

Factly Weekly

Compilation

2026

**For UPSC CSE Prelims
Exam**

3rd Week

August 2026

INDEX

SraVaani	2
Exercise MAITREE-XV (2026)	.. 3
Royal Indian Navy Mutiny of 1946	4
Madan Lal Dhingra	6
Friedreich's Ataxia (FRDA)	7
Logistics Data Bank (LDB)	9
E. coli Found in Railway Station Water	10
Communal Award	10
Rotating Detonation Engines (DREs)	11
Hara Mangrove Forests	12
Incentive Scheme for Promotion of Domestic PNG Connections	13
Lantana Camara	14
Bad Cholesterol	15
Microbial Ecology and Soil Microbes	17
Helicase: The DNA Separator	18
Maveeran Ondiveeran	20
Pradhan Mantri Janjatiya Vikas Mission (PMJVM)	20
Zonal Councils	22
RK-251	23
Apog	23
Terrier Cyber Quest 2026	24
Ervebo Vaccine	26
India's First-ever Guide to Grasslands and Other Open Natural Ecosystems	27
Definition of 'Industry' and 'Triple Test'	28
Satokosia Tiger Reserve	29
Long-tailed Marmot (Marmota caudata)	30
H1N1 Virus	30
Political Clearance for CMs	32
India's First Blue Bond	33
Dimna Lake	34

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

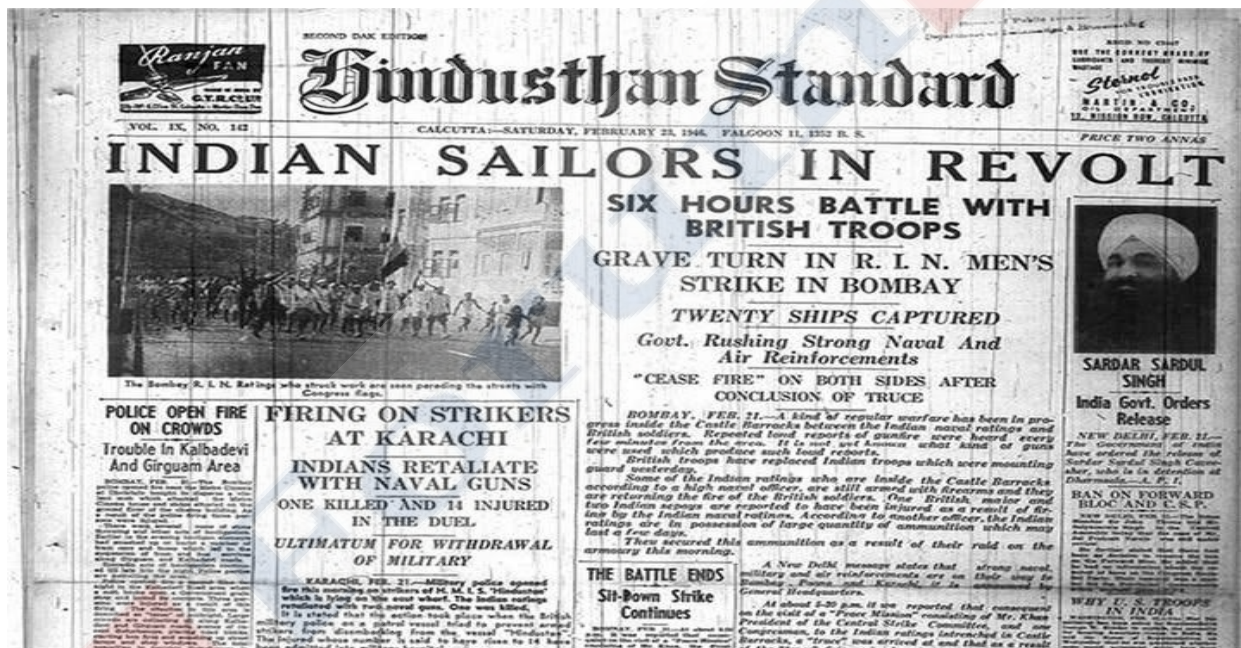
- It is a **military** exercise between **India and Thailand**.
- **Started in:** Exercise MAITREE was instituted in **2006**.
- **Aim:** The aim of Exercise MAITREE is to **foster Military Cooperation between India and Thailand**.
- **2026 Host:** The exercise will be conducted from **18 to 31 August 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 **demanded 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.
 - **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**.

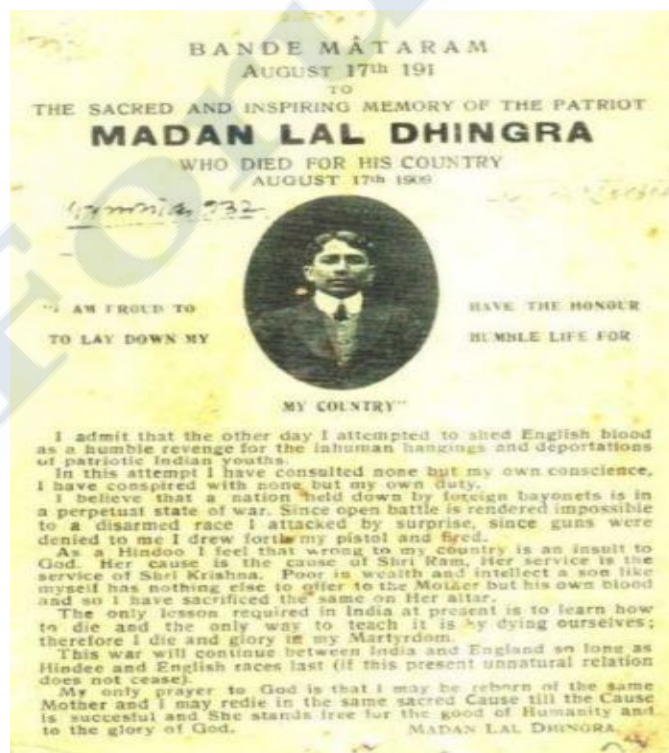
Factly Compilation [Third Week] August 2026

- 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

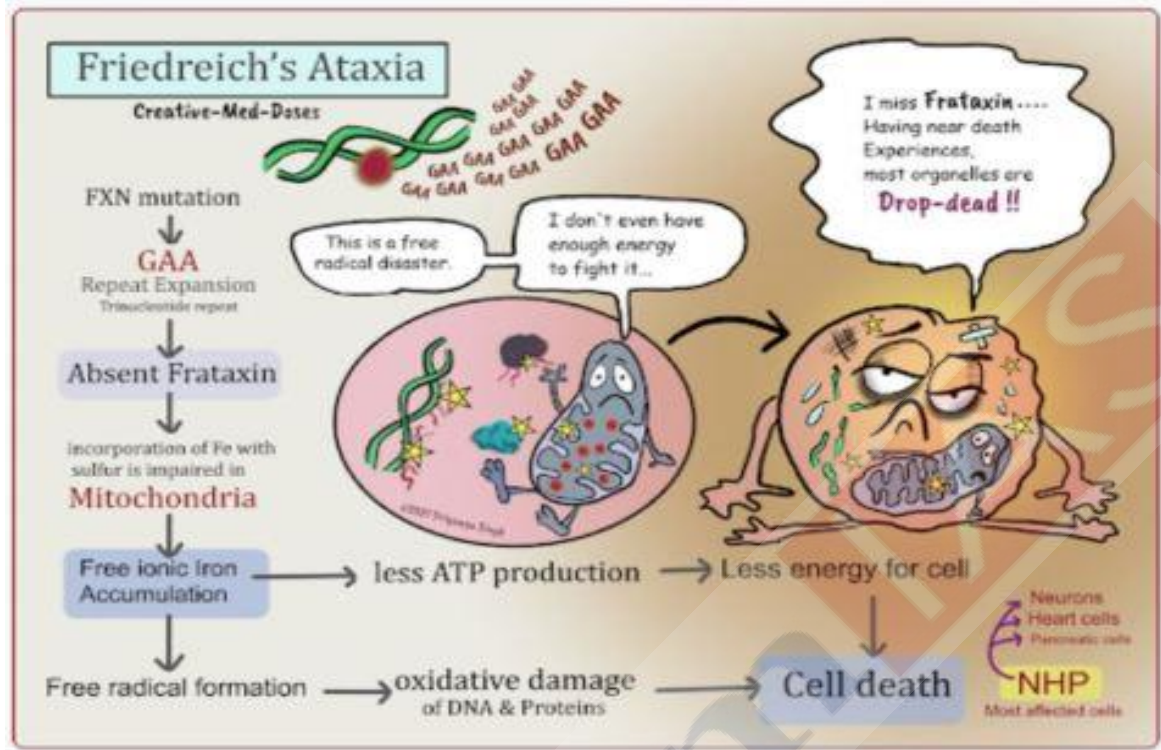
Created with love ❤ by ForumIAS- the knowledge network for civil services.
Visit academy.forumias.com for our mentor based courses.

- **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.
 - 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 1. 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

- **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)**.

Figure 2. Source – Cleveland Clinic

Communal Award

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

About Communal Award, 1932



Figure 3. 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)

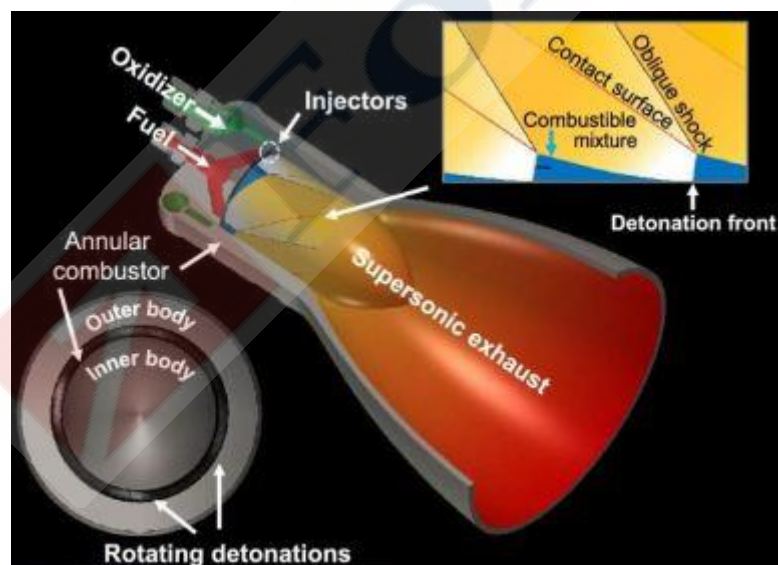


Figure 4. Source – University of Texas

cycle.

- **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

- **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 5. Source: Research Gate

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

- 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 creeks 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

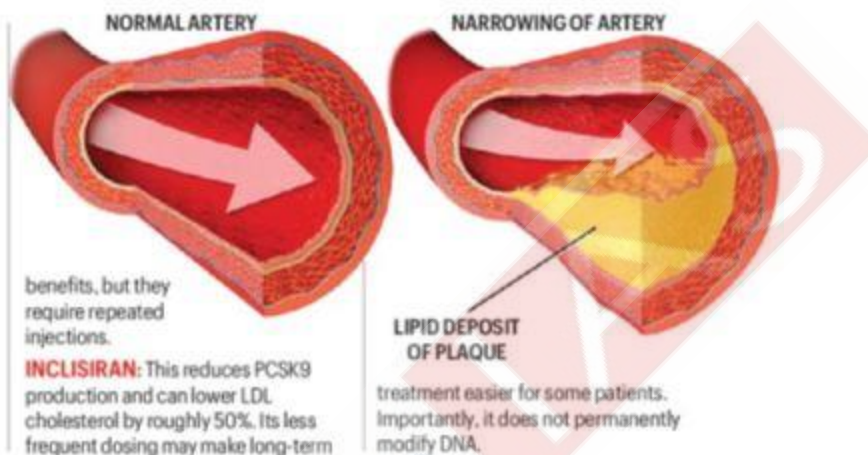
• EXISTING TREATMENTS

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

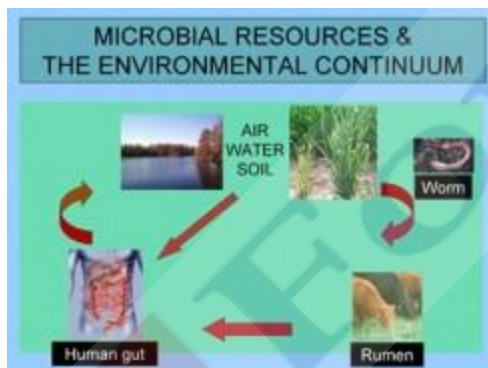


Figure 6. Source: The ISME Journal

- **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

- **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 interact 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**

Figure 7. Source: Research Gate

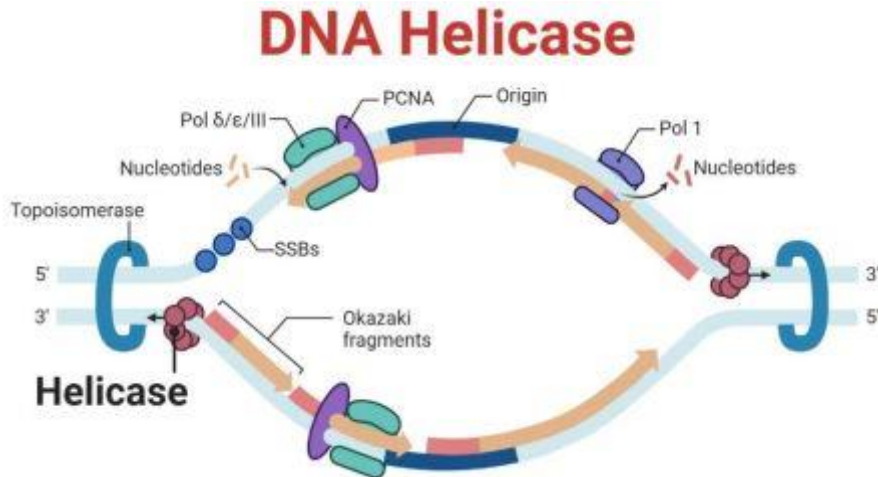
Streptomyces are important sources of **antibiotic compounds used in medicine.**

- **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 Janjatiya 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 Janjatiya Vikas Mission (PMJVM)



Figure 8. Source – PIB

- **Pradhan Mantri Janjatiya 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**.
- 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

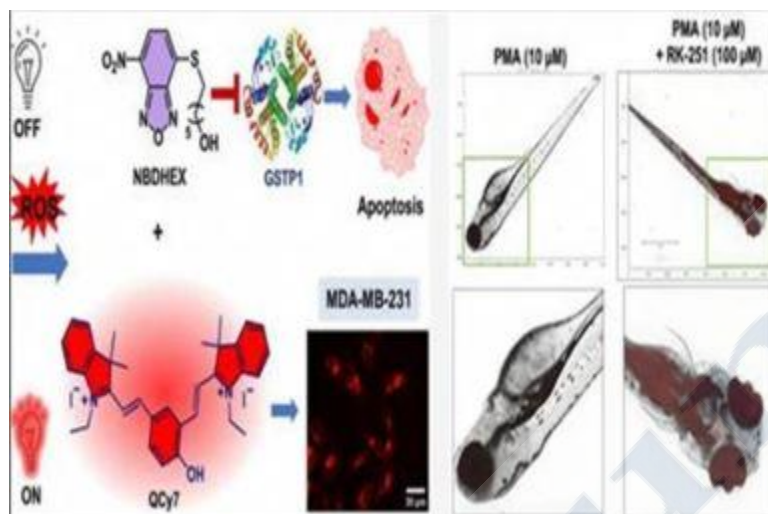


Figure 9. Source – NOA

- **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.

Created with love ❤ by ForumIAS- the knowledge network for civil services.
Visit academy.forumias.com for our mentor based courses.

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-apon** (*sai mod*) and **nogin-apon**.
- **How it is prepared:**
 - **Brewing:** The brewing of the beverage begins by making **apop 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-apon** 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-apon** 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**.
- **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

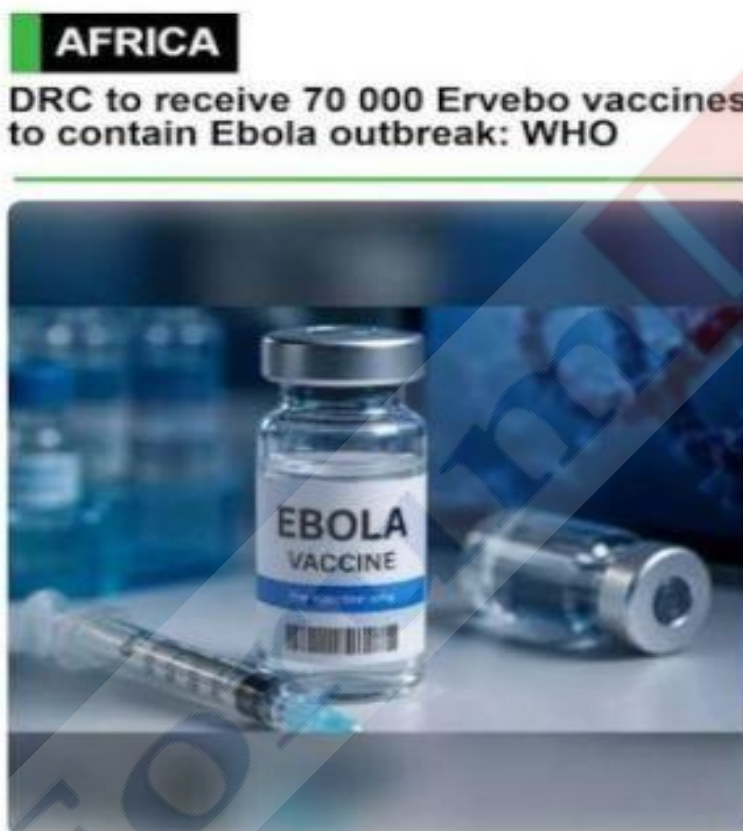
- Terrier Cyber Quest 2026 is a **national-level hackathon** focused on **developing innovative solutions for defence, cybersecurity and information-domain challenges**.
- **Launched By:** The competition has been **launched by the Territorial Army in collaboration with CyberPeace**.
- **Edition:** It 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

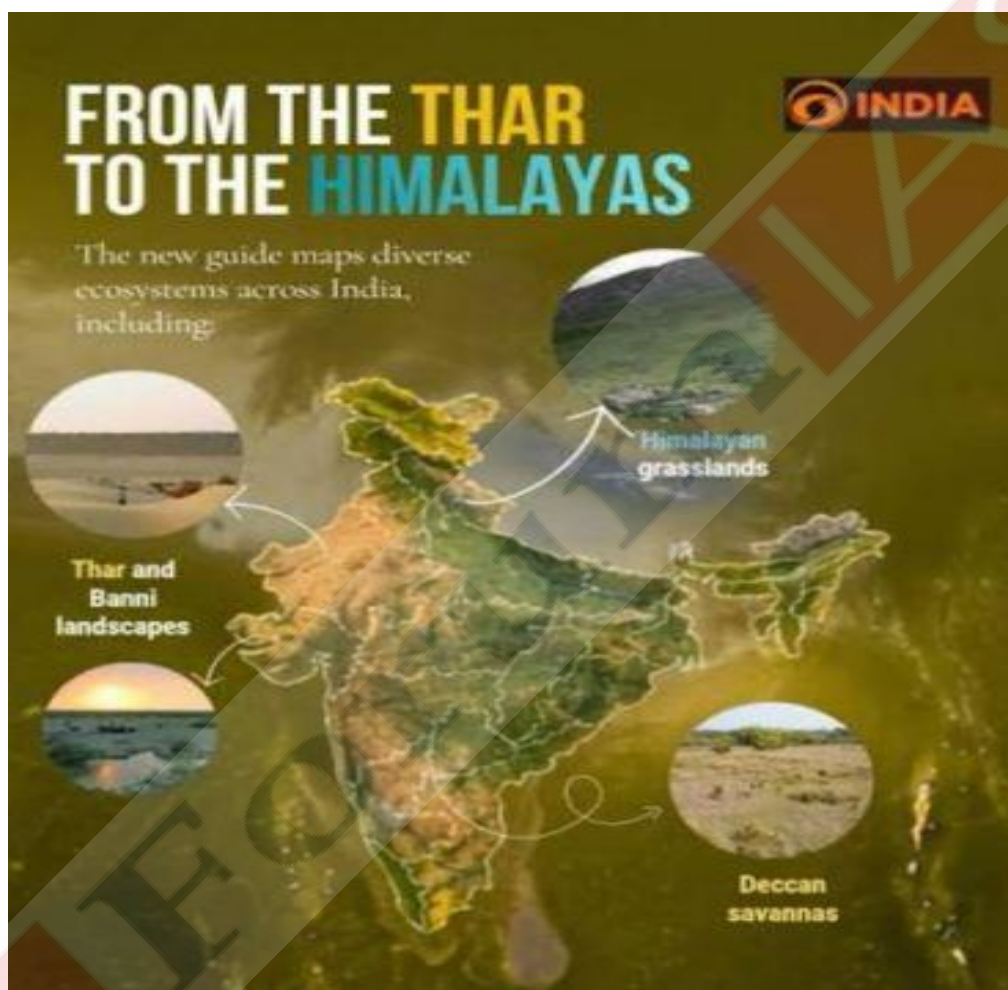
- **Ervebo** is an **approved Ebola vaccine** that has proved **safe and effective** against the **Zaire strain** of **Ebola virus**.
- **Manufactured by:** It is manufactured by **Merck**.
- **Vaccine Type:** It is a **replication-competent, live, attenuated recombinant vaccine** that **uses vesicular 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.
- 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.

Created with love ❤ by ForumIAS- the knowledge network for civil services.
Visit academy.forumias.com for our mentor based courses.

- **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**.

Created with love ❤ by ForumIAS- the knowledge network for civil services.
Visit academy.forumias.com for our mentor based courses.

- The **definition** of an “**industry**” determines **employees** under which **workplaces** are **entitled to statutory protections**.
- **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

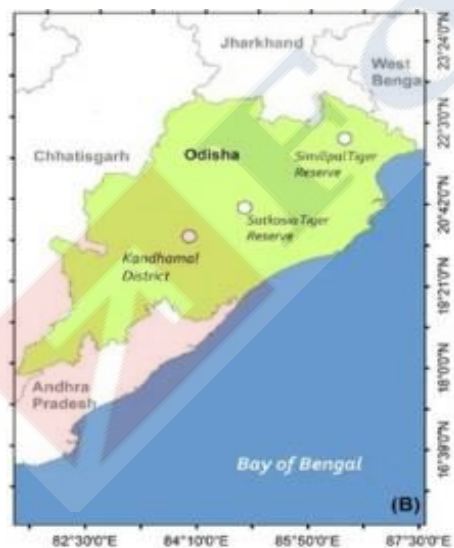


Figure 10. Source: Research Gate

- **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 11. 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.**
 - **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

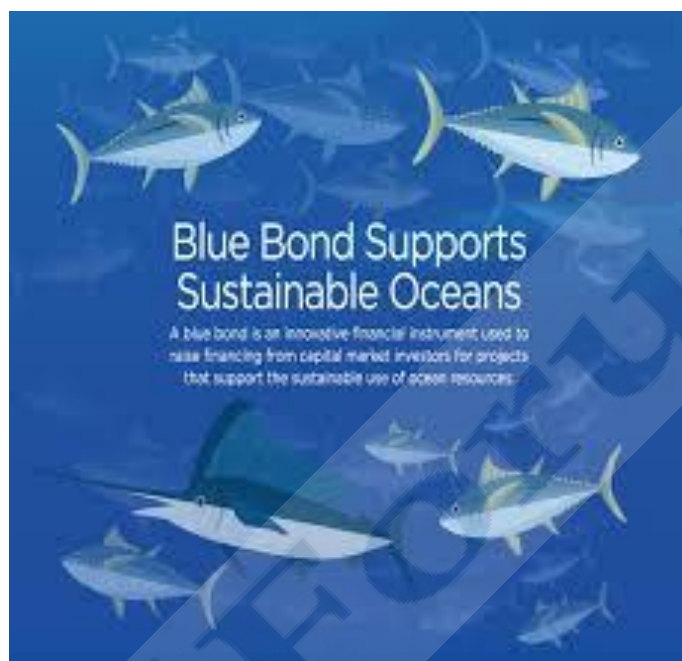


Figure 12. Source: World Bank

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.**

- 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.

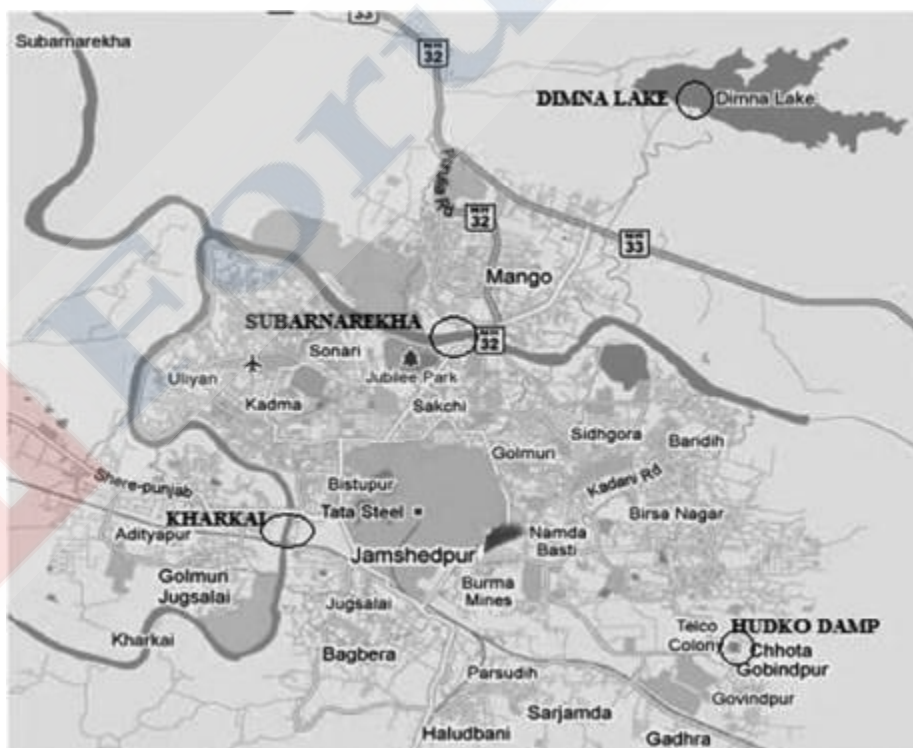
- **Mandate:** As investors are putting money into the bond partly on the basis of its

- 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.**