

# Factly Weekly

**Compilation**

2023

**For UPSC CSE Prelims  
Exam**

**1<sup>st</sup> Week  
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## Subject: Polity and Nation

### Sixth Schedule: Centre agrees to examine demands for Ladakh safeguards

#### Why in the News?

The Union Home Ministry has reconstituted a High-Powered Committee to examine the demand of Ladakh to provide constitutional safeguards like inclusion in the Sixth Schedule of the Constitution and granting tribal status to the Union Territory.

#### What is the High-Powered committee constituted by the Union Home Ministry for Ladakh?

**Chaired by:** Minister of State for Home Nityanand Rai.

**Composition:** It is a 22-member panel. It will have representatives from both Kargil and Leh divisions.

#### Terms of Reference of the committee:

1. To discuss measures to **protect the region's unique culture and language**, taking into consideration its geographical location and strategic importance.
2. To ensure protection of land and employment for people of Ladakh.
3. To discuss measures related to the empowerment of the Ladakh Autonomous Hill District Councils of Leh and Kargil.
4. To examine constitutional safeguards that could be provided to ensure the measures and protection detailed above.

#### What is the Sixth Schedule of the Constitution?

Specifications	Details
<b>Constitutional Provision</b>	Article 244
<b>Applies to</b>	Assam, Meghalaya, Tripura and Mizoram.
<b>Purpose</b>	1) It provides for the formation of autonomous administrative divisions called Autonomous District Councils (ADCs) that have some legislative, judicial and administrative autonomy within a state.
<b>Composition of ADCs</b>	1) ADCs have up to 30 members with a term of five years. Of these, four are nominated by the governor and the remaining 26 are elected on the basis of adult franchise. 2) The Bodoland Territorial Council in Assam is an exception, with more than 40 members. 3) Each autonomous region also has a separate regional council.

<b>Powers of ADCs</b>	<p>1) <b>Civil and judicial powers:</b> They can constitute village courts within their jurisdiction to hear trials of cases involving the tribes. Governors specify the jurisdiction of high courts for each of these cases.</p> <p>2) <b>Legislative powers:</b> The councils are empowered to make legislative laws on matters like land, forests, fisheries, social security, entertainment, public health, etc. with due approval from the governor.</p> <p>3) The acts of Parliament or the state legislature do not apply to autonomous districts and autonomous regions or apply with specified modifications and exceptions.</p>
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### **Group of Companies Doctrine: SC holds arbitration agreement can be binding on non-signatory firms**

#### **Why in the News?**

The Supreme Court of India has held that an arbitration agreement can be binding on non-signatory firms under the “group of companies” doctrine.

#### **What is the Group of Companies Doctrine (GOCD)?**

1. The **Group of Companies Doctrine (GOCD) is applied in arbitration proceedings.**
2. The doctrine states an arbitration agreement binding on a firm, which though not a signatory, is a member of a group of companies that is a party to the agreement

#### **What did the Supreme Court say on the Group of Companies Doctrine (GOCD)?**

1. The Supreme Court has upheld the “Group of Companies” doctrine in Indian arbitration law.
2. The court also held that **the definition of “parties” under Section 2 and Section 7 of the Arbitration Act included both the signatory as well as non-signatory parties.**
3. This judgment clarifies the scope of the “group of companies” doctrine in India and makes it easier for parties to enforce arbitration agreements.

#### **What is Arbitration?**

1. Arbitration is a **form of alternative dispute resolution (ADR) in which a neutral third party resolves a dispute outside of court.**
2. The parties to the dispute agree to submit their case to an arbitrator, who will make a binding decision on the matter.
3. Arbitration can be a faster and more cost-effective way to resolve disputes.
4. Arbitration in India is governed by the Arbitration and Conciliation Act, 1996.

### **Jammu and Kashmir Reservation Bill and J&K Reorganisation (Amendment) Bill**

#### **Why in the News?**

Lok Sabha has passed Jammu & Kashmir Reservation (Amendment) Bill, 2023 and the Jammu and Kashmir Reorganisation (Amendment) Bill, 2023.

#### **What is Jammu & Kashmir Reservation (Amendment) Bill, 2023?**

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**Aim:** To amend the Jammu and Kashmir Reservation Act, 2004.

**Note:** The J&K Reservation Act, 2004 provided reservation in jobs and admission in professional institutions to Scheduled Castes (SCs), Scheduled Tribes (STs) and other socially and educationally backward classes.

### Key Provisions of the Bill:

The Bill **seeks to replace the term “weak and underprivileged classes (social castes) “in the J&K Reservation Act, 2004 to “other backward classes” as declared by the Union Territory.**

### What is Jammu and Kashmir Reorganisation (Amendment) Bill,2023?

**Aim:** To amend the Jammu and Kashmir Reorganisation Act, 2019.

**Note:** The J&K Reorganisation Act, 2019 provides for the reorganization of the state of Jammu and Kashmir into the union territories of Jammu and Kashmir (with legislature) and Ladakh (without legislature).

### Key Provisions of the Bill:

1. **Increases the total number of seats in the J&K Assembly from 107 to 114.** This is based on the report of the Delimitation Commission.
2. Seeks to provide reservation of 9 seats for Scheduled Tribes for the first time.
3. **Empowers the Lieutenant-Governor to nominate 3 members in the Assembly:**
  - Two members from the Kashmiri migrant community including one woman and
  - Third member should be a representative of people from PoK who took refuge in India following the wars with Pakistan in 1947, 1965 and 1971.

## **Reservation policy need not be followed in appointment of law officers, rules Madras High Court**

### Why in the News?

The Madras High Court has ruled that the rule of reservation need not be followed in the appointment of law officers and merit should be the only criteria.

### What was the case about before Madras High Court?

1. A petition was filed in the Madras High Court arguing that the Law Officers of the High Court of Madras (Appointment) Rules, 2017 for the appointment of law officers should be declared unfair due to the absence of reservation provisions.
2. The petitioner said that the **rule of reservation must be applied even to contractual as well as temporary appointments**

### What was the court ruling on this?

1. The Madras High Court ruled that the rule of **reservation need not be followed in the appointment of law officers and merit should be the only criteria.**
2. Neither the law officers are appointed to a civil post nor are they employees of the government. As such, Article 16(4) of the Constitution will not be applicable.
  - **Note:** Art 16(4) stipulates that the right to equality in public employment does not prevent the State from making reservations for any backward class of citizens which are not adequately represented.

3. The government is duty-bound to engage only the most proficient, competent and capable lawyers to represent it before the courts of law.

### Section 6A: Who is a citizen, who is an 'illegal immigrant'

#### Why in the News?

A Five-judge Constitution bench of the Supreme Court has begun hearing pleas challenging Section 6A of the Citizenship Act, 1955. Section 6A was introduced following the signing of the Assam Accord.

#### What is the Assam Accord?

The Assam Accord was a Memorandum of Settlement (MoS) signed between the Government of India, Government of Assam and the All-Assam Students Union in 1985. The accord brought an end to the Assam Agitation.

#### What is Section 6A of the Citizenship Act, 1955?

1. Section 6A was introduced in the Citizenship Act, 1955 to accommodate Clause 5 of the Assam Accord.
2. It provides for special provisions for Assam with respect to citizenship. According to this-
  - a. **Immigrants who entered Assam before 1 January 1966 would be considered Indian citizens and were allowed to vote.**
  - b. **Immigrants who entered Assam after 1 January 1966 but before 24 March 1971 will be detected as "foreigners".** But they would have the opportunity to register themselves according to rules made by the Central Government.
    - They would be granted the same rights and obligations as Indian citizens for a period of 10 years except the right to vote. At the end of this ten-year period, they would be deemed citizens.
  - c. **Immigrants who entered Assam on or after 25 March 1971 would be considered illegal immigrants and would be expelled from India.**
3. It forms the basis for conducting [National Register of Citizens \(NRC\)](#) in the state of Assam.

#### Why is Section 6A challenged in the Supreme Court?

1. By establishing a different cut-off date for Indian citizenship in Assam than in the rest of India — which is July 1948 — it is argued that Section 6 A is discriminatory, arbitrary and illegal.
2. It has led to a significant change in the demographic pattern of Assam, reducing the indigenous Assamese people to a minority in their own state.

## Subject: International Relations

### Paris Club Group of Creditors

#### Why in the News?

Recently, Sri Lanka has reached a preliminary debt restructuring deal with India and the Paris Club group of creditors, paving the way for it to revive a stalled International Monetary Fund (IMF) loan programme.

#### What is the Sri Lanka debt scenario?

1. Sri Lanka in May 2022 became the first country in the Asia-Pacific to default on its debts in two decades, the result of domestic economic mismanagement and a surge in global inflation following the coronavirus pandemic.
2. Sri Lanka has foreign debts of about \$40bn. **China, Japan and India are amongst the largest creditors.**
3. The **IMF has cleared a \$3-billion-Extended Fund Facility (EFF) in March 2023** for Sri Lanka but this loan facility has been stalled due to some disagreement between the creditors.
4. **Major lenders, excluding China, formed the Official Creditor Committee (OCC) in May 2023** in response to Colombo's request for debt treatment. It is co-chaired by India, Japan, and France (as chair of the Paris Club)

#### What is the Paris Club?

<b>What is it?</b>	1) An informal group of creditor countries whose role is to find coordinated and sustainable solutions to the payment difficulties experienced by debtor countries.
<b>Origin</b>	<b>It was created gradually from 1956</b> , when the first negotiation between Argentina and its public creditors took place in Paris.
<b>Member Countries</b>	1) <b>Currently has 22 permanent members:</b> Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Israel, Japan, Netherlands, Norway, Russia, South Korea, Spain, Sweden, Switzerland, the United Kingdom and the United States. 2) All are members of the Organisation for Economic Co-operation and Development (OECD). 3) <b>India is not a member of this club.</b>
<b>Key features</b>	1) It <b>operates on the principles of consensus and solidarity</b> . Any agreement reached with the debtor country will apply equally to all its Paris Club creditors. 2) The <b>outcome of the negotiation is not a legally binding agreement</b> but forms the basis for legally binding bilateral arrangements between the debtor country and its Paris Club creditor countries.



## International Maritime Organisation (IMO): India re-elected with highest vote tally

### Why in the News?

India has been re-elected to the International Maritime Organisation (IMO) Council for the 2024–25 period.

### What is the International Maritime Organisation (IMO)?

Specifications	Details
What is it	It is a specialized agency of the United Nations that <b>regulates the maritime industry</b> , which supports global trade, transportation, and all marine operations.
Established in	1948 but entered into force in 1958.
Headquarters	London, UK
Purpose	1) It is responsible for measures to improve the safety and security of international shipping and to prevent pollution from ships. 2) It is also involved in legal matters, including liability and compensation issues and the facilitation of international maritime traffic.
Members	175 - India joined the IMO in 1959.

## Article 99 of the UN Charter, invoked for the first time in decades as Israel attacks Gaza

### Why in the News?

The United Nations Secretary-General has decided to invoke Article 99 of the UN Charter and has urged the UN Security Council to act on the humanitarian crisis in Gaza.

### What is the UN Charter?

1. The UN Charter is the founding document of the United Nations.
2. **It was signed on 26 June 1945 in San Francisco, US** at the conclusion of the United Nations Conference on International Organization. It came into force on 24 October 1945.
3. The charter **grants the power to the UN to take action on a wide variety of issues.**
4. The Charter is considered an international treaty, meaning UN Member States are bound by it.

### What is Article 99 of the UN Charter?

1. Article 99 of the UN Charter is a **special, discretionary power given to the UN Secretary-General.**
2. The article allows the UN Secretary-General to bring to the attention of the UN Security Council (UNSC) any matter which in his opinion may threaten the maintenance of international peace and security
3. **When Article 99 is invoked, the President of the UNSC is under the obligation to call a meeting of the Security Council.**

4. But Article 99 does not provide the UN Secretary General with the means to compel the UNSC to adopt resolutions. For any resolution to be adopted, it will require at least nine votes in favor and no vetoes by the five permanent members.
5. **It has only been invoked four times in the past** — in the Congo (1960), East Pakistan (1971), Iran (1979) and Lebanon (1989).

## Subject: Science & Technology

### X-ray Polarimeter Satellite (XPoSat) Mission: ISRO is set to launch it

#### Why in the News?

The Indian Space Research Organisation (ISRO) has announced a plan to launch its first X-ray Polarimeter Satellite (XPoSat) Mission.

#### What is XPoSat Mission?

Specifications	Details
To be launched by	ISRO
Full Form	X-Ray Polarimeter Satellite (XPoSat)
Objectives	<ol style="list-style-type: none"> <li>1) To measure X-ray polarization from X-ray sources.</li> <li>2) To conduct long-term studies of the spectral and temporal characteristics of cosmic X-ray sources.</li> <li>3) It will supplement the traditional time and frequency domain studies.</li> </ol>
Launch Vehicle	Polar Satellite Launch Vehicle (PSLV)
Duration of Mission	Five Years
To be placed in	Low Earth Orbit
Payloads	<ol style="list-style-type: none"> <li>1) <b>POLIX (Polarimeter Instrument in X-rays)</b>: It will measure the polarimetry parameters (degree and angle of polarization) in medium X-ray energy range of 8-30 keV photons of astronomical origin.</li> <li>2) It is being developed by Raman Research Institute (RRI), Bangalore in collaboration with U R Rao Satellite Centre (URSC).</li> </ol>
	<ol style="list-style-type: none"> <li>1) <b>XSPECT (X-ray Spectroscopy and Timing)</b>: It will give spectroscopic information (on how light is absorbed and emitted by objects). It would observe several types of sources such as X-ray pulsars, blackhole binaries, low-magnetic field neutron stars etc.</li> <li>2) It was developed by the U.R.Rao Satellite Centre, ISRO.</li> </ol>
Significance	<ol style="list-style-type: none"> <li>1) It is <b>India's first and the world's second polarimetry mission</b>.</li> <li>2) The other such major mission is NASA's Imaging X-ray Polarimetry Explorer (IXPE) that was launched in 2021.</li> </ol>

## Biotechnology Research and Innovation Council (BRIC)

### Why in the News?

The Union Minister of Science and Technology has addressed the first ever meeting of the Biotechnology Research and Innovation Council (BRIC).

### What is the Biotechnology Research and Innovation Council (BRIC)?

Specifications	Details
<b>What is it</b>	It is an apex autonomous society under the Department of Biotechnology (DBT), Ministry of Science and Technology.
<b>Purpose</b>	It was formed by subsuming 14 Autonomous Institutions (AIs) under it. This has been done to provide centralized and unified biotech governance across the country.
<b>Functions of Institutions under BRIC</b>	1) The institutions subsumed under BRIC will retain their distinct research mandates but governed by one body at BRIC. 2) Institutes can allocate up to one-third of their lab space for researchers from outside DBT institutes and their collaborators (from industry or other institutes). 3) The institutes will also have the <b>freedom to collaborate in public-private research initiatives and receive funding and endowments from non-governmental sources for their research activities.</b> 4) New Ph.D. programs will be launched across BRIC institutions with a shared curriculum.
<b>Significance</b>	1) Rationalization of Autonomous Bodies will ensure performance enhancement. 2) Function as nodal agency for promotion of biotechnology in India. 3) It will help bring together the best minds in the biotech sector on a unified platform.

## World Malaria Report 2023

### Why in the News?

According to the World Malaria Report 2023, released by WHO, malaria cases continue to dip in India despite an increasing trend globally.

### What are the Key Highlights of the Report?

#### India Trend

- 1. Reduction in Malaria cases and Fatalities in 2022:** India saw a decline of 30 per cent in malaria incidence and 34 per cent in mortality in 2022, compared to the previous year.
2. India accounted for 1.4% of total malaria cases in the world
- 3. Reasons for decline-** Focus on primary healthcare in remote areas, digital data-backed surveillance,

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effective management of extreme weather events like cyclones, better preventive strategies, and point of care diagnostics have played crucial roles.

### Global Trend

1. Globally, malaria cases have **witnessed an increasing trend since the pandemic**, rising by 5 million in 2022 to 249 million.
2. Of the 5 million additional cases, the highest 2.1 million was from Pakistan that had a flood in 2022

### What is Malaria?

1. It is a disease **caused by parasites that are transmitted to people through the bites of infected female Anopheles mosquitoes.**
2. **There are five kinds of malarial parasites** — Plasmodium falciparum, Plasmodium vivax (the commonest one), Plasmodium malariae, Plasmodium ovale, and Plasmodium knowlesi.
3. The **first approved vaccine is RTS, S, also known as Mosquirix.** The WHO recommends two malaria vaccines: **RTS, S/AS01 and R21/Matrix-M**

## Population-level genome sequencing

### Why in the News?

The UK has announced the completion of half a million whole-genome sequences, almost 0.7% of its population, under its '100K Genome Project'

### What is Population-level Genome sequencing?

Population-level genome sequencing involves **deciphering the complete genetic makeup of large populations.** This entails sequencing an organism's entire DNA. This offers unprecedented insights into human diversity and can be useful in the healthcare sector.

### What are the benefits of population-level genome sequencing?

1. Understanding disease prevalence and biomarkers which allows discovery of novel therapeutic targets.
2. Genomic data can be used in decision-making and medical care to build scalable public-health initiatives.
3. It will also contribute significantly to our knowledge of human biology, human evolution, migration patterns, and adaptation to diverse environments.

### What are some other population-level genome sequencing projects?

Genome Initiative	Origin Country
AllofUS program	U.S
1+ Million Genomes	The European Union
Three Million African Genomes	By Ambroise Wonkam (Professor) of Cape Town University in South Africa
deCODE initiative	Iceland

<b>GenomeAsia Project</b>	Several Asian countries and the USA
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**India's IndiGen Programme:** Providing insights into genetic diseases and variants, with plans for a larger GenomeIndia initiative to sequence 10,000 genomes.

## Artificial General Intelligence (AGI)

### Why in the News?

This post discusses the various aspects of Artificial General intelligence and the related technological developments.

### What is Artificial General Intelligence?

Artificial general intelligence (AGI) is defined as the **intelligence of machines that allows them to comprehend, learn, and perform intellectual tasks much like humans**. AGI emulates the human mind and behavior to solve any kind of complex problem. AGI is also known as strong AI or Human AI.

### What is the difference between Narrow AI and General AI?

Narrow AI is concerned with only simulating human behavior based on a set of rules, parameters, and contexts that they are trained with. On the other hand, general AI mimics human intelligence by going a step beyond. It has the ability to learn and apply its intelligence to solve any problem.

Specifications	Narrow AI	General AI
<b>Learning ability</b>	Narrow AI focuses on a single task under various constraints and limitations.	AGI is envisioned to have the capacity for generalization and adaptation across diverse domains.
<b>Operational domain</b>	Fixed domain models provided by programmers	Self-learn and reasons with its operating environment
<b>Data processing</b>	Narrow AI analyses data by using ML, Natural Language Processing, Deep Learning, and Artificial Neural Networks	General AI uses an advanced version of these technologies for analysis.
<b>Limitation</b>	Limited to a single task, lacks broader intelligence	May lack depth in certain areas and have ethical concerns
<b>Examples</b>	Virtual assistant, spam filter, image recognition tools.	Self-driving cars, advanced chatbot.

### What is Project Q\* of OpenAI?

1. Project Q\* refers to a new AI model being developed by the ChatGPT owner OpenAI.
2. Under this project, an **AI algorithm has been developed that is capable of solving elementary mathematical problems by itself**, including those that are not part of its training data.

3. It demonstrates advanced reasoning capabilities similar to humans and is a significant step towards Artificial General Intelligence.

### Chandrayaan-3 propulsion module retraces steps to Earth orbit: why it matters

#### Why in the News?

ISRO has successfully brought back the Propulsion Module (PM) of Chandrayaan-3 from a lunar orbit to an orbit around Earth after it completed its original mission objectives.

#### What is the Propulsion Module (PM)?

1. The propulsion module was a **part of Chandrayaan-3**.
2. The primary **objective of the module was to carry the Vikram Lander Module from launch vehicle injection till the final lunar 100 km circular polar orbit** and separate the Lander Module from the Propulsion Module.
3. The module also **carried a payload called the SpectroPolarimetry of Habitable Planet Earth (SHAPE)**. It is an experimental instrument to look back at Earth and study the signatures that make it habitable so as to identify habitable exoplanets.

#### What is the significance of successfully bringing back the Propulsion Module to earth orbit?

1. **Planning and execution of Moon-to-Earth trajectories:** ISRO gained insights into planning and executing the trajectory and maneuvers required for a small spacecraft to return from the Moon to Earth. This can prove useful for future lunar sample return missions.
2. **Software Modules:** This experiment helps in developing software modules for future missions that involve returning from the Moon.
3. **Gravity-assisted flybys:** The knowledge gained can be applied to plan and execute gravity-assisted flybys around other celestial bodies.

### GEMINI: AI Model developed by Google

#### Why in the News?

Google has launched Project Gemini, its largest and most capable AI model.

#### What is GEMINI?

Specifications	Details
What is it	It is a Multimodal AI and a Large Language Model (LLM) <b>developed by Google</b> .
Features	1) <b>Multimodal:</b> It can understand different types of information including text, audio, images and video. 2) <b>Powerful:</b> It surpasses most human experts in various tasks, potentially making it the most powerful AI model to date. 3) <b>Types:</b> It will be available in three models: Ultra (for highly complex tasks), Pro (for scaling across a wide range of tasks) and Nano (on-device tasks).

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	4)The Nano and Pro models will be immediately incorporated into Google's AI-powered chatbot Bard. The Ultra model will be launched next year.
<b>Significance</b>	1) It could revolutionize how we search for information online. 2) It could be used to create new forms of art and entertainment, pushing the boundaries of human creativity.
<b>Concerns</b>	1) Job displacement in certain sectors. 2) Amplification of misinformation or unintended consequences.

### What is a Large Language Model (LLM)?

1. A large language model is an **advanced artificial intelligence system that processes, understands and generates human-like text based on massive amounts of data.**
2. These models are typically built using deep learning techniques such as neural networks and are trained on extensive datasets that include text from a broad range such as books and websites, for natural language processing.
3. One of the most well-known examples of LLMs is OpenAI's ChatGPT.

## First WHO Global Clinical Trials Forum

### Why in the News?

The First WHO Global Clinical Trials Forum was recently conducted. The objective of the forum was to develop a joint vision on strengthening clinical research capabilities.

### What are Clinical Trials?

Clinical trials are a type of research that studies new tests and treatments and evaluates their effects on human health outcomes. These trials are an essential component of the drug development process and are necessary to determine the benefits and risks of new treatments.



Figure 1. Source: Wikipedia

### How are Clinical Trials regulated in India?

1. In India, the Central Drug Standard Control Organisation (CDSCO) regulates clinical trials under Drugs and Cosmetics Act, 1940.
2. **Clinical Trials Registry - India (CTRI):**

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Specifications	Details
Established in	2007
Hosted at	Indian Council of Medical Research (ICMR)'s National Institute of Medical Statistics.
Purpose	It is a free, online public-record system to register clinical trials being conducted in India.
Mandatory to register	It is mandatory to register for every clinical trial at CTRI before commencing as per the Drugs Controller General (India) (DCGI).

3. **New Drugs and Clinical Trial Rules:** These rules were notified in 2019 with the aim to promote clinical research in the country.

- In 2023, an amendment was made to the rules to allow the researchers to utilize non-animal and human-relevant, including technologies like 3D organoids, organs-on-chip, and advanced computational methods, to test the safety and efficacy of new drugs.

### JT-60SA: World's biggest nuclear fusion reactor

#### Why in the News?

JT-60SA, the world's largest and most advanced nuclear fusion reactor started its official operations in Japan, marking a major milestone towards achieving the goal of clean energy.

#### What is JT-60SA?

1. JT-60SA is a **joint initiative between the European Union and Japan aiming to investigate the feasibility of nuclear fusion as a sustainable and near limitless power source.**
2. The JT-60SA reactor is a six-storey-high machine, which is kept in a hangar in Naka, north of Tokyo. It comprises a doughnut-shaped "tokamak" vessel set to contain the swirling plasma heated up to 200 million degrees Celsius.
3. One of the **main objectives of this project is to replicate nuclear fusion ignition (net surplus energy),** a feat first achieved by scientists at the [Lawrence Livermore National Laboratory in California](#).
4. The net energy gain was achieved by using lasers to fuse together two light atoms into a single denser one, releasing high amounts of energy. This net energy gain allows the nuclear fusion reaction to become self-sustaining.
5. A similar even **bigger nuclear fusion reactor is currently under construction in France and is expected to begin operations in 2025.**

#### What is the Significance of Nuclear Fusion Energy?

1. **Sustainable clean energy source**- It does not produce carbon dioxide - making it an important technology in the path to net zero emissions.
2. **No long-lived radioactive waste**- It stops when the fuel supply or power source is shut down. It generates no high-level long-lived radioactive waste.
3. **Limited risk of proliferation**- Fusion doesn't employ fissile materials like uranium and plutonium.



4. **Near limitless power source**– Since nuclear fusion energy runs on hydrogen, the most abundant element in the universe, it's considered virtually limitless in its production potential, unlike the limited fossil fuels and other intermittent renewable energy sources.

## GNoME: Google DeepMind's AI breakthrough could revolutionize chip, battery development

### Why in the News?

Researchers at Google DeepMind have developed a new Deep Learning Artificial Intelligence (AI) tool called GNoME to discover new materials.

### What is GNoME?

GNoME stands for Graph Networks for Materials Exploration. It is a Deep Learning AI tool developed by researchers at Google DeepMind.

**Purpose:** To discover new materials and predict material stability.

### What has been discovered by GNoME till now?

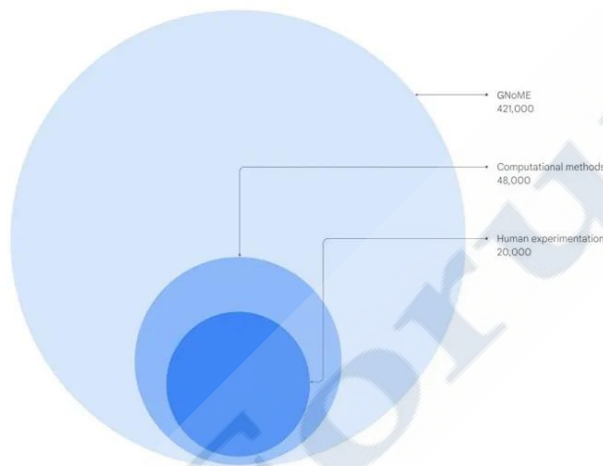


Figure 2. Source: Indian Express

GNoME is said to have discovered over 2.2 million new materials including 380,000 materials that it predicts to be stable. This breakthrough could have wide-reaching applications in sectors such as renewable energy, battery research, semiconductor design and computing efficiency.

### How does GNoME work?

1. GNoME is a graph neural network model (GNN) where **the input data for the model takes the form of a graph that can then be**

**likened to connections between atoms.**

2. It was trained using active learning (a type of machine learning technique used to scale up a model first trained on a small specialised dataset)

– This **technique is great for discovering**

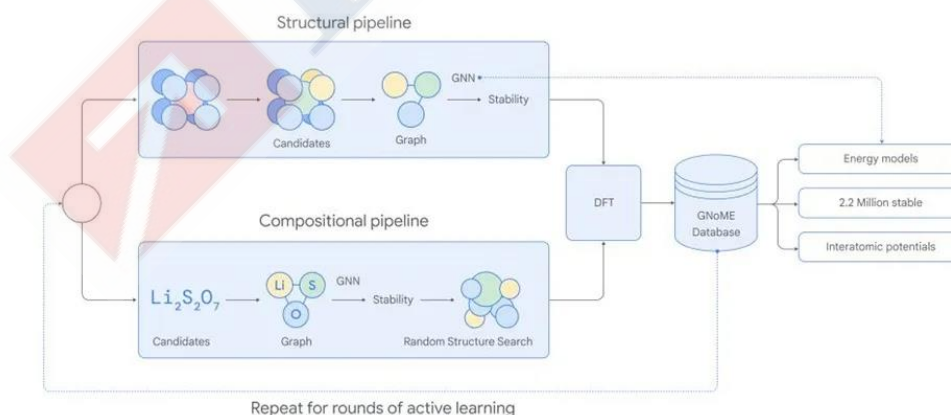


Figure 3. Source: Indian Express

**new materials because it can find patterns beyond what's in the original dataset.**

3. It then combines two pipelines to discover new stable materials :

- a. **Structural**- creates candidates with structures similar to known crystals.
- b. **Compositional**- a randomised approach based on chemical formulas .

4. The predictions made by it are then evaluated using Density Functional Theory (a technique used in physics, chemistry and materials science to understand atomic structures and assess crystal stability).

**What is the significance of GNoME?**

1. GNoME has significantly **improved the accuracy of predicting material stability from 50% to approximately 80%**.
2. It has **increased the number of known stable materials**. This could lead to the development of new technologies such as more efficient batteries and superconductors.
3. It uses filters to narrow down the list of potential materials. This saves time and money by avoiding the need to synthesize and test materials that are unlikely to be stable.

## **COP28 gets \$777mn to fight Neglected Tropical Diseases**

**Why in the News?**

The 2023 Reaching the Last Mile Forum at COP28 has secured over \$777 million in pledges to address the growing challenge of neglected tropical diseases (NTDs).

**What is Reaching the Last Mile Forum?**

1. The Forum was hosted by Reaching the Last Mile (under the patronage of the President of the UAE), in collaboration with the Bill & Melinda Gates Foundation.
2. Held on the **sidelines of COP28 first ever 'Health Day'** , the forum serves as a platform to assess the effects of climate change on human health.
3. At the forum, the **expansion of the Reaching the Last Mile Fund (RLMF) from \$100 million to \$500 million was announced**.  
Note – It's a 10-year, multi-donor fund, aimed at eliminating lymphatic filariasis and onchocerciasis (river blindness) in sub-Saharan Africa.
4. The pledge holds significance as the incidence of NTDs are expected to rise with global warming.

**What are Neglected Tropical Diseases?**

1. NTDs are diseases that are **mainly prevalent in tropical areas, particularly among marginalized or isolated communities**. For example– dengue and chikungunya, lymphatic filariasis, leprosy, yaws, etc.
2. As these diseases have largely been wiped out in the more developed parts and persist mostly in the poorer countries, they are absent from the global health agenda and hence called 'neglected'.

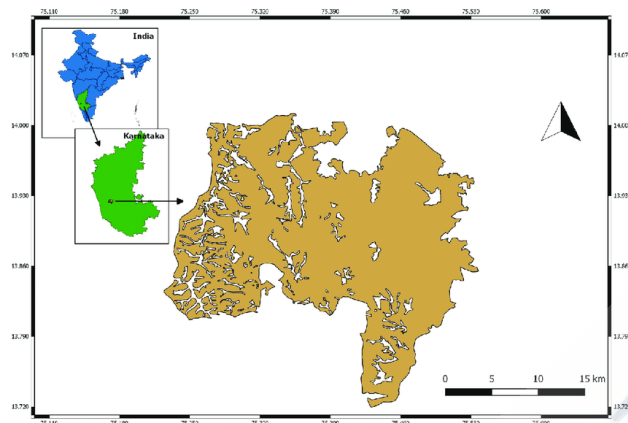
## Subject: Environment

### Shettihalli Wildlife Sanctuary: Delay in Eco-Sensitive Zone (ESZ) tag for the sanctuary

#### Why in the News?

The National Green Tribunal (NGT) has instructed the Karnataka Government to resolve issues which are causing delay in declaring the Shettihalli Wildlife Sanctuary as an eco-sensitive zone (ESZ). This delay in determining the ESZ has led to more land use changes and encroachments in the sanctuary area.

#### Where is Shettihalli Wildlife Sanctuary?



Source: ResearchGate

Specifications	Details
Located in	Shimoga District, Karnataka
Declared as a sanctuary in	1974
Bird Sanctuary	<b>Mandagadde Natural Bird Sanctuary is a part of the sanctuary.</b>
Dam	Tunga Anicut Dam is situated within the sanctuary. It provides shelter for otters and water birds.
Vegetation	Dry and Moist Deciduous Forests in the eastern and central parts. Towards the west, with an increase in rainfall, there are Semi-evergreen Forests.
Fauna	The sanctuary is home to species of animals such as white-backed vultures, Indian nightjar, white-bellied dingo, tiger, leopards, elephants among others.

#### What are Eco-Sensitive Zones (ESZ)?

These are **transition zones** around protected areas such as national parks and wildlife sanctuaries meant to

## Factly Compilation for the Month of December (First Week) 2023

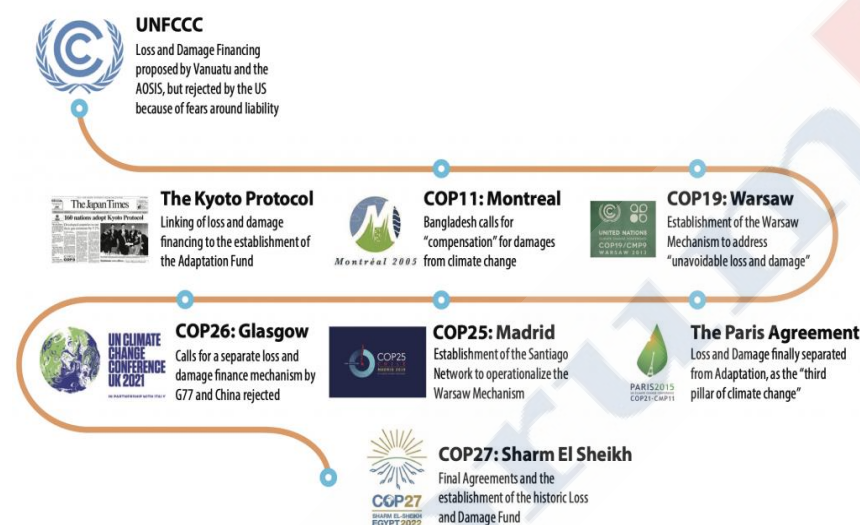
act as shock absorbers. They are notified by the Ministry of Environment, Forests and Climate Change (MoEFCC) under Environment (Protection) Act, 1986. Certain activities like commercial mining, major hydroelectric projects, discharge of untreated effluents etc are prohibited under ESZ.

### Loss and Damage Fund cleared on Day One of COP-28 summit

#### Why in the News?

At the 28th Conference of Parties (COP28) being held in Dubai, countries agreed to operationalise the Loss and Damage(L&D) Fund.

#### What is a Loss and Damage(L&D) Fund?



Source: TERI

Specifications	Details
<b>What is it</b>	It is a fund created to provide financial assistance to nations most vulnerable and impacted by the effects of climate change.
<b>Hosted by</b>	The World Bank will be the interim host of the fund for a period of four years.
<b>Funding</b>	All countries can contribute to the fund voluntarily. Countries have already committed at least \$450 million for the fund.
<b>Eligibility to get funding</b>	1) All developing countries are eligible to apply for the fund. 2) A certain percentage of the fund has been set apart for Least Developed Countries and Small Island developing states.

## Factly Compilation for the Month of December (First Week) 2023

<b>Criticism</b>	There is no clear plan on how the money will be added to the fund regularly. This raises serious questions over the funds' long term sustainability.
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### What is the history of Loss and Damage (L&D) fund?

#### Genesis of the LDF-

The movement of Loss and Damage Fund (LDF) is a three-decade old movement which was first initiated by the island nation of **Vanuatu** and the **Alliance of Small Island States**. The progress made at various UNFCCC Conference of Parties (COP) are as follows-

<b>COP 19, 2013</b>	At COP 19 in Warsaw, representatives of member countries formally agreed to establish the L&D fund.
<b>COP 25, 2019</b>	Santiago Network for L&D was set up, but the developed countries didn't commit any funds
<b>COP 26, 2021</b>	Glasgow Dialogue on finance for L&D was established to continue discussions over the next three years on the fund.
<b>COP 27, 2022</b>	At COP 27, the member states agreed to set up the L&D fund and a Transitional Committee (TC) to figure out how the new funding mechanisms under the fund would operate. The TC was also to prepare recommendations that countries would consider, deliberate on, and potentially adopt by COP 28.

### ALTÉRRRA Fund: UAE announces \$30-bn fund to boost climate investments

#### Why in the News?

At COP-28, the United Arab Emirates (UAE) has announced a new USD 30 billion fund called ALTÉRRRA for climate investments and transforming emerging markets and developing economies.

#### What is ALTÉRRRA?

Specifications	Details
<b>What</b>	It is a privately managed fund focussed on climate investments in emerging markets and developing economies.
<b>Established by</b>	Lunate, an independent global investment manager based in UAE
<b>Chair</b>	COP-28 President Sultan Ahmed Al Jaber will chair the fund.
<b>Targeted Corpus for the Fund</b>	Aims to mobilise \$250 billion by 2030. UAE has pledged \$30 billion to the fund.
<b>Key Verticals</b>	The fund's investments will be guided by four key pillars: 1) Energy Transition 2) Industrial Decarbonization 3) Sustainable Living 4) Climate Technologies
<b>Fund's Investment Plans for India</b>	1) Initially, a portion of this fund will support development of over 6 GW of new clean energy capacity in India.

## Factly Compilation for the Month of December (First Week) 2023

	2) This includes creating 1,200 MW of wind and solar projects that will begin producing clean energy by 2025.
<b>Significance</b>	By 2030, emerging markets and developing economies will require \$2.4 trillion every year to address climate change.

### Green Credits Initiative

#### Why in the News?

PM Narendra Modi launched the Global Green Credit Initiative at COP 28 in Dubai.

#### What is Global Green Credit (GGC) Initiative?

1. The GGC Initiative is conceptualized as a mechanism to incentivize voluntary pro-planet actions, as an effective response to the challenge of climate change.
2. It envisions the **issue of Green Credits for plantations on waste/degraded lands and river catchment areas, to rejuvenate and revive natural eco-systems.**
3. It aims to facilitate global cooperation and partnership through exchange of knowledge, experiences and best practices in planning, implementation and monitoring of environmental positive actions through programs/mechanisms like Green Credits.

#### What is India's Green Credit Programme (GCP)?

1. The India's Green Credits Programme is a **market-based mechanism** to incentivize voluntary environmental actions across diverse sectors, by various stakeholders like individuals, communities, private sector industries, and companies.
2. It was **first announced in the Union Budget 2023-24** and launched by the Environment Ministry in October 2023.
3. In its **initial phase, the GCP focuses on two key activities: water conservation and afforestation.**
4. **Private companies would buy these green credits as part of their CSR obligations.**
5. The Indian Council of Forestry Research and Education (ICFRE) is the administrator of the programme.
6. Such a market-based system already exists for carbon, at the national as well as international level, that allows trade in carbon credits in which companies or nation can claim carbon credits if they take action to reduce their carbon footprint. These credits can be traded for money. The Green Credits programme attempts to replicate this mechanism for other environmental actions, like water conservation or soil improvement.

### Global Renewables and Energy Efficiency Pledge and Declaration on Climate and Health: India has not signed both

#### Why in the News?

During the ongoing COP28 climate summit in Dubai, India did not sign the Global Renewables and Energy Efficiency Pledge as well as the Declaration on Climate and Health. However, both these pledges are still in the draft stage and are far from having legal sanctity.

#### What is the Global Renewables and Energy Efficiency Pledge?

## Factly Compilation for the Month of December (First Week) 2023

1. The Global Renewables and Energy Efficiency Pledge has **committed to tripling worldwide installed renewable energy generation capacity by 2030.**
2. **Signed by 118 countries. India has not signed the pledge.**
3. **Reason for India not signing the pledge:** The pledge states that renewables deployment must be accompanied by phase down of unabated coal power.
  - This is contrary to India's longstanding position that it needs to rely on coal to rapidly improve living standards for its people.
  - India also claims that it has the right to use coal because its historical carbon emissions per person have been negligible.

### What is the Declaration on Climate and Health?

1. The declaration encourages governments to protect communities and prepare healthcare systems to handle health issues caused by climate-related impacts like extreme heat, air pollution, and infectious diseases.
2. **Signed by:** The declaration has been signed by 123 countries. **India is not the one among these countries.**
3. **Reason for India not signing the declaration:** India has not signed the declaration as the **draft talks about going beyond health sector and ensuring de-carbonisation to reduce emissions.** This links certain aspects of our healthcare system such as cold storage for vaccines to carbon emissions, which India opposes.

## Green Industrialisation Initiative

### Why in the News?

African leaders launched the Green Industrialisation Initiative during the third day of COP28, aiming to accelerate green growth in African industries and attract finance and investments.

### What are the key features of the Green Industrialisation Initiative?

1. The initiative builds upon the existing \$4.5 billion Africa green investment from the United Arab Emirates (UAE)
2. The leaders emphasized developing long-term plans for green industrialization.
3. **Significance** –
  - a. It highlights Africa's priorities for industrial transition and the need for just and equitable partnerships.
  - b. The initiative underscores the importance of green industrialisation to harness Africa's vast and quality resources to secure prosperity for all.
  - c. It aims to position Africa as a global supplier of green energy and resources.

## Biological Diversity Act, 2002

### Why in the News?

Recently the Union Minister of State for Environment, Forest and Climate Change stated the conservation efforts and measures taken for Biodiversity Heritage Sites.

### What are Biodiversity Heritage sites?

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- 1. Biodiversity Heritage Sites (BHS) are areas that are unique, ecologically fragile ecosystems that have rich biodiversity.**
- BHS must comprise of any one or more of the following components– species richness, high endemism, presence of rare, endemic and threatened species, keystone species, species of evolutionary significance, wild ancestors of domestic/cultivated species etc.
- They are **recognised under Section 37 of the Biological Diversity Act, 2002.**
- They are **notified by the State Government in consultation with the local bodies.**
- Currently, there are 44 Biodiversity Heritage Sites in 16 States.

### What is the Biological Diversity Act, 2002?

The act aims at the conservation of biological resources, managing its sustainable use and enabling fair and equitable sharing benefits arising out of the use and knowledge of biological resources with the local communities.

### Ethanol Blending: Government directs sugar mills to not use sugarcane juice for ethanol production

#### Why in the News?

The Government of India has directed all sugar mills not to use sugarcane juice or syrup for making ethanol for 2023-24. But it has allowed the production of ethanol from B-heavy molasses.

#### Why has the Government directed not to use sugarcane juice for making ethanol?

Ethanol production from sugarcane juice directly diverts actual sugar from the market. Given the low sugarcane production this year, the government has made this decision to avoid shortage of sugar availability and the resultant rise in sugar prices.

### Heat Action Plans (HAPs)

#### Why in the News?

The Union Minister of Earth Sciences has informed about the steps taken by the Government of India against Heat Waves.

#### What are the Steps taken by the Government against Heat Waves?

##### 1. Climate Hazards and Vulnerability Atlas of India:

Specifications	Details
Prepared by	India Meteorological Department (IMD)
Purpose	It is a web-based atlas that provides information on the hazard and vulnerability of 13 disastrous meteorological events including heat waves.
Key Features	1) The atlas is depicted using Geographic Information System (GIS) tools. 2) The atlas offers district-level maps showcasing hazard events and vulnerability for all months and annually.



## Factly Compilation for the Month of December (First Week) 2023

	3) The maps are prepared based on the disaster data from the annual publication of IMD "Annual Disastrous Weather Reports".
<b>Key Findings of Atlas on Heat waves</b>	1) <b>Vulnerability districts:</b> 13% of districts and 15% of population are moderately to very highly vulnerable to heat waves. 2) <b>Most vulnerable states:</b> Rajasthan (15 districts) and Andhra Pradesh (13 districts) are the states most susceptible to heat waves.

2. **Heat Action Plans (HAP):** IMD has collaborated with National Disaster Management Authority (NDMA) and local health departments to start Heat Action Plans (HAPs) in many parts of the country to warn and advise about heat waves.

– At present, HAPs have been implemented in 23 States that are prone to high temperatures leading to heat-wave conditions.

– In these states, daily heat wave bulletins are issued with 5-day forecasts and color-coded impacts (green, yellow, orange, red).

Note: State governments are responsible for implementing and monitoring HAP.

3. **Awareness generation through various platforms:** IMD is conveying heat wave information with the help of daily and weekly video messages on social media platforms like YouTube, Facebook, WhatsApp, etc.

## Global Cooling Pledge at COP28: How refrigerators and ACs contribute to global warming

### Why in the News?

At the ongoing COP28 climate summit, 63 countries signed the Global Cooling Pledge to drastically cut cooling emissions.

### What is the Global Cooling Pledge?

1. Global Cooling Pledge was **signed during the ongoing COP28 climate summit.**
2. The pledge commits the countries to reduce their cooling emissions by at least 68% by 2050 and outlines several strategies to tackle them.
3. Signed by 63 countries including the US, Canada and Kenya. **India has not signed the pledge yet.**

### What are Cooling Emissions?

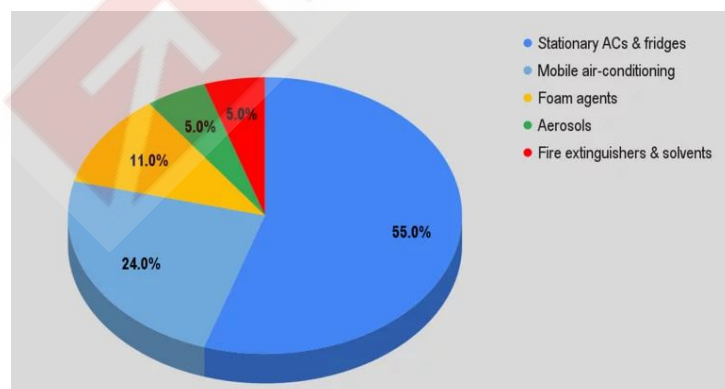


Figure 4. Source: Indian Express

Cooling emissions are essentially emissions generated from refrigerants used in appliances like ACs and refrigerators and the energy used for cooling.

### Sources of Cooling Emissions:

1. **Refrigerants:** In the past, most of the cooling appliances used chlorofluorocarbons (CFCs) as refrigerants. But it was found to be responsible for abnormally low ozone concentrations in Antarctica.

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- As such, 1987 Montreal Protocol was signed to stop the production of ozone-depleting substances, including CFCs.
  - CFCs were then replaced by hydrofluorocarbons (HFCs) and hydrochlorofluorocarbons (HCFCs). Although HFCs and HCFCs don't damage the ozone layer, they are powerful greenhouse gases.
  - **In 2016, the Kigali Amendment to the Montreal Protocol was signed to reduce HFC consumption by 80% by 2047.** If achieved, this could avoid more than 0.5 degree Celsius of global warming by 2100.
2. **Cooling Appliances:** Running cooling appliances requires electricity, which is often produced by burning fossil fuels. This releases additional greenhouse gases like CO<sub>2</sub>.
- Since 1990, the energy used for space cooling (the process of cooling indoors) has tripled and is expected to continue increasing significantly.

### What is the contribution of cooling emissions to greenhouse gas emissions?

1. Cooling emissions currently **account for about 7% of global greenhouse gas emissions.**
2. But as global warming worsens, the demand for cooling will increase dramatically, which will create more warming in a destructive vicious cycle.
3. According to a report by the United Nations Environment Programme (UNEP) and the IEA, the number of global cooling devices is expected to jump from 3.6 billion to 9.5 billion by 2050.

## Subject: Reports & Indices

### Dynamic Ground Water Resource Assessment Report 2023

#### Why in the News?

The Union Minister of Jal Shakti has released the Dynamic Ground Water Resource Assessment Report for the entire country for the year 2023.

#### What is Dynamic Ground Water Resource Assessment Report?

1. **Aim**- To determine the prevailing status of groundwater resources and the impact of ongoing groundwater management practices.
2. Conducted jointly by Central Ground Water Board (CGWB) and States/UTs.
3. Previously carried out in 1980, 1995, 2004, 2009, 2011, 2013, 2017, 2020 and 2022

#### What are the Highlights of Dynamic Ground Water Resource Assessment Report 2023?

1. **Increase in ground water recharge:** Total annual ground water recharge is 449.08 billion cubic meters (BCM), marking an increase of 11.48 BCM compared to 2022.
2. **Increase in annual ground water extraction:** Total annual ground water extraction for the entire country is 241.34 BCM.
3. **Decrease in stage of groundwater extraction level:** Currently stands at 59.23%.
4. **Note-** Stage of groundwater extraction is a measure of annual ground water extraction for all uses (irrigation, industrial and domestic uses) over annual extractable ground water resource
5. **Out of total 6553 assessment units-**
  - **736 units (11.23%) have been categorized as 'Over-exploited'** (where the annual ground water extraction is more than annual extractable ground water resource), witnessing a decline.
  - 4793 units categorized as 'Safe'

## NCRB Report 2022

### Why in the News?

Recently, NCRB has released the annual Crime in India report and the Accidental Deaths and Suicides in India (ADSI) report for 2022.

### What are the Major Findings of the Crime in India report?

#### Increase in Cyber Crimes

1. It indicated a **24% surge in cyber-crimes across India** compared to 2021.
2. **Bengaluru ranked the highest in cyber-crimes.** OTP and online bank frauds were the most common cybercrimes reported in the city
3. **Cybercrime cases in Delhi almost tripled in 2022.** Most of the crimes related to offences such as publication and transmission of content depicting children in sexually explicit acts in electronic form.

#### Increase in crimes against SC and ST

1. It showed overall increase in crimes and atrocities committed upon Scheduled Castes (SC) and Scheduled Tribes (ST)
2. **Madhya Pradesh and Rajasthan continued to figure at the top** with the highest incidents of crimes and atrocities committed upon SCs and STs.
3. Mizoram, which had reported no cases of atrocities against either SCs or STs in 2021, reported 34 cases of atrocities in 2022.

#### Increase in UAPA cases

1. A 25% increase in cases registered under the Unlawful Activities Prevention Act (UAPA) suggests an increase in offences against the State.
2. It also shows dip in sedition cases after Supreme Court 2022 Judgement to keep sedition cases in abeyance.

#### Fake currency notes crimes

Government authorities seized counterfeit Indian currency notes worth over ₹342 crore in 2022, most of which are Rs.2000 currency notes, followed by Rs.500 notes.

### What are the Major Findings of the Accidental Deaths and Suicides in India report?

#### Increase in suicide rate

1. India reported a total of over 1.7 lakh suicides in 2022, nearly **one-third of whom were daily wage earners, agricultural labourers, and farmers.**
2. The **maximum suicides in the year were reported from Maharashtra** (22,746), Tamil Nadu (19,834), Madhya Pradesh (15,386), Karnataka (13,606), Kerala (10,162), and Telangana (9,980).

#### Common causes of suicides-

The report pointed out that the **most common causes for suicides reported in 2022 were “family problems” and “illness”**, which together accounted for almost half of all suicides in the year. This was followed by drug abuse, alcohol addiction, and marriage related issues.

## Glaciers shrank 1 meter a year in a decade: WMO

### Why in the News?

A recent report by World Meteorological Organisation 'The Global Climate 2011-2020: A Decade of Acceleration' highlights the impact of climate change from 2011-2020.

### What are the Key highlights of the report?

1. The 2011-2020 decade, **despite being the warmest recorded, saw the lowest number of deaths** from extreme events. The decade marked the first since 1950 without a single short-term event causing 10,000 deaths or more.
2. Improved early warning systems, forecasting, and disaster management contributed to the decrease in casualties. India benefited from improved cyclone forecasting, enhancing preparedness and evacuation measures
3. The **ozone hole visibly showed signs of recovery for the first time during this decade.**
4. **Glaciers globally shrank by approximately 1 meter per year on average** from 2011 to 2020. – Greenland and Antarctica lost 38% more ice from 2011 to 2020 compared to the 2001-2010 period.
5. While heatwaves were responsible for the highest number of human casualties, tropical cyclones caused the most economic damage.
6. **Public and private climate finance nearly doubled during the decade.** But it needed to increase by at least seven times by the end of 2011-20 to achieve climate objectives, including limiting global temperature rise to 1.5 degrees Celsius.

## Subject: Art & Culture

### The art of Tantric Buddhism

### Why in the News?

The recently published book 'Buddhism: A journey through art', written by R. M. Woodward, looks at Asia's Buddhist art traditions, especially Tantric Buddhist painting and sculpture.

### What is Tantric Buddhism?

Tantric Buddhism, **also known as Vajrayana Buddhism**, is a form of Buddhism that developed in India and later spread to Tibet, Bhutan, Mongolia, and other regions.

### Key aspects of Tantric Buddhism-

1. Vajrayana Buddhism is regarded as the **third turning of the wheel of Dharma**
2. It views enlightenment as something that can be attained in a single lifetime.
3. It draws upon elements of Mahayana Buddhism but also includes unique practices and teachings, such as tantra, deity yoga, meditative techniques, and esoteric rituals.
4. This school claims that Tantras, Mantras, and Yantras are superior vehicles to liberation since they contain numerous sophisticated tantric ritual practices.
5. **Schools of Tantric Buddhism-** The four main schools are **Nyingma, Kagyu, Sakya and Gelug** (Gelug is the newest and most dominant school of the Vajrayana schools and Nyingma is the oldest)

6. **Dieties**

- Tantric Buddhism incorporates a rich pantheon of deities, each representing different aspects of the enlightened mind. Common deities include **Tara, Avalokiteshvara, Manjushri, and Vajrapani.**

7. This tradition is also **known for its colourful and intricate mandalas, as well as its association with the Dalai Lama** (considered the highest lama of the Gelug school)

**What is the significance of art in Tantric buddhism?**

Tantric Buddhism uses art for teaching, healing, and meditation. In tantrism, art is seen as a powerful instrument for aiding spiritual development through rituals. Paintings of deities are used as a tool to evoke the subject or in some cases to make contact directly.



**Navy of Ancient India**

**Why in the News?**

PM Narendra Modi, on the occasion of Navy Day (December 4), highlighted Shivaji's naval power.

**What is the history of Shivaji's Naval Power?**

1. Chhatrapati Shivaji Maharaj, the great Maratha ruler, is considered by many as the 'Father of the Indian Navy'. It is him who laid the foundation of a modern navy in India.
2. **Birth of the Maratha Navy (1661-1663):** Between 1661 and 1663, the Maratha Navy came into existence, and at its peak included 400-odd ships of various kinds and sizes.
3. **Philosophy of Naval Dominance:** Historians note that his vision for the navy was based in his belief – "Jalameva yasya, balameva tasya", which translates to "He who rules over the seas is all powerful"
4. **Construction of multiple naval forts-** Between 1653 and 1680, Shivaji ordered the construction of multiple naval forts, starting with the Vijaydurg in 1653, and followed by the likes of Sindhudurg and Kolaba. They were used to keep a watch on enemies approaching via the seas.
5. **Limitation of this navy:** While the Marathas could hold their own in littoral waters but could not challenge European naval power in the high seas.

## Garba of Gujarat makes it to UNESCO Intangible Cultural Heritage list

### Why in the News?

Garba has been included in the UNESCO list of Intangible Cultural Heritage. It is the 15th cultural item from India to make it to the UNESCO list of Intangible Cultural Heritage.

**Note:** Kolkata's Durga Puja was the last one added two years ago.

### What is Garba?



Specifications	Details
What is it	Garba is a ritualistic and devotional dance performed in Gujarat and across India.
Performed during	It is performed on the occasion of the festival of Navratri which is <b>dedicated to the worship of feminine energy or 'Shakti'</b> .
Features	<ol style="list-style-type: none"> <li>1) The word Garba means womb, with the dance signifying life.</li> <li>2) The dance is traditionally performed around a centrally lit clay lantern called the Gabra, which represents the goddess of power who remains constant throughout time.</li> <li>3) The dancers form a ring around the central lamp and revolve in circles. It represents the cycle of time from birth to death and rebirth</li> </ol>
Attire	The garba dancers wear colourful traditional costumes. Women dress up in Chaniya choli and men wear kafni pyjamas and Ghagra.
Significance	The dance is inclusive, attracting people of all ages and backgrounds and emphasizes community participation.

## Mera Gaon Meri Dharohar Project

### Why in the News?

The Ministry of Culture has launched the 'Mera Gaon Meri Dharohar' (MGMD) project for cultural mapping and documentation of villages across India.

### What is Mera Gaon Meri Dharohar (MGMD) Project?

1. It is a pan-India initiative **under National Mission on Cultural Mapping**.
2. It has been initiated by the Ministry of Culture in coordination with Indira Gandhi National Centre for the Arts (IGNCA).
3. The main objective of project is to culturally map India's 6.5 lakh villages, spanning 29 States and 7 Union Territories, on a comprehensive virtual platform.
4. **Web portal**– A web portal on MGMD has also been launched, showcasing essential information about each village, including its geographical location, demographic aspects, and description of traditional dresses, ornaments, arts and crafts, temples, fairs, festivals, etc.
5. This will **allow users to take virtual village tours and immerse themselves in the diverse and rich culture of India**.
6. The core idea behind this project is to encourage appreciation for India's culture and traditions, paving way for economic growth, social harmony, and artistic development in rural communities.
7. Under the MGMD, information is collected under following broad categories –
  - a) Arts and Crafts Village.
  - b) Ecologically Oriented Village, **for example- Bishnoi village in Rajasthan (famous for living in harmony with Blackbucks)**.
  - c) Scholastic Village linked with Textual and Scriptural Traditions of India.
  - d) Epic Village linked with Ramayana, Mahabharata and/or Puranic legends and oral epics.
  - e) Historical Village linked with Local and National History, **for example- Kandel (Madhya Pradesh) is famous for 'Jal Satyagraha', Suketi in Himachal Pradesh has Asia's oldest fossil park.**
  - f) Architectural Heritage Village.

## Lakadong turmeric from Meghalaya gets Geographical Indication tag

### Why in the News?

Meghalaya's Lakadong turmeric, Garo Dakmanda (traditional dress), Larnai pottery and Garo Chubitchi (alcoholic beverage) has been awarded the Geographical Indication (GI) tag.

### What is Lakadong Turmeric?

Specifications	Details
What is it	A variety of turmeric <b>grown in the Lakadong area of Jaintia Hills, Meghalaya</b>
Key Characteristics	1) It is darker in colour. 2) It is known for its high curcumin content of around 6.8% to 7.5% compared to

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	the 2-5% found in regular turmeric varieties. 3) It is grown organically without the use of fertilisers.
<b>Recognition</b>	Lakadong Turmeric <b>Farmer Trinity Saioo was awarded the Padma Shri in 2021</b> for encouraging farmers in the state to take up cultivation of the turmeric.
<b>Significance</b>	1) Boost the competitiveness of Lakadong farmers in domestic and international markets. 2) Will give access to customers to the authentic product. 3) It will provide farmers with a better market price.

### What are the other products that received GI Tag from Meghalaya?

1. **Garó Dakmánda:** It is a hand-woven lower garment which is part of the traditional attire of Garó women in Meghalaya.
2. **Garó Chubitchi:** It is an alcoholic beverage consumed by the Garó community during feasts and ceremonies. It is a rice-based fermented drink.
3. **Lárnai Pottery:** It is a type of pottery made of black clay. The art form has been passed down through generations.

## Subject: Geography and Places in News

### Cyclone Michaung: A.P. braces for heavy rainfall as Michaung intensifies

#### Why in the News?

Andhra Pradesh and Tamil Nadu are preparing for heavy rainfall in their coastal districts as Cyclone Michaung intensified over the Bay of Bengal.

#### What is Cyclone Michaung?

1. Cyclone Michaung is the **fourth tropical cyclone of the year over the Bay of Bengal**. The other three were- Mocha, Hamoon, Midhili.
2. India Meteorological Department (IMD) classified it as a **severe cyclonic storm**.
3. The name of the cyclone '**Michaung**' was proposed by Myanmar, which signifies resilience and fortitude.

#### What are Tropical Cyclones?

1. Tropical cyclones are violent storms that originate over oceans in tropical areas and move over to the coastal areas.
2. The winds circulate in an anti-clockwise direction in the Northern Hemisphere and in a clockwise direction in the Southern Hemisphere.
3. They are associated with large-scale destruction caused by violent winds, very heavy rainfall, and storm surges.



## Indonesia's Volcano Mount Marapi erupts: 11 of 26 hikers dead, 3 rescued

### Why in the News?

Mount Marapi, an active volcano situated on Sumatra Island in Indonesia, has erupted again, causing deaths of many.

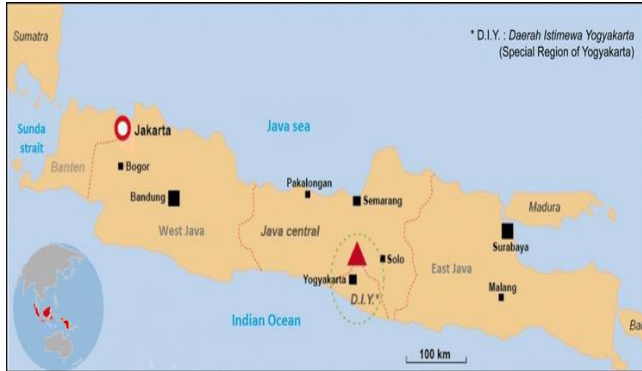


Figure 6. Source— researchgate

### What is Mount Marapi?

1. Mount Marapi, is an active stratovolcano **located in Central Java, Indonesia** that has erupted regularly since 1548.
2. It stands 2,891m (9,485ft) high and is situated at a subduction zone, where the Indo-Australian Plate is subducting under the Eurasian Plate.
3. Indonesia, **part of the Pacific Ring of Fire**, experiences significant volcanic and seismic activity, boasting nearly 130 active volcanoes.

## Critical minerals: Auction and its importance

### Why in the News?

In November 2023, the Government started the first ever critical minerals auction process for commercial mining by the private sector. **This is the first time that rights related to the mining of lithium ore are also being auctioned to private parties.**

### What are Critical Minerals?

1. These are minerals that are essential for economic development and national security, and the lack of availability of these minerals could potentially lead to supply chain vulnerabilities.
2. **In July 2023, the Government listed 30 minerals as 'Critical Minerals'.** This includes lithium, rare earth elements, graphite, etc.

### How are these Critical Minerals being Auctioned?

1. The auctions **involve 20 blocks are spread over eight states** (Tamil Nadu, Odisha, Bihar, Uttar Pradesh, Gujarat, Jharkhand, Chhattisgarh, and Jammu & Kashmir)
2. Of these, 4 blocks are being auctioned for a Mining Licence (ML) and the remaining 16 blocks for a Composite Licence (CL).

#### Note-

- a. **Mining Licence:** once the licence is granted, the licensee can begin mining operations after obtaining the requisite clearances.
  - b. **Composite Licence:** allows the licensee to conduct further geological exploration of the area to ascertain evidence of mineral contents. Based on its findings, they can make an application to the relevant state government to convert their CL to an ML.
- 3.

## Subject: Miscellaneous

### Mahe Class Ships: Three anti-submarine warfare ships for Indian Navy launched

#### Why in the News?

Cochin Shipyard Limited has launched three ships in the series of eight Mahe class Anti-Submarine Warfare Shallow Watercrafts (ASW SWC) for the Indian Navy. **These three ships have been named INS Mahe, INS Malvan and INS Mangrol.**

#### What are Mahe Class Ships?



Source: TOI

Specifications	Details
What is it?	These are Anti-Submarine Warfare Shallow Watercrafts (ASW SWC).
Purpose	To undertake anti-submarine operations in coastal waters, Low Intensity Maritime Operations (LIMO) and Mine Laying Operations.
Built by	Cochin Shipyard Limited
Built for	Indian Navy
Replaces	Abhay class Anti-Submarine Warfare (ASW) corvettes
Number of ships being built	Eight
Named after	Ports of strategic importance along the coast of India
Features	1)The ships are 78 m long with a maximum speed of 25 knots. 2)They can carry 57 personnel. 3)The ships have over 80% indigenous content.This ensures that large scale defense production is executed by Indian manufacturing units.

## MAHASAGAR: Indian Navy's outreach initiative between Maritime Heads

### Why in the News?

Indian Navy has successfully conducted the first edition of the MAHASAGAR: Indian Navy's outreach initiative between Maritime Heads.

### What is MAHASAGAR?

Specifications	Details
Hosted by	Indian Navy
Purpose	It is a high-level interaction between the Maritime Heads of the Indian Ocean Region.
Full Form	Maritime Heads for Active Security and Growth for All in the Region.
Aim	To promote security and growth for all in the Indian Ocean Region
Participating countries	Bangladesh, Comoros, Kenya, Madagascar, Maldives, Mauritius, Mozambique, Seychelles, Sri Lanka and Tanzania
Theme	'Collective Maritime Approach towards Countering Common Challenges'
Significance	This interaction is in line with the Government of India's vision of <a href="#">SAGAR(Security and Growth for All in the Region)</a> .

## SANDHAYAK

### Why in the News?

Sandhayak, the first of four Survey Vessel (Large) ships, was delivered to the Indian Navy.

### What is Sandhayak?

Specification	Details
What is it?	Survey Vessel (Large)
Built by	Garden Reach Shipbuilders & Engineers (GRSE), Kolkata
Zone of Operation	Its zone of operation <b>includes maritime limits upto EEZ/</b> extended continental shelf
Functions	1) The primary role of the ship would be <b>full scale coastal and deep-water Hydrographic Survey of Port/ Harbour approaches and determination of navigational channels/ routes</b> 2) The ships will collect oceanographic and geophysical data for defence and civil applications.

## Factly Compilation for the Month of December (First Week) 2023

	3) In their secondary role, ships will provide limited defence and function as Hospital ship during war/ emergencies
<b>Features</b>	<ol style="list-style-type: none"><li>1) It has a displacement of about 3400 tons and an overall length of 110 meters</li><li>2) Sandhayak is fitted with state of the art hydrographic equipment such as Data Acquisition and Processing System, Autonomous Underwater Vehicle, Remotely Operated Vehicle etc.</li><li>3) Powered by two Diesel Engines, the ship is capable of achieving speeds in excess of 18 knots.</li><li>4) <b>Sandhayak has an indigenous content of over 80% by cost</b></li></ol>