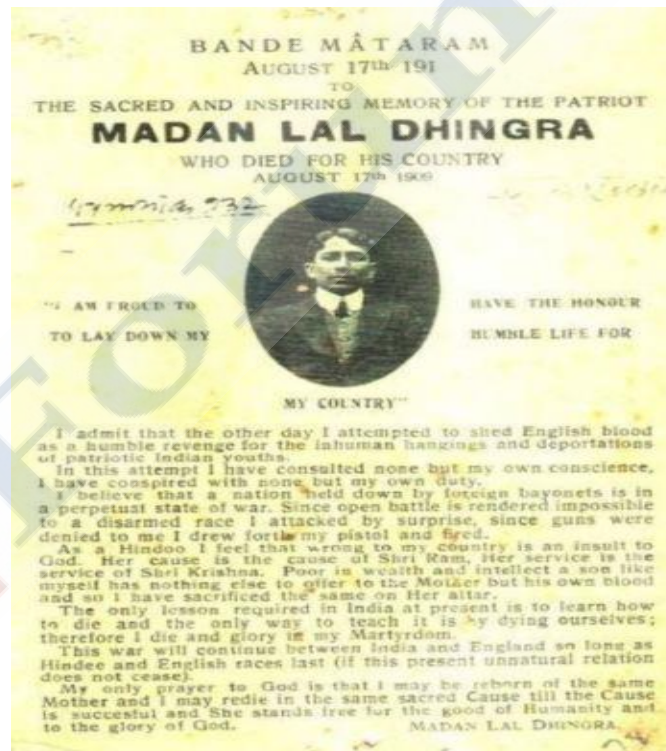
- **Significance of the Mutiny**

- The mutiny, along with the activities and trials of the Indian National Army, **increased pressure on the British government** to leave India.
- Many historians believe **that the naval mutiny helped accelerate the process of Indian independence.**
- For this reason, **the uprising is sometimes described as the “last war of independence.”**

Madan Lal Dhingra

News: Lok Sabha Speaker Om Birla paid tributes to Madan Lal Dhingra on his martyrdom day, highlighting his courage, patriotism and sacrifice.

About Madan Lal Dhingra



Source – India Archive

- **Madan Lal Dhingra** was an **Indian revolutionary freedom fighter** who made India's freedom his highest goal.
- **Early Life:** He was **born in 1883 in Amritsar** in an affluent family.
- **Education:** He received **early education in Amritsar**, later studied in Lahore.

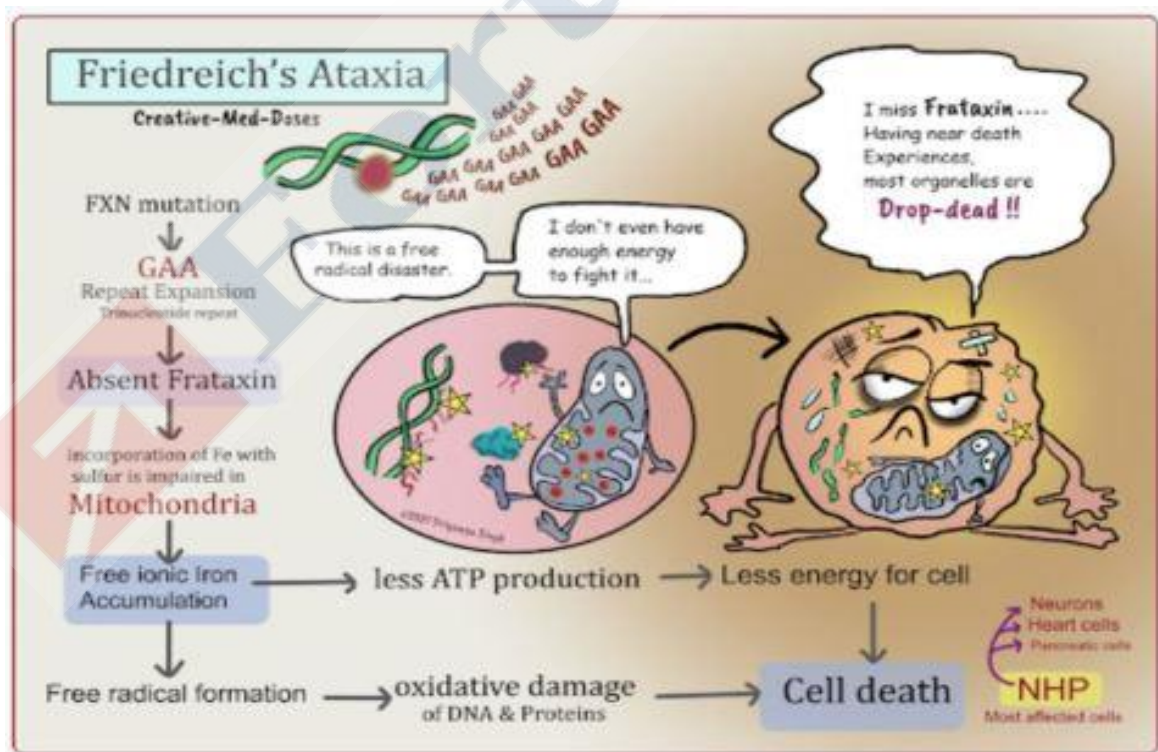
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- In 1906, he moved to Britain and enrolled at University College, London, to study engineering.
- **Influenced by:** He was deeply influenced by the revolutionary strategies of Vinayak Damodar Savarkar and Shyamji Krishna Varma.
- **Assassination of Curzon Wylie:** On 1 July 1909, he shot Curzon Wylie at a meeting in London's Imperial Institute to protest British colonial rule and avenge the brutal oppression, hangings, and inhumane treatment of Indian freedom fighters by the British government.
 - During the trial, Dhingra described the assassination as a patriotic act and said it was in revenge for the killings of Indians by the British Government.
- **Martyrdom:** He was found guilty and hanged on 17 August 1909, at the age of 24.
- **Repatriation:** His family had disowned him for his anti-British activities and refused to take his body after his death.
 - His remains were repatriated to India on 13 December 1976.
- **Key Associations:**
 - **India House:** He became associated with India House, a meeting place for Indian revolutionaries in London founded by Shyamji Krishna Varma.
 - **Abhinav Bharat Mandal:** He joined this secret revolutionary society founded by Vinayak Damodar Savarkar and his brother Ganesh Savarkar.

Friedreich's Ataxia (FRDA)

News: A new study from the University of Oklahoma Health Sciences Center explained the historical origin and population pattern of Friedreich's ataxia.

About Friedreich's Ataxia (FRDA)



Source – The Vulpe Lab

- **Friedreich's ataxia (FRDA)** is a **genetic disorder** that progressively **damages the nerves and heart**.
- **Caused by:** It is **caused by a mutation in the Frataxin (FXN) gene**, which **reduces the production of frataxin**, a protein essential for mitochondria.
- **Genetic Mechanism:**
 - **Normal variants:** The **FXN gene normally contains 5–11 or 12–33 repeats of a particular DNA sequence**.
 - These are **called short-normal and long-normal variants**.
 - **Expanded variants:** In people with FRDA, the same sequence is **repeated 100–1,500 times**. These are **called expanded variants**.
 - **Reduced frataxin:** The **large number of repeats changes the chromosome into a closed structure**, which **reduces the production of frataxin**.
 - **Cell damage:** **Low frataxin makes mitochondria less effective at producing ATP** and **causes toxic by-products to accumulate, making cells dysfunctional**.
 - **Inheritance:** FRDA develops when a person receives two expanded variants, one from each parent.
 - **A person with one expanded variant is a carrier and can pass it to their children.**
- **Major Symptoms:**
 - **Movement problems:** Symptoms usually begin between 5 and 15 years, causing unsteadiness and impaired coordination.
 - **Speech and swallowing:** Speech becomes slow and slurred, while swallowing becomes difficult.
 - **Sensory problems:** Hearing and vision deteriorate, and sensation is gradually lost.
 - **Other effects:** Fatigue occurs and the **spine may curve to one side**.
- **Key Features:**
 - **Origin of expanded variants:** Researchers found that **95% of the expanded variants came from just two long-normal variants**.
 - These first became **proto-mutations, then pre-mutations, and later developed into expanded variants**.
 - **Population pattern:** FRDA has been reported mainly among people of **European, North African, West Asian, and South Asian descent**.
 - **Consanguinity:** **Almost all cases diagnosed at Nizam's Institute come from consanguineous marriages**.
 - **Genetic testing:** Genetic tests can **identify carriers** and determine whether expanded variants were passed to children.
- **Treatment:** There is **no cure for FRDA**.

Logistics Data Bank (LDB)

News: Logistics Data Bank recently achieved the milestone of tracking 10 crore export-import containers since its launch in 2016.

About Logistics Data Bank (LDB)



Figure 10. Source – NICDC

Logistics Data Bank (LDB) is a **technology-based platform** that provides **visibility of Export-Import (EXIM) container movement** across the logistics chain.

- **Launch:** It was launched in 2016.
 - LDB 2.0 was launched in September 2025.
- **Nodal Ministry:** Ministry of Commerce and Industry
- **Implementing Agencies:** It is implemented by National Industrial Corridor Development Corporation Logistics Data Services Limited (N-LDSL), a joint venture between the Government of India and Japan's NEC Corporation.
- **Objective:** Its objective is to use **Information and Communication Technology (ICT)** to enhance

efficiency in the Indian logistics sector and provide **visibility of EXIM container movement**.

- **Key Features:**
 - **Complete Coverage:** LDB provides **visibility of 100% of India's EXIM container** movement across 19 ports, 32 container terminals and other logistics locations.
 - **Digital Tracking:** It uses **Radio Frequency Identification (RFID), Internet of Things (IoT), Big Data and Cloud technologies** for near real-time container tracking.
 - **Performance Analytics:** The platform provides **data on dwell time, transit time, and port and terminal performance** to monitor operations and identify bottlenecks.
 - **Single-Window Platform:** Its **container tracking services** are available through a **single-window platform**.

E. coli Found in Railway Station Water

News: The Comptroller and Auditor General (CAG) found E. coli in drinking water samples from eight of 49 railway stations.

About E. coli Bacteria



Figure 11. Source – Cleveland Clinic

- **Escherichia coli (E. coli)** is a rod-shaped bacterium belonging to the **Enterobacteriaceae** family.
- **Natural Habitat:** It normally resides in the **intestines of humans and animals** and is also found in their **faecal waste**.
- **Virulent Strains:** Most strains are harmless, but some can cause serious illness.
 - Some **harmful strains produce Shiga toxins**, which can **damage the lining of the small intestine and cause diarrhoea**.
 - **E. coli O157** is a commonly known **strain linked to severe infections**.
- **Transmission:** Infection can spread through **contaminated water, contaminated or undercooked food, and shared objects or surfaces**.
- **Symptoms:** E. coli infection can cause **watery diarrhoea, stomach pain, vomiting and digestive issues**.
 - It can also cause **urinary tract and wound infections**.
 - In rare cases, infection can lead to **haemolytic uraemic syndrome (HUS)**, which can cause **kidney failure, particularly in children and the elderly**.
- **Treatment:** E. coli infection is **treatable with antibiotics**.
 - A sensitivity test can identify effective antibiotics, as **some strains have developed antimicrobial resistance (AMR)**.

Communal Award

News: In August 1936, the British announced the Communal Award.
About Communal Award, 1932

Separate electorates vs reserved seats	
	Separate electorates • Separate electorates meant that members of a particular community vote separately to elect representatives from their own community. • For instance, under the system introduced for Muslims in 1909, Muslim voters could vote only for Muslim candidates in designated constituencies.
	Reserved seats • Reserved seats, in contrast, guarantee a certain number of seats to members of a particular community. • All voters in the constituency can vote, but only candidates from the designated community can contest.
	• Critics say that in a reserved seat, the winner has to keep the contrasting interests of all communities in mind, and hence cannot prioritise the disadvantaged community alone.
	• Others say that a reserved seat is more inclusive than separate electorates.

Figure 12. Source: IE

- The **Communal Award** was announced by **British Prime Minister Ramsay MacDonald** on **16 August 1932**.
- It introduced **separate electorates for various religious and social communities** in India.
- The communities given **separate electorates** included **Muslims, Sikhs, Indian Christians, Anglo-Indians, Europeans and the Depressed Classes (Dalits)**.
- The **Depressed Classes** were **recognized as a separate minority** and were given **71 special seats in provincial legislatures**.
- **B.R. Ambedkar** supported **separate electorates for Depressed Classes** because he believed that **Dalits needed their own political representatives to protect their interests**.
 - Ambedkar believed that upper-caste leaders could not adequately represent the interests of Dalits.

- **Mahatma Gandhi** strongly **opposed** separate electorates for the Depressed Classes because he believed they would **divide Hindu society permanently**.
 - Gandhi argued that the **problem of untouchability** should be solved through **social reform and unity**, rather than through separate political representation.
 - Gandhi announced that he would undertake a **fast unto death** if separate electorates for the Depressed Classes were not withdrawn.
- **Gandhi began his fast on 20 September 1932 in Poona.**
- The **disagreement** between **Gandhi and Ambedkar** created a major political conflict over the political rights and representation of Dalits.
- After negotiations, **Gandhi and Ambedkar signed the Poona Pact on 24 September 1932.**
 - Under the Poona Pact, **separate electorates for the Depressed Classes were abandoned.**
 - Instead, the Depressed Classes were given **reserved seats within joint electorates.**
 - The number of **reserved seats** for the Depressed Classes in **provincial legislatures** was **increased from 71 to 148.**
 - The Poona Pact became a **compromise** between **Gandhi's demand for Hindu political unity** and **Ambedkar's demand for greater political representation for Dalits.**

Rotating Detonation Engines (DREs)

News: India-based defence start-up D-Propulse successfully demonstrated a Rotating Detonation Engine (RDE) at a Defence Research & Development Organisation facility in Hyderabad.

About Rotating Detonation Engines (DREs)

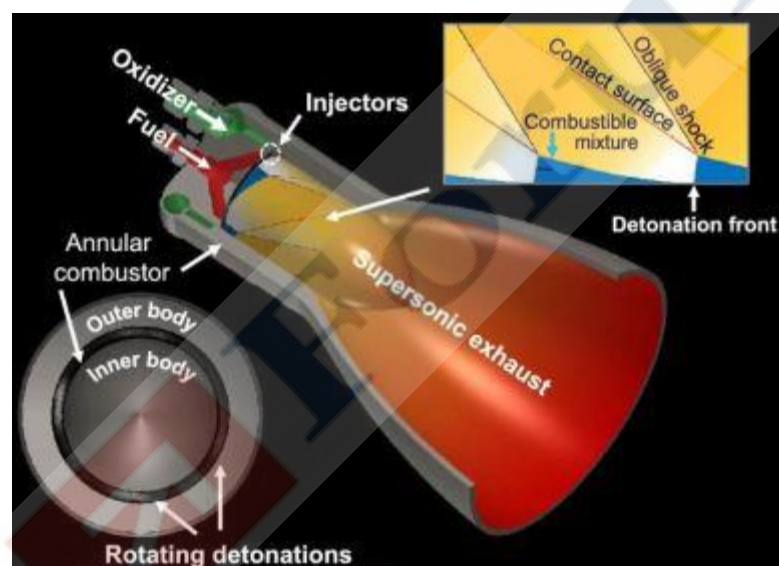


Figure 13. Source – University of Texas

- **Detonation** is a **combustion process** in which the **flame travels through the fuel mixture faster than the speed of sound**, unlike **conventional combustion** where the flame travels slower than the speed of sound.
- **Type of Detonation:** Detonation engines can be **Pulsed Detonation Engines (PDEs)** or **Rotating Detonation Engines (RDEs)**.
- **Pulsed Detonation Engine (PDE):** The detonation **travels through a long tube** and works in **repeated cycles**.
 - The tube is purged before the next cycle.
- **Rotating Detonation Engine (RDE):** The detonation wave **moves continuously in a circular path inside an annular chamber**, so **combustion can continue as long as fuel is supplied**.
- **Working Mechanism of RDE:**
 - **Fuel and oxidizer** are continuously **injected** into the narrow, ring-shaped chamber called '**annulus**'.

- The **detonation wave** moves around the annulus at very high speed and rapidly **compresses** and **burns** the fresh fuel-air mixture.
- The wave **consumes the mixture** and produces **high-pressure, high-temperature gases**.
 - Continuous fuel injection keeps the detonation going.
- The combustion products are **expelled through the nozzle, generating continuous thrust or mechanical energy**.
- **Key Features of RDE:**
 - **Higher Efficiency:** RDEs can **provide around 10%–25% higher thermodynamic efficiency** than conventional combustors, depending on design and conditions.
 - **Fuel Saving:** A **20% increase in thermodynamic efficiency** could theoretically **reduce fuel requirement by about 17%** for the same output.
 - **Compact Design:** RDE combustors can be at least **40% shorter than standard rocket engines**.
 - **Propellant Flexibility:** RDEs have been **demonstrated with hypergolic and cryogenic propellants**.
 - **Wide Applications:** RDEs can be used for **chemical propulsion, including rocket launches, in-space propulsion, and missions involving spacecraft such as upper stages, landers and Mars Ascent Vehicles**.
 - **Current Status:** RDEs remain in the **research and development stage**, with **no known models ready for commercial or military use**.
- **India's Progress:** India-based defence start-up **D-Propulse** has successfully **demonstrated an RDE** at a DRDO facility in Hyderabad.

Hara Mangrove Forests

News: A major oil spill threatens the Hara mangrove forests, contaminating water, damaging roots, and harming fish and other wildlife.

About Hara Mangrove Forests



Figure 14. Source: Research Gate

The Hara mangrove forests are **located around Qeshm Island and the Khuran Strait** in southern Iran, along the [Persian Gulf](#).

- They are **primarily composed of Avicennia marina** and form an important mangrove ecosystem of the Persian Gulf region.
- It is covered by the **Mehran Delta**, which has **mudflats, marshy coasts, and large mangrove forests**.
 - There are numerous **small islands, creeks and inlets** also.
 - It contains the **stand of grey mangrove (Avicennia marina)** that is called **Harra** in locally.
 - This stand is **largest one in all over the Persian Gulf countries**.
- **Recognition:** It was **designated as a protected area in 1972**.
 - The entire area of mangroves, mudflats and creels was **designated as Ramsar Site on 1975** as well as a **biosphere reserve in 1976**.

- This natural reserve is **unique** among mangrove habitats in West Asia because of **vast area and adapted to hot weather and more saline sea water**.
- **Biodiversity:** The **Intertidal areas and mangrove zones** provide a suitable **habitat** for abundant invertebrates, which form an important food source for wildfowl.
 - The reserve supports more than **50,000 individual birds' habitats in more than 90 species**.
 - **Breeding site:** Important breeding ground for various migratory birds such as including **Great egret, Western reef and Indian pond heron, Crab plover and Stone-curlew**.
 - **Wintering birds:** The site is an important wintering area for **Dalmatian pelican, Spoonbill and Greater flamingo**.
 - **Marine species:** It supports species such as **Green turtle, Finless porpoise, Humpback dolphin and Common dolphin**.
- **Globally threatened species:** **Green turtle, Dalmatian pelican, crab plover, and curlew** are important threatened species found in the reserve.
- **Local livelihoods:** Local people depend on the mangroves for Livestock fodder, **traditional fishing using Moshta** and recreation and other ecosystem services.

About Avicennia Marina

- It is one of the **most prominent mangroves species** found in all mangrove formations in India.
- It is also called **Banhi in Odia**.
- **Features:** It is a **salt-secreting and extraordinarily salt-tolerant mangrove species** that grows optimally in 75% seawater and tolerates >250% seawater.
- **Significance:** It is among the **rare plant species which can excrete 40% of the salt** through the salt glands in the leaves, besides its extraordinary capacity to exclude salt entry to the roots.

Incentive Scheme for Promotion of Domestic PNG Connections

News: The government has approved an incentive scheme to accelerate domestic Piped Natural Gas (PNG) connections across the country.

About Incentive Scheme for Promotion of Domestic PNG Connections



Source – PIB

- **Incentive Scheme for Promotion of Domestic PNG Connections** is an incentive programme for **City Gas Distribution (CGD)** companies to **expand household Piped Natural Gas (PNG) connections**.
- **Nodal ministry:** Ministry of Petroleum and Natural Gas
- **Aim:** It aims to **encourage City Gas Distribution (CGD) companies** to convert unbilled connections into **working connections** and **expand Piped Natural Gas (PNG) networks to new areas**.
- **Implemented over:** It will be implemented in **two tranches spanning six months**.
- **Key Features:**
 - **Existing connectivity:** India currently has **around 1.74 crore domestic PNG connections**.
 - **Incentive mechanism:** Eligible CGD entities **will receive 200 Standard Cubic Meters (SCM) of lower-priced, domestically produced gas**.
 - This will be **provided for each additional billed domestic PNG connection above the prescribed threshold** for the respective geographical area.
 - **Cost reduction:** The additional domestic gas will **replace costlier Liquefied Natural Gas (LNG) used by CGD entities for their Compressed Natural Gas (CNG) transport segment**.
 - This will **reduce their overall gas-sourcing cost**.

Lantana Camara

News: A new study has found that a majority of ornamental plants sold online, like lantana camara, in India are alien species, many of which are known to be invasive or naturalised in other countries.

About Lantana Camara



Source – ToI

- **Lantana Camara** is a **flowering plant species** belonging to the **verbena family**.
- **Native to:** It is native to the **American tropics**.
- It was **introduced to India** as an **ornamental plant** by the **European colonisers** in the early 1800s.

- Due to its capability to **adapt to shifting climates**, lantana can **withstand high temperatures and moisture levels**.
- However it is among the **world's ten worst invasive species** and is of great **concern** in India.
- The shrub can **easily spread** across the forest floor, **climb trees** as a creeper, and **entangle with other native plants**.
- The [Nilgiri Biosphere Reserve](#) in the Western Ghats is **heavily impacted** by the invasion of Lantana camara, making it one of the largest affected areas.

Bad Cholesterol

News: A new experimental gene-editing therapy, VERVE-102, permanently targets the PCSK9 gene to achieve long-term reduction in LDL cholesterol.

About Bad Cholesterol

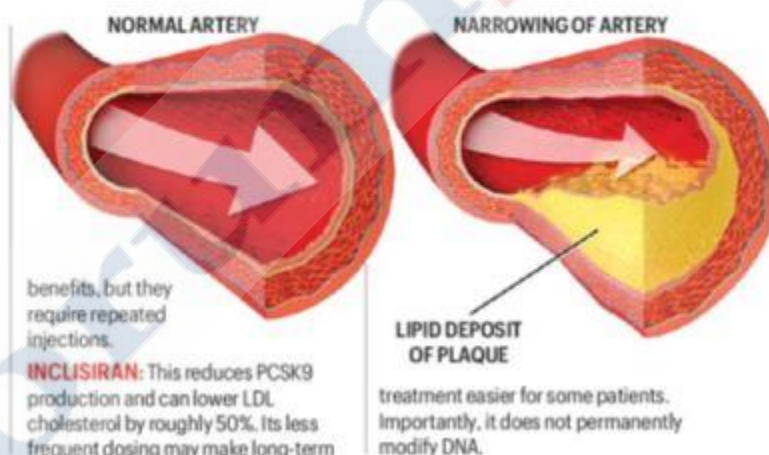
• EXISTING TREATMENTS

LDL is called 'bad cholesterol' because high levels cause it to stick to artery walls and form hard fatty deposits called plaque. These deposits narrow the arteries and block blood flow, elevating the risk of heart attacks and strokes.

STATINS: They are usually the foundation of treatment. They are relatively inexpensive, widely available, and supported by extensive evidence showing reductions in cardiovascular events.

EZETIMIBE belongs to a class of drugs called cholesterol absorption inhibitors. It is an oral prescription medicine used to lower high blood cholesterol and other fats in the blood that works by blocking cholesterol from being absorbed in your small intestine.

PCSK9 ANTIBODY MEDICINES can produce powerful LDL reductions and have demonstrated cardiovascular



Source – IE

- **Cholesterol:** It is a waxy, fat-like substance found in all body cells.
 - The **body needs** some cholesterol to **make hormones, vitamin D, and substances that help digest food**.
 - **Sources:** The **liver makes cholesterol**.
 - It is also **found in animal-source foods** such as meat, dairy products, and egg yolks.
- **Types of Cholesterol:** The main types are **HDL (High-Density Lipoprotein)**, **LDL (Low-Density Lipoprotein)**, and **VLDL (Very Low-Density Lipoprotein)**.
 - They are **lipoproteins**, which are **combinations of fat (lipid) and protein** that **carry substances through the blood**.
 - **HDL:** It is called **good cholesterol** because it **carries cholesterol from other parts of the body back to the liver for removal**.

- **LDL:** It is called **bad cholesterol** because **high levels can cause cholesterol to build up in the arteries.**
- **VLDL:** It mainly **carries triglycerides** and also **contributes to plaque buildup in the arteries.**
- **Impacts of Bad Cholesterol:**
 - **Plaque formation:** **Excess LDL** combines with other substances to **form plaque in the arteries**, causing them to **harden and narrow.**
 - **Cardiovascular risk:** Narrowed or blocked arteries can **reduce blood flow and increase the risk of heart attacks and strokes.**
- **Factors Influencing Accumulation of Bad Cholesterol:**
 - **Unhealthy diet:** Eating too much saturated fat can raise LDL cholesterol.
 - **Physical inactivity:** Lack of exercise can lower HDL cholesterol.
 - **Smoking:** Smoking lowers HDL and raises LDL cholesterol.
 - **Excessive alcohol:** Drinking too much alcohol can raise total cholesterol levels.
- **Existing Treatments:**
 - **Statins:** These are **medicines used to lower LDL cholesterol**, but their effect **needs to be maintained through continued treatment.**
 - **Ezetimibe:** It is a medicine used to lower cholesterol.
 - **PCSK9 inhibitors:** These **medicines block the PCSK9 protein**, which helps reduce LDL cholesterol and cardiovascular events.
 - **Inclisiran:** It is an **injectable prescription medicine** used as an existing **treatment for lowering cholesterol.**

About VERVE-102

- **VERVE-102** is an **in vivo gene-editing therapy** that **permanently changes gene function in liver cells.**
- **Aim:** It aims to **permanently switch off the PCSK9 gene**, **reducing the liver's ability to produce PCSK9.**
 - **PCSK9** is a **protein involved in regulating LDL cholesterol** in the blood
- **Single infusion:** It is designed as a **one-time intravenous treatment**, unlike medicines that require continued treatment.
- **Limitation:** Its ability to prevent heart attacks or strokes remains unproven, while its **long-term effects require further research.**

Microbial Ecology and Soil Microbes

News: Researchers are exploring how soil microbes can provide early warning signs of desertification, before visible plant decline begins.

About Microbial ecology and Soil Microbes



Figure 15. Source: The ISME Journal

- **Microbial ecology** is the branch of science that studies the relationships between microorganisms and their biotic and abiotic environment.
- It applies general ecological principles to understand the activities and functions of microorganisms in their natural environments.
- **Research methods:**
 - **In situ:** Microorganisms are studied directly in their natural habitats.
 - **Ex situ / in vitro:** Laboratory experiments are useful for understanding microbial processes under **controlled or artificial conditions**.
- Microbial ecology uses **laboratory experiments, mathematical modelling, field studies and observation** of natural microbial communities
- **Importance and application:** Microbial ecology is important in biotechnology because it helps in the development of environmental biotechnologies.
 - It helps scientists understand and use beneficial microorganisms such as **nitrogen-fixing bacteria, plant hormone-producing bacteria, pollutant-degrading microorganisms, and bacteria that control soil pathogens**.
 - It is also useful for **cleaning polluted soil and water, treating wastewater, controlling pests, and removing environmental pollutants**.

About Soil Microbes

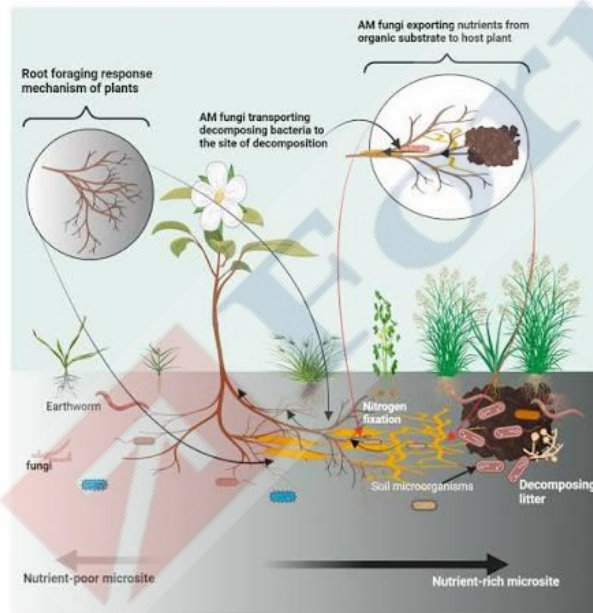


Figure 16. Source: Research Gate

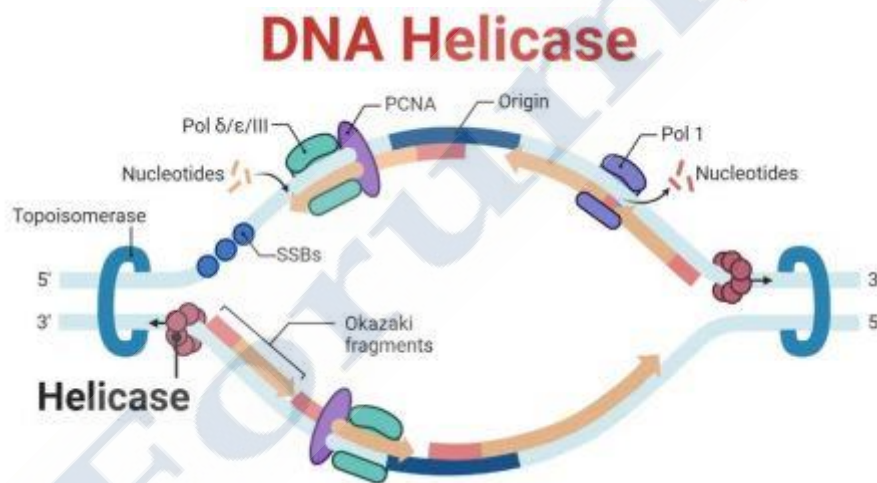
- **Soil microbes** are very small organisms, usually measured in **micrometres**, and they **can only be seen clearly with powerful microscopes**.
- **Examples:** The major groups of soil microorganisms include **bacteria, fungi, and viruses**.
- **Characteristics:**
 - These microorganisms live together in communities called **soil microbiomes**.
 - It functions like small communities in which microorganisms **interact with one another and with their environment**.
 - Even a single grain of sand can contain **thousands of bacterial cells**.
 - It interacts by **sharing nutrients and genetic material** with one another. They also compete for **space and nutrients** in the soil.
 - Some bacteria produce **antibiotics** to inhibit or kill competing microorganisms. Eg. **Soil bacteria such as Streptomyces** are important sources of **antibiotic compounds** used in medicine.
- **Soil microorganisms** play an important role in the **carbon cycle**.

- Some microbes help **store carbon in the soil**, while others decompose plant and animal remains and release carbon back into the environment.
- They are therefore important for **decomposition and nutrient cycling** in soil.
- **Condition impacting:**
 - The activities of soil microbes are strongly affected by **environmental conditions**, including temperature. Rising temperatures caused by **global warming** can increase microbial activity in some soils.
- **Impact:**
 - **Increased microbial activity can cause more stored carbon** to be released into the atmosphere as **carbon dioxide**.
 - Higher levels of atmospheric carbon dioxide can contribute to **further increases in global temperature**.

Helicase: The DNA Separator

News: A recent study found how cells ensure that the DNA copying starts at the right time through a molecular safety catch.

About Helicase: The DNA Separator



Source – ENT News

- **Helicase** is an **enzyme and motor protein** that **unwinds double-stranded deoxyribonucleic acid (DNA) into single strands**.
 - It is **essential for DNA replication, repair, and transcription**.
- **Function of Helicase:**
 - **DNA replication:** It **separates DNA strands** so the genetic information can be copied.
 - **Access to genetic code:** By unwinding DNA, it **exposes the strands needed for cellular processes**.
 - **Other roles:** Helicase also plays an **essential role in DNA repair and transcription**.
- **Working Mechanism of Helicase:**
 - **ATP-powered movement:** Helicase **binds and hydrolyses ATP (Adenosine triphosphate)**, **converting chemical energy into mechanical energy** that helps it move along DNA.

- As **helicase** moves along the DNA molecule, it **disrupts the hydrogen bonds between complementary bases**, thereby **separating the two DNA strands**.
- This separation **creates a Y-shaped replication fork**, where the **two DNA strands become exposed**.
- As helicase moves along DNA, the DNA becomes increasingly twisted ahead of the replication fork.
 - **Other enzymes called topoisomerases** relieve this twisting and **prevent the DNA from becoming tangled or breaking**.
- Once helicase separates the strands, replication machinery **uses each exposed strand as a template to make a new complementary strand**.

About DNA

- DNA stands for **Deoxyribonucleic Acid**, which is the **genetic material** present in the **nucleus of almost all cells in living organisms**.
- It **carries information** that determines the internal organization, **physical characteristics, and physiological functions of the body**.
- It is **made up of four nucleotide bases: Adenine (A), Guanine (G), Thymine (T), and Cytosine (C)**, arranged in a **double-helix structure**.

Maveeran Ondiveeran

News: Vice President C. P. Radhakrishnan paid tribute to Maveeran Ondiveeran on his death anniversary and recalled his valour and sacrifice against colonial rule.

About Maveeran Ondiveeran



Source – TH

- **Maveeran Ondiveeran**, also known as **Ondi Veeran**, was a warrior **from Tamil Nadu** who **fought against the British East India Company**.
- **Naming:** The word “**Ondi**” means **single-handedly**, while “**Veeran**” means **brave warrior**.

- He earned the name Ondiveeran because he **single-handedly fought against the enemy** and emerged **victorious**.
- **Earlier Life:** He came from the **Arunthathiyar community**, which considers him a hero.
 - His **grandfather owned cultivable land** that was **retrieved by Puli Thevar** from **Irulappillai**.
- **Role in Puli Thevar's Army:** He was a **trusted commander in Puli Thevar's army**.
 - He was also **known as the "Porvaal" or sword of Puli Thevar**.
- **Military Skills:** He developed unique strategies for different battles and was an **expert in guerrilla warfare**.
- **Continued Resistance:** Oral traditions and folk tales state that, after Puli Thevar's martyrdom, **Ondiveeran served in the army of Puli Thevar's sons and fought against their enemies**.
 - However, **no concrete records regarding this are available**.
- **Legacy and Commemoration:** In honour of Maveeran Ondiveeran, a **Mani Mandapam (Memorial Hall)** was inaugurated at Palayamkottai on **1 March 2016**, and a commemorative **postal stamp** was released on **20 August 2022**.

Pradhan Mantri Janatiya Vikas Mission (PMJVM)

News: The government is strengthening the forest-based tribal economy through PMJVM by promoting value addition and market access.

About Pradhan Mantri Janatiya Vikas Mission (PMJVM)



Figure 17. Source – PIB

- **Pradhan Mantri Janatiya Vikas Mission (PMJVM)** promotes **tribal livelihoods** by supporting the **processing, value addition and marketing of Minor Forest Produce (MFP)** and other **tribal products**.
- **Origin:** It was **launched in 2021-22**.
- **Merger of Earlier Schemes:** PMJVM was formulated by **merging two earlier schemes for tribal livelihood promotion**.
 - These were the **"Mechanism for Marketing of Minor Forest Produce (MFP) through Minimum Support Price (MSP) and Development of Value Chain for MFP"** and **"Institutional Support for Development and Marketing of Tribal Products/Produce."**
- **Nodal Ministry:** Ministry of Tribal Affairs
- **Implementing Agency:** The Tribal Cooperative Marketing Development Federation of India (**TRIFED**) is the nodal implementing agency for PMJVM.
- **Funding:** The Mission includes **two major financial support components**.
 - **Equity Support:** The Ministry of Tribal Affairs releases funds as **Equity Share Capital** assistance to the **National and State Scheduled Tribes Finance and Development Corporations**, which provide concessional loans to eligible Scheduled Tribe members.

- **Venture Capital Fund:** Approved in 2021-22, the Venture Capital Fund for Scheduled Tribes promotes entrepreneurship, provides concessional finance and supports the incubation of start-up ideas by Scheduled Tribe youth.
 - It is managed by Industrial Finance Corporation of India Venture Capital Funds Limited (IFCI VCF Ltd.)
- **Key Components of the Mission**
 - **Van Dhan Vikas Kendras (VDVK):** A group of around 15 Self-Help Groups, comprising about 300 tribals, forms one VDVK, with at least 60% of its members belonging to Scheduled Tribe communities.
 - **Skill and Infrastructure Support:** Tribal gatherers receive training in scientific harvesting, processing and value addition, along with processing equipment, storage and transportation support.
 - **Market and Business Support:** VDVKs receive market linkages, while TRIFED provides information on daily rates and e-commerce opportunities and supports branding and promotion.
 - **Haat Bazaars:** VDVKs are established around local Haat Bazaars, which are important procurement points.
 - **Women Empowerment:** The VDVK model supports women's economic empowerment by enabling their participation in the collection, processing and sale of forest produce, as well as in community enterprises.

Zonal Councils

News: The 31st meeting of the Southern Zonal Council commenced at Kovalam near Chennai with Union Home Minister Amit Shah in the chair.

About Zonal Councils



Source – Organiser

- **Prime Minister Jawaharlal Nehru** introduced the concept of zonal councils in 1956 during the debate on the States Reorganisation Commission report.

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- It was introduced as a **mechanism to promote inter-state cooperation** and **resolve issues** arising from state linguistic reorganizations.
- These councils **serve as advisory and cooperative platforms** between states and the Centre.
- **Composition of Zonal Councils:** Each Zonal Council consists of:
 - **Union Home Minister – Chairman** of all councils.
 - **Chief Ministers of the states** in a zone – **Vice-Chairman** (on a **rotational basis for one year**).
 - **Two Ministers from each state** – Nominated by the respective Governor.
 - **Two representatives from Union Territories** in the zone.
 - **Chief Secretaries** and senior officials from the states.
- **Standing Committees**
 - **Each council** has a Standing Committee **comprising Chief Secretaries of member states**.
 - These committees **meet periodically to resolve issues** and prepare the groundwork for council meetings.
 - **Representatives from Central Ministries and NITI Aayog** attend based on necessity.
- **Functions and Role of Zonal Councils**
 - It acts as a platform for **resolving Centre-State and inter-state disputes**.
 - It facilitates **regional cooperation** in economic and social planning.
 - It **discusses and resolves** issues related to:
 - Border disputes.
 - Linguistic minorities.
 - Inter-state transport
 - Other matters under the States Reorganisation Act.
 - It fosters **cooperative and competitive federalism**.

RK-251

News: Scientists in India have developed RK-251, a smart cancer drug that activates mainly inside cancer cells and may reduce harm to healthy cells.

About RK-251

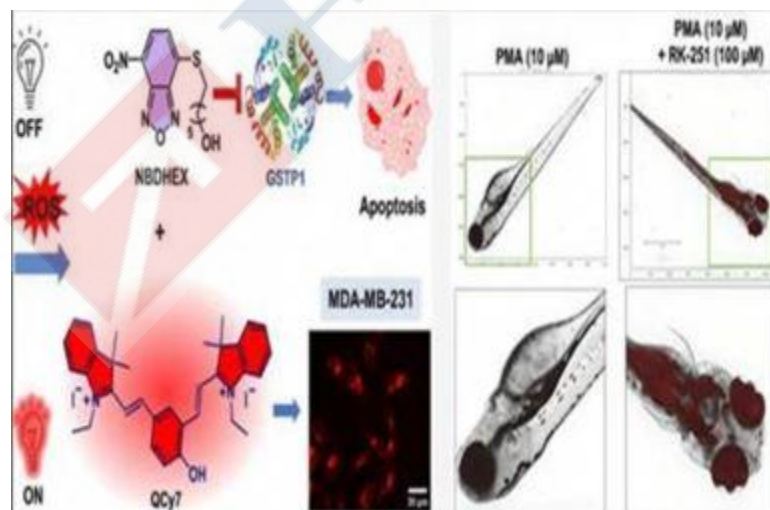


Figure 18. Source – NOA

- **RK-251 is a smart cancer drug** designed to remain relatively **inactive in normal tissues** and **activate in cancer cells**.
- **Developed by:** It was developed through **collaborative research** led by **Dr. Asis Bala** of the **Institute of Advanced Study in Science and Technology (IASST)** and **Dr. K.P. Bhabak** of the **Indian Institute of Technology-Guwahati**.
- **Working Mechanism:**

- **Presence of ROS:** Cancer cells often contain **high levels of Reactive Oxygen Species (ROS), molecules that can cause cellular damage.**
- **Activation of RK-251:** When RK-251 enters a cancer cell, the high levels of ROS trigger its activation.
- **Release of anticancer compound:** Once activated, RK-251 releases NBDHEX, an anticancer compound.
- **Action against cancer cells:** NBDHEX targets proteins that many cancer cells use to survive and resist treatment, thereby **producing its anticancer effect.**
- **Key Features:**
 - **Targeted action:** In preclinical studies, RK-251 showed strong activity against **triple-negative breast cancer cells**, with **substantially lower effects on healthy cells.**
 - **Fluorescence response:** The drug showed the **desired fluorescence in the presence of ROS**, indicating its activation in an ROS-rich environment.
 - **Preclinical safety findings:** Studies using **zebrafish embryos (Danio rerio)** showed **no obvious signs of toxicity.**
 - **Current Stage:** RK-251 **remains at the preclinical research stage**, and further studies are required before human clinical trials.

Apong

News: In recent years, Apong has been transformed into a premium bottled drink called Ti:Po.

About Apong

- Apong is a **fermented rice-based alcoholic beverage** is popular among the **Mishing tribe in Assam and Arunachal Pradesh.**
 - It is popular in Assam as **sai mod (ash liquor).**
- **Varieties:** The Mishings prepare two types of **rice-based alcoholic beverages – paro-apong (sai mod) and nogin-apong.**
- **How it is prepared:**
 - **Brewing:** The brewing of the beverage begins by making a **pop pitha, a yeast cake.** It includes 16-39 varieties of herbs, barks, plants, and twigs that are cleaned and either used fresh or sun-dried.
 - **Cake making:** Later, soaked rice and herbs are ground separately, mixed with water, shaped into ovoid cakes and dried in the sun.
 - **Nogin-apong** is made by **fermenting dried boiled rice with crushed apop pitha in sealed earthen pots for 4–5 days.**
 - It has a blackish to reddish-brown colour and an earthy aroma.
 - **Paro-apong** is prepared by **mixing dried cooked rice with ash powder and apop pitha.**
 - It is **fermented in sealed clay pots for about 20 days** and then filtered through a bamboo container lined with banana leaves.
- **Alcohol content:** It has **14% alcohol content.**
- **Flavour:** It has **two distinct ending notes in flavours: sweet and smoky and fruity and nutty.**
- **Consumption:**
 - **Nogin Apong** is mainly prepared for **everyday consumption.**
 - **Po:ro Apong** is prepared for **special occasions.**

- **Cultural significance:** It forms an integral part of their **traditional lifestyle, rituals, and agricultural festivals.**
- It is now being transformed as premium bottled drink named as **Ti:Po (in Mising language means a satisfactory drink).**

About Mishing Tribe

- The Mishings of Assam, also known as Miri by the people living in the plains
- **Distribution:** They are settled across the southwestern and upper regions of the Assam - especially in the districts of **Jorhat, Sivasagar, Lakhimpur, Dhemaji, Tinsukia, Dibrugarh, and Sonitpur**
 - Smaller population also lives in Arunachal Pradesh.
- **Origin:** They are a part of the **Tani group, associated with tribes like the Adi** in Arunachal.
 - They reportedly migrated from the hilly regions of Arunachal Pradesh to settle in the plains of Assam, **near the riverbanks of the Subansiri and Brahmaputra.**
- **Worship:** They practise **Do-nyi-Polo** and **worship the sun and the moon.**
- **Livelihood:** The Mishing women are **skilled in weaving and renowned for creating colourful textiles** inspired by the local flora and fauna.

Terrier Cyber Quest 2026

News: The Territorial Army, in collaboration with CyberPeace, has launched Terrier Cyber Quest 2026 (TCQ 3.0), a national-level hackathon.

About Terrier Cyber Quest 2026



Source – ADGPI

- **Terrier Cyber Quest 2026** is a **national-level hackathon** focused on **developing innovative solutions** for **defence, cybersecurity and information-domain challenges**.
- **Launched By:** The competition has been **launched by the Territorial Army in collaboration with CyberPeace**.
- **Edition:** It is the **third edition** of the competition.
 - The **first edition was held in 2024**, followed by the **second edition in 2025**.
- **Aim:** It aims to **bring together technical talent** and encourage the **development of indigenous solutions for national security challenges**.
- **Competition Tracks:** It will be **conducted across three competition tracks**:
 - **Bug Hunting:** Participants will identify and document vulnerabilities in simulated critical infrastructure environments through an **online Capture-the-Flag qualifier** and an **in-person live sandbox finale**.
 - **AI Kavach:** This challenge will **focus on developing solutions for predictive threat intelligence, automated defence mechanisms and anomaly detection**.
 - **Creators Challenge:** Participants will **develop awareness campaigns** addressing threats such as **deepfakes, phishing, online scams and misinformation**.

Ervebo Vaccine

News: The World Health Organization will provide 70,000 Ervebo vaccine doses to the Democratic Republic of Congo during the Bundibugyo Ebola outbreak.

About Ervebo Vaccine



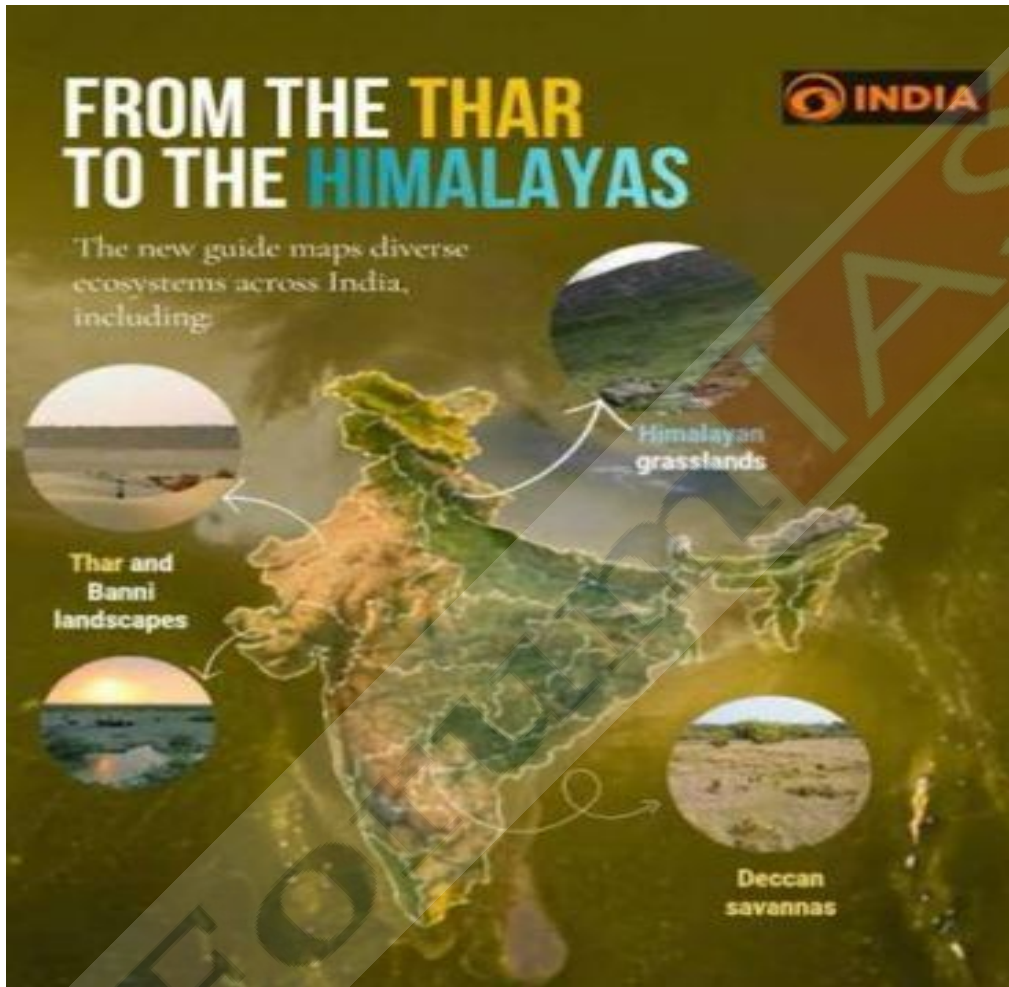
Source – SABC News

- **Ervebo** is an **approved Ebola vaccine** that has proved **safe and effective** against the **Zaire strain of [Ebola virus](#)**.
- **Manufactured by:** It is manufactured by **Merck**.
- **Vaccine Type:** It is a **replication-competent, live, attenuated recombinant vaccine** that **uses vesicular stomatitis virus (VSV) as a vector**.
- **Working Mechanism:** A small gene from the **Ebola virus** is **added to the vesicular stomatitis virus (VSV) to create the vaccine virus**.
 - Since **it does not contain the whole Ebola virus**, it cannot cause Ebola.
 - The **vaccine virus acts like a natural infection** and **trains the immune system to recognise and fight the Ebola virus**.
- **Administration:** It is **given as a single dose** to individuals **aged 12 months and above**.
- **Limited Protection:** **ERVEBO does not provide protection** against other species of **orthoebolaviruses or orthomarburgviruses**.

India's First-ever Guide to Grasslands and Other Open Natural Ecosystems

News: Recently, India launched its first-ever Guide to Grasslands and Other Open Natural Ecosystems at UNCCD COP17 in Ulaanbaatar, Mongolia.

About India's First-ever Guide to Grasslands and Other Open Natural Ecosystems



Source – DD News

- This **Guide** is a **national reference document** that **highlights the diversity, ecological significance and socio-economic importance of India's grasslands and other open natural ecosystems.**
- **Launched At:** It was launched at the **17th Session of the Conference of the Parties (COP17)** to the **United Nations Convention to Combat Desertification (UNCCD)** in **Ulaanbaatar, Mongolia.**
- **Institutional Collaborators:** The Guide was **developed under the Ministry of Environment, Forest and Climate Change (MoEFCC)** with partners including the **Ashoka Trust for Research in Ecology and the Environment (ATREE)** and the **International Union for Conservation of Nature (IUCN).**
- **Aim:** It aims to strengthen the **conservation, restoration and sustainable management** of India's **grasslands and other open natural ecosystems (ONES)** through science-based approaches.
- **Grasslands:** Grasslands are **dominated by grasses**, support a wide variety of **animal life** and provide **ecosystem services** such as water and carbon storage, chemical recycling and climate regulation.

- **Open Natural Ecosystems (ONEs):** ONEs include **naturally occurring, open landscape**, such as grasslands, Savannas, deserts, scrubland, ravines, rocky plateaus, coastal ecosystems.
- **Key Features of Guide:**
 - **Comprehensive Information:** The Guide brings together **information on major Open Natural Ecosystems across India**, including **their geographical settings, ecological characteristics, biodiversity, and associated communities and tribes.**
 - **Ecosystems Covered:** It covers **Himalayan and Terai grasslands, the Thar and Banni landscapes, Deccan savannas, rocky plateaus, ravines, scrublands, coastal ecosystems and desert landscapes.**
 - **Thematic Sections:** The Guide contains **dedicated sections on pastoralism, fire ecology and carbon sequestration.**
 - **Correction of the “Wasteland” Perception:** The Guide highlights that **grasslands, scrublands and ravines should not be undervalued due to the absence of trees.**
 - **Science-based Conservation:** It highlights the **need for stronger scientific knowledge, improved assessments of land degradation and comprehensive landscape-level planning** for the conservation and restoration of ONEs.
 - **Valuable Resource:** The Guide will **serve as a valuable resource for policymakers, researchers, conservation practitioners, development agencies and communities.**

Definition of ‘Industry’ and ‘Triple Test’

News: The Supreme Court has held that the broad definition of the term “Industry” and triple test laid down in its landmark 1978 Bangalore Water Supply judgement is the correct interpretation under the Industrial Disputes Act, 1947.

About Definition of ‘Industry’ and ‘Triple Test’



Source – King Stubb

- **Recent SC Judgement:** The Supreme Court held that the broad interpretation of “**Industry**” in its landmark 1978 *Bangalore Water Supply judgment* remains **valid** under the **Industrial Disputes Act, 1947.**
 - The **definition** of an “**industry**” determines **employees** under which **workplaces** are **entitled to statutory protections.**

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- Earlier, it was defined under previous Industrial Disputes Act, 1947 and now under the Industrial Relations Code, 2020.
 - The wide net cast by the 1978 definition enabled workers to have a legal recourse regarding wages, working hours, strikes and protection against arbitrary dismissal, among other things.
- The Supreme Court clarified that future disputes will be governed by the Industrial Relations Code, 2020.
- It said the new Code will have to be interpreted on the basis of its own text and context and the Bangalore Water Supply judgement will not govern its interpretation.
- All matters presently pending before courts, governors, labor authorities, or other forums under the Industrial Disputes Act, 1947 may be adjudicated in accordance with the 'triple test' as laid down in Bangalore Water Supply.
- 'Triple test' for identifying an industry: It held that an undertaking would qualify as an industry if:
 - it was organised and systematic;
 - there was cooperation between employers and employees; and
 - it involved the production and/or distribution of goods or services calculated to satisfy human wants and wishes.
- The court said it did not matter whether the activity is driven by profit, though purely spiritual or religious activities would not be covered.

Satkosia Tiger Reserve

News: Odisha has formed a high-level inquiry committee to investigate the alleged forced relocation of villages from the Satkosia Tiger Reserve, following residents' claims of eviction from their ancestral homes.

About Satkosia Tiger Reserve

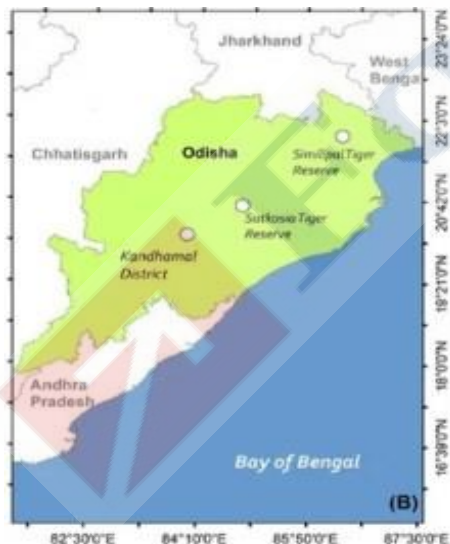


Figure 19. Source: Research Gate

- **Location:** It is situated in Odisha. It is spread over four districts, including Nayagarh, Cuttack, Angul and Boudh.
- **Naming:** The name 'Satkosia' originates from the word 'Sat Kos' – 'Sat' meaning seven and 'Kos' meaning two miles, which apparently indicates the 14 miles length of the gorge of River Mahanadi that crosses this wildlife region.
- **Area:** It covers an area of approx. 963 sq. km.
- **Establish Year:** It was established in 2007.
- It comprises two adjoining sanctuaries, namely Baisipalli Sanctuary and Satkosia Gorge Sanctuary.
- **Rivers associated:** Mahanadi and Satkosia river flows nearby and through the reserve area.
- **Vegetation:** The reserve is characterized by North Indian tropical moist deciduous forests and moist peninsular low-level sal forests.
- **Flora:** Sal is the dominant tree species in the reserve.

Other associated species include Asan, Dhaura, Bamboo, and Simal.

- **Fauna:** It inhabits species such as **tigers, leopards, elephants, spotted deer, sambar, chowsingha, barking deer, bison, wild dogs**, sloth bears, jackals, giant squirrels, and porcupines.
 - It also provides a natural habitat for **two endangered species the freshwater crocodile and the gharial**.

Long-tailed Marmot (*Marmota caudata*)

News: During the Shri Amarnath Ji Yatra, concerns have been raised over pilgrims feeding, touching and taking photographs with Long-tailed Marmots.

About Long-tailed Marmot (*Marmota caudata*)



Figure 20. Source – DTE

- **Long-tailed Marmot** also known as the **golden marmot**.
- It is a **rodent** of the **Sciuridae** family.
- **Habitat:** It lives in open **meadows, grasslands, rocky areas, inland cliffs and mountain peaks**.
 - It is also occasionally **found in shrubland and agricultural lands**.
- **Distribution:** It is found in **Kyrgyzstan, Tajikistan, Kazakhstan, Afghanistan, Pakistan, China and Northwestern India**.
- In **India**, it occurs in **Jammu and Kashmir and Ladakh**, between **3,200 and 4,850 m** above sea level.
- **Characteristics**
 - **Colour:** Its dorsal parts are **golden yellow to orangish**, with a **black saddle patch** running down the back.
 - It also has a **black snout** and a **black patch or ring** around the eyes.
 - **The Tail:** Its **tail is about half the length of its body**, and most of the **tail tip is black**.
 - **Digging Adaptations:** It is known for its **burrowing behaviour** and is adapted to **alpine habitats**.
 - **Behaviour:** It is a **diurnal and social mammal** that **feeds on vegetation** and **lives in groups**.
 - **Hibernation:** It hibernates in a **burrow chamber** from about **September to April or May**.
 - **Threats:** It faces threats from **habitat destruction, unregulated tourism, free-ranging dogs and climate change**.
- **Conservation Status:**
 - **IUCN status:** **Least Concern**

H1N1 Virus

News: Delhi recorded 1,777 confirmed H1N1 cases till August 20, with several hospitals reporting a surge over the past two weeks.

About H1N1 Virus



Source – Max Healthcare

- **H1N1** is an **Influenza A virus** subtype that **causes an acute respiratory infection** commonly known as **swine flu**.
- **Family:** It belongs to the **Orthomyxoviridae** family.
- **Type:** It belongs to **Influenza A**, one of the **four influenza types: A, B, C and D**.
- **Genome:** It has a **single-stranded, negative-sense ribonucleic acid (RNA) genome**.
- **Naming:** H1N1 refers to **Hemagglutinin 1 (H1)** and **Neuraminidase 1 (N1)**, which are **two surface proteins** used to **classify Influenza A virus subtypes**.
- **Symptoms:** Common symptoms include **fever, dry cough, sore throat, headache, muscle and joint pain, runny nose, chills, sweating and severe tiredness**.
 - Some people may also **experience vomiting or diarrhoea**.
- **Transmission:** It mainly **spreads through respiratory droplets released during coughing and sneezing**.
 - Infection can also **occur after touching contaminated surfaces and then touching the mouth or nose**.
- **Incubation Period:** Symptoms generally **appear about two days after infection**, although the incubation period **can range from one to four days**.
- **High-Risk Groups:** **Pregnant women, children below five years, adults aged 65 years and above, and people with chronic diseases or weakened immunity** face a higher risk of severe illness.
- **Prevention:**
 - **Precautions:** Regular **handwashing**, proper **disposal of tissues**, **covering the mouth and nose** while coughing or sneezing, and **avoiding unnecessary contact** with infected people can reduce transmission.
 - **Isolation:** Isolation can help limit transmission, particularly during the infectious period.
- **Treatment:** Treatment is mainly **symptomatic**, and **antibiotics do not work**.
 - **Oseltamivir is an antiviral that works** when **treatment starts early**, while **paracetamol can control fever**.
- **Vaccination:** **Annual vaccination is recommended** because **circulating influenza strains change frequently** and the vaccine is updated accordingly.

- A quadrivalent vaccine is available, and in India it is sold as Influvac Tetra 2024/2025.
- **Diagnostic Test:** Laboratory testing of respiratory samples can confirm infection.
 - **Reverse Transcription Polymerase Chain Reaction (RT-PCR)** can detect influenza-specific RNA and generally has better sensitivity than rapid diagnostic tests.

Political Clearance for CMs

News: Telangana Chief Minister A. Revanth Reddy's proposed visit to the United States was cancelled after political clearance was denied.

About 'Political Clearance' for CMs

- **Political clearance:** It is an approval granted by the Ministry of External Affairs (MEA) for foreign travel by public servants and government servants.
- **Supreme Court Ruling:** In *M. Karunanidhi v. Union of India* case, the Supreme Court held that a Chief Minister is a public servant because the Chief Minister receives a salary from the government treasury for performing public duties.
- **Purpose of Clearance:** The system ensures that official foreign visits do not have diplomatic or foreign-policy implications that have not been assessed by the government.
- **Process of Clearance for CM:**
 - **Prior Intimation:** Before a foreign visit, whether official or private, the Chief Minister must inform the Cabinet Secretariat and the Ministry of External Affairs.
 - **Political Clearance:** The Ministry of External Affairs examines the proposed visit and grants or denies political clearance.
 - **Basis of Decision:** The decision depends on the nature of the event, participation from other countries, the nature of the invitation and India's relations with the host country.
 - **Application Process:** Since 2016, applications for political clearance can be submitted through the Ministry of External Affairs website and are processed through coordination among different ministry divisions.
- **Other Clearances Required:** After political clearance, other approvals may also be required depending on the nature of the visit.
 - **Economic Clearance:** Chief Ministers, state ministers and other state officials also require clearance from the Department of Economic Affairs.
 - **FCRA Clearance:** Foreign Contribution Regulation Act clearance from the Ministry of Home Affairs is required if hospitality is offered by organisations other than those of the United Nations.

Approval Process for Other Dignitaries

- The approval process differs for other constitutional and government functionaries.
- **Union Ministers:** They require political clearance from the Ministry of External Affairs, followed by approval from the Prime Minister for both official and personal visits.
- **Members of Parliament:** Lok Sabha Members of Parliament require clearance from the Speaker, while Rajya Sabha members require clearance from the Chairperson.
 - However, they are not required to inform the respective Secretariat about private foreign visits.
- **Government Officers:** All foreign trips by government employees, whether official or personal, require approval.

- **Officers up to the Joint Secretary level** receive clearance from the concerned minister after political clearance, while **officers above this rank** require approval from the **Screening Committee of Secretaries**.
- **Judges:** For an official foreign visit, a Supreme Court or High Court judge's **proposal is sent to the Department of Justice after obtaining clearance** from the **Chief Justice of India**.
 - The Department of Justice then obtains **political clearance from the Ministry of External Affairs** and, **where the Foreign Contribution Regulation Act is involved**, clearance from the **Home Ministry** before issuing approval.
 - However, **judges do not require clearance for personal foreign trips**.

India's First Blue Bond

News: India is preparing to enter the blue bond market, with **Sagarmala Finance Corporation and Vadodara Municipal Corporation** planning bond issues worth a combined ₹1,200 crore.

About India's First Blue Bond

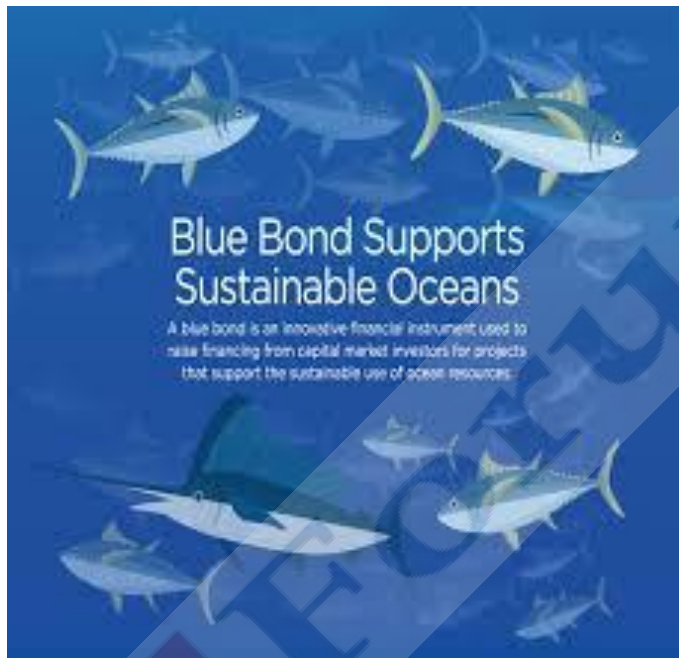


Figure 21. Source: World Bank

- A **blue bond is a debt instrument** where the money raised is earmarked for projects that **support oceans, marine ecosystems, water management or the wider sustainable blue economy**.

- **Comparison between green bond and blue bond:**

- **Similarity:** Investors lend money to the issuer and earn interest, with the principal repaid at maturity.
- **Difference:** The key difference is that the **proceeds are tied to specified water and ocean-related projects** like sustainable fisheries and aquaculture, marine conservation, coastal resilience, pollution control, sustainable ports and waterways, water security and marine renewable energy.

- **Mandate:** As investors are putting money into the bond partly on the basis of its

environmental purpose, **the issuer has to provide greater transparency on how that money will be used, and what environmental impact the projects are expected to have.**

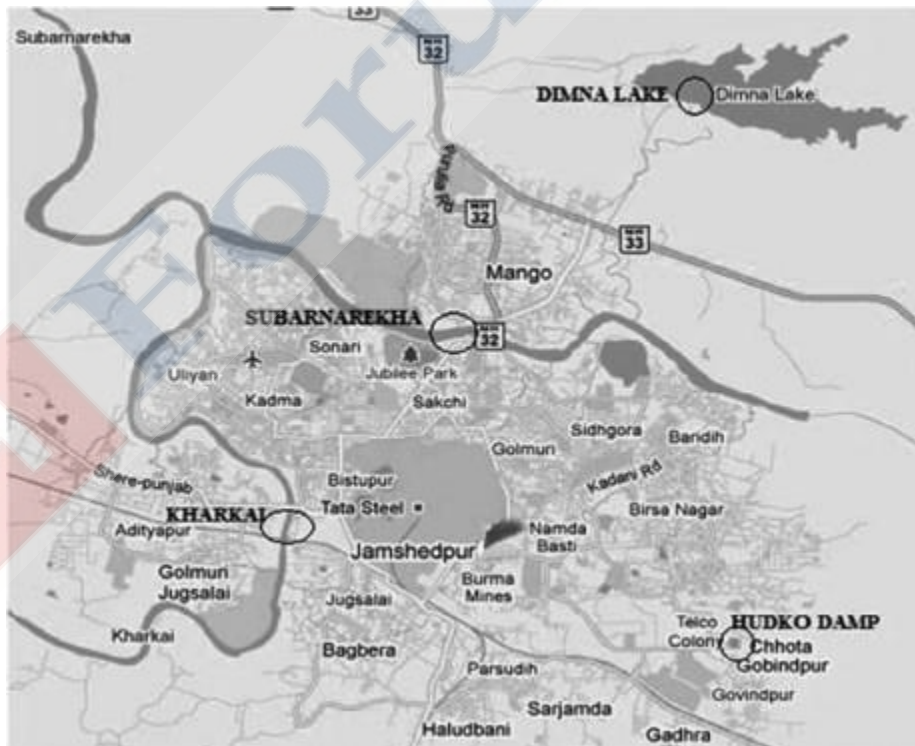
- **Reason why India is entering blue bond economy:**
 - India has already **built a sizable sustainable debt market around green bonds**, but has not yet had a dedicated domestic blue bond issue.
 - India's **blue economy** is important to the country.
 - It contributes around **4.1% of GDP**, while about **95% of India's trade by volume** moves by sea. **India also has a 7,517-km coastline and a large Exclusive Economic Zone.**
 - The government wants to **increase the maritime sector's contribution to GDP from around 4% today to 12% by 2047.**

- Achieving this will require major investment in **ports, shipping, waterways, shipbuilding and other marine infrastructure.**
- To fund this growth, the government is considering options such as **blue bonds, blended finance, public-private partnerships and sovereign guarantees.**
- **Institutions: Sagarmala Finance Corporation**, the government's maritime-focused financing institution, is considering a ₹1,000-crore blue bond issue.
 - **Vadodara Municipal Corporation** is separately seeking approvals for a ₹200-crore blue bond.
- **Global Blue Bond Status:**
 - **Seychelles** issued the **world's first sovereign blue bond** in 2018 with **support from the World Bank.**
 - The **Global cumulative issuance** reached \$15.25 billion by mid-2025, more than doubling year-on-year, according to World Bank data.
 - However, **Blue bonds account for only around 0.24 per cent of the broader sustainable bond market.**
 - The **market is projected to reach \$70 billion by 2030.**
 - The global green bond market has already crossed **\$1 trillion in cumulative issuance.**

Dimna Lake

News: Dimna Lake, Jamshedpur was among 25 lakes across the country after which spectator galleries were named during the 80th Independence Day celebrations at Delhi's Red Fort.

About Dimna Lake



Source: Research Gate

- **Location:** It is located at the foothills of the **Dalma Hills, Jamshedpur, Jharkhand.**
- **Area:** It is a **man-made reservoir** covering an area of **approximately 27 sq.km.**
 - It has been **surrounded by forests** and natural catchment areas.
- The lake is situated near the [Dalma Wild life Sanctuary.](#)
- It was created by damming the [Subarnarekha River.](#)
- **Constructed by:** It was constructed under the **Dimna Nala Water Supply Scheme** by Tata Steel.
 - The work on the **project began in 1940** and was **completed in 1944.**
- **Storage capacity:** It was **built with a storage capacity of around 7,500 million gallons** to meet the future water needs of a rapidly expanding industrial city.
- It serves as an **important ecological asset** while attracting thousands of **visitors, nature lovers and adventure enthusiasts.**

Mission CosmoCube

News: On August 14, 2026, an international team announced that CosmoCube could study faint radio signals from the early universe.

About Mission CosmoCube



Source – ToI

- **Mission CosmoCube** is a **proposed suitcase-sized satellite mission** designed to study the **cosmic dark age**, the period before the formation of the first stars.
- **Developed By:** The mission is being **developed by an international team of scientists** led by the **University of Cambridge in the United Kingdom.**
- **Aim:** The mission aims to **detect the faint 21-centimetre line, or hydrogen line**, from more than 13.5 billion years ago and **study the cosmic dark age.**
- **Working Mechanism:**
 - **Lunar Shield:** It would **orbit the Moon** and **use its far side as a natural shield** against radio interference from Earth.
 - **Observation Period:** It would **spend around 40 minutes on the lunar far side during every two-hour orbit** to collect low-frequency radio measurements.
 - **Data Processing:** **Onboard checks and mathematical models would help remove interference** from the spacecraft, the Milky Way, and other sources.

- **Key Features:**
 - **Dark Matter Study:** The observations could **provide clues about how dark matter helped bring matter together** to form the first stars and galaxies.
 - **Small but Advanced:** Despite its small size, the **satellite would use a lightweight radio antenna and systems to determine its position.**
 - **Mission Duration:** The **mission would last two years and collect around 1,000 hours of data.**
 - **Expected Timeline:** The mission **could be ready for launch within about five years.**
- **Potential challenge:** Increasing lunar activity and **infrastructure on the Moon's far side** could make it difficult to preserve the naturally quiet radio environment.

Narwhals

News: Researchers have decoded the narwhal tusk's double-twist structure, which helps explain how the tusk grows straight and remains strong.

About Narwhals



Figure 22. Source – Escales

- **Narwhals are medium-sized toothed whales** belonging to the **Monodontidae family.**
 - They differ from other toothed whales as they **have no teeth in their mouths.**
- **Habitat:** They **spend the winter under sea ice.**
 - In **spring, they move to inshore waters and spend the summer in coastal waters.**
- **Distribution:** They live in the **Arctic Ocean**, mainly around **Canada, Greenland, Norway and Russia.**
- **Key Features**
 - **Size:** They can reach **around 5 m in length.**
 - **Appearance:** They have **stout, torpedo-shaped bodies, a low dorsal ridge, and short paddle-shaped front flippers.**
- **Colour:** They **change colour as they grow older.**
 - **Newborns are blue-gray, juveniles become blue-black, adults are mottled gray, and old narwhals become nearly all white.**
- **Diet:** They feed on **fish, squid and shrimp.**
- **Behaviour:** They usually **travel in groups** and can **hold their breath for 25–30 minutes.**
- **Tusk:** The **tusk is a long, spiralled canine tooth that usually develops in males** and can grow up to 3 metres long.
 - **Females occasionally develop a tusk.**
- **Tusk Anatomy:**
 - **Outer and Inner Layers:** The **outer layer, called cementum, forms a left-handed spiral.**
 - While the **inner layer, called dentine, forms a right-handed spiral.**
 - **Double-Twist Structure:** These **two layers have opposite twists, which create an internal counterbalance** where the inner and outer parts meet.

- **Strength and Stability:** This arrangement creates **internal tension** and **helps the tusk grow straight and strong**, while **providing stability against bending and twisting**.
- **Function:** Their tusks may **help males establish social hierarchy** during contests.
 - They may also be **used for play, detecting the level of salt in the waters through which narwhals swim, and investigating, manipulating, and influencing the behaviour of prey**.
- **Threats:**
 - Oil and gas development
 - Climate change
- **IUCN Status: Least Concern**

Lake Erie

News: A team of divers recently identified the wreckage of a sailing vessel which drowned in the lake in 1868.

About Lake Erie



Figure 23. Source – Britannica

- **Location:** Lake Erie is **one of North America's Great Lakes** situated on the **border between the United States and Canada**.
- It is the **fourth largest of the Great Lakes** by **surface area** and the **smallest by volume**, making it the **shallowest** of the five lakes.
- The lake is **bordered** by the states of **Ohio, Pennsylvania, and New York** in the **U.S.** and the province of **Ontario** in **Canada**.
- **Geographical Features**
 - Lake Erie has a **surface area** of about **25,700 sq. km** and an average **depth of around 62 feet (19 meters)**.
 - The lake is known for its **distinctive, relatively warm waters**, which can reach temperatures **suitable for swimming** in summer.
 - The lake's **shallow nature** contributes to its **quicker warming and cooling** compared to other Great Lakes.
- **Ecosystem:** The lake supports a **diverse** ecosystem, including various **fish species** like **walleye, perch, and bass**.
 - It also serves as a **critical habitat for migratory birds** and other wildlife.
- **Economic Importance**
 - Lake Erie plays a vital role in the **regional economy**. It supports commercial **fishing, tourism, and shipping**, with several **major ports** along its shores, including **Cleveland, Toledo, and Erie, Pennsylvania**.
 - The lake's waters are also used for **recreational activities** such as **boating, fishing, and swimming**, attracting visitors from nearby urban areas.
- **Cultural Significance:** The lake has a **rich cultural history**, with **Indigenous peoples** living in the region for thousands of years.

- It has been a site for various **historical events**, including significant **naval battles during the War of 1812**.
- **Threats:** The ecosystem has faced challenges, including **pollution, invasive species, and algal blooms**, which have raised concerns about water quality and biodiversity.

Barren-land Fallacy

News: Tree-planting drives in India have highlighted concerns about planting trees in unsuitable ecosystems and ignoring the value of naturally open ecosystems.

About Barren-land Fallacy



Source – TH

- **Barren-land Fallacy:** It is the **belief that land without tree cover is ecologically deficient and should evolve or be converted into a forest**.
- **Consequences of the Fallacy:**
 - **Damage to Open Ecosystems:** Grasslands, savannas, scrublands, wetlands, and deserts may be wrongly treated as degraded land, even though they are complete ecosystems.
 - **Loss of Biodiversity:** Many native plants, birds, and animals depend on open spaces for their survival.
 - **Stress on Water Resources:** Treating naturally open ecosystems as degraded land and planting unsuitable trees can increase pressure on water resources.
 - For example, planting eucalyptus trees, which draw a lot of water, in water-stressed areas can further increase this pressure.
- **True restoration means:**
 - **Protecting the Native Ecosystem:** Identifying and preserving the natural ecosystem that belongs in that specific location (whether it is a forest, wetland, or grassland).
 - **Restoring Natural Processes:** Allowing the land to recover its natural balance rather than forcing artificial changes on it.

Operation Black Hawk

News: In a breakthrough against drug trafficking, officers of the Central Bureau of Narcotics (CBN) MP and UP Units successfully executed 'Operation Black Hawk'.

About Operation Black Hawk



Figure 24. Source: PIB

- **Agency Involved:** Under the operation, the [Central Bureau of Narcotics \(CBN\)](#) has busted an interstate drug syndicate by undertaking back to back operations.
- **Team involved in Operation:** It was carried out by teams from the CBN's Madhya Pradesh and Uttar Pradesh units.
- **Activities undertaken:**
 - The contraband originated from North-Eastern State and were being trafficked for consumption in Uttar Pradesh.
 - **Arrest:** Three key members of an inter-state trafficking network have been arrested.
- **Seized Item:** The team seized over 18.6 kilograms of raw heroin from smugglers at two different locations near Lucknow (U.P.).

Jojari River

News: The Supreme Court directed additional safeguards to protect the Jojari River ecosystem from pollution and industrial activities.

About Jojari River

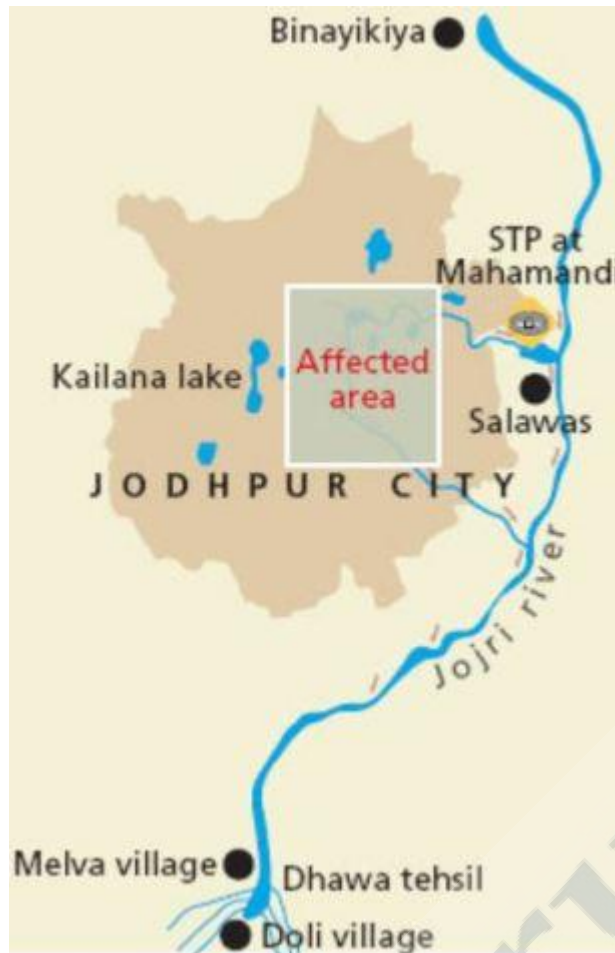


Figure 25. Source – DTE

- **Origin:** It originates in **Pandalu village, Nagaur district, Rajasthan.**
- **Course of the River:** It passes through **Jodhpur** and joins the **Luni River** near **Balotra.**
- It is a **seasonal river.**
- **Tributary of:** It is the **only right-bank tributary of the Luni River.**
 - Unlike the other tributaries of the Luni River, **the Jojari River does not originate from the Aravalli Range.**
- **Biodiversity:** **Wildlife and desert vegetation in the Dhawa-Doli area** have declined with increasing pollution.
- **Pollution:** Chemical-laden water from Jodhpur's textile and steel industries flows into the river.
 - Pollution has **affected the health of people, agriculture, land, flora and fauna.**
- **Supreme Court Intervention:** Recently, the Supreme Court took **suo motu cognisance** of contamination and industrial **pollution in the Jojari River.**
 - It also **considered their impact on the Jojari-Bandi-Luni river ecosystem.**
 - The Court directed that **no hazardous industry or polluting activity shall be permitted within 500 metres of either side** of the existing flood line or present flow path.

Cloud and AI Skilling Initiative

News: National Skill Development Corporation and Cultus Education have launched a nationwide cloud and Artificial Intelligence skilling initiative in collaboration with Amazon Web Services.

About Cloud and AI Skilling Initiative



Figure 26. Source – BS

underserved areas.

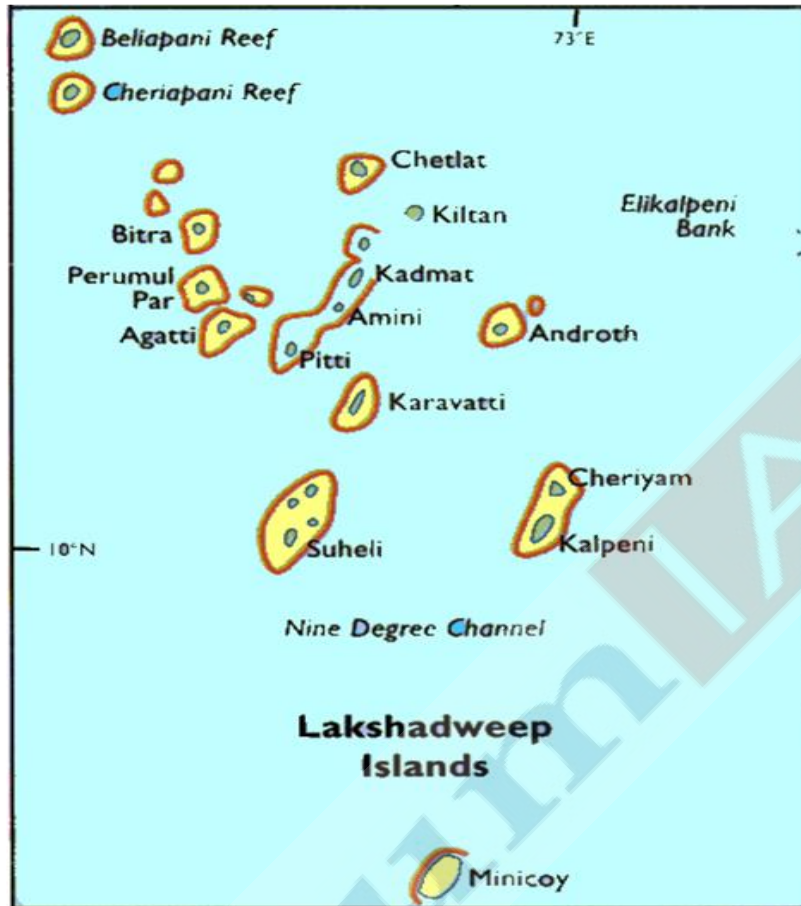
- **Key Features**

- **Large-Scale Training:** It will provide foundational cloud and Artificial Intelligence literacy to 1.5 lakh learners through Amazon Web Services digital training content.
- **Job-Ready Programme:** It will provide intensive training to 10,000 participants through the Amazon Web Services re/Start programme.
- **Focus Areas:** The training will cover cloud infrastructure, networking, security, programming, relational databases, and Artificial Intelligence fundamentals.
- **Wider Access:** The initiative will cover all States and Union Territories, with a focus on youth in Tier 2 and Tier 3 cities and underserved communities.
- **Online Learning:** The programme will be delivered entirely online through Cultus Education.
- **National Hackathon:** The programme will conclude with a National Hackathon where participants can present their cloud and Artificial Intelligence projects.

Lakshadweep Islands

News: The Kerala High Court strengthened old Lakshadweep cowledars' land rights: qualifying cowledars are landowners, and the government cannot take their pandaram land without lawful acquisition and compensation.

About Lakshadweep Islands



Source: Class 11th NCERT

- **Lakshadweep** is an archipelago comprising 36 islands situated off the southwestern coast of India in the Arabian Sea.
- It is a **uni-district Union Territory** and comprises of 12 atolls, 3 reefs, 5 submerged banks and 10 inhabited islands.
 - Also, there are also ten inhabited islands, 17 uninhabited islets, five submerged reefs, and four newly formed islets.
- **Capital:** The capital of the island is **Kavaratti**, located in **Kavaratti Island**.
- It is **smallest Union territory** of India in term of area.
- **Area:** It covers total area of **32 sq. km.**
- **Formation:** The Union Territory was formed in **1956** and it was named **Lakshadweep in 1973.**
- **Division:** It is broadly **divided** into **three geographical groups**. These include:
 - **Amindivi Group** (consisting of 5 inhabited islands) in the north
 - **Laccadive Group** (consisting of 4 inhabited and 12 uninhabited islands) in the center
 - **Minicoy Group** (consisting of 1 inhabited and one uninhabited island) in the south.
- **Inhabited islands:** The inhabited islands include **Agatti, Amini, Androth, Bitra, Chetlat, Kadmat, Kalpeni, Kavaratti, Kiltan, and Minicoy.**
- **Straits and channels that separates different islands:**
 - **Kavaratti Channel-** It separates **Kavaratti and Agatti.**
 - **8 Degree channel-** It separates **Minicoy island and Maldives.**

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- **9 Degree channel-** It separates Minicoy Island from the main Lakshadweep group.

About Pandaram land and Cowledar

- The **1965 regulation** created a **statutory framework** for **land revenue, tenancy and the rights and liabilities** of landholders in Lakshadweep.
- **Pandaram lands:** It refers to a **form of land ownership**. Over **60%** of the land in Lakshadweep, falls under the Pandaram lands.
- **Cowledar:** A cowledar as “a person who has been or is granted a lease of pandaram land for a specified period, subject to conditions including making improvements to it”.
 - The same regulation **defines a landowner** to include a “**person shown in government records as holding pandaram land as a cowledar**”.

Garbhini Mitra Course

News: The All India Institute of Ayurveda (AIIA), New Delhi, an autonomous premier institution under the Ministry of Ayush, has introduced the Garbhini Mitra Course for the 2026–2027 academic session.

About Garbhini Mitra Course



Figure 27. Source – DD India

- **Garbhini Mitra Course** is a **structured healthcare skill-development programme** aimed at creating **trained personnel to provide appropriate health education, lifestyle guidance, and community-level support** to women during pregnancy and the postnatal period.
- It is **rooted in the traditional Ayurvedic concepts** of Garbhini Paricharya (antenatal care), Sutika Paricharya (postnatal care), and Garbhadhana Vidhi (pre-conceptional care).
- **Nodal Ministry:** Ministry of Ayush
- **Implementing Institution:** : It has been introduced by **All India Institute of Ayurveda (AIIA), New Delhi** for the 2026–2027 academic session.
- **Components of the course:**
 - This initiative **complements clinical antenatal care**.
 - Routine check-ups, diagnostic tests, and monitoring of blood pressure and haemoglobin remain essential.
 - **Trained Garbhini Mitras support pregnant women** by identifying warning signs and facilitating timely referral to qualified doctors and healthcare facilities.
- **Course design and duration:** It is **designed as a six-month offline training programme** running from Monday to Friday between 3:00 PM and 5:00 PM.
 - It **equips participants with practical skills** in trimester-specific dietetics, lifestyle modifications, pregnancy-safe yoga, emotional support during labour, newborn massage, and basic life support protocols.
 - The curriculum also **emphasizes infection control, sanitization, biomedical waste management, and workplace safety**.
- **Eligibility for the course:** It admits **20 students per batch**.

- Candidates who have **passed the Senior Secondary (10+2)** examination from **any recognized board** in India and are at least **18 years of age** are eligible to apply.
- **Who can enroll:** Candidates currently awaiting their 12th-grade results may also submit provisional applications.
- **Course completion:** After completing the course, **candidates can pursue roles as Garbhini Mitra Assistants, Prenatal/Postnatal Care Assistants, Antenatal Wellness Guides and Maternal Health Support Workers**, with opportunities in Ayush centres, maternity clinics, NGOs, community health projects and wellness institutions.

GENESIS NextGen Startup Summit

News: GENESIS EIR 3.0 was launched at the GENESIS NextGen Startup Summit, Coimbatore Edition at Rathinam Global University, Coimbatore.

About GENESIS NextGen Startup Summit



Figure 28. Source: PIB

- GENESIS NextGen Startup Summit was held at Coimbatore.
- The summit was organized as a **collaborative platform to inspire, connect and empower aspiring entrepreneurs**, startups, innovators, researchers, students, academia, industry leaders and ecosystem partners
- **Focus:** Its focus was on **promoting innovation-led entrepreneurship through knowledge sharing, mentorship, networking and ecosystem collaboration.**
- **Highlight of the summit:** GENESIS EIR 3.0 was launched at the GENESIS NextGen Startup Summit.
 - It is a **component of the GENESIS (Gen-Next Support for Innovative Startups)** scheme, aimed at **discovering, supporting and accelerating startups**, particularly in **Tier-II and Tier-III cities**.
 - Through its Entrepreneur-in-Residence component, it **provides focused funding and incubation support** to help innovators, students and entrepreneurs convert early-stage ideas into pilot-ready solutions.
- **Implemented by:** It is being implemented by **MeitY Startup Hub**.
 - It supports **early-stage innovators developing technology-based solutions in Electronics, Information Technology (IT), Information and Communication Technology (ICT) and DeepTech.**
 - Selected applicants will **receive incubation, mentorship, ecosystem access, networking opportunities and financial assistance** of up to **₹10 lakh** through participating GENESIS incubators.

- Through this initiative, **MeitY Startup Hub** seeks to strengthen India's technology startup ecosystem and empower innovators from across the country to build scalable and impactful ventures.

About GENESIS

- **Gen-Next Support for Innovative Startups (GENESIS)** is a flagship initiative of MeitY Startup Hub.
- It was launched in **2022** by MeitY.
- It is designed to **discover, support, grow and accelerate startups** across India's Tier-II and Tier-III cities.
- **Budgetary outlay:** It has **total budgetary outlay of ₹490 crore**.
- **Components:** Through its **Entrepreneur-in-Residence, Pilot, Investment and DeepTech funding components**, GENESIS supports startups and innovators from early ideation and experimentation through to validation, investment and scale.
- It **seeks to unlock the entrepreneurial potential of emerging regions** and connect them more deeply with India's growing innovation ecosystem.

Demand for a Gorkha State

News: The Union Ministry of Home Affairs constituted a high-level committee to prepare a framework for a permanent political solution to the Gorkha issue.

About Demand for a Gorkha State



Source – News X

- **Demand:** The Gorkhas have **long demanded political self-rule**, protection of their **ethnic-linguistic identity**, and a **separate administrative unit or Gorkhaland**.
 - **Gorkhaland** refers to the proposed **separate administrative unit** comprising **Darjeeling and its adjoining areas**, including **Kalimpong, Kurseong, the Terai and the Dooars**.
- **Basis of Demand**

- **Distinct regional identity:** Gorkhaland has a predominantly **Nepali-speaking population** with **distinct cultural, ethnic and linguistic characteristics**.
- **Identity crisis:** Residents **often face racial profiling** and are **wrongly labelled as citizens of Nepal or China**.
- **Assertion of Indian identity:** This persistent alienation has strengthened the demand to affirm the Gorkhas' identity as Indian citizens.
- **Historical Roots**
 - **1907:** The **Darjeeling Hillmen's Association** petitioned the **Minto-Morley Reforms Committee** to **separate Darjeeling and Jalpaiguri from Bengal**.
 - **1929 onwards:** Gorkha groups presented their **case to the Simon Commission** and **British officials for a different governance system**.
 - **1947:** The undivided **Communist Party of India** submitted a memorandum **demanding "Gorkhasthan"** to **Jawaharlal Nehru and Liaquat Ali Khan**.
 - **1980s:** **Subhas Ghising and the Gorkha National Liberation Front** gave the movement a **violent and high-profile form** and **popularised the term "Gorkhaland"**.
- **2017 Unrest:** The **agitation began** after **Bengali was announced as a mandatory language in state-run schools** and lasted 104 days.
- **Institutional Attempts:** Over the years, different institutional arrangements were created to provide self-governance in the region.
 - **DGHC, 1988:** The **Darjeeling Gorkha Hill Council (DGHC)** was created as a **semi-autonomous body** following unrest.
 - **GTA, 2011:** The **Gorkha Territorial Administration (GTA)** replaced the DGHC but **did not end the statehood demand**.
 - **Interlocutor, 2025:** The Centre appointed **Pankaj Kumar Singh** to **initiate structured tripartite negotiations**.
- **High-level Committee (August 2026):**
 - The **Union Ministry of Home Affairs** constituted a **high-level committee** to prepare a **framework for a permanent political solution to the Gorkha issue**.
 - **Purpose:** It seeks a **lasting constitutional and administrative arrangement** to **address the Gorkhas' demand** for political self-rule and protection of their identity.
 - The committee will also **examine financial assistance for the region** and a **roadmap for granting Scheduled Tribe status to 11 Gorkha communities**.

Crete Island

News: Greek media has reported that more than 300 migrants have been rescued off Crete coast in last few days.

About Crete Island



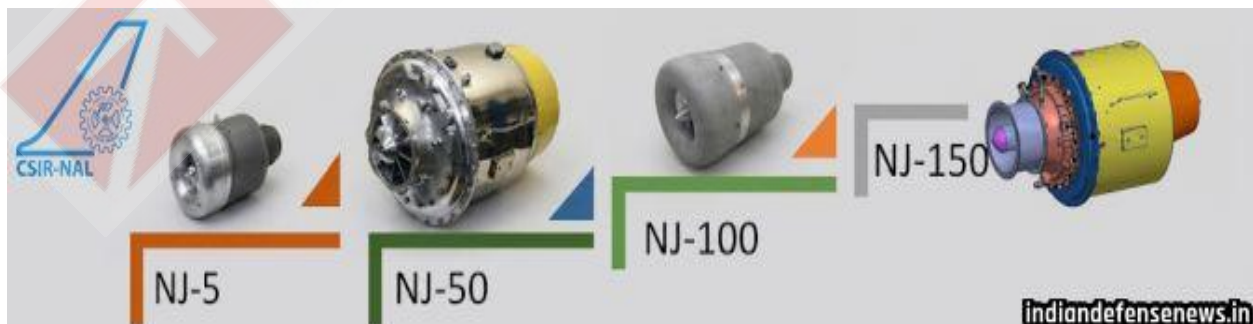
Source – Britannica

- **Location:** Crete island is located in the **southern part of the Aegean Sea** (a part of the Mediterranean Sea) and is a part of **Greece**.
- It is the **largest island in Greece** and the **fifth largest in the Mediterranean Sea**.
- **Borders:** The island is bordered by the **Sea of Crete** to the north, the **Libyan Sea** to the south, the **Myrtoan Sea** to the west, and the **Carpathian Sea** to the east.
- **Topography:** The island is dominated by **rugged mountains** that crisscross from west to east.
 - The **highest point** on the island is **Mt. Ida**, also known as **Psiloritis**.
- **Economy:** Its economy is primarily based on **tourism, agriculture, and shipping**.

NJ-05, NJ-50 and NJ-100

News: The Council of Scientific and Industrial Research-National Aerospace Laboratories (CSIR-NAL) unveiled three indigenous micro and small gas turbine engines NJ-05, NJ-50 and NJ-100.

About NJ-05, NJ-50 and NJ-100



Source: Indian Defence News

- **NJ-05** is an indigenous micro gas turbine engine with a **5 kg thrust capacity**.
- **NJ-50** is an indigenous micro and small gas turbine with a **thrust of 50 kg**.
- **NJ-100** is an indigenous micro and small gas turbine **with a 100 kg thrust capacity**.
- **Developed by:** The engines have been developed by **CSIR-National Aerospace Laboratories (CSIR-NAL)**
- **Purpose:** The engines have been developed to address critical requirements for indigenous defence technologies.
- **Application:** These compact propulsion systems are envisaged for applications such as tactical unmanned aerial vehicles, drone interceptors and compact missile systems.

Gut Microbiome

News: A major study has found that South Asian gut microbiomes are distinct and follow community-specific changes shaped by lifestyle and local factors.

About Gut Microbiome

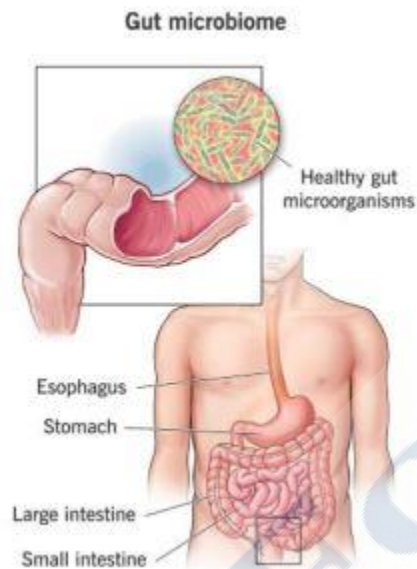


Figure 29. Source – Cleveland Clinic

- **Gut Microbiome** is the community of microorganisms, including bacteria, viruses, fungi and parasites, that live in the human gut.
- **Acquisition of Gut Microbiome**
 - **Initial acquisition:** A human infant first acquires gut microbes during vaginal delivery and through breastfeeding.
 - **Later changes:** As a person grows, diet and other environmental exposures introduce new microbes and can change the gut microbiome over time.
- **Key Functions of the Gut Microbiome**
 - **Energy harvesting:** It helps in harvesting energy from digested food.
 - **Protection:** It protects the body against harmful pathogens.
 - **Immune regulation:** It helps regulate immune function.
 - **Gut barrier:** It strengthens the biochemical barriers of the gut and intestine.
 - **Nutrient production:** It helps break down food compounds and synthesize certain vitamins and amino acids.
- **Dysbiosis:** It is a disturbance in the normal balance between beneficial and harmful microbiota, which can make the body more susceptible to disease.
 - **Causes of Dysbiosis:** Infectious illnesses, certain diets, prolonged use of antibiotics or other bacteria-destroying medicines, and environmental exposures can disturb the normal balance of gut microbiota.
- **Diseases Associated:**
 - **Gastrointestinal diseases:** Harmful bacteria can cause infections, including food poisoning and diseases that result in diarrhea and vomiting.
 - **Inflammatory bowel disease:** Gut bacterial populations are linked with Crohn's disease and ulcerative colitis.
 - **Obesity and diabetes:** Low microbial diversity has links with obesity and type 2 diabetes.
 - **Metabolic syndrome:** The status of gut microbiota has links with metabolic syndrome.

- **Antibiotic-resistant infections:** Disturbing microbiota with antibiotics can contribute to infections that become resistant to antibiotics.
- **Recently, a South Asian Gut Microbiome Study revealed a unique pattern in South Asian gut microbiomes.**
 - **Their gut microbiomes were distinct from** those reported in **other parts of the world.**
 - **Each community** followed a **unique** microbiome trajectory shaped by **culture, diet, geography and lifestyle.**
 - **Different communities responded differently** to urbanization, with common microbial changes also associated with metabolic health.

Sanskrit Poet Kalidasa

News: Recently, 'Kaho Kalidasa!', a novel by Yugul Joshi, on the poet's life and works, launched at IGNCA, New Delhi.

About Sanskrit Poet Kalidasa



Source: Mintage World

- **Birth:** The exact **birth date** and **birthplace** of the ancient Sanskrit poet Kalidasa remain **unknown**.
- He is associated with various **regions such as Himalayas, Ujjain and Kalinga.**
- He was a **great Sanskrit poet and dramatist of India.**
- In India, he is praised by all his **followers** such as **post dated poets and critics namely Mamta, Anandavardhancharya, Abhinav Gupta etc.**
- He **flourished around the late 4th and early 5th century CE.**
- He has **influenced** the mentors of the middle ages, as well as the pioneers of Indian renaissance like **Vivekananda and Tagore.**
- **Kalidasa's Literary Works:** Kalidasa is credited with **several remarkable works** that showcase **his mastery of Sanskrit poetry and drama.**
 - The society reflected in Kalidasa's work is **that of a courtly aristocracy sure of its dignity and power.**
- **His major works include:**
 - **Ritusamhara:** It is a **small lyrical poem** giving a graphic and poetic description of the **six seasons of India.**

- **Meghadutam:** A lyrical poem in which an exiled yaksha sends a message to his beloved through a passing monsoon cloud. It became a **model for the sandesha-kavya (messenger-poem) tradition** in Sanskrit literature.
- **Kumarasambhava:** An epic poem that portrays the **divine love of Shiva and Parvati** and the birth of their son, Kumara.
- **Raghuvamsa:** An epic celebrating the lineage of King Raghu, including Rama, and demonstrating Kalidasa's ability to creatively reinterpret themes from the Ramayana.
- **Malavikagnimitra:** It is considered one of Kalidasa's early dramas. It revolves around love, courtly life, and mistaken identities.
- **Vikramorvasiya:** A romantic drama that explores the intense and often tragic love between King Pururavas and the celestial nymph Urvashi.
- **Abhijnanasakuntalam:** Kalidasa's most celebrated play, renowned for its lyrical beauty, dramatic depth, and the unforgettable character of Shakuntala.
 - It is a drama of seven acts based on the old legend of Shakuntala, described in Mahabharata.
 - It was the first Sanskrit drama ever to be translated into a European language.

Peppara Wildlife Sanctuary

News: A monsoon bird survey recorded 124 bird species at Peppara Wildlife Sanctuary, including several Western Ghats endemic and rare species.

About Peppara Wildlife Sanctuary

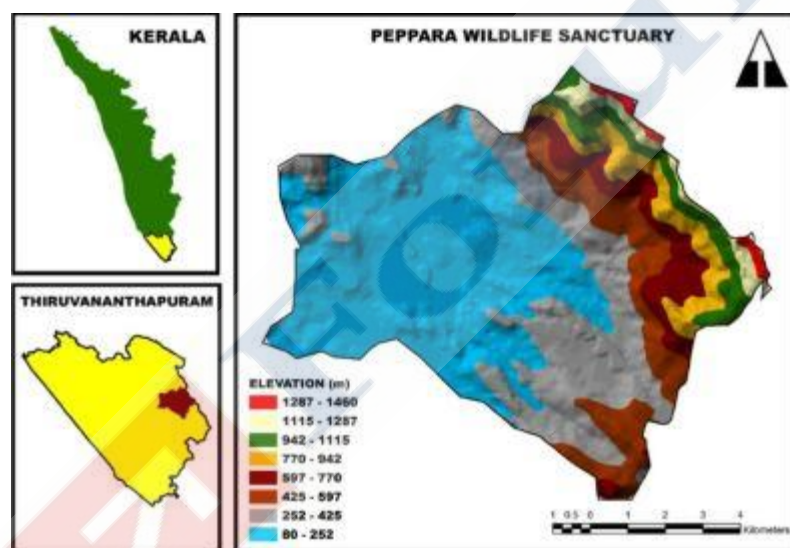


Figure 30. Source – ResearchGate

- **Location:** Peppara Wildlife Sanctuary is a protected area located in the Western Ghats of Thiruvananthapuram district of Kerala.
 - It is an integral part of the UNESCO-designated [Agasthyamala Biosphere Reserve](#), which also includes the [Shendurney](#) and Neyyar Wildlife Sanctuaries.
- It was declared a wildlife sanctuary in 1983.
- **Boundaries:** Peppara Wildlife Sanctuary is bordered by the Kalakkad-Mundanthurai Tiger Reserve of Tamil Nadu in the northeast, Palode Reserve Forest in the north, and Neyyar Wildlife Sanctuary in the south.
- **Topography:** The sanctuary has dense forests and rugged terrain and covers an area of over 53 sq. km.
- **Vegetation:** The sanctuary contains several types of forests, including tropical evergreen, semi-evergreen, moist mixed deciduous and Myristica swamp forests.
- **Highest Point:** The Chemmunjimottai (1,717 m) is the highest peak in the sanctuary, followed by Athirumalai (1,594 m).

- **River & Dam:** The sanctuary includes the **catchment area of the Peppara Dam**, which was constructed across the **Karamana River**.
- **Flora:** Its tree diversity includes species such as **Terminalia paniculata**, **Terminalia bellerica**, **Pterocarpus marsupium**, **Palaquium ellipticum**, **Mesua ferrea**, **Hopea parviflora** and **Bombax ceiba**.
- **Fauna:** The sanctuary supports mammals such as the **Asian elephant**, **tiger**, **leopard**, **sloth bear**, **sambar**, **barking deer**, **lion-tailed macaque**, **Nilgiri langur** and **Nilgiri tahr**.

BhoteKoshi, Lendhe River and Trishuli River

News: The flash flood in the BhoteKoshi, Lendhe River and Trishuli Rivers destroyed roads, bridges and homes and lives in Nepal.

About BhoteKoshi, Lendhe River and Trishuli River



Figure 31. Source: New York Times

- **About Bhote Koshi:** It is a transboundary river which runs through Tibet, China and northern Nepal.
 - **Origin:** It originates on the southern slopes of the Himalayas in the Tibet Autonomous Region of China.
 - **Course of river:** It merges with the Trishuli to form the Narayani River in Nepal, which enters India at Valmikinagar, West Champaran, Bihar and becomes the Gandak River.
 - The river is called Poiqu (Boqu) in Tibet and

Bhote Koshi in Nepal up to its confluence with the **Sun Koshi at Barhabise**, after which it is known as the **Sun Koshi**.

- **About Lendhe River:** It is a trans-boundary river that runs through both Nepal and China.
 - **Origin:** It originates in Gyirong County in Tibet Autonomous Region of China.
 - **Course of river:** It flows south into Nepal, and joins the Bhote Koshi and Trishuli river systems.
- **About Trishuli River:** It is situated in the Gandaki River Basin, which is part of the Ganga River Basin.
 - **Origin:** It has its source at Kirong Tsangpo in the Tibet.
 - **Course of river:** It flows into the Narayani River and passes through Chitwan National Park, Nepal.
 - **Tributaries:** It has several notable tributaries, including the Budi Gandaki, Marsyangdi, Seti, and Kali Gandaki, which converge to form the Narayani River at Devghat.
- The Bhote Koshi, Lendhe River, and Trishuli River form part of the Gandaki (Narayani) river system.

SAFE (Security Action for Europe) Defence Fund

News: The Italian government has requested €8 billion (\$9.3 billion) from the European Union's SAFE (Security Action for Europe) Defence Fund programme.

About SAFE (Security Action for Europe) Defence Fund

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€150
billion
in loans to strengthen Europe's
defence industry



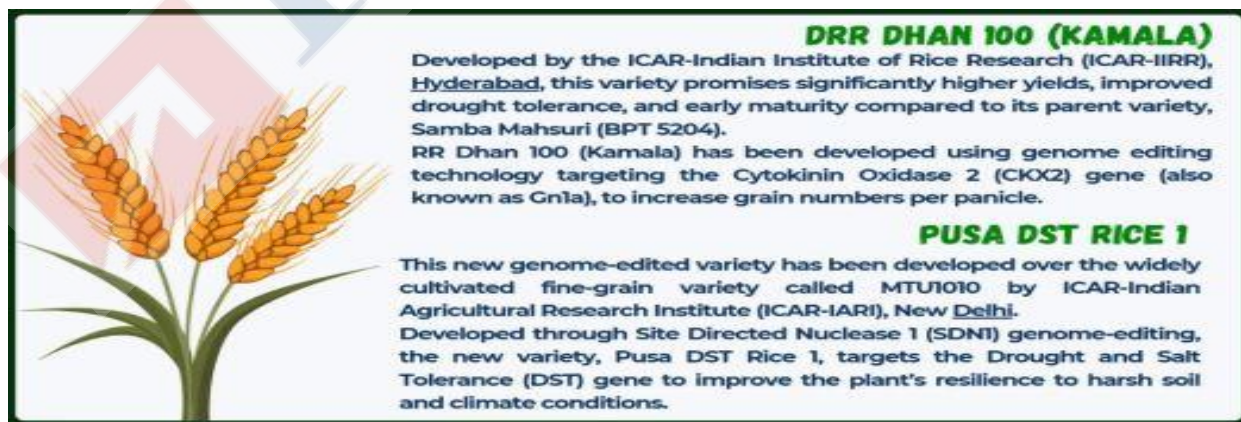
Figure 32. Source: EU

- The **Security Action for Europe (SAFE)** instrument is a **joint borrowing scheme** by the **European Union (EU)**.
- **Backed by:** It is backed by the **European Union budget**.
- **Initiated year:** It started from **29 May 2025**.
- **Aim:** It aimed at **boosting the bloc's defence capabilities and helping member states meet new, more ambitious NATO spending targets**.
- **Purpose:** It finances urgent and large-scale **investments** in the European **defence technological and industrial base**.
- SAFE funds **priority defence products** in **two categories**.
 - **For both categories, no more than 35% of component costs** can come from outside the EU, EEA-EFTA, or Ukraine.
- **Loans:** Through it, EU is providing financial assistance in the **form of loans worth up to €150 billion**.
 - The assistance **aims to help EU member states make rapid and significant increases in their defence investments** through common procurement.
 - **Allocation of the budget is demand-driven**.
 - Disbursements take the form of competitively priced **long-maturity loans**, to be repaid by the beneficiary EU member states.
- The **following countries may also participate in common procurement but only EU member states can receive SAFE loans:**
 - EU acceding, candidate, and potential **candidate countries**
 - countries that have signed **Security and Defence Partnerships** with the EU, such as Albania, Canada, **India**, Japan, Moldova, North Macedonia, Norway, South Korea and the United Kingdom.

Genome-Edited Rice Varieties – DRR Dhan 100 Kamala and Pusa DST Rice 1

News: The government is set to release Pusa Rice DST1 for commercial production in the upcoming rabi season, with transplanting around November.

About Genome-Edited Rice Varieties – DRR Dhan 100 Kamala and Pusa DST Rice 1



Source – ICAR

- **Developed by:** ICAR – Indian Agricultural Research Institute (IARI), New Delhi and the **Indian Rice Research Institute (IRRI)**, Hyderabad.
- They are **world's first genome-edited rice varieties**, named as – **DRR Rice 100 (Kamla)** and **Pusa DST Rice 1**.
- **Technology used:** These new varieties were developed using **genome-editing technology** based on **CRISPR-Cas**, which makes **precise changes** in the organism's genetic material **without adding foreign DNA**. **Technique involved**

About DRR Dhan 100 Kamala

- It was developed by **ICAR-IIRR, Hyderabad**, based on **Samba Mahsuri (BPT 5204)**.
- **Objective:** Its objective is to **increase the number of grains per panicle** (450 to 500 more grains) and it matures **20 days earlier (~130 days)**.
 - The yield is **almost 25% more**, which is about **eight tonnes more per hectare**.
- Due to its **shorter duration**, it helps **save water and fertilizers** and **reduces methane** gas emissions.
- Its **stalk is strong** and does **not fall**.
- The rice **quality is similar** to the original variety, **Samba Mahsuri**.

About Pusa DST Rice 1

- It was developed from **MTU1010** and is a '**salinity tension tolerant**'
- When cultivated under areas that have **national average of salinity**, the new variety produced **66% additional yield than MTU1010**.
- Similarly, in **alkaline conditions**, the new variety gave **66% more yield** than its original and under '**salinity tension**' conditions; the yield of the new variety was **30.36%**.

Not a GM Crop

- Current genome technology involves **using living organisms from native crop species** (known as **SDN 1 and SDN2 types of genome editing**) to enhance productivity and achieve desired results, **rather than incorporating alien organisms or bacteria**.
- The two new varieties **incorporate no foreign DNA**, so they are **not** genetically modified (GM).
- Hence, these varieties are **exempt from the biosafety regulations** outlined in Rules 7-11 of the **1989 Environment (Protection) Act**.

Background

- **National Agricultural Science Fund:** In 2018, ICAR initiated **genome-editing research** to improve **two major rice varieties** – Samba Mahsuri and MTU 1010 – under the **National Agricultural Science Fund**.
- In the **2023-24 budget**, the Government of India allocated **₹500 crores** for genome editing in agricultural crops.
- ICAR has initiated **mega genome editing projects** for **horticulture crops, animals, fish, and microbes**.

Waterspouts

News: Waterspouts were recently spotted over the Brahmaputra River in Assam's Barpeta.

About Waterspouts

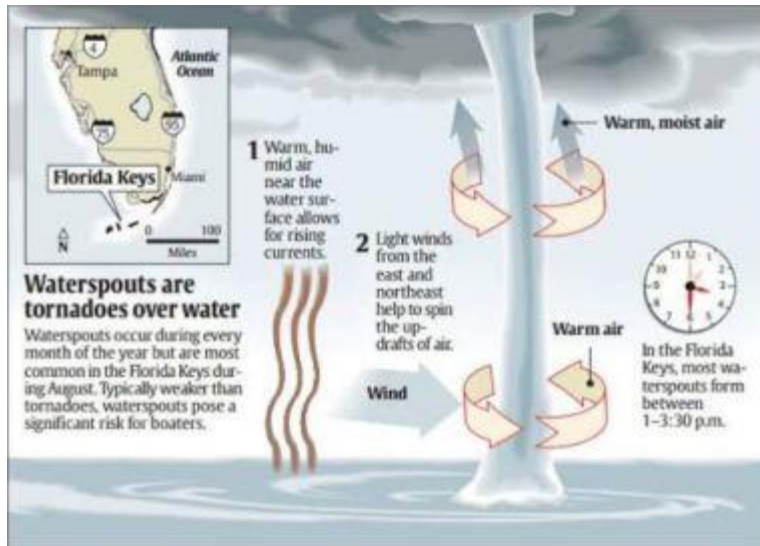


Figure 33. Source – USA Today

- It is a **rotating column of air and mist forming a funnel over a body of water.**

- They are **associated with severe thunderstorms**, and are **often accompanied by high winds and seas**, large hail, and frequent dangerous lightning.

- **Classification:** They are divided into **two main types – tornadic waterspouts and fair-weather waterspouts.**

- **Tornadic waterspouts** are tornadoes that **form over water or move from land onto water.**

- They are linked to **severe**

thunderstorms and can bring strong winds, **high waves, large hail, and dangerous lightning.**

- **Fair-weather waterspouts** usually form under developing **cumulus clouds.**

- They are **not normally connected to thunderstorms.**

- Unlike tornadic waterspouts, they **begin at the surface of the water and move upward.**

- They usually form in **light winds**, so they tend to **move very slowly.**

- **Stages of formation: Five stages of waterspout formation has been identified:**

- **Dark Spot:** A light-coloured circular area appears on the water, surrounded by a larger dark area.

- **Spiral Pattern:** Light and dark bands begin to spiral outward from a dark spot on the water.

- **Spray Ring:** A spinning ring of sea spray forms around the dark area, making it look like the eye of a hurricane.

- **Mature Vortex:** The waterspout becomes fully developed, extending from the water to the clouds above. It reaches its greatest strength and may create a visible trail and waves on the water.

- **Decay:** The waterspout weakens and disappears as the flow of warm air into the vortex decreases.

- **Characteristics**

- They have the **same characteristics as a land tornado.**

- It is generally **less intense and usually lasts about five minutes.** It can sometimes **continue for up to 10 minutes.**

- An average waterspout is approximately **165 feet in diameter** and can have wind speeds of **around 100 kilometres per hour.**

- They **typically form when humidity levels are high and the water is relatively warm compared with the cooler air** above it.

UN Committee on the Elimination of Racial Discrimination (UNCERD)

News: India rejected what it called “politically motivated” and “malicious” references made by UNCERD after its 11th periodic review in Geneva.

About UN Committee on the Elimination of Racial Discrimination (UNCERD)

- UNCERD is a **United Nations treaty body** that **monitors the implementation of the International Convention on the Elimination of All Forms of Racial Discrimination (ICERD)**.
 - It is **not a principal organ of the United Nations** or a judicial court.
- **Establishment:** It was established under ICERD, which was adopted in 1965 and entered into force in 1969.
- **Composition:** The **Committee consists of 18 independent experts** who serve in their personal capacity and **not as representatives of governments**.
- **Aim:** It aims to **ensure that States Parties fulfil their obligations** to prohibit and eliminate racial discrimination and promote racial harmony and equality before law.
- **Key Functions:**
 - **Periodic Review:** States Parties submit periodic reports, which the Committee examines to monitor the implementation of ICERD.
 - **Concluding Observations:** It issues observations and recommendations after examining State reports and interacting with their delegations.
 - **Early Warning and Urgent Action:** It monitors developing tensions to prevent them from escalating into racial or ethnic conflict.
 - **Complaint Procedures:** It can examine inter-State disputes and individual communications where a State has recognised its competence.
- **India's Status:**
 - **State Party:** India signed ICERD in 1967 and ratified it in 1968.
 - It also played a **leading role in negotiating and drafting the Convention**.
 - **Recent Review:** India **participated in its 11th periodic review in Geneva on August 11 and 12, 2026**.
 - **Committee's Concerns:** The Committee raised concerns about reported violations against ethnic and ethno-religious groups, Indigenous and Tribal Peoples, Scheduled Tribes, Scheduled Castes, migrants and asylum-seekers.
 - It also highlighted issues related to law enforcement actions, racial profiling, arbitrary detention, deportation, hate speech and hate crimes.
 - **India's Response:** India rejected the Committee's observations and references, describing them as politically motivated and malicious.
 - It stated that the observations contained sweeping generalisations and unsubstantiated allegations and went beyond the mandate of the Convention.

Rajghat Excavations

News: After 70 years, researchers recently opened 22 boxes from the 1957 Rajghat excavations.

About Rajghat Excavations

- **Location:** Rajghat is located on the **north-eastern edge of Varanasi** near the **confluence of the Ganga and Varuna rivers**.

It is one of the most **important archaeological sites in the middle Ganga Valley**.

According to archeologists, the area was **part of ancient Varanasi**, which served as the **capital of the Kashi kingdom**.

It is also known as the **Kashi Mahajanpad**.

- **First Excavation at Rajghat:** The first archaeological remains at the site were **discovered in 1939 during the expansion of the Kashi railway station**.
 - Further, excavations were carried out **jointly by the ASI and BHU between 1957 and 1969**, under the supervision of **BHU Professor A K Narain and archaeologist T N Roy**.

Findings during the excavation:

- The excavations uncovered remains of ancient settlements, including **structures believed to be houses, terracotta objects, seals, and many other artefacts**.

Key Findings from Rajghat Excavations



Figure 34. Source: IE

- Recently, experts also opened a box containing a **human skeleton found at the same site**, which had remained sealed for about 70 years.
- The excavated boxes contain **sculptures, ancient coins, tools, stamp seals, and objects made of copper, ivory, and bone**.
- **Inscriptions and script:** Several seals bearing inscriptions, including some written in the **Brahmi script** were also found.
- These findings can help researchers understand the **scripts, governance systems, trade, and economic systems** of the periods in which they were used.
- **Photographs negatives:** The boxes also contains around **3,000 glass slides and more than 5,000 photographic negatives** documenting archaeological sites across India- **Rajghat, Manjhi, Ratnagiri, Ajanta and Ellora**.
 - The photographs **record what these sites looked like** before years of weathering, restoration, and modern development changed some of them.
 - They also contain **rare images of idols of Lord Vishnu, Shiva, and Buddha**.

Rajbhasha Utkrishtta Sammaan

News: The Department of Administrative Reforms and Public Grievances (DARPG) has been selected for the Rajbhasha Utkrishtta Sammaan 2025–26.

About Rajbhasha Utkrishtta Sammaan

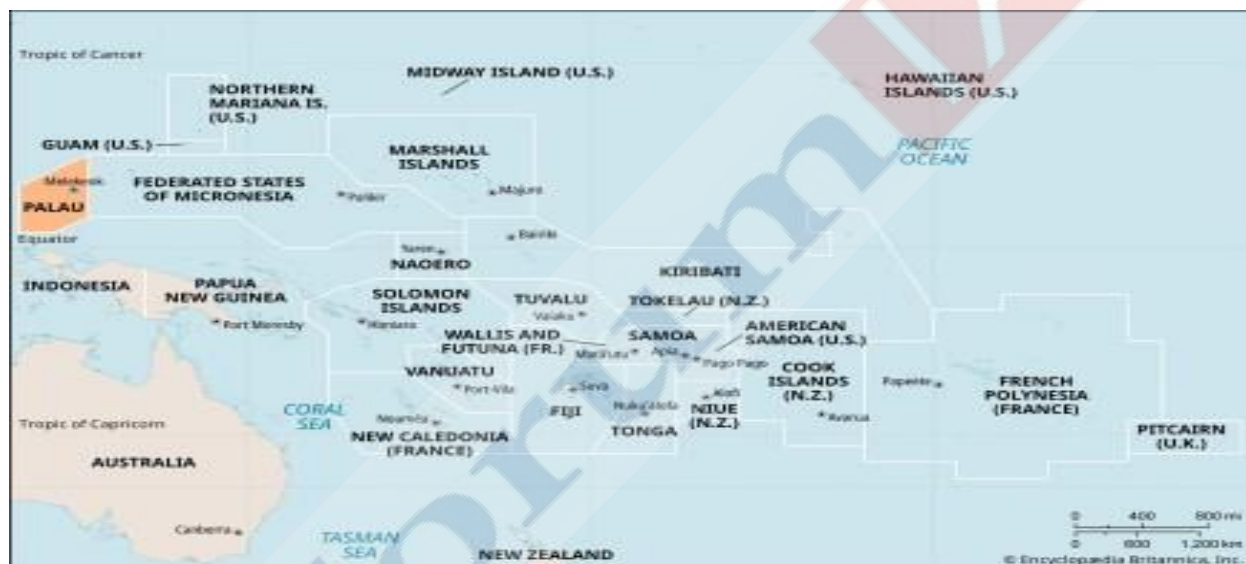
- It is a special honour that recognises **continuous excellence in the implementation of the Official Language**.
- **Presented by:** The award is presented by the **Department of Official Language under the Ministry of Home Affairs**.
- **Award Ceremony:** The honour will be presented during the **Hindi Diwas Sammelan** in Navi Mumbai on **September 14, 2026**.
- **Key Features:**
 - **Rajbhasha Kirti Puraskar:** The **Department of Administrative Reforms and Public Grievances (DARPG)** received the **Rajbhasha Kirti Puraskar (First)** for two consecutive years, **2023–24 and 2024–25**, for its performance in implementing the Official Language.

- **The “Two-Year” Rule:** According to the rules, a **Ministry or Department** that receives the **first prize for two consecutive years is not eligible to receive** the award in the following year.
- **Special Recognition:** Despite this rule, **DARPG** was selected for the **Rajbhasha Utkrishtta Sammaan** for 2025–26.
- **Constitutional Background:** On **September 14, 1949**, the **Constituent Assembly** designated **Hindi** in the **Devanagari script** as the **Official Language of the Union of India**.
- **Role of the Department:** The **Department of Official Language**, has played a **vital role** in promoting the use of **Hindi** in official matters **since 1975**.

Key Facts About Palau

News: Minister of State for External Affairs, Pabitra Margherita will visit Vietnam, Lao PDR and Palau.

Key Facts About Palau



Source: Britannica

- **Location:** It is located in the **western Pacific Ocean**.
- **Boundaries:** It shares maritime borders with the **Federated States of Micronesia, Indonesia, Philippines** and with the **international waters**.
- It has about **340 coral and volcanic islands** located on the **Kyushu-Palau Ridge**.
- **Capital:** **Melekeok**
- **Geography:**
 - Most of the islands are **small low-lying coral islands**, ringed by barrier reefs.
 - Only the **mountainous Babulthuap island** is **volcanic in origin**. It is **mainly composed of andesite**
 - **Most Populated islands:** Its major populated islands are **Babelthuap (Babeldaob), Koror, Malakal, Arakabesan, and Peleliu**.
 - **Other Inhabited Islands:** The inhabited coral islands outside **Palau's main reef system** are **built on volcanic foundations**. They include the **Kayangel Islands, and Angaur**.

- **Climate:** It has **tropical climate**.
- **Natural resources:** It is rich in minerals such as **Aggregate, bauxite, gold, insular phosphate, lignite, kaolinite**
- **Highest Point:** Its highest point is **Mount Ngerchelchuus on Babeldaob Island**.
- **Lowest Point:** The lowest point is the **Pacific Ocean**.
- **UNESCO Site:** The **Rock Islands of Palau** is a **UNESCO World Heritage site**.

Barrier Lake

News: A significant barrier lake formed on the Tibetan side after the August 26 glacier collapse, creating a fresh flooding threat for Nepal.

About Barrier Lake

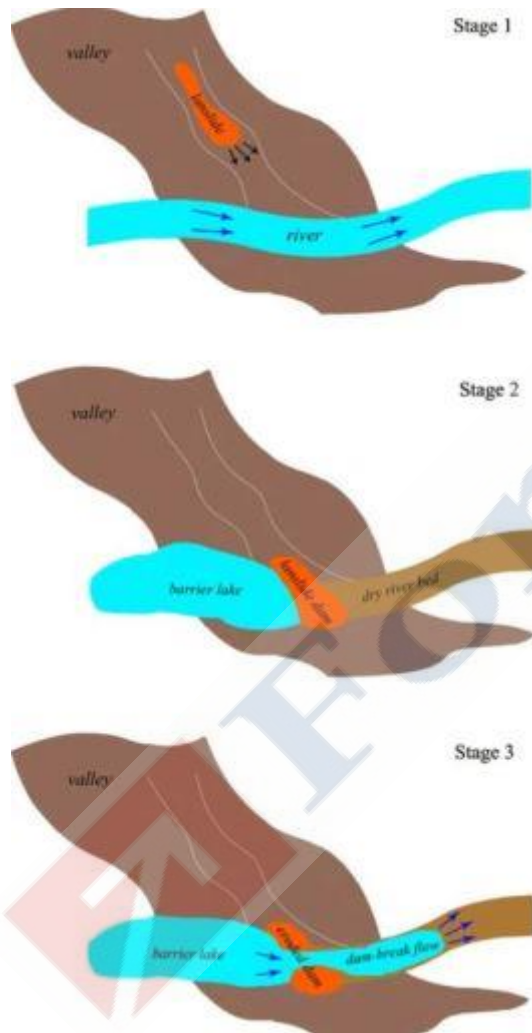


Figure 35. Source – ResearchGate

● A barrier lake is a **temporary water body formed** when **landslide debris completely blocks a river or stream channel**.

● Formation:

○ **Triggering Event:** A **glacier collapse, landslide, rockfall or debris flow** can **dislodge rock, soil, mud and ice** from **steep mountain slopes**.

○ **Natural Dam Formation:** The **displaced material blocks a narrow river channel**, causing **water to accumulate upstream** and form a **temporary reservoir**.

● Key Features:

○ **Temporary Nature:** Barrier lakes are temporary water bodies formed when natural debris blocks a river channel.

○ **Unstable Barrier:** The natural dam consists of **loose soil, broken rock, mud, ice and other debris**, making its stability uncertain.

○ **Water Accumulation:** Water **accumulates behind the natural barrier**, **increasing pressure on it** and potentially **weakening it over time**.

○ **Landslide Lake Outburst Flood (LLOF):** When the **natural barrier suddenly fails**, the **stored water is released rapidly**, causing a potentially **devastating flood downstream**.

○ **Variable Lifespan:** A barrier dam **may fail within days or even decades** after its formation.

Examples of Barrier Lakes

- **2026:** A barrier lake formed **near the Chhochon Khola-Purepu Tsangpo rivers along the Nepal-Tibet border**.
- **2014:** A landslide lake formed across the **Sunkoshi River**

in Nepal after a huge landslide.

- **2008:** Landslide dams formed along rivers near the **Qinghai-Tibet Plateau after the Wenchuan earthquake**.

- **2000:** The Yigong landslide created a 60-metre-high dam on the Yigong Tsangpo River.
- **1835–1966:** A rock-and-debris dam formed over the Tagermarch River in Kyrgyzstan and failed after 131 years.

Grand Chess Tour (GCT)

News: Indian Grandmaster R. Praggnanandhaa became the first Indian to win the prestigious Grand Chess Tour title in 2026.

About Grand Chess Tour (GCT)



Figure 36. Source – TH

- **Grand Chess Tour (GCT)** is an international chess circuit featuring **Classical, Rapid and Blitz** events.
 - **Founded:** The inaugural GCT was held in 2015 with three Classical events.
 - **Format:** Rapid and Blitz events were added to the tour in 2016, expanding it beyond the original Classical format.
 - **Structure:** The GCT has a regular season followed by the GCT Finals, where the leading players compete for the title.
- Grand Chess Tour (GCT) 2026**
- **Final venue:** The 2026 GCT Finals were held at the Saint Louis Chess Club, USA, from August 22–27, 2026.
 - **Qualification:** The top four players from the regular season qualified for the GCT Finals.
 - **Finalists:** The four finalists were R. Praggnanandhaa, Wesley So, Fabiano Caruana and Vincent Keymer.
 - **Final format:** The Finals were conducted as a knockout tournament with semifinals, a championship final and a third-place match.
 - **Match format:** Each match included two Classical games, two Rapid games and four Blitz games.
 - **Champion:** R. Praggnanandhaa defeated defending champion Fabiano Caruana 15–13 in the final.
 - He became the first Indian to win the Grand Chess Tour title.
 - He also secured a guaranteed spot in the 2027 tour.
 - **Prize money:** The total prize fund was US\$450,000.
 - **Prize distribution:** First place received US\$200,000, second US\$125,000, third US\$75,000 and fourth US\$50,000.

Australian Merino and Gaddi Sheep

News: Himachal Pradesh is introducing Australian Merino lambs among Gaddi pastoralists to improve wool quality while protecting indigenous sheep breeds.

About Australian Merino and Gaddi Sheep



Source – Forum IAS

Aspect	Australian Merino Sheep	Gaddi Sheep
Origin	Merino is a Spanish breed that is being reared in Australia.	Gaddi is an indigenous sheep breed of Himachal Pradesh traditionally reared by Gaddi pastoralists.
Wool Quality	It is known for soft, fine and lustrous wool . Crossbreeding aims to produce 21–22 micron apparel-grade wool .	It produces wool of approximately 27 microns , which is coarser and water-resistant.
Uses	Its fine wool is used for apparel production .	Its wool is used to make carpets, yarn, fabrics, unali coats and pattu .
Management	It is often managed intensively in large, fenced areas and requires more intensive care .	It follows a transhumant pastoral system and is adapted to rugged mountain conditions .
Adaptation	Its performance under Himachal's diverse climatic conditions remains uncertain and requires monitoring.	It has hard hooves, endurance and resistance to climatic conditions and diseases .
Wool and climate	Dense, soft wool may become heavy and dirty during heavy rains and may increase health concerns.	Indigenous wool is water-resistant and helps sheep withstand thorns and rough landscapes .

Crossbreeding	Crossbreeding can improve wool quality and market value.	Crossbreeding may improve returns but could create a long-term risk to the indigenous breed and associated culture.
Livelihood concern	Offers an opportunity for higher-value wool production.	Improving returns from existing wool is also important for securing pastoralist livelihoods.

Government Initiative

- **Himachal Pradesh** has been implementing a wool development programme since 2021 under the **National Livestock Mission**.
- **Target:** The programme aims to increase wool production to 3,000 tonnes by 2027, from around 1,500 tonnes currently.
- **Merino Introduction:** The government imported 240 Australian Merino sheep (40 males and 200 females) for genetic improvement of indigenous sheep.
- **Crossbreeding:** Artificial insemination is being used to crossbreed Merino with indigenous sheep.

Kalagarh Tiger Reserve

News: Leopards are commonly found in Kalagarh Tiger Reserve and Amargarh Tiger Reserve, but now they are seen beyond traditional forest boundaries increasing chance of human animal conflict.

About Kalagarh Tiger Reserve

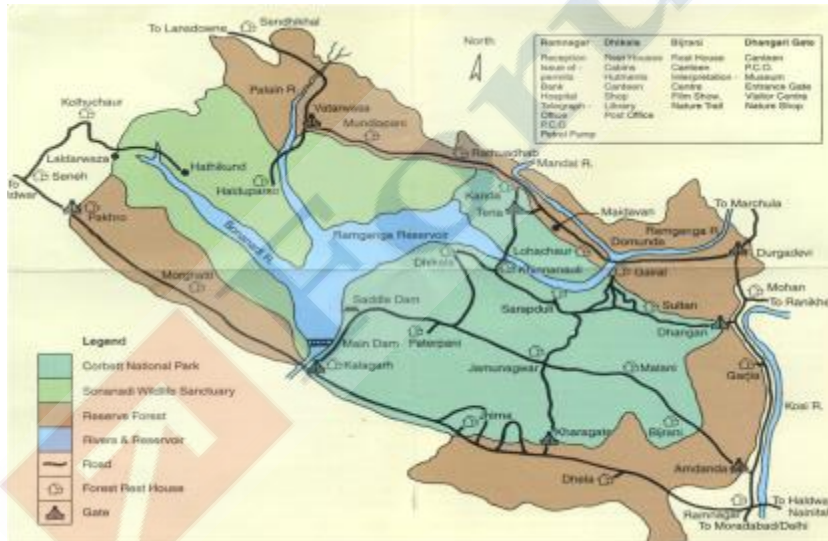


Figure 37. Source: Mongabay

- **Location:** It is situated in the **Nainital district of Uttarakhand**.
- **Formation:** In 1974, when Project Tiger was launched in India, the **Northern part of Jim Corbett** was named as **Kalagarh Tiger Reserve (KTR)**.
- **Area:** It spread in over an area of **301.18 sq km** which also includes **Sonanadi Wildlife Sanctuary**, along with **Jim Corbett National Park**.
- **Rivers associated:** **Ramganga River** river flows through the reserve.
- **Flora:** Common trees

found in the reserve include **sal, sheesham, semal, bakli, haladu, tun, sain, fig, and bamboo**. The area also has many **medicinal plants**.

- **Fauna:** It has a high population of **tigers, leopards, and other members of the cat family**.
 - Many species of deer are also found here, such as **chital, barking deer, goral, sambar, and hog deer**. **Elephants** can also be seen in herds in different parts of the reserve.

Mahatma Ayyankali

News: Prime Minister Narendra Modi paid tribute to Mahatma Ayyankali and Sree Narayana Guru on their birth anniversary.

About Mahatma Ayyankali



Figure 38. Source: Round Table India

by bringing Pulayars together through songs, protests, and collective efforts.

- Over time, **his courage and leadership inspired many people from marginalized communities** to join the struggle for equality.
- **Influences:** His ideas were shaped by prominent **social reformers** such as Ayyavu Swamikal and [Sree Narayana Guru](#).
 - He also became part of **Kerala's wider movement for social equality, working to oppose caste discrimination and improve the lives of oppressed communities.**
- **Contributions of Mahatma Ayyankali**
 - **Villuvandi Protest (1893):** He rode a **bullock cart on public roads, challenging the caste restrictions** that prevented oppressed communities from using public roads and wearing clean clothes.
 - **Right to Use Public Roads:** He organised marches and protests demanding **freedom of movement** for oppressed castes. His efforts helped **secure access to public roads by 1900.**
 - **Fight for Education:** He demanded admission of **Pulaya children into public schools** and even started a school at **Venganoor in 1904.**
 - **Sadhu Jana Paripalana Sangham (1907):** Ayyankali established this organisation to improve the condition of poor and marginalized people.
 - **Agricultural Labour Strike:** He led a strike demanding education for Pulaya children.
 - **Kallumala Samaram (1915):** He supported the **struggle of Pulaya women against restrictions on clothing and caste-marking ornaments**, encouraging them to reject symbols imposed by caste discrimination.
 - **Political Representation:** In 1910, Ayyankali **entered the Travancore Legislative Assembly as its first Pulaya representative.**

- **Mahatma Ayyankali** was a pioneering social reformer and Dalit rights leader from Keralam who challenged caste based discrimination in Travancore.

- **Birth:** He was born to Ayyan and Mala in 1863 in Venganoor, Kerala.

- **Community:** He belongs to the Pulaya community, one of the most depressed castes in Kerala.

- **Impactful factor:** His early experiences with caste discrimination profoundly influenced his lifelong commitment to social reform.

- **Initial Resistance:** He began challenging caste-based oppression

- **Death:** He passed away on **June 18, 1941**.
- **Legacy:** His efforts **to secure educational opportunities for the marginalized**, improve the lives of agricultural workers and **serve the poor remain inspiring and give strength** to all those working for social empowerment.

Mandakini river

News: The pilgrimage town of Chitrakoot in Madhya Pradesh has been inundated after torrential rainfall over the past 14 hours caused the Mandakini River to overflow.

About Mandakini River

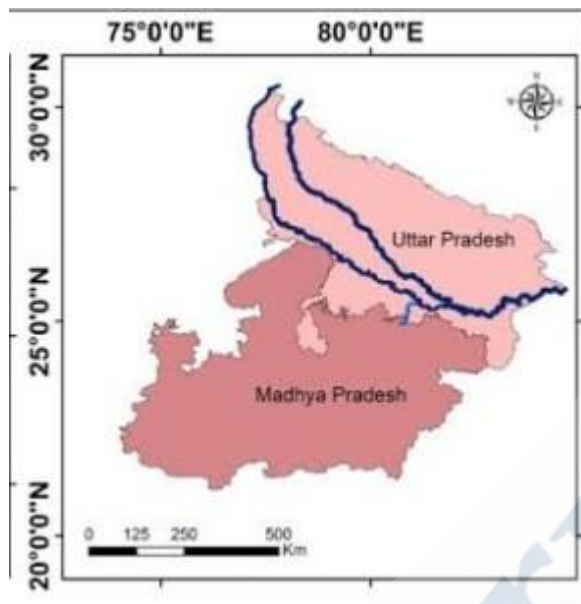


Figure 39. Source: Research Gate

- Mandakini River flows through two states, **Madhya Pradesh and Uttar Pradesh**.
- It is also known as **Paisuani River**.
- **Origin:** It originates from **Khillora hills in Majhgawan block in Satna district of Madhya Pradesh**.
- **Course of river:** It flows through **Chitrakoot** before forming the boundary between Madhya Pradesh and Uttar Pradesh.
 - It passes the perennial springs at **Sati Anusuiya**, and eventually joins the Yamuna River near Rajapur in Uttar Pradesh.
- **Watershed area:** Its total watershed area is **1956.3 sq. km**.
- **Tributary of:** It is the tributary of **Yamuna River**.
- **Importance:** The river is a lifeline for **Chitrakoot and nearby areas**, with nearly **70 per cent of residents**

depending on it.

- Chitrakoot is well known for its close association with epic, the **Ramayana**.
- **Overflooding:** Recently, Chitrakoot has been badly affected by heavy rainfall, causing the Mandakini River to overflow.
 - Important religious places, including **Arogyadham, Gupt Godavari and the Satib Anusuya area**, have also been affected by the rising water.

Integrated Fertilizer Management System (iFMS)

News: The Integrated Fertilizer Management System (iFMS) has entered a new phase with digital initiatives to strengthen transparency and fertilizer supply-chain monitoring.

About Integrated Fertilizer Management System (iFMS)



Source – PIB

- **Integrated Fertilizer Management System (iFMS)** is a digital platform that tracks fertilizer production, imports, movement, stocks, sales and subsidy.
- **Developed by:** The National Informatics Centre (NIC) developed and provides technical support for iFMS for the Department of Fertilizers.
- **Aim:** Its aim is to **improve fertilizer availability, strengthen transparency and enable data-driven monitoring and decision-making.**
- **Key Features:**
 - **Wide Coverage:** It covers **more than 14 crore Aadhaar-linked fertilizer buyers, over 2.5 lakh retailers** and around **7 crore metric tonne fertilizer sale transactions annually.**
 - **Subsidy Management:** The system supports **administration of fertilizer subsidy of nearly ₹2 lakh crore annually.**
 - **Digital Monitoring:** New **dashboards** provide a **consolidated view of production, imports, dispatches, movement, stocks and retail sales** at national, State, district and retailer levels.
 - **Data Analytics:** It enables **analysis of fertilizer purchases across buyer categories, landholdings, crops, districts** and fertilizer types to **identify consumption patterns.**
 - **Farmer and Agricultural Data:** **Integration with Meri Fasal Mera Byora (MFMB) and AgriStack** help **link fertilizer transactions with farmer, land and crop information.**

PM e-Bus Sewa Scheme

News: More than 500 electric buses are operational across 23 cities, with daily ridership crossing one lakh under PM e-Bus Sewa.

About PM e-Bus Sewa Scheme



Figure 40. Source – PIB

- **PM-eBus Sewa Scheme** is a scheme to **strengthen the urban transport system** by deploying **10,000 air-conditioned electric buses** in eligible cities.
- **Implementing Agency:** It is being implemented by the **Ministry of Housing and Urban Affairs (MoHUA)**.
- **Launched in:** It was **launched in August 2023**.
- **Duration:** The scheme will **support bus operations for 10 years**.
- **Key Features:**
 - **Central Assistance:** The scheme **provides ₹20,000 crore in Central Assistance** for bus operations and deployment under the scheme.
 - **Execution Model:** Bus operations will follow the **Public-Private Partnership (PPP) model**.
 - **States or cities will run services and make payments to bus operators.**
 - **Eligibility:**
 - **Demographics:** The scheme covers cities with a population between 3 lakh and 40 lakh, as per

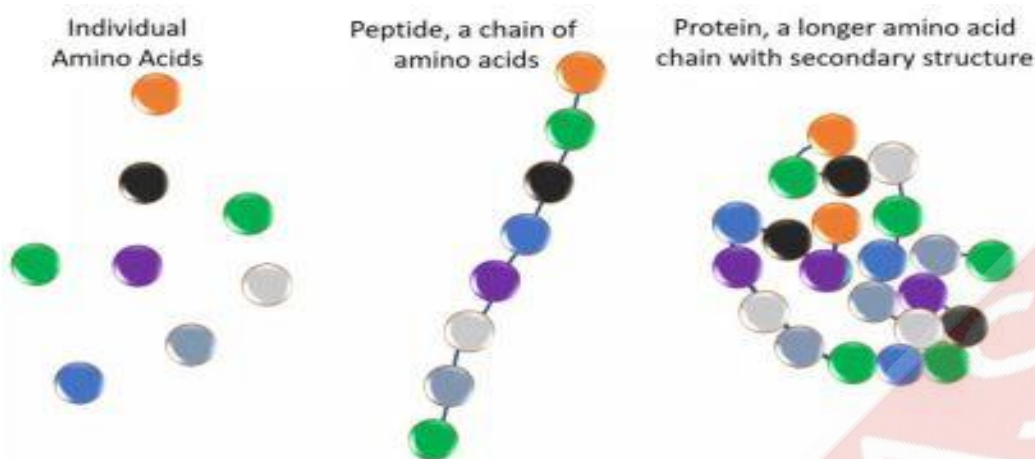
Census 2011.

- **Special Geographies:** It includes all capital cities of Union Territories, the North-Eastern Region, and Hill States, even if their population is below 3 lakh.
- **Two Segments:** Segment 1 covers 169 cities with 10,000 e-buses and infrastructure.
 - Segment 2 covers 181 cities through green urban mobility initiatives.
- **Infrastructure:** The scheme covers depots, charging infrastructure, substations, bus priority, multimodal interchange facilities, and automated fare collection systems.
- **Passenger Facilities:** It includes accessible bus stops, last-mile connectivity, Intelligent Transit Management System (ITMS), National Common Mobility Card (NCMC)-based ticketing, wheelchair provisions, and CCTV cameras.

Peptides, Proteins and Hormones

News: Bengaluru's first "Peptide Party" was cancelled after more than 200 registrations for around 50 places, highlighting the growing peptide craze.

About Peptides, Proteins and Hormones



Source – ScienceDirect

- **Amino acids:** Amino acids are the **basic building blocks of peptides and proteins**.
 - There are **20 different amino acids** that combine in various sequences to form proteins.

Key Differences

Basis	Peptides	Proteins	Hormones
Structure	● Peptides are relatively short chains of amino acids, generally containing 2–50 amino acids.	● Proteins are larger chains, generally containing 50 or more amino acids, with more complex folded structures.	● Hormones can be proteins, steroids or amino acid derivatives.
Production	● Peptides are naturally found in the body and can also be synthesized.	● Proteins are formed from amino acids and perform diverse functions.	● Hormones are produced by endocrine glands and specialised cells or tissues.
Function	● Peptides often act as signalling molecules and regulate biological functions. ● They can also help reduce inflammation.	● Proteins help in building tissues, transporting molecules and supporting immune responses.	● Hormones act as chemical messengers, carrying signals between cells and organs.

	and build muscle.		
Hormonal role	Some peptides work like hormones and can affect different parts of the body from where they are released.	Some proteins can function as hormones.	“Hormone” describes the chemical messenger role, rather than one particular molecular structure.
Therapeutic use	Some peptides, such as insulin and semaglutide, are established medicines.	Proteins are used in therapies such as enzyme replacement and monoclonal antibody therapy.	Hormone therapy may involve synthetic or bioidentical hormones.

Mission Rangeen Machhli 2031

News: India's Vice President, C. P. Radhakrishnan, has released the “Mission Rangeen Machhli 2031” Strategic Action Plan for Ornamental Fisheries Development at Agatti, Lakshadweep.

About Mission Rangeen Machhli 2031



Figure 41. Source – PIB

- **Mission Rangeen Machhli 2031** is a **Strategic Action Plan** for **Ornamental Fisheries Development** aimed at **organising India's ornamental fisheries sector**.

- **Nodal Ministry:** It is being organized by the **Department of Fisheries, Ministry of Fisheries, Animal Husbandry & Dairying, Government of India**.

- **Objective:** Its objective is to **provide a uniform and scientific framework for managing ornamental fisheries and improving production, product quality, biosecurity, certification and market access**.

- **Key Features:**

- **Uniform framework:** It will **establish common practices for scientific management, biosecurity, quality assurance and regulatory compliance across the ornamental fisheries value chain**.
- **Standardised practices:** **Standard Operating Procedures will cover broodstock management, breeding, hatchery operations, quarantine, fish health, traceability, handling, transportation and trade**.

- **Better market opportunities:** The plan will **improve product quality and biosecurity standards**, while supporting certification and access to domestic and international markets.
- **Sustainable growth:** It will **support an organised and globally competitive ornamental fisheries sector**, creating **livelihood opportunities** while **conserving marine ecosystems**.
 - India's fisheries sector **supports about 50 lakh fishers** and **exported seafood worth ₹73,890 crore in FY 2025-26**.