



# the **CATALYST**

A Monthly Publication for Current Affairs

APRIL - MAY 2023



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# The CATALYST

**DIRECTOR:** S. SIVARAJAVEL

**EDITOR:** P. Mohan

**SUB-EDITOR:** Manivannan.S

**EDITORIAL TEAM:**

J.J. Deepak, S. Infency,  
N. Shanmuga Priya,  
M.Ravimuthu, RajanSurya.M  
Elavenil M

**DESIGNER:** Thomas Kalaivanan

**COVER DESIGN:** P.Mohan

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<https://www.youtube.com/c/SivarajavelIASAcademy>

## HEAD OFFICE

No.97, AF Block, Shanthi Colony, 12th Main Road,  
Anna nagar West, Chennai – 600 040

**Ph: 9626364444**

## TIRUNELVELI

No.106B, 3rd floor, Gilgal Complex, VOC ground opposite,  
Palayamkottai - 627 002.

**Ph: 9626252500**

## TRICHY

No.143, 4th Floor, Lakshmi Complex, Salai Road,  
Thillai Nagar, Trichy - 620 018.

**Ph: 9751500300 / 9786500300**

The CATALYST is a monthly magazine for current affairs which tries to give aspirants an in-depth comprehension of certain topics which appeared in different sources over the month. The Magazine has been designed in such a way that the reading experience is enriching and insightful for the readers.

The contents have been grouped into a thematic structure to help aspirants focus on the overall GS syllabus.

## Inside The Catalyst Magazine

- I. Within the Sub themes first few topics will be Prelims oriented followed by indepth coverage of Mains Topics.
- II. Book Summary Relevant for UPSC Exam.
- III. Fact Sheet and Quotes have also been provided.

*\*New sections will be added or removed based on the new updates we include in the forthcoming issues.*

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**SIVARAJAVEL IAS ACADEMY**  
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# the **CATALYST**

## From the Editor's Desk

Dear Readers,

Prelims 2023 is over. First of all, we congratulate those who made it this time.

This year, the 'innovative' pattern of questions in GS left little room for qualitative knowledge and the frustration about difficult CSAT too continues. Further, the results bring a mixture of emotions; elated, relieved, disappointed or distraught. Keeping our emotions aside, let's make an objective assessment.

UPSC is full of surprises, the good and the bad; be prepared for that. Though it has the discretion to frame questions in any way, this exam is relative and subjective. If it is tough for you, it is for everyone. If all perform the worst, then those who perform badly will be selected. You need to be in the top 10000+.

"We cannot control the mountain; we control our climb." Have control over your emotions and control only what is within your power. Don't let this hurt your ego, peace of mind and self-belief. If a tough prelims paper is enough to break your spirit, how will a rigorous mains paper not break you? So, let's focus on preparing for the mains before taking up prelims again.

In the next 3 months, 'Make yourselves Mains- Ready.' Work on your Optional subject and practice writing. Aspirants commit the mistake of WAITING TILL THEY CLEAR PRELIMS which is counterproductive.

*"Failure is only the opportunity to begin again more intelligently." – Henry Ford.*

Join our Mains Exclusive Initiative called 'METIS' and get your papers evaluated on time with personalised mentorship. Study Materials and Daily questions for practice will be provided in the telegram Channel: <https://t.me/srvmetis>

In this May Issue (From April 1 to May 31, 2023, Current Affairs), we have covered a range of topics with special emphasis on the Manipur crisis, India's Space Policy 2023 and other Facts related to Prelims.

We are constantly motivated by the reception given by our dear readers. We aspire to enrich the forthcoming issues. All feedback is welcome and suggestions to improve the magazine can be sent to [sivarajaveliasacademy@gmail.com](mailto:sivarajaveliasacademy@gmail.com).

Sincerely,  
P.Mohan

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# POLITY & GOVERNANCE

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# NATIONAL MEDICAL DEVICES POLICY 2023

## Why in the News?

The Union Cabinet approved the National Medical Devices Policy, 2023. The policy is expected to facilitate an orderly growth of the medical device sector to meet the public health objectives of access, affordability, quality, and innovation.

## About Medical Devices Sector

The medical devices sector in India is a **sunrise sector** which is growing at a fast pace. It is an essential and integral constituent of the Indian healthcare sector, particularly for the prevention, diagnosis, treatment and management of medical conditions, diseases, illnesses, and disabilities.

The medical device is a **multi-product sector**, with the following broad classifications:

Electronics Equipment

Implants

Consumables and Disposables

IVD reagents

Surgical Instruments

The current market size of the medical devices sector in India is estimated to be **\$11 bn** and its share in the global medical device market is estimated to be 1.5%.

## Need for a Holistic Framework for Medical Devices

The Government of India has already initiated implementation of PLI Scheme for medical devices and support for setting up of **4 Medical devices Parks** in the States of Himachal Pradesh, Madhya Pradesh, Tamil Nadu and Uttar Pradesh.

Under the PLI scheme for Medical Devices, till now, a total of 26 projects have been approved, with a committed investment of 1200 crore.

There is a need to bring together the range of interventions in a coherent manner that would facilitate focused and efficient support and facilitation for the sector by the respective agencies.

## Salient Features of National Medical Devices Policy, 2023

### Vision

Accelerated growth path with a patient-centric approach;

To emerge as the global leader in the manufacturing and innovation of medical devices by achieving 10-12% share in the expanding global market over the next 25 years;

To help the Medical Devices Sector grow from present \$11 Bn to \$50 Bn by 2030.

Medical devices sector will be facilitated and guided through a set of strategies that will cover six broad areas of policy interventions –

### Regulatory Streamlining

In order to enhance ease of doing research and business and further to balance patient safety with product innovation measures.

### Enabling Infrastructure

The establishment and strengthening of large medical device parks, clusters equipped with world class common infrastructure facilities in proximity to economic zones with requisite logistics connectivity.

### Facilitating R&D and Innovation

The policy envisages to promote Research & Development in India and complement the Department's proposed National Policy on R&D and Innovation in the Pharma- MedTech Sector in India.

It also aims at establishing Centres of Excellence in academic and research institutions, innovation hubs, 'plug and play' infrastructures and support to start-ups.

### Attracting Investments

Along with present schemes and interventions like Make in India, Ayushman Bharat program, Heal-in-India, Start-up mission, the policy encourages private investments, series of funding



from Venture Capitalists, and also Public-Private Partnership(PPP).

### Human Resources Development

For skilling, reskilling and upskilling of professionals in the medical device sector, we can leverage the available resources in Ministry of Skill Development and Entrepreneurship.

The policy will support dedicated multidisciplinary courses for medical devices in existing institutions.

To develop partnerships with foreign academic/industry organizations to develop medical technologies in order to be in equal pace with the world market.

### Brand Positioning & Awareness Creation

Initiate studies and projects for learning from best global practices of manufacturing and skilling system so as to explore the feasibility of adapting such successful models in India.

Promote more forums to bring together various stakeholders for sharing knowledge and build strong networks across the sector.

The policy is expected to provide the required support and directions to strengthen the medical devices industry into a competitive, self-reliant, resilient and innovative industry that caters to the healthcare needs of not only India but also of the world.

## NATIONAL PARTY STATUS TO AAP

### Why in the News?

The Election Commission has recognised the Aam Aadmi Party (AAP) as a national party and withdrawn the national party status of the All India Trinamool Congress, Nationalist Congress Party (NCP) and the Communist Party of India (CPI).

### About

At the time of the first General Elections (1952), there were 14 national parties in India. Now the country has Six national parties-

- Bahujan Samaj Party,
- Bhartiya Janta Party (BJP)
- National People's Party (NPP)
- Communist Party of India (Marxist),
- Indian National Congress,
- Aam Aadmi Party (AAP).

### Who grants National Party status?

The Election Commission of India (ECI) registers political parties for the purpose of elections and grants them recognition as national or state parties on the basis of their poll performance. The other parties are simply declared as registered-unrecognised parties.

As per the Representation of People Act 1951, Registered political parties, in course of time, can get recognition as 'State Party' or 'National Party'.

### Criteria for a National Party Status

According to the Election Commission, any of these three conditions need to be met if a party is to be called a "national party".

A party's candidates in a minimum of four states must get at least 6 per cent of the total votes polled in each of those states in the last national election. In addition to this, it should have won four seats in the Lok Sabha.

A party should win a minimum of 2 percent of the total seats in the Lok Sabha. The party's candidates should have been elected from not less than three states.

A party is recognised as a "state party" in at least four states.

### What is the Significance of Being Declared a National/State Party?

A recognised party (national or state) has the right to certain privileges like allocation of the party symbols, provision of time for political broadcasts on the state-owned television and radio stations and access to electoral rolls.

These parties are allowed to have 40 “star campaigners” during the time of elections (the registered-unrecognised parties are allowed to have 20 “star campaigners”).

Every national party is allotted a symbol exclusively reserved for its use throughout the

country. Even in the states where it is not contesting elections.

For a state party, the allotted symbol is exclusively reserved for its use in the state/s in which it is so recognised.

## COASTAL AQUACULTURE AUTHORITY (AMENDMENT) BILL 2023

### Why in the News?

The Government has recently introduced the Coastal Aquaculture Authority (Amendment) Bill 2023 to **promote ease of doing business**.

### What is Coastal aquaculture ?

Coastal aquaculture refers to culturing or cultivating, under controlled conditions in ponds, pens and enclosures or in coastal areas of shrimp, prawn, fish or any other aquatic life in saline or brackish water. Coastal aquaculture does **not** include **freshwater aquaculture**.

### What is the Coastal Aquaculture Authority Act 2005?

Coastal Aquaculture Authority - The 2005 Act introduced the Coastal Aquaculture Authority (CAA).

The main objective of the Authority is to regulate coastal aquaculture activities in coastal areas in order to endure sustainable development without causing damage to the coastal environment.

The authority consists of a Chairperson who is a current or former HC judge being an expert in coastal aquaculture.

The members will be nominated by the  
Central Department of Ocean Development  
Ministry of Environment and Forests  
Ministry of Agriculture  
Ministry of Commerce

4 members representing coastal States on a rotation basis and one member secretary.

Coastal area - It refers to the area declared as the Coastal Regulation Zone (CRZ), and includes such other areas as the Central Government may notify under Environment Protection Act 1986.

*India is the 3rd largest fish producing country in the world accounting for 8% of global production and contributing about 1.09% to the country's Gross Value Added (GVA) and over 6.7% to the agricultural GVA.*

### What are the new provisions of the amendment bill 2023?

Definition - It broadens the definition of coastal to include rearing and cultivation of any life stages of fish including crustacean, mollusc, finfish, seaweed or any other aquatic life.

Environment friendly - It encourages environment friendly aquaculture such as cage culture, seaweed culture, bi-valve culture, marine ornamental fish culture and pearl oyster culture.

It has the potential for creating employment opportunities for coastal fisher communities, especially fisherwomen.

Brood stocks - It encourages the establishment of facilities in areas having direct access to seawater to produce genetically improved and disease-free brood stocks and seeds for use in coastal aquaculture.

Brood stock or brood fish are a group of

mature individuals used in aquaculture for breeding purposes.

Brood Stock Multiplication Centre - The center will be used to rear marine organisms under strict biosecurity and disease surveillance.

Usage of antibiotics - The Bill seeks to prevent the use of antibiotics and pharmacologically active

substances which are harmful to human health in coastal aquaculture.

Biosecurity - It introduces measures for analyzing and preventing the risk of introducing or spreading harmful organisms like viruses and bacteria within the coastal aquaculture unit.

## CINEMATOGRAPH (AMENDMENT) BILL 2023

### Why in the News?

The Union Cabinet recently approved the Cinematograph (Amendment) Bill 2023, which has provisions to curb the transmission of pirated film content on the Internet.

### About

The Cinematograph (Amendment) Bill 2019 was introduced in the Rajya Sabha on 12th February

It was referred to the Standing Committee on Information Technology which presented its report on 16th March 2020.

The Cinematograph (Amendment) Bill, 2023, was prepared after seeking public comments, followed by several rounds of stakeholder consultations.

It will be introduced in the Parliament during the upcoming monsoon session.

### About Cinematograph (Amendment) Bill 2023

It seeks to amend the Cinematograph Act 1952.

It has provisions for harsher punishment for film piracy and the **introduction of new-age categories for classifying films.**

#### Film Classification:

It has provisions to classify films on the basis of age group instead of the current practice of rating them “U” (unrestricted public exhibition), “A” (restricted to adult audiences), and “UA” (unrestricted public exhibition subject to parental guidance for children below the age of 12).

The amendments seek to add new classifications – ‘UA-7+’, ‘UA-13+’, and ‘UA-16+’ **in place for 12 years.**

It also seeks to bring about uniformity in categorisation of films and content across platforms.

#### Stricter Laws Against Piracy:

The Bill holds stricter punishment for those responsible for piracy. This includes three years of imprisonment and a Rs 10 lakh penalty for those engaged in piracy.

Once the Bill is released, the act of piracy will be considered an offence legally and will include even transmitting pirated content punishable.

### Cinematograph Act 1952

It was enacted by the Parliament to ensure that films are exhibited in accordance with the limits of tolerance of Indian society.

It establishes the **Central Board of Film Certification** (CBFC, popularly known as the censor board) appointed by the Central Government to sanction and certify films.

The Board scrutinizes the film in its entirety and based on the contemporary standard of Indian society following the procedure laid down under the Act.

Board can either make a speaking order of rejection or grant the certificate, which shall be valid for ten years.

The Act also authorizes the police to conduct search and seizure if the film is being exhibited in contravention of any of the provisions of the Act.

## BHU-AADHAR

### Why in the News?

The Department of Land Records (DoLR) has informed that at least 26 States and UTs have adopted the Unique Land Parcel Identification Number (ULPIN) or Bhu-Aadhar and seven more States are conducting a pilot test of the project.

### About

The Indian government is aiming to digitize 100 per cent of land records by 2024.

The Bhu-Aadhaar or Unique Land Parcel Identification Number ULPIN is a “**14-digit alpha-numeric number** generated based on the latitude longitude of the vertices of each land parcel”. It is dependent on the detailed surveys and geo-referenced cadastral maps.

A cadastral map is a detailed and accurate map that shows the boundaries and ownership of land parcels within a specific area. It is used by governments to maintain land records and for land administration purposes, such as property tax assessment, land-use planning, and resolving land disputes.

It is designated to be the “single, authoritative source of truth of information on any parcel of land or property to provide integrated land services to the citizens as well as all stakeholders”.

It is a part of Digital India Land Records Modernisation Programme (DILRMP), which was launched in 2008 as a Central Sector scheme under the Ministry of Rural Development.

### Benefits

Will help mitigate the huge pendency of court cases (66 percent of all civil suits in India are related to land or property disputes);

Reduce the GDP loss (about 1.3% of GDP) due to projects being stalled over litigation involving

land disputes;

Sharing of land records data across departments, financial institutions, and stakeholders; help develop land banks; and

lead towards Integrated Land Information Management System (ILIMS).

### Other important initiatives for land records

#### Bhu-Naksha initiative

The Bhu-Naksha project introduced in 2022 is another project under the Digital India Land Record Modernisation Programme implemented in 2016.

The Bhu-Naksha initiative provisions for mapping boundaries and conducting spatial measurement of land to computerize land records and produce digitized maps of a region with parcels of demarcated land.

These maps are editable based on the results of property divisions in G2G (govt to govt) and G2C (govt to citizen) domains.

These parcels of land are then identified by a Bhu-Aadhaar number.

#### National Generic Document Registration System (NGDRS)

As many as 28 States and Union Territories (UTs) in the country have adopted the National Generic Document Registration System (NGDRS).

NGDRS is a digital portal for maintaining land records.

The NGDRS is an application developed for allowing people to buy land online via electronic registration of property and documents. The project was initiated by the Department of Land Resources under the aegis of the Ministry of Rural Development.

## INDIA JUSTICE REPORT (IJR) 2022

India Justice Report (IJR) is an initiative of Tata Trusts in collaboration with Centre for Social Justice, Common Cause and Commonwealth

Human Rights Initiative among others. It was first published in 2019.

It assesses the capacity of 4 core pillars of the justice system:

- Police
- Prisons
- Judiciary
- Legal aid

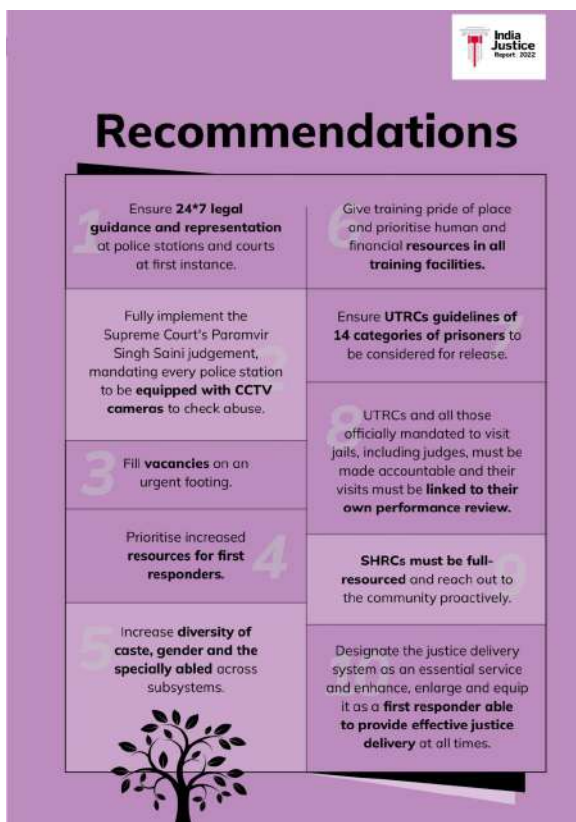
Each pillar was analyzed through the prism of budgets, human resources, workload, diversity, infrastructure and trends against the state’s own declared standards and benchmarks. The Report is a collaborative effort undertaken in partnership with DAKSH, Vidhi Centre for Legal Policy, TISS-Prayas, etc. The IJR 2022 also separately assesses the capacity of the 25 State Human Rights Commissions in the country.

Karnataka has achieved the top rank among the 18 large and mid-sized states in delivery of justice with populations over one crore. Tamil Nadu has ranked in the second position; Telangana third; and Uttar Pradesh is at rank 18 which is the lowest. The list of 7 Small States with a population less than one crore each, was topped by Sikkim which was ranked second in 2020. Sikkim has been followed by Arunachal Pradesh and Tripura. The State of Goa is at rank Seven which is the lowest.

The Indian judiciary is facing a severe shortage of judges and infrastructure, leading to rising pendency, increasing caseloads, and declining case clearance rates (CCR) in lower courts. As of December 2022, the High Courts were functioning

with only 778 judges against a sanctioned strength of 1,108 judges.

The number of cases pending per judge is rising in most states over the last five years, while the sanctioned strength has remained the same. The average pendency in High Courts is highest in Uttar Pradesh (11.34 years) and West Bengal (9.9 years), while it is lowest in Tripura (1 year), Sikkim (1.9 years), and Meghalaya (2.1 years).



# WORLD PRESS FREEDOM INDEX 2023

## Why in news?

The 20th World Press Freedom Index published by Reporters Without Borders (RSF) reveals a two-fold increase in polarisation amplified by information chaos – that is, media polarisation fuelling divisions within countries, as well as polarisation between countries at the international level.

## About

On the World Press Freedom Day (WPDF)

(3rd May), the World Press Freedom Index 2023 was published by Reporters Without Borders (RSF). India ranked 161st among the 180 countries with a score of 36.62. In 2022, India’s rank was 150.

## World Press Freedom Index

It has been published every year since 2002 by **Reporters Without Borders or Reporters Sans Frontieres (RSF)**.

RSF is an independent NGO based in Paris that has consultative status with the **United**

Nations, UNESCO, the Council of Europe, and the International Organisation of the Francophonie (OIF). Founded in 1985... RSF is at the forefront of the defence and promotion of freedom of information.

OIF is a 54 french speaking nations collective.

The report ranks **180 countries** based on **their level of press freedom, taking into account factors such as censorship, media independence, and the safety of journalists.**

However, it is not an indicator on the quality of journalism.

The Index's rankings are based on a score ranging from 0 to 100 that is assigned to each country or territory, with **100 being the best possible score** (the highest possible level of press freedom) and 0 the worst.



## Key findings

The index states in 2023 that “the environment for journalism is **‘bad’ in seven out of ten countries**, and satisfactory in only three out of ten.”

It also highlighted concerns of **propaganda fake news**, further heightened given the **rise of artificial intelligence technology**. Programmes like Midourney, which can create lifelike images based on a simple text prompt, were mentioned in this context.

Norway, Ireland and Denmark occupied the top three positions. Vietnam, China and North Korea were at the bottom on the list.

“North Korea (180th), China (179th), Vietnam (178th), Myanmar (173rd) – Asia’s one-party regimes and dictatorships are the ones that **constrict journalism the most**, with leaders tightening their totalitarian stranglehold on the public discourse,” it states, terming **China as “The world’s biggest jailer of journalists and press freedom advocates.”**

India’s position has been **consistently falling** in the index since 2016 when it was ranked 133.

The reasons behind the fall in ranking is the **increased violence against journalists** and a politically partisan media.

## SC JUDGEMENT ON BOVINE RACES

### Why in news?

A five-judge Bench of the Supreme Court on Thursday (May 18) upheld the amendments made by the legislatures of Tamil Nadu, Maharashtra, and Karnataka to The Prevention of Cruelty to Animals (PCA) Act, 1960, allowing bull-taming sports like jallikattu, kambala, and bullock-cart races.

### About

The Court in a unanimous decision by a five-judge **constitution bench** has **overruled its previous judgment of 2014 that had banned these sports on the grounds of cruelty to animals.**

### 2014 Judgement

The erstwhile ruling has also held that “**bovine sports**” were **contrary to the provisions of Sections 3, 11(1)(a) and (m) of the Prevention of Cruelty to Animals Act, 1960** which relate to the “duties of persons having charge of animals” and define animal cruelty respectively

This was the ‘**Welfare Board of India v. A. Nagaraja**’ case. An SC Bench of Justices K S Radhakrishnan and Pinaki Chandra Ghose ruled that the **Prevention of Cruelty to Animals Act, 1960 “over-shadows or overrides the so-called tradition and culture”**, and advised Parliament to

“elevate rights of animals to that of constitutional rights... so as to protect their dignity and honour”.

The judgment banned the practice of jallikattu

### Aftermath of 2014 Judgement

In 2017, Tamil Nadu amended the PCA Act to allow jallikattu in the state. The amending Act sought to preserve the cultural heritage of Tamil Nadu, and to ensure the survival and well-being of the native breeds of bulls.

Following in the footsteps of Tamil Nadu, the Karnataka cabinet in January 2017 decided to amend the PCA Act, 1960, to pave the way for kambala, a sport involving a pair of buffaloes tied to the plough and anchored by one person.



### Recent Judgement

The court observed that the amendments

introduced by the three states had received presidential assent and had incorporated additional safeguards to minimise harm to the animals.

The court noted that **these sports have been practised for centuries and are part of the cultural heritage of the people.**

The court said that it was not its role to determine whether these sports are integral to the culture or not, but to examine whether they agree with the constitutional provisions and the central legislation.

The court held that the amendments were not colourable legislation or an attempt to override its earlier judgment, but valid exercises of legislative power by the states.

The court also directed the district authorities to ensure strict compliance with the rules and regulations governing these sports.

The court also said that the 2017 amendment does not violate Articles 51-A (g) and 51-A (h), which impose duties on Indian citizens to protect the environment and develop a scientific temper, humanism, spirit of inquiry, and reform, respectively. Further, it also held that the amendment didn't violate Articles 14 (Right to Equality) and 21 (Right to Life) of the Constitution.

## SPECIAL MARRIAGE ACT

### Why in news?

A Constitution Bench of the Supreme Court is currently hearing a batch of petitions on the **recognition of same-sex marriage in India**. Among other aspects, the Court is examining arguments for a neutral reading of the **Special Marriage Act, 1954 (SMA)** to enable the recognition of a marriage between any two persons

### About

The Special Marriage Act of 1954 is an Indian legislation that provides a **legal framework for inter-religious and inter-caste marriages** in the country. The act was enacted to provide a special form of marriage for individuals who wish to **marry outside the traditional customs** and rituals

of their respective religions or castes. It governs a civil marriage where the state sanctions the marriage rather than the religion.

An earlier version of the SMA was enacted in 1872 and was later re-enacted in 1954 with provisions for divorce etc.

### Features of the Special Marriage Act, 1954:

The act allows individuals from different religions and castes to marry each other without converting to the other person's religion or caste. The applicability of the Act **extends to the people of all faiths**, including Hindus, Muslims, Sikhs, Christians, Sikhs, Jains, and Buddhists, across India.

The act emphasizes the importance of **marriage registration**. Couples intending to marry under this act are required to **give notice of their intention** to the Marriage Officer in the district where at least one of the parties has resided for a specified period.

After the notice is given, **a 30-day waiting period** is prescribed to allow any objections to the marriage to be raised. If no objections are received within this period, the marriage can be solemnized.

The Special Marriage Act **does not prescribe any particular form or ceremony** for the marriage. It can be solemnized in any form the parties involved prefer, **provided that the marriage is performed in the presence of a Marriage Officer and three witnesses**.

Both parties must meet certain conditions to marry under this act. Some of these conditions include being of a **marriageable age** (21 years for males and 18 years for females), not being within the prohibited degree of relationship, and not having a living spouse at the time of marriage.

After the marriage is solemnized, the Marriage Officer issues a marriage certificate, which serves as **legal proof of the marriage**.

The act also provides **provisions for the dissolution of marriage** through divorce, just like any other marriage under other personal laws in India.

### The 30 day notice period

The Act can provide a starting point for the expansion of marriage rights to recognise the rights of same-sex couples. However, if the **30-day notice period is retained, it may be used against same-sex couples**, just as it is often used against interfaith and intercaste couples now

The Section 6 and Section 7 of the act which enables the provisions of the marriage notice and

Objection to marriage on which the marriage can be made unsolemnized are commonly invoked to harass consenting couples

### The judgements

In 2009, the Delhi High Court, underlining the right to privacy, **struck down the practice of posting the notice of intended marriage under the SMA** to the residential addresses of both parties through the police station of the concerned jurisdiction to verify their addresses.

The **unwarranted disclosure** of matrimonial plans by two adults entitled to solemnize it may, in certain situations, **jeopardize the marriage itself**. In certain instances, it may even **endanger the life or limb of one at the other party** due to parental interference,” the Court had said.

In 2018, the Supreme Court, in **KS Puttaswamy v. Union of India**, affirmed that the right to privacy is a fundamental right. In doing so, it held that equality, dignity, autonomy and personal choices are intrinsic to privacy.

Further, in decisions such as **Shakti Vahini** (guidelines for the protection of young couples against honour killings and protection of fundamental rights), **Shafin Jahan** (prohibiting the state from interfering in the choice of partner) and **Navtej Johar** (which decriminalised consensual same-sex relationships between adults and expanded on notions of liberty, sexual autonomy and privacy) the Supreme Court has **reinforced the right to individual autonomy**, choice and self-determination in one’s personal life.

More recently, this requirement for a notice period has also been challenged. In January **2021, the Allahabad High Court** ruled that couples seeking to solemnize their marriage under the Special Marriage Act, 1954 **can choose not to publish the mandatory 30-day notice of their intention** to marry.

## MODEL PRISONS ACT

The Ministry of Home Affairs (MHA) announced that it has finalised the preparation of the Model Prisons Act, 2023, to replace the

existing 130-year-old colonial law in an attempt to shift the focus of incarceration from “retributive deterrence” to “reform and rehabilitation”.



There are “several lacunae” in the old pre-Independence act, Prisons Act of 1894 and there was “conspicuous omission” of the correctional focus in the existing Act. The Prison Act 1894 mainly focuses on keeping the criminals in custody and enforcement of discipline and order in Prisons. There is no provision for reform and rehabilitation of prisoners in this Act.

In India, prisons and the ‘persons detained therein’ are a State subject. The Model Prisons Act, 2023 may serve as a guiding document for states for adoption in their jurisdiction. The Prisoners Act of 1900 and the Transfer of Prisoners Act, 1950 are also decades-old and relevant provisions of these Acts have been assimilated in the Model Prisons Act, 2023, expecting to bring much-needed reforms to the Indian prison system and align it with international standards.

### Salient Features of the New Act:

Provisions of punishment for prisoners and jail staff for use of prohibited items such as mobile

phones in jails.

Establishment and management of high security jails, open jail (open and semi-open).

Provisions for protecting society from the criminal activities of hardened criminals and habitual offenders.

Providing legal aid to prisoners, parole, furlough and premature release to incentivize good conduct.

Security assessment and segregation of prisoners, individual sentence planning; grievance redressal, prison development board, attitudinal change towards prisoners and provision of separate accommodation for women prisoners, transgender, etc.

There are provisions for use of technology in prison administration with a view to bring transparency in prison administration, provision for videoconferencing with courts, scientific and technological interventions in prisons, etc.

## CONSENSUAL DIVORCE

### Why in the News?

The Supreme Court’s (SC) ruling on divorce matters on 1st May 2023 is seen as a good move to opt out of a bad marriage.

The Supreme Court of India has invoked its extraordinary powers under Article 142 of the Constitution to grant divorce by mutual consent to couples trapped in bitter marriages, without making them wait for the mandatory cooling-off period of six to 18 months prescribed by law.

### Highlights of the Supreme Court Observation

According to Section 13B of the Hindu Marriage Act, 1955, a couple has to wait for 6 to 18 months for a local court to annul the marriage.

The court observed that there is no point in compelling the parties to go through the futile exercise of filing a petition under Section 13B(1) of the Hindu Marriage Act, 1955 or under Section

28 of the Special Marriage Act, 1954, as the case may be, and then wait for another six months if they have already taken a conscious decision to part ways.

The court said that such a situation may lead to mental cruelty and cause more harm than good to the parties involved. The court also **clarified that this power will be exercised only in exceptional cases where there is no chance of reconciliation and both parties have mutually agreed to end their marriage.**

The court said that it will examine each case on its facts and circumstances and not lay down any general guidelines or criteria for granting divorce by mutual consent under Article 142.

### Consensual Divorce

Consensual divorce is a type of divorce that is based on the mutual agreement of both spouses to end their marriage legally and peacefully. It is the shortest, least expensive and least harmful

way of a divorce, as it avoids prolonged litigation, bitter disputes and emotional trauma.

It also benefits the children of the divorcing couple, as it reduces their exposure to parental conflict and helps them cope with the transition.

### Consensual divorce law in India

In India, consensual divorce can be obtained under two laws: the **Hindu Marriage Act 1955** and the **Special Marriage Act 1954**.

Both these laws provide for a mutual consent divorce, where the spouses have to file a joint petition in the court and satisfy the following conditions:

They have been living separately for at least one year.

They have not been able to live together and have mutually agreed to dissolve their marriage.

They have settled all their issues regarding alimony, custody, maintenance, etc.

They have given their consent voluntarily and without any coercion or undue influence.

The court will verify the consent of the parties and try to reconcile them. If the court is satisfied that the conditions are met and there is no possibility of reconciliation, it will grant a decree of divorce by mutual consent.

### Article 142 of the Constitution

Article 142 of the Constitution empowers the Supreme Court's verdicts and rulings to be enforced. It prescribes that in the performance of its jurisdiction, the top court may issue any verdict or order necessary to provide "complete justice" in just about any case before it.

This power is meant to supplement the existing legal work and not supplant it. It is conceived to meet situations which cannot be effectively and appropriately tackled by the existing provisions of law.

## DIVORCE GRANTING POWER OF SUPREME COURT

### How have courts exercised this power?

While the powers under Article 142 are sweeping in nature, SC has defined its scope and extent through its judgments over time.

### CRITICISMS:

- The power has been criticised on grounds of the separation of powers doctrine, which says that the judiciary should not venture into areas of law-making and that it would invite the possibility of judicial overreach.

- Another criticism of the powers under Article 142 is that unlike the legislature and the executive, the judiciary cannot be held accountable for its actions. The power has been criticised on grounds of the separation of powers doctrine, which says that the judiciary should not venture into areas of law-making and that it would invite the possibility of judicial overreach.

- However, the Drafting Committee of the Indian Constitution was mindful of the wide-reaching nature of the powers and reserved it only for exceptional situations, which the existing law would have failed to anticipate.

### What are the factors laid down for the "Irretrievable breakdown" of marriage?

The court should be fully convinced and satisfied that the marriage is totally unworkable, emotionally dead and beyond salvation and dissolution of marriage is the only way forward.

### Factors –

- The court laid down the following factors to determine irretrievable breakdown of marriage:

- The period of time that the parties had cohabited after marriage;

- When the parties had last cohabited;

- Nature of allegations made by the parties against each other and their family members;

- Orders passed in the legal proceedings from time to time;

- Cumulative impact on the personal relationship;

- Whether, and how many attempts were

made to settle the disputes by a court or through mediation, and when the last attempt was made.

- The period of separation should be

sufficiently long (more than 6 years is irrelevant for reconciliation)

## AMENDMENT TO THE IT (INTERMEDIARY GUIDELINES AND DIGITAL MEDIA ETHICS CODE) RULES, 2021

### What are the Key IT Rules, 2021?

Mandates Social Media to Exercise Greater Diligence:

Broadly, the IT Rules (2021) mandate social media platforms to exercise greater diligence with respect to the content on their platforms.

### Establish a Grievance Officer:

They are required to establish a grievance redressal mechanism and remove unlawful and unfitting content within stipulated time frames.

The grievance officer of the platform's redressal mechanism is responsible for receiving and resolving complaints of the users.

Ensuring Online Safety and Dignity of Users:

Intermediaries shall remove or disable access within 24 hours of receipt of complaints of contents that exposes the private areas of individuals, show such individuals in full or partial nudity or in sexual act or is in the nature of impersonation including morphed images etc.

Educating Users about the Privacy Policies:

The privacy policies of the social media platforms must ensure that users are educated about not circulating copyrighted material and anything that can be construed as defamatory, racially or ethnically objectionable, paedophilic, threatening the unity, integrity, defence, security or sovereignty of India or friendly relations with foreign states, or violative of any contemporary law.

Recently, government notified amendments to the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules 2021.

These are aimed at making internet-open,

safe & trusted and accountable, for the digital nagriks of the country.

### What are the Key Amendments to IT Rules, 2021?

New Guidelines for Social Media Intermediaries:

Currently, intermediaries are only required to inform users about not uploading certain categories of harmful/unlawful content. These amendments impose a legal obligation on intermediaries to take reasonable efforts to prevent users from uploading such content. The new provision will ensure that the intermediary's obligation is not a mere formality.

The amendment requires intermediaries to respect the rights guaranteed to users under the Articles 14, 19 and 21 of the Indian Constitution, therefore, including a reasonable expectation of due diligence, privacy and transparency.

For effective communication of the rules and regulations of the intermediary, it is important that the communication is done in regional Indian languages as well.

### Amendments to the Rule 3:

The grounds in subclause 1 of rule 3 have been rationalized by removing the words 'defamatory' and 'libellous'.

Whether any content is defamatory or libellous will be determined through judicial review.

Some of the content categories in subclause 1 of rule 3 have been rephrased to deal particularly with misinformation, and content that could incite violence between different religious/caste groups.

### Establishment of Grievance Appellate

**Committee(s):**

Grievance Appellate Committee(s) will be established to allow users to appeal against the inaction of, or decisions taken by intermediaries

on user complaints.

However, users will always have the right to approach courts for any remedy.

**E-MALKHANA****Context:**

Visakhapatnam City police is set to introduce e-Malkhana in all police stations by June this year.

What is e-Malkhana?

e-Malkhana is a scientific storage system implemented by the Visakhapatnam Police Commissionerate to preserve and organize items and evidence recovered from crime scenes.

**Features:**

The system uses standardized cardboard

boxes labelled with unique numbers and QR codes for easy retrieval and access to case-related information.

**Benefits:**

It enhances efficiency, transparency, and the chain of custody for law enforcement officials.

- Other such measures are: Crime and Criminal Tracking Network and Systems (CCTNS), e-Courts, e-Prisons, National Database on Sexual Offenders (NDSO), Integrated Criminal Justice System (ICJS), etc.

**NATIONAL E-VIDHAN APPLICATION****Context:**

A delegation of MLAs from Gujarat recently visited the Uttar Pradesh Legislative Assembly, to learn about the novel e-Vidhan system for paperless proceedings that has been recently adopted by the UP state assembly.

**What is e-Vidhan?**

It is a Mission Mode Project (MMP) under the Digital India Programme.

The Ministry of Parliamentary Affairs (MoPA) is the 'Nodal Ministry' for its implementation in all the 31 States/UTs with Legislatures.

The funding for e-Vidhan is provided by the MoPA and technical support by the Ministry of Electronics and Information Technology (MietY).

The funding of NeVA is through Central Sponsored Scheme. 60:40; and 90:10 for North East & hilly States and 100% for UTs.

**Aim of the project:**

To bring all the legislatures of the country together, in one platform thereby creating a massive data depository without having the complexity of

multiple applications.

**Key features:**

1. Paperless Assembly or e-Assembly is a concept involving electronic means to facilitate the work of Assembly.

2. It enables automation of entire law-making process, tracking of decisions and documents, sharing of information.

3. Through the cloud technology (Meghraj), data deployed can be accessed anywhere at any time.

4. Himachal Pradesh is already the first Digital Legislature of the country.

State Government's Role in the implementation of e-Vidhan:

- The State Government will appoint a Secretary level officer to be designated as the nodal officer/representative for e-Vidhan implementation in the State Legislature(s).

- State Government will bear the funds required for running of e-Vidhan MMP after 3 years.

- The State Government/Legislature will undertake maintenance and replacement of ICT equipment after 3 years.

- The State Government will ensure capacity building for the effective implementation of e-Vidhan MMP module.

# PENDING BILLS, THE ISSUE OF GUBERNATORIAL INACTION

## Context

In recent months, many bills passed by the state legislatures have been withheld by respective Governors' offices indefinitely.

In Tamil Nadu, the assembly passed a resolution urging the President of India to intervene and to fix a timeline for assent to be given to Bills passed by the Assembly.

This resolution is a new constitutional development.

## Article 355 and unprecedented TN assembly resolution

Article 355 of the Indian Constitution says that it shall be the duty of the Union to ensure that the government of every State is carried on by the provisions of this Constitution (otherwise President's rule under Article 356 can be imposed).

B.R. Ambedkar in the Constituent Assembly explained the meaning and purpose of Article 355 to justify the "invasion of the provincial field" by the Union government.

Although this Article was meant to justify central intervention in the States, it is rare for a state assembly (in this case the TN assembly), to pass a resolution urging the President to intervene.

## Can Article 355 be invoked to fix the accountability of Governors?

The Constitution (under Article 200) requires the Governor to act when a Bill is passed by the Assembly and presented to him.

If he fails to act in accordance with the Constitution and sits on the Bills indefinitely, he is creating a situation where governance of the state cannot be carried on in accordance with constitutional provisions.

In such a situation, the government of the State has a constitutional duty to invoke Article 355 and inform the President and request her to give suitable instructions to the Governor.

Therefore, a resolution by the Assembly should be considered as a legitimate action.

## Governor's powers under Article 200

The Governor has three options when a Bill is presented to him after being passed by the legislature.

To give assent.

To withhold assent.

To send it back to the Assembly to reconsider it (if

the Bill is not a Money Bill), or to send the bill to the President for his consideration.

If the Assembly reconsiders the Bill as per the request of the Governor, he has to give assent even if the Assembly passes it again without accepting any of the suggestions of the Governor.

## Comparing the Governor's power of withholding assent with the UK model

Article 200 suggests that, theoretically, the Governor can withhold the assent but not indefinitely.

His powers, in this respect, can be understood by looking at the UK model.

Refusal of royal assent on the ground that the monarch strongly disapproved of a Bill or that it was intensely controversial would be unconstitutional.

The veto could now only be exercised on ministerial advice and no government would veto Bills for which it was responsible.

In India, under Article 154 of the Constitution, the Governor can exercise his executive powers only on the advice of the Council of Ministers.

But some experts ask as to why the Council of Ministers

should advise the Governor to withhold assent after the Bill has been passed by the Assembly.

If the government did not want to proceed with the Bill, it could withdraw it at any stage of consideration by the Assembly.

Similarly, if the government wanted to repeal it after it becomes an Act, it could have it repealed by the House.

The government can ask the Governor to withhold the assent if it has second thoughts on the bill.

But in India the withholding power of the Governor is not confined to only one situation - Council of Ministers advice to withhold the assent.

### **Should Governors be allowed to withhold assent?**

A Bill is brought before the Assembly when there is some urgency about legislation.

It may be a part of the policy of the elected government which is responsible to the people.

Under the constitutional scheme, the Governor is only a constitutional head and has no real powers.

Withholding assent means the death of that Bill.

Thus, the Governor by

withholding the assent to a bill can completely negate the will of the legislature, and thereby negate the will of the people.

It cannot be presumed that the Governor is allowed to do it under the Constitution.

### **Judicial precedents and justiciability of assent**

*Purushothaman Namboothiri vs State of Kerala (1962)*: A Bill which is pending with the Governor does not lapse on the dissolution of the Assembly. This judgment does not deal with the justiciability of the process of assent.

*Hoechst Pharmaceuticals Ltd. vs State of Bihar (1983)*: A Governor reserves a Bill for the consideration of the President in exercise of his discretion.

The Court cannot go into the question of whether it was necessary for the Governor to reserve the Bill for the consideration of the President.

This case too does not deal with the justiciability of assent.

### **Can the government challenge the issue in a court of law?**

Since sitting on a Bill passed by the Assembly is not an option given by the Constitution, the Governor, by doing so, is only acting against constitutional direction.

A judicial pronouncement on this matter is needed to eliminate the confusion.

State governments seem to be frustrated by non-decision/ indecision on the part of the Governor on a Bill passed by the Assembly.

Therefore, it appears that the state government can legally challenge the Governor's inaction.

### **Way forward**

The Supreme Court of India should hear the matter of justiciability of the process of the assent within the constitutional framework and set a timeframe for the governors to give assent to bills passed by the state legislature.

The decision will eliminate the confusion and avoid confrontation between the Governor's office and the state legislature.

### **Conclusion**

The Constitution makers would never have imagined that Governors would sit on Bills indefinitely without exercising any of the options given in Article 200.

This is a new development which needs new solutions within the framework of the Constitution and in the larger interest of federalism in the country.

## MANIPUR UNREST

Manipur has been restive since February when the government launched an eviction drive seen as targeting a specific tribal group. The drive led to protests but not on the scale of the one on May 3 triggered by the Manipur High Court's direction to the State to pursue a 10-year-old recommendation to grant Scheduled Tribe (ST) status to the **non-tribal Meitei community**.

The ST communities of Manipur have been consistently opposing to the inclusion of fearing the loss of job opportunities and other affirmative actions granted to STs by the Constitution of India to a much advanced community like the Meitei,

Kuki leaders have accused the state of violating Article 371C which gives the hill areas some administrative autonomy

### Manipur's ethnic composition

The Meiteis, who are largely Hindus, but also have Muslims, Buddhist and native Sanamahi followers, make up 53% of the population. They are barred from settling in the hilly regions of the state except with the permission of the local district councils, as per the Land Reform Act of Manipur.

The tribal population, consisting of predominantly Christian Kukis and the Nagas, forms about 40% of the state's

3.5 million people, reside in the **reserved hill regions** consisting of the rest of the 90% of the state. The tribal population is not prohibited from settling in the valley region.

The Meiteis dominate political power in the Manipur Legislative Assembly. Out of 60 seats in the Assembly, 19 seats are reserved for Scheduled Tribes (ST), i.e. for Naga or Kukis, while 40 are unreserved general constituencies, of which 39 seats were won by Meitei candidates in the last election.

Tribal groups have complained that the government spending is unduly concentrated in the Meitei-dominated Imphal Valley

### Meitei's Demand for ST status

Since 2012, there has been a constant demand led by the Scheduled Tribes Demand Committee of Manipur (STDCM) for granting the Scheduled Tribe (ST) status to the Meitei community.

The Meitei Tribe Union had filed a petition before the Manipur High Court and had argued that the Meitei community was once recognised as a "tribe" before the merger of the princely state of Manipur with the Union of India in 1949 and that it lost its identity as a tribe after the merger.

Petitioners had further argued that the ST status must

be extended to the community in order to preserve the community and save their ancestral land, tradition, culture and language.

The Meitei community has been victimised without any constitutional protection.

They have been gradually marginalised in their ancestral land.

And the population of the Meitei community has reduced from 59% of the total population of Manipur in 1951 to 44% as per 2011 Census data.

### Kuki Refugees

The Kuki people are an ethnic group in the Northeastern Indian states of **Manipur, Nagaland, Assam, Meghalaya, Tripura and Mizoram**, as well as **neighbouring countries** of Bangladesh and Myanmar.

The Kuki constitute one of several hill tribes within India, Bangladesh, and Myanmar. In Northeast India, they are **present in all states except Arunachal Pradesh**

The Kuki tribe is blamed for **taking over the hills of the Meiteis**, that they consider belong to their ancestors.

In each instance, **the communities regarded as outlanders are alleged to have brought more people to increase their strength** in the social and political landscape.

The Kukis in Manipur



faced a similar accusation after the military coup in Feb 2021 in neighbouring Myanmar that made thousands of **Chin refugees flocking into the Northeastern states.**

Manipur shares a 398 km border with Myanmar to its south and east. The Chin state, one of the most affected states of Myanmar, shares its boundary with Mizoram and Manipur.

### Previous conflicts between Meitei and Others

**Anglo-Manipur War (1891):** The British Empire waged a war against the Kingdom of Manipur, which was predominantly Meitei. The conflict arose due to political tensions and the Manipuris' resistance against British rule. The British forces eventually defeated the Manipuri army, leading to the annexation of Manipur into British India.

**Naga-Meitei clashes:** The Meiteis have had clashes with the Naga ethnic group, particularly in the hill areas of Manipur. The conflicts have revolved around issues such as **land disputes, cultural differences, and demands for separate administrative regions.** These clashes have resulted in violence and loss of lives on both sides.

**Kuki-Meitei clashes:** The Kuki-Meitei clashes in Manipur have been marked by historical tensions, territorial disputes, and competition for resources

and political representation. These conflicts have resulted in violence, community displacement, and significant socio-political impacts. A notable instance of conflict occurred in 1992, primarily due to land disputes and power struggles. In 1997, clashes reignited over the demand for a separate Kuki state, leading to more casualties, displacements, and property damage.

**Inner Line Permit (ILP) agitation:** In 2015, the Meitei community in Manipur launched a mass movement demanding the enforcement of Inner Line Permit (ILP) system in the state. The movement was primarily aimed at addressing concerns of demographic change and protecting the cultural identity of the Meitei people. The agitation led to protests, blockades, and occasional clashes with security forces. In 2018, violent clashes erupted in Churachandpur district of Manipur, primarily between the Kuki and Meitei communities

### Other Reasons for the recent upheaval

The conflict between the hills and the valley population in Manipur has several dimensions. The Nagas are demanding a greater Nagalim carved out of territories from Nagaland, Assam, Arunachal Pradesh and Manipur, which includes a large portion of the Kuki-inhabited areas of Manipur. The Kukis are also demanding a separate Kukiland, a state within the state of

Manipur, which includes territories of the proposed Greater Nagalim.

Government efforts to remove illegal immigrants from settlements in reserve forest areas. Officials have stated that illegal immigrants from Myanmar have been settling in Manipur since the 1970s

**Manipur Cabinet** decided to withdraw from the Suspension of Operation agreements with three Kuki militant groups including the Kuki National Army and the Zomi Revolutionary Army, though the central government did not support such a withdrawal.

Several Manipuri organisations also demonstrated in New Delhi to press for a **National Register of Citizens (NRC)** to be created with 1951 as the base year, complaining of abnormal population growth in hill areas

The Manipur High Court directed the state government to “consider request of the Meitei community to be included in the Scheduled Tribes (ST) list. “The Kukis feared that the ST status would allow the Meiteis purchase land in the prohibited hilly areas

### Peculiar characteristics of North-eastern conflicts:

They are asymmetrical;

They are ambiguous, making it difficult to differentiate a friend from an enemy;

They are fought in unconventional modes, deploying political and psychological means and methods;

The conflicts eventually tend to escalate into prolonged wars of attrition.

Violence in the region is also caused by the failure of the State administration to provide security.

This has led to the creation of alternative forces of ethnic militia for provision of security.

From the perspective of its ethnic constituency, a private ethnic militia is considered a more reliable provider of security when it is threatened by another ethnic group that is armed with its own militia. This is usually the context in an ethnically polarised situation in which the State administration fails to provide security and the actions of the Army are seen as partisan.

## How to declare ST status?

State governments starts **recommendation** for inclusion of the tribes in the list of ST.

After the recommendation of the state govt, **Tribal Affairs Ministry reviews** and sends them to the **Registrar General of India**, Under the Home Ministry for approval.

After approval, it is sent to the **National Commission for Scheduled Tribes** and then sent to the Cabinet for a final decision.

Once the cabinet finalizes it, then it introduces a bill in the parliament to amend the Constitution (Scheduled Castes) Order, 1950, and the Constitution (Scheduled Tribes) Order, 1950.

After the amendment bill is passed by both the Lok Sabha and Rajya Sabha, the President's office takes the final decision under Articles 341 and 342 of the Constitution.

## Criteria for declaration

The criteria for ST status is given by recommendations of several Committees, like:

The **Lokur Committee (1965)** recommended 5 criteria for identification, namely, primitive traits, distinct culture, geographical isolation, shyness of contact with the community at large, and backwardness.

**Bhuria Commission (2002-2004)** focused on a wide range of issues from the 5th Schedule to tribal land and forests, health and education, the working of Panchayats and the status of tribal women.

A **High-Level Committee (HLC) in 2013**, under chairmanship of Prof. Virginius Xaxa was constituted to study the 5 critical issues related to tribal communities: (1) livelihood and employment, (2) education, (3) health, (4) involuntary displacement and migration, (5) and legal and constitutional matters.

## Reservation as an issue of social conflict

Reservations are increasingly

becoming an issue of social conflict and political contestation, with many castes and communities demanding them and those who are enjoying the benefit resisting the demands from new groups.

The tribal communities consider their demand for reservation as an attempt to deprive them and to take control of the entire state.

The tribal groups are considered to be settlers who migrated from Myanmar and are derided as outsiders. Though the reservation demand is the immediate cause for the violence, there have been other issues of conflict, too.

The demand for reservations has been increasing because of the failure of the central and state governments to provide adequate and affordable education facilities and the inability of the economy to provide enough jobs for the country's youth.

Quotas are therefore seen to be a way to obtain scarce education and employment opportunities by all groups.

Governments have been willing because of political considerations but the courts have not been very approving. The issue also gets mixed up with other issues of social and economic conflict and grievances, as in Manipur.

Similarly, issues over the reservations have led to social tension during Mandal Commission reports, Lingayat reservation issues, Maratha

Quota issues etc.,

## Security threats of changing demography due to foreign influx

1. Strain on border security efforts
2. Affects labour market and social welfare systems
3. Poses challenges to social integration and cohesion
4. Pressure on public assets and resources.
5. Confusions and tensions regarding identity and preservation of culture
6. Formation of isolated communities can also lead to radicalisation and extremism
7. Difficulty in detecting and preventing human trafficking, smuggling, and other illicit activities.
8. With change in demography, issues of altering geography and territory arises.

## Shoot at Sight order

With the situation worsening in violence-hit Manipur, the state government authorised all District Magistrates to issue “shoot at sight orders” in “extreme cases”.

## What do the “shoot-at-sight” orders say?

The orders issued in the **name of the state governor** “in view of the prevailing law and order situation” in Manipur seek to maintain “**public order and tranquility**” and “authorize all District Magistrates, Sub-Divisional Magistrates and all

Executive Magistrates/Special Executive Magistrates detailed by the District Magistrate concerned to issue “shoot at sight orders” in extreme cases where “all forms of persuasion, warning, reasonable force, etc. had been exhausted **under the provisions of law under CrPC, 1973** and the situation could not be controlled”.

## What provisions of law allow the issuance of “shoot-at-sight” orders?

A “shoot-at-sight” or firing order may be passed in terms of the statutory powers relating to the arrest or prevention of offences or for disbanding unlawful assemblies under Sections 41-60 and Sections 149-152 of the CrPC, 1973.

Section 46(2) of the CrPC allows the use of force during arrests if a person resists or attempts to evade arrest. However, Section 46(3) limits this power, stating that it doesn’t authorize causing the death of a person not accused of a capital offense.

Additionally, Section 3(a) of the Armed Forces Special Powers Act grants armed forces the authority to use force in “disturbed areas,” and Section 144 of the CrPC empowers the executive to issue orders in urgent cases of apprehended danger or nuisance. Shoot-at-sight orders are typically issued under Section 144.

## Rulings on Shoot at Sight order

However, the Gujarat High Court’s 1974 ruling in “**Jayantilal Mohanlal Patel vs Eric Renison And Anr.**” held that the “law and order forces of the State of Gujarat have **no authority to shoot at anyone for a mere breach of the curfew order.**”

In a 1974 ruling, **Justice SH Seth** emphasized the rule of law in a democratic society. He highlighted that state actions must be governed by law, as the right to life and personal liberty is a fundamental right granted by the Constitution. The court emphasized that **any threat to a citizen’s life by the executive without lawful authority must be taken seriously.**

In the 1981 case of “**State of West Bengal vs Shew Mangal Singh & Ors.**” the Supreme Court upheld the acquittal order by the Calcutta High Court. The court ruled that the defendants (Officers who executed) could claim protection under the order given by the Deputy Commissioner of Police to open fire, stating that they acted in obedience to it. The court also referred to Section 76 of the Indian Penal Code in its judgment.

## Conflict Resolution Measures

The Centre has constituted a **peace committee** in violence-stricken Manipur chaired by **Governor Anusuiya Uikey**. The members of the committee include the chief minister, state ministers, MPs, MLAs and leaders of different political

parties.

The committee also includes former civil servants, educationists, literalists, artists, social workers and representatives of ethnic groups.

The mandate will facilitate **a peace-making process among various ethnic groups of Manipur, including peaceful dialogue and negotiations between conflicting parties/groups.**

The Committee should strengthen social cohesiveness, mutual understanding and facilitate cordial communication between various ethnic groups.

### Way Forward

To address the unrest in Manipur and promote peace, it is essential to foster dialogue, inclusivity, and equitable distribution of resources and

opportunities among different ethnic communities. Efforts should be made to address the concerns and aspirations of all communities, while preserving the cultural identity and heritage of Manipur. Additionally, initiatives to improve education, employment, and infrastructure development can contribute to reducing tensions and promoting socio-economic growth in the region.

## INDIAN SPACE POLICY 2023

The Centre's updated Space Policy, cleared by the Union Cabinet on April 6 but made public recently, has drawn measured optimism from the India's budding private sector start-up space.

### Space Sector of India

ISRO has an exceptional success rate and is the 6th largest space agency globally.

India has over 400 private space companies and ranks fifth globally in terms of the number of space companies.

The satellite manufacturing capabilities are expected to reach USD 3.2 billion by 2025.

ISRO also launched a student outreach program called SAMVAD to encourage space research among young minds.

### Indian Space Policy 2023

#### About

The Indian Space Policy 2023 is a comprehensive **set of guidelines that outlines the roles and responsibilities** of different entities in the Indian space sector.

The policy is **expected to pave the way for much-needed clarity in space reforms** and encourage private industry participation in the space economy.

It aims **to encourage and institutionalize private sector participation** in India's space sector, with the ISRO primarily focusing on research and development of advanced space technologies.

### Objectives

To augment space capabilities;

Enable, encourage and develop a flourishing commercial presence in space;

Use space as a driver of technology development and

derive benefits in allied areas;

Pursue international relations, and create an ecosystem for effective implementation of space applications among all stakeholders

Satellite images with a ground sample distance (GSD) greater than five metres (a satellite image where two adjacent pixels represent points five metres apart on the ground) would be freely available. However, those with a GSD less than 30 cm will require INSPACE authorisation due to national security considerations.

### Applicability

This policy is applicable to **any space activity to or from Indian Territory** or within the jurisdiction of India including the **area to the limit of its exclusive economic zone**. Notwithstanding anything contained in this policy, GoI

reserves its **right to provide exemptions** to the provisions contained herein on a case-to-case basis.

## Key features of the Indian Space Policy 2023

### Creates four distinct, but related entities

The policy creates four distinct, but related entities, that will facilitate greater private sector participation in activities that have usually been the traditional domain of ISRO.

These four entities are:

Indian Space Research Organisation (ISRO)

IN-SPACe (Indian National Space Promotion and Authorisation Centre)

New Space India Limited (NSIL)

Department of Space

### Contributions of Private Companies

Private companies, referred to as non-governmental entities in the policy, will be allowed to undertake end-to-end space activity.

These activities include –

Launching and operating satellites, developing rockets, creating ground stations, building spaceports and mobile launch platforms; and

Providing services like communication, remote sensing and navigation, nationally and

internationally.

### Other roles envisaged for private entities

Private entities have also been encouraged to develop space situational awareness capabilities.

Space situational awareness capabilities is a mechanism to track objects in space and avoid collision of satellites and space stations with each other or space debris.

The policy also says that private players can **engage in commercial recovery of asteroids or space resources**.

Private participation will be **limited to Indian companies**.

The question of whether **foreign direct investment via the automatic route** will be permitted in space is as **yet unresolved** and pending government approval.

### Role of the IN-SPACe

As per the policy, IN-SPACe will be the **single-window agency for authorisation of all space activities**.

It will also develop **space industry standards**, promote identified space activities and work with academia to widen the space ecosystem and enable industry-academia linkages.

It maintains a list of space activities that would require authorization. The list of space activities requiring authorization will be amended

from time to time.

### Role of ISRO

ISRO, meanwhile, has been asked to **move away from routine activities** and focus on research and innovation.

This will mean developing **new space technologies and applications** in order to maintain India's edge in the areas of space infrastructure, space transportation, space applications, capacity building and human spaceflight.

### Role of New Space India Ltd

The **government's commercial arm**, New Space India Ltd, has been asked to commercialise technologies and platforms created by government entities.

It has also been tasked to **manufacture, lease, or buy space technologies** or assets, and provide space-based services to government as well as private entities.

### Role of the Department of Space

The Department of Space has been asked to **implement the policy, interpret and clarify any ambiguities** and establish a framework for safe and sustainable space operations.

It will be the **nodal department for implementing space technologies**.

It will also look **after**



# INTERNATIONAL RELATIONS



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# 75 YEARS OF WHO

## Why in the News?

The World Health Organization (WHO) marks its 75th anniversary on 7 April 2023.

## About

### How is the WHO governed?

The WHO is headquartered in Geneva and has six regional and 150 country offices. It is controlled by delegates from its 194 member states, who vote on policy and elect the director general.

Tedros Adhanom Ghebreyesus, previously Ethiopia's foreign minister, was elected to a five-year term in 2017 and reelected in 2022. WHO delegates set the agency's agenda and approve an aspirational budget each year at the World Health Assembly.

The director general is responsible for raising the lion's share of funds from donors.

## Success

Some of the WHO's most lauded successes include its child vaccination programs, which contributed to the eradication of smallpox in 1979 and a 99 percent reduction in polio infections in recent decades, and its leadership during the 2003 severe acute respiratory syndrome (SARS) epidemic.

The agency has the exclusive authority to declare global health emergencies, which it has done several times since its members granted it the power in 2007.

WHO has undertaken reforms to improve its ability to fight future epidemics and boost the health of the hundreds of millions of people still living in extreme poverty.

## Failures

The organization's agreement to give up on trying to eradicate malaria in the 1960s represents

another example of what some consider a botched job.

Many critics have faulted the WHO for slow and poorly coordinated responses to outbreaks. That includes the 2014 Ebola outbreak, in which it waited five months before declaring a PHEIC, despite pleas from groups such as Doctors Without Borders.

WHO is in an uphill battle to loosen its rigid bureaucracy and it faces an increasingly troublesome budget.

The COVID-19 pandemic has proved to be another monumental challenge for the health agency, sparking fresh debate over its effectiveness.

The WHO has become increasingly dependent on voluntary contributions, which puts pressure on the organization to align its goals with those of its donors.

## What reforms has the WHO made?

Responding to these criticisms, the organization instituted several reforms intended to improve its responses, including the creation of a reserve force of public health workers and a \$100 million emergency fund.

The WHO also added an incident management system that allows it to place medical responders, equipment, and supplies such as medicines on the ground right away while it coordinates a broader response.

In a rare special session of the WHO's World Health Assembly in 2021, delegates initiated the drafting of a global treaty on pandemic prevention, preparedness, and response.

At the 2022 assembly, countries agreed on a U.S.-led proposal to strengthen the IHR by increasing member states' accountability around disease outbreaks, though no changes have been formally approved.

## INTERNATIONAL RICE RESEARCH INSTITUTE (IRRI)

### Why in the News?

A two-member delegation from International Rice Research Institute (IRRI) recently visited Punjab Agricultural University (PAU) to deliberate on emerging research areas for rice cultivation in Punjab and other parts of the world.

### About International Rice Research Institute (IRRI)

IRRI is an independent, nonprofit, research and educational institute, founded in 1960 by the Ford and Rockefeller foundations with support from the Philippine government.

It is the world's premier research organization dedicated to reducing poverty, hunger, and malnutrition through rice science.

It aims to improve the health and welfare of those who depend on rice-based agri-food systems, and promote and protect the environmental sustainability of rice farming for future generations.

Headquarters: Los Baños, Philippines.

It has offices in 17 rice-growing countries in Asia and Africa, and more than 1,000 staff.

IRRI's work is supported by a diverse network of investors aligned to common goals.

IRRI's research for development is characterized by its collaborative nature: from alliances with advanced research institutes; through strong collaborations and capacity development with governments and national agricultural research and extension systems.

## UN DEMOCRACY FUND (UNDEF)

India is the fourth highest donor to the UN Democracy Fund (UNDEF), which funds at least 68 projects worldwide linked to George Soros's Open Society Foundation. India has contributed over USD 32 million since its inception (2005). (Top three donors are US, Sweden, and Germany.)

In 2022, when India contributed USD 150,000 to the fund, it was the fourth highest among 45 donors. India has consistently supported UNDEF's mission of promoting democratic governance worldwide through funding of projects carried out by local and international CSOs and NGOs.

UNDEF was established in 2005 by UN Secretary-General Kofi A. Annan as a United Nations General Trust Fund to support democratization efforts around the world. It was welcomed by the General Assembly in the

Outcome Document of the 2005 World Summit.

UNDEF plays a unique role in complementing the UN's other work with governments to strengthen democratic governance around the world. UNDEF funds projects that empower civil society, promote human rights, and encourage the participation of all groups in democratic processes. The majority of UNDEF funds go to local civil society organizations (CSOs).

The Advisory Board of the UNDEF offers policy guidance and funding guidelines, considers proposals for funding, and recommends funding proposals for approval by the Secretary-General. UNDEF provides grants ranging from USD 100,000 to USD 300,000. In 15 rounds of funding so far, UNDEF has supported over 880 two-year projects in more than 130 countries.

## PERSONA NON GRATA

### Why in the News?

China, Canada act against each other's diplomats. A day after Canada announced it would expel a Chinese diplomat over allegations

of involvement in a campaign to intimidate a Canadian politician, China declared a Canadian diplomat in Shanghai as persona non grata.



## About

In literal terms, the phrase is Latin for “an unwelcome person.”

The term in a diplomatic sense refers to a foreign person whose entering or remaining in a certain country is prohibited by that country.

The designation received diplomatic meaning at the 1961 Vienna Convention for Diplomatic Relations.

Under Article 9 of the treaty, a country can declare any member of a diplomatic staff persona non grata “at any time and without having to explain its decision.”

The persona non grata declaration is the most damning form of censure a country can bestow on foreign diplomats considering they are protected from arrests and other forms of prosecution under diplomatic immunity.

A person declared as such can be recalled from a diplomatic mission or have their functions with the mission terminated. If the declared person is not recalled, the country can refuse to recognize the person as part of the mission.

Persona non grata can also apply to people who have yet to enter a country.

# COMPREHENSIVE AND PROGRESSIVE AGREEMENT FOR TRANS-PACIFIC PARTNERSHIP (CPTPP)

## Why in news?

The United Kingdom reached an agreement with Indo-Pacific partners to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) at an virtual ministerial meeting late March 31, 2023

## About

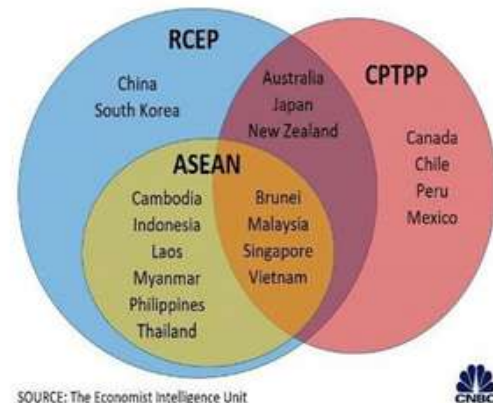
- The CPTPP is one of the world’s largest free trade agreements (FTA).
- It already has 11 members in it. Uk is the 12th member to join. All 11 countries of CPTPP are also members of the Asia-Pacific Economic Cooperation (APEC). The UK is the first non-founding country to join, and will be its second biggest economy after Japan

• In 2005, a trade agreement between a small group of Pacific Rim countries comprising Brunei, Chile, New Zealand, and Singapore led to the formation of Trans Pacific Partnership (TPP) consisting of 12 nation-states.

• The TPP was envisaged as a counterweight to China’s rising influence. US President Donald Trump shunned the the pact, calling it a bad deal for his country. After the withdrawal of the US, the remaining eleven signatories, known as the TPP-11, continued talks and their efforts led to

the formation of CPTPP.

- The CPTPP was signed by the 11 countries
- Trade groupings involving Asia Pacific nations**



on 8 March 2018 in Santiago, Chile.

## The pact

- The partnership enables greater access to each other’s markets, and a pledge to eliminate or reduce 95% of import charges or tariffs.
- But some are kept to protect sensitive domestic areas, such as Japan’s rice farming industry.
- CPTPP covers virtually all sectors and aspects of trade in order to eliminate or reduce barriers. It establishes clear rules that help create

a consistent, transparent and fair environment to do business in CPTPP markets.

- CPTPP also includes chapters on the protection of the environment and labour to ensure that CPTPP members do not derogate from their commitments in these areas to increase trade or investment. CPTPP also includes trade-related technical cooperation among CPTPP members, including with respect to small and medium-sized enterprises, regulatory coherence and economic development.

- Under the CPTPP, an importer may make a claim for preferential tariff treatment based on a Certification of Origin

- The custom procedures have been made simple effective, clear and predictable

### Benefits for UK

- British government have long championed UK accession to the CPTPP as a move that would elevate “Global Britain” post-Brexit. Following UK withdrawal from the European single market, British leaders saw acceptance into the CPTPP’s trade area—an area roughly on par with the European Union in terms of GDP—as a way to mitigate Brexit losses and guarantee future economic growth

- Joining the CPTPP would make UK businesses eligible for tariff-free access to over 99 percent of goods exported to a market of over 500 million customers. CPTPP accession also provides

the United Kingdom significant economic growth potential via financial services and digital trade CPTPP members.

- Over 15 years, it is estimated that UK accession to the CPTPP would grow British GDP by only 0.08 percent—a relatively small figure given Britain’s existing trade agreements with most CPTPP members

### India’s stand

- India has recognized that the sweeping economic concessions required to join CPTPP have too far-reaching consequences, similar to RCEP.

- India opted out of the bloc because it wants to impose stricter labor and environmental regulations on its other partners.

- Additionally, the CPTPP draft contains incredibly specific requirements for investment protection, safeguards for the host state’s regulatory authority, and the imposition of extensive transparency standards.

### Free Trade Agreement

A Free trade Agreement (FTA) is an agreement between two or more countries where the countries agree on certain obligations that affect trade in goods and services, and protections for investors and intellectual property rights, among other topics.

## WASHINGTON DECLARATION

### Why in news?

On April 25, South Korean President Yoon Suk Yeol arrived in the U.S. to commemorate the 70th anniversary of U.S.-South Korea bilateral relations. A highlight of the visit was the signing of the “Washington Declaration” as a nuclear deterrence strategy.

### About

The declaration is signed between US and The south korea

The Washington Declaration advocates for

nuclear deterrence policy in the region, aiming to balance power dynamics against North Korea. While the aim is to defuse the threat, physical deployment of the arsenal can be deemed as a direct threat by opposing actors and used as leverage to act aggressively.

### The declaration:

- US nuclear ballistic submarine would be deployed in the Korean peninsula;

- Nuclear consultative group would be formed to formulate principles of joint response

tactics;

- South Korea would receive Intel from the U.S. regarding nuclear advancements, and the U.S. will strengthen South Korea's nuclear deterrence capabilities through joint military training programs and an annual intergovernmental simulation.

- Reaffirmed the non-proliferation Treaty implying that South Korea would not venture into the creation of its own independent nuclear capabilities and would instead focus on deterrence measures through an alliance-based approach.

- The U.S. President will be the only 'sole authority' to use the nuclear arsenal of the U.S. in the event of a nuclear confrontation.

### Significance for India

While India is not a direct participant in this

agreement, the Washington Declaration reinforces the US commitment to its allies and partners in the Indo-Pacific, including India, and could strengthen the Quad alliance.

### Criticism by North Korea and China

- While the aim is to defuse the threat, physical deployment of the arsenal can be deemed as a direct threat by opposing actors and used as leverage to act aggressively.

- China criticised the agreement saying that it provokes confrontation between camps, undermines the nuclear non-proliferation regime and the strategic interests of other countries.

- North Korea warned that the declaration would, "only result in making peace and security of North-East Asia and the world be exposed to more serious danger.

## TEPA BETWEEN INDIA AND EFTA STATES

### What is TEPA?

A trade and Economic Partnership Agreement is a type of economic partnership agreement between countries. TEPA agreements offer flexibility in terms of negotiating terms and conditions, as the parties involved can tailor the agreement to their specific needs and interests.

### EFTA:

European Free Trade Association (est. 1960; HQ: Geneva) is an intergovernmental organization founded by four European countries: Iceland, Liechtenstein, Norway and Switzerland as an



alternative to the EU.

**Purpose:** To promote free trade and economic cooperation among its member states and with other countries

**Relationship with EU:** EFTA has a close relationship with the EU and has signed several agreements, which allow for the free movement of goods, services, capital, and people between the EFTA countries and the EU

**Strength of EFTA countries:** The economy of these countries is very strong. They rank among the highest in the world in innovation, competitiveness, wealth creation per inhabitant, life expectancy, and quality of life.

EFTA companies are also world leaders in pharmaceuticals, biotechnology, machinery manufacturing, R&D-driven technology products, geothermal-related technologies and many more.

Potential Benefits of TEPA between India and EFTA States:

**Trade:** India's growth and leadership in green technologies can benefit from EFTA's support.

**Market Access:** Improved market access for

Indian goods to EFTA markets where EFTA's export products frequently serve as inputs in Indian export industries.

**Investment:** Increase in investment from EFTA states (They have already invested over USD 35 billion in India)

**Mutual Benefits:** EFTA states can benefit from India's highly skilled workforce in the services sector, and India can benefit from the over 400 companies established by EFTA states generating more than 1,50,000 jobs.

**Renewable Technologies:** EFTA states can contribute to India's green growth aspirations with their cutting-edge technologies in solar, wind, hydro, and geothermal power.

## Challenges in Implementing TEPA between India and EFTA Countries:

**Economic structure:** While EFTA countries (developed economies) focus on high-tech industries and services, India (developing economy) generally serves lower and middle-tech industries and services.

**Market access:** E.g., issues regarding tariffs, quotas, and non-tariff barriers to ensure

free and fair trade between the parties.

**Regulatory:** Differences in regulations, standards, and legal frameworks

**Securing domestic manufacturers:** Particularly in sectors such as pharmaceuticals, biotechnology, and machinery manufacturing, where EFTA countries have a competitive edge.

**Environmental and social:** Addressing environmental and social challenges, such as promoting sustainable development and gender equality, is crucial in establishing a long-term, successful partnership between the parties.

**Negotiation:** Negotiating a mutually beneficial agreement that meets the interests of all parties involved can be challenging.

## Conclusion:

To ensure the conclusion of a mutually beneficial TEPA between India and EFTA, outstanding issues should be addressed, areas of mutual benefit identified, and collaboration on skilled labour promoted. Strong political involvement and guidance are necessary for a swift negotiation process.

# BEIJING ACCORD

## Why in news?

The Saudi-Iran reconciliation in a China-brokered agreement reflects the new reality that Beijing is increasingly playing a bigger role at a time when the U.S., is preoccupied with challenges elsewhere.

## About

- Saudi Arabia and Iran have announced the restoration of diplomatic ties after four days of previously undisclosed talks in Beijing on March 10.
- The announcement could not only lead to a major realignment in West Asia, it also poses a major geopolitical threat to the United States, with China acting as peace broker for the historic deal.

- Under the agreement announced, Iran and Saudi Arabia will patch up a seven-year split by reviving a security cooperation pact, reopening embassies in each other's countries within two months, and resuming trade, investment and cultural accords.

## The history of Regional Rivalry

- The rivalry between Saudi Arabia and Iran is rooted in Islamic sectarianism. While Iran is the foremost Shia state in the world, Saudi Arabia is considered to be the religious home of Sunni Islam.
- In modern times, this sectarian rivalry has translated into a tussle for regional hegemony. This has played a role in both sides being involved in multiple proxy conflicts against each other in Iraq, Lebanon, Syria and most devastatingly, Yemen.

- In Yemen, Saudi bombs aimed at reversing gains by Iranian-backed rebels have killed large numbers of civilians. Those rebels have responded by firing increasingly sophisticated missiles and armed drones at Saudi cities and oil facilities.

- All sides in the conflict have repeatedly violated human rights and international humanitarian law.

- A December 2020 UN report said that since 2015 the “war caused an estimated 233,000 deaths, including 131,000 from indirect causes such as lack of food, health services and infrastructure”.

- On March 10, 2023, Iran, Saudi Arabia and China announced an agreement had been reached covering a resumption of diplomatic relations between the Kingdom of Saudi Arabia and the Islamic Republic of Iran.

- The three countries also announced a re-opening of their embassies and missions within a period not exceeding two months.

- The announcement was significant and surprised the US and Israel who had been attempting to build a regional coalition against Iran.

- The agreement affirmed their respect for the sovereignty of states and non-interference in the internal affairs of states.

- The deal, brokered by China, also included the implementation of a security cooperation agreement signed in 2001 and a 1998 pact to enhance cooperation on trade, investment, technology, and culture.

## YANOMAMI AREA

- The Yanomami Area is the largest indigenous territory in Brazil.

- It is located in the northern part of the country, on the border of Venezuela.

- Close to about 20 thousand indigenous

people live in this area.

- Illegal miners, pollution of rivers and large-scale deforestation have threatened the existence of the indigenous populations in the area.

## G7 HIROSHIMA SUMMIT 2023

### Why in news?

The Leaders of the Group of Seven (G7) met in Hiroshima for 49th annual Summit. This year's summit is hosted by Japan in its capacity as the President of the grouping.

### About

#### G7

- The Group of 7 (G7) is an informal group of seven countries — the United States, Canada, France, Germany, Italy, Japan and the United Kingdom, the heads of which hold an annual summit with European Union and other invitees.

- Together the member countries represent 40% of global GDP and 10% of the world's population.

- Unlike other bodies such as NATO, the

G7 has no legal existence, permanent secretariat or official members.

- It also has no binding impact on policy and all decisions and commitments made at G7 meetings need to be ratified independently by governing bodies of member states.

### Purpose of G7

- To determine the course of multilateral discourse

- To shape political responses to global challenges.

- Basically, G7 provides a platform to discuss and coordinate solutions to major global issues, especially in the areas of trade, security, economics, and climate change.

Hiroshima Summit – Outcomes

The choice of Hiroshima as host city of the G7 Summit underlines Prime Minister Kishida's commitment to put nuclear disarmament and non-proliferation prominently on the agenda of the meeting.

### On Ukraine

- Condemned in the strongest possible terms the war of aggression by Russia against Ukraine.
- Separately issued G7 Leaders' Statement on Ukraine.

### On Disarmament and Non-proliferation

- Decided to strengthen disarmament and non-proliferation efforts, towards the ultimate goal of a world without nuclear weapons.
- The summit also released the G7 Leaders' Hiroshima Vision on Nuclear Disarmament.

### Indo-Pacific

- Underscored commitment to strengthen coordination with regional partners, including the Association of Southeast Asian Nations (ASEAN) and its member states.

### Global Economy, Finance and Sustainable Development

- It decided to coordinate the approach of members to economic resilience and economic security that is based on diversifying and deepening partnerships and de-risking, not de-coupling.
- It decided to work on issues such as resilient supply chains, non-market policies and practices, and economic coercion.

### On debt sustainability

- Debt sustainability is a major concern undermining progress towards SDGs, with low- and middle-income countries disproportionately affected by Russia's aggression against Ukraine.
- Supported the G20's effort to improve the implementation of the Common Framework for Debt Treatments beyond the Debt Service Suspension Initiative (DSSI).
- DSSI means that bilateral official creditors

are, during a limited period, suspending debt service payments from the poorest countries that request the suspension.

- It welcomed the development of Climate Resilient Debt Clauses (CRDC) to enhance the safety net for borrowers facing the impacts of climate change.

### On infrastructure

- It reaffirmed the shared commitment to the G7 Partnership for Global Infrastructure and Investment (PGII) and to working together and aiming to mobilize up to \$600 billion by 2027 for infrastructure funding.

### Clean energy economy

- Decided to take concrete steps to drive the transition to clean energy economies of the future through cooperation within and beyond the G7.
- Expressed its commitment to deepen cooperation through Just Energy Transition Partnerships (JETPs), the Climate Club and new Country Packages for Forest, Nature and Climate.
- Also decided to preserve the planet by accelerating the decarbonization of energy sector and the deployment of renewables, end plastic pollution and protect the oceans.

### Food Security

- Announced that member countries are taking concrete steps to launch the Hiroshima Action Statement for Resilient Global Food Security with partner countries to address needs of today and into the future.

### Health

- Decided to invest in global health through vaccine manufacturing capacity worldwide, the Pandemic Fund, the future international agreement for pandemic prevention, preparedness and response, and efforts to achieve universal health coverage (UHC);

### Digital

- Expressed the commitment to work together and with others to advance international

discussions on inclusive artificial intelligence (AI) governance and interoperability to achieve common vision and goal of trustworthy AI.

### On China

- Urged China to pressure its strategic partner Russia to end its war on Ukraine.
- The leaders expressed serious concern

about the situation in the East and South China seas, where Beijing has been expanding its military presence and threatening to use force to exert its control over self-governed Taiwan.

- The statement said there was “no legal basis for China’s expansive maritime claims in the South China Sea.

## FORUM FOR INDIA–PACIFIC ISLANDS COOPERATION (FIPIC)

### Why in news?

Addressing the opening session of the FIPIC-3 summit (in Port Moresby, Papua New Guinea/ PNG), the PM of India highlighted the importance of the 14 members of the FIPIC.

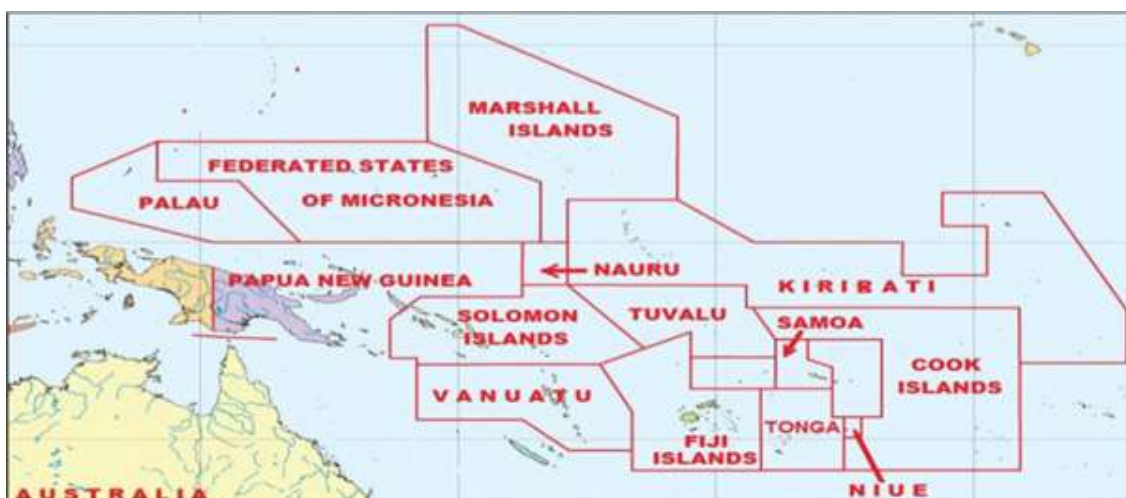
### About

- The Forum for India–Pacific Islands Cooperation (FIPIC) was launched during Hon’ble Prime Minister, Mr. Narendra Modi’s visit to Fiji in November 2014.
- FIPIC includes 14 of the island countries – Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.
- Though these countries are relatively small in land area and distant from India, many have large exclusive economic zones (EEZs), and offer promising possibilities for fruitful cooperation.

India’s focus has largely been on the Indian Ocean where it has sought to play a major role and protect its strategic and commercial interests. The FIPIC initiative marks a serious effort to expand India’s engagement in the Pacific region.

### The third Forum

- PM Modi unveiled a 12-step action plan to strengthen ties with Pacific Island nations on the side-lines of the FIPIC conference in Papua New Guinea.
- This action plan includes the supply of desalination units for drinking water, a 100-bed regional super specialty hospital in Fiji, 1000 Sagar Amrut Scholarships during the following five years, a regional hub for IT and cyber security training to be established by India in Papua New Guinea, the creation of Jan Aushadi Kendras, yoga studios, and dialysis facilities.
- Thus, the third Summit of FIPIC marks an important milestone in the developing relations



between India and PICs.

## Significance of Pacific Island Countries

- The Pacific Island Countries (PICs) are situated in an important geostrategic region. Critical shipping lines and trade routes pass through this region. Several of them have sizable EEZs, which have not only led to substantial increases in their terrestrial area, but also in their ability to access and protect their aquatic resources.

- The Pacific Islands are home to the world's largest supply of tuna, an extremely valuable commodity. They also have significant sea-bed resources such as oil, minerals, and natural gas.

- India's interest is to enhance its economic

relations with these countries in pursuance of Act East Policy and the Free, Open, and Inclusive Indo-Pacific vision.

- In 2014, when this forum was launched, it marked a serious effort by India to expand its engagement with the PICs. At that time, India offered major assistance projects, which included the setting up of a special USD one million fund for adapting to climate change and clean energy, establishing a trade office in India, the Pan Pacific Islands e-network to improve digital connectivity, extending visas on arrival at Indian airports for all 14 PICs, cooperation in space technology applications for improving the quality of life of the islands, and training to diplomats from PICs.

## WORLD GOLD COUNCIL

With high prices the demand for gold in India for Q1 2023 (January to March) shrunk by 17% to 112.5 tonnes as compared to overall demand of 135.5 tonnes in the year-ago period, according to the World Gold Council (WGC).

### About WGC:

- The World Gold Council is the market development organisation for the gold industry. It is an association of the world's leading gold producers.

- It was established in 1987 and is headquartered in the London United Kingdom.

### WGC's role:

- Developing policies and setting industry standards by working with governments, international agencies and policy-makers to develop policies that reduce barriers and improve access to gold.

- Strengthening market infrastructure by facilitating transparent pricing, trading and settlement of gold and enabling easy market access with confidence and integrity.

- Enhancing global data and insight to encourage greater understanding and acceptance of gold as a mainstream asset. Also bringing new investors to gold.

- Supporting and advising central banks and sovereign wealth funds.

### Gold & Economy:

**As Currency:** Gold was used as the world reserve currency up through most of the 20th century. The United States used the gold standard until 1971.

**As a hedge against inflation:** The demand for gold increases during inflationary times due to its inherent value and limited supply. As it cannot be diluted, gold is able to retain value much better than other forms of currency.

**Strength of Currency:** When a country imports more than it exports, the value of its currency will decline. On the other hand, the value of its currency will increase when a country is a net exporter. Thus, a country that exports gold or has access to gold reserves will see an increase in the strength of its currency when gold prices



# INDIA BHUTAN RELATIONS

## Why in the News?

During the three-day visit of Bhutan's King Jigme Khesar Namgyel Wangchuck to New Delhi, the two sides sought to put a lid on the controversy in India over the remarks of the Bhutanese Prime Minister Lotay Tshering about border talks between his country and China.

## Bhutan-China 'understanding'

In his interview to the Belgian newspaper La Libre, published days before the King's visit to India, Prime Minister Tshering said Bhutan and China had "come to understand each other", and were close to resolving their boundary disputes.

In January this year], a Bhutanese delegation visited China and we are now awaiting the arrival in Bhutan of a Chinese technical team.

After one or two more meetings, we will probably be able to draw a line," he added.

In January, Bhutan and China had held talks in Kunming as part of an ongoing dialogue on the border issue.

The Chinese statement on that meeting said a "positive consensus" had been reached.

The two sides agreed to simultaneously push forward the implementation of all the steps of the Three-Step Roadmap.

The two sides also agreed

to increase the frequency of the Expert Group Meetings and to keep contact through diplomatic channels on holding the 25th Round of China-Bhutan Boundary talks as soon as possible at mutually convenient dates", the Chinese statement said.

The "Three-Step Roadmap for Expediting the China-Bhutan Boundary Negotiations" re-fers to an agreement reached between the two countries in April 2021, and announced in October of that year.

## The question of Doklam

According to reports, the Kunming talks focussed on Doklam and areas near the India-Bhutan-China trijunction in the west, and the Jakarlung and Pasamlung pasturelands in the north.

In his interview, Tshering denied there were Chinese incursions in Bhutan's territory. "There is a lot of information circulating in the media about Chinese installations in Bhutan.

We don't make a deal of it because it's not in Bhutan. We said categorically, there is no intrusion as mentioned in the media.

This is an international border and we know exactly what belongs to us," he said.

On the trijunction, he said: "Doklam is a junction point

between India, China, and Bhutan. It is not up to Bhutan alone to solve the problem. We are three.

There is no big or small country, there are three equal countries, each counting for a third.

We are ready. As soon as the other two parties are also ready, we can discuss. India and China have problems all along their border. We are therefore waiting to see how they will resolve their differences."

## India's position on Doklam

Briefing the media after the King and Prime Minister Narendra Modi had held talks, For-ign Secretary Vinay Mohan Kwatra reiterated India's "earlier statements" on the deter-mination of the trijunction — the Doklam area where Indian and Chinese troops eye-balled each other for 73 days from June 16 to August 28, 2017 — seeking to convey that Tshering had not said anything different from India's own position on this issue.

These "earlier statements" — made by the Ministry of External Affairs on June 30, 2017; by former External Affairs Minister Sushma Swaraj in Parliament in August 2017; and by then Foreign Secretary S Jaishankar to the Parliamentary Committee on External Affairs during 2017-18 — referred to the "Common Understanding"

reached between the Special Representatives of New Delhi and Beijing that the trijunction boundary points between India, China, and third countries would be finalised in consultation with those third countries.

India holds that the 2017 Chinese actions in Doklam amounted to an attempt to change the Bhutan-China border unilaterally, thereby violating two agreements with Bhutan in 1988 and 1998.

China's aim in doing so was to move the trijunction point from Batang La — both Indian and Bhutanese maps have this as the trijunction point — further south to Gyomochen, in violation of the 2012 agreement with India.

Control of this area would give China a strategic advantage over India, bringing it closer to the “chicken's neck”, the narrow corridor at Siliguri which is the only road connection to the Northeast, and where Indian defences are considered to be the most vulnerable.

## Tightrope on Bhutan

New Delhi has always held that an agreement between Bhutan and China is the sovereign decision of the two countries — and that even if Thimphu's positions are not always identical to New Delhi's, it does remain mindful of Indian concerns, and there is close consultation and co-ordination between the two sides on security issues of

mutual interest. This is also written into the 2007 Treaty of Friendship.

But a China-Bhutan agreement on the boundary, especially if it includes Doklam, would have direct and immediate implications for India's security.

Tshering's remark that an agreement on the boundary was imminent may have taken New Delhi by surprise, if not rattled it. In the expert view, it is unlikely that India would have been kept out of the loop on such an important development.

“The nature of our relationship is such that Bhutan will never spring a surprise on us. We always consult and closely coordinate our positions,” said Ashok Kantha, a former Am-bassador to China. “We are mindful of each other's security and strategic concerns.”

Asked whether the Doklam issue figured in the India-Bhutan talks, Foreign Secretary Kwatra said the two leaders covered the entire gamut of bilateral cooperation including issues of “respective national interests”.

India-Bhutan ties, he said, were based on “mutual respect, trust, close understanding and sensitivity to each other's concerns”.

Kwatra said “both countries maintain a longstanding tradition of very close consultations on matters relating to their mutual interest

and, of course, security also. Now in this context the intertwined and indivisible nature of our security concerns is self-evident”.

But this is also why Tshering's denial of Chinese incursions in Bhutanese territory has surprised New Delhi.

Independent experts using satellite imagery and other means have said Chinese villages and infrastructure have come up in Doklam.

Beijing has long sought a land swap by which it gets Doklam in exchange for concessions on disputed territory in the north, though it is unclear if this offer still stands.

What is certain is that China looks at Bhutan as a pressure point on India. Beijing's re-naming of places in Arunachal Pradesh, and its “freeze” on the visas of two Indian journalists, came during the King's visit to India.

As it engages Thimphu, New Delhi would also be mindful of how much Bhutan has changed since its transition to a democracy and constitutional monarchy in 2009 — around the same time that China's approach to India's neighbours changed — and the diverse range of views about the country's location between two big neighbours, which may give it a headache, but also unique leverage.

# JAPAN ROLE IN INDO PACIFIC GEOPOLITICS

## Why in the News?

The visit by the Japanese Prime Minister, Fumio Kishida, to India, in March 2023, during which he engaged with his Indian counterpart, Narendra Modi, on global and bilateral issues, focused on co-operation between the G-7 and the G-20 (Japan and India hold their presidencies, respectively).

Besides this, Mr. Kishida also unveiled “Japan’s New Plan for a Free and Open Indo-Pacific” (FOIP) and exchanged views about deepening the “Japan-India Special Strategic and Global Partnership”.

Japan’s FOIP clearly shows that Japan wants to reinforce the idea that it has been the main champion of the FOIP concept, and Mr. Kishida’s speech underlined that given the current geopolitical landscape with the ongoing Russia-Ukraine war, growing Chinese assertiveness in the South China Sea, East China Sea, the Indian Line of Actual Control and the Taiwan Straits, there is a need to give a fresh push and momentum to this concept.

The New Plan for the FOIP lays stress on the need to uphold the rules-based order and respect each other’s territorial sovereignty, with Mr. Kishida warning that “at a time when the international community is at a historical turning point, I would like to clarify the concept of FOIP once again to propose a

guiding perspective to be shared by the international community which, if left unchecked, could drift towards division and confrontation”.

## Challenges before the Indo-Pacific

Japan’s new policy focuses on the numerous challenges facing the Indo-Pacific such as the Ukraine war, food security, and cyber space in addition to issues such as ensuring the free-dom of the seas, and connectivity among others.

Another challenge which has been highlighted is the lack of a united stand on “what the in-ternational order should be” — the differing position of countries on the Russia-Ukraine war has brought this issue to the fore. But there is a firm belief that the FOIP will be able to work with and embrace diverse voices and create an atmosphere of cooperation and collaboration rather than division and confrontation. For attaining this atmosphere of cooperation, ‘rule-making through dialogue’ should be encouraged.

The fact that Japan under the FOIP should work alongside other like-minded countries in the region has been mentioned, with India being billed as an ‘indispensable’ partner.

## The foundation

There is a realisation that Japan needs to do much more in the region, and towards this,

‘four pillars of cooperation’ under the new FOIP have been outlined: principles for peace and rules for prosperity; addressing challenges in an Indo-Pacific way; multi-layered connectivity; and extending efforts for security and safe use of the “sea” to the “air”.

In the first pillar, it has been pointed out that vulnerable countries usually suffer the most if there is an erosion in the rule of law.

Therefore, Japan wants to engage in economic development programmes such as promoting the implementation of the G-20 Principles for “Quality Infrastructure Investment”.

Under the second pillar, Mr. Kishida talked about “expansion of cooperation for the FOIP by incorporating realistic and practical projects in a wide range of areas, such as climate change, food security, global health and cybersecurity”. Japan has been working for long on connectivity projects bilaterally with many countries in the Indo-Pacific region.

Under the third pillar, the three areas identified for introducing more such projects are South-east Asia, South Asia and the South Pacific/Pacific Island countries. Japan has made a new commitment of \$100 million towards the Japan-ASEAN Integration Fund; it will promote the Bay

of Bengal-Northeast

India industrial value chain concept in cooperation with India and Bangladesh, and the new Palau International Airport Terminal project (an archipelago in the western Pacific Ocean) supported by Japan has also taken off.

Under the fourth pillar, Japan will help in strengthening the capabilities of maritime law enforcement agencies in other countries.

Towards these objectives, Japan will implement the “strategic use of Official Development Assistance (ODAs)”, revise the Development Cooperation Charter and set forth guidelines

for ODA for the next 10 years, and introduce an “offer-type” cooperation and a new framework for “private capital mobilization-type” grant aid.

Mr. Kishida also announced that Japan would “mobilize” a total of more than \$75 billion in public and private funds in the Indo-Pacific region by 2030 in infrastructure development.

### Tokyo’s role

The primary goal of Mr. Kishida’s visit was to reinforce the centrality of Japan in the emerging geopolitics of the Indo-Pacific.

In the past, he had stated that “Ukraine today may be East Asia tomorrow”, which

shows Ja-pan’s concern about growing Chinese belligerence in the region.

Mr. Kishida’s emphasis on the need to uphold a peaceful and a rules-based international order, and his putting forward policies and mechanisms under the new FOIP to help stabilise the regional order amidst the Ukraine war and the differing positions of countries on this conflict goes on to show that Japan is preparing itself for any unforeseen threat to its own as well as regional security.

A Japan deeply invested in Indo-Pacific stability and prosperity is good news indeed for In-dia and the wider region.

## SUDAN CRISIS

### Why in the News?

Sudan has been in the midst of a political crisis since long-serving ruler Omar al-Bashir was overthrown in April.

The military and pro-democracy movement have been locked in a tussle for power that has led to mass protests and killings.

The security forces have used brute force to strengthen the position of the generals.

In the worst such case, dozens of people were killed - and some had their bodies thrown into the River Nile - in a crackdown on protesters in the capital, Khartoum on 3 June.

But tens of thousands of protesters returned to the streets a few weeks later to stage the big-gest demonstration since Mr Bashir’s overthrow.

This forced the junta to resume talks on a power-sharing government and an agreement has now been reached.

### Background of crisis

The unrest in Sudan can be traced back to December 2018, when then President Bashir’s government-imposed emergency austerity measures to try to stave off economic collapse.

Cuts to bread and fuel subsidies sparked

demonstrations in the east over living standards and the anger spread to the capital, Khartoum.

The protests broadened into demands for the removal of Mr Bashir - who had been in charge for 30 years - and his government.

A council of generals assumed power on 11 April but it has struggled to return normality to the country.

The seven-member Transitional Military Council (TMC) is led by Lt-Gen Abdel Fattah Ab-delrahman Burhan. The council says it needs to be in charge to ensure order and security.

But the army is not a unified force in Sudan. Paramilitary organisations and various Islamist militias hold some sway.

The economic problems brought Sudanese from all walks of life to the streets, but the organisation of demonstrations was taken on by the Sudanese Professionals Association (SPA) - a collaboration of doctors, health workers and lawyers.

The protesters are mostly young, reflecting the country's demographics, but people of all ages have been seen in the crowds.

Women are at the forefront of the demonstrations.

A video of a young woman standing on the roof of a car and

leading the chants was widely shared on social media.

The military and protesters have reached several agreements fleshing out the details of a power-sharing arrangement, with each side trying to overcome suspicion and build a working relationship.

On 4 August they signed a constitutional declaration which will pave the way for the formation of a transitional government. A formal signing ceremony is due to take place on 17 August.

### **What has the international response to the crisis been?**

Most African and Western countries have backed the protesters. But Egypt, Saudi Arabia and the United Arab

Emirates are seen to be allies of the junta.

They perhaps fear the protests in Sudan could inspire similar events to take place in their countries.

The TMC's vice-president, Mohamed Hamdan Dagolo, also known as Hemeti, flew to Saudi Arabia in June to meet the crown prince Mohamed Bin Salman, promising to stand with the kingdom against threats and continue sending Sudanese troops to help the Saudi-led coalition in Yemen.

The AU suspended Sudan as a member of the pan-African body after 3 June crackdown, saying it will be reinstated only after a civilian-led transitional authority is established.

# INDIA-UAE COOPERATION ON FOOD SECURITY

## Why in the News ?

The United Arab Emirates (UAE), whose food security has been built on imports from global markets, is now focusing on the twin objectives of food access and readiness to confront supply chain crises.

India, the world's second-largest food producer, is an essential partner in the UAE's ambition to strengthen food security. The India-UAE food security partnership stands to benefit from multiple points of convergence.

## Many capabilities

India has built its status as a global agri-export powerhouse using its vast tracts of arable land, a highly favourable climate, and a large and growing food production and processing sector.

Along with serving global markets with its diversified agri-produce, India has, in recent years, acted as a humanitarian provider of food to developing countries, demonstrating awareness of its evolving role in advancing regional and global food security.

India has also made major budgetary outlays towards setting up massive food parks, with due emphasis on modern supply chain management spanning farm gate to retail outlet.

These investments, complemented by how India has placed its food sector

to benefit from bi-lateral trade agreements, reflect the country's strong and sustained intent to make the most of its agri-capabilities in the global food marketplace.

In parallel, India runs the Public Distribution System, the world's largest food subsidy programme, providing nearly 800 million citizens with subsidised grains, providing its people with the reassurance of daily, affordable meals.

Equally laudable is India's 'Prime Minister's Overarching Scheme for Holistic Nutrition (POSHAN) Abhiyaan', the world's largest nutrition programme for children and women. As a part of its G-20 presidency, India is promoting the consumption and farming of millets — nutritious, drought-resistant, sustainable, crops — that demonstrate the resilience focus that India offers to the global food security dialogue.

In the realm of food security, India's G-20 presidency seeks to address the three Cs, of "Covid, Conflict, and Climate" (to borrow from India's External Affairs Minister S. Jaishankar's address last year), issues pernicious to food security in India and across the globe.

## What the UAE brings to the table

Seen together, India brings to the table an incredible wealth of food sector

experience and the ability to operationalise the world's largest food supply chains — formidable capabilities that are strengthening the India-UAE food security partnership in a variety of ways. During the I2U2 (India, Israel, the United Arab Emirates and the United States) summit in July last year, the UAE committed \$2 billion in investment towards constructing food parks in India

(in Madhya Pradesh and Gujarat), while the signing of a food security corridor on the Com-prehensive Economic Partnership Agreement (CEPA)'s sidelines (with logistics partner DP World) has taken forward India's envisioned presence on the global food value chain, beyond the UAE.

The corridor could potentially commence a route for foods made and processed in India, beginning their outbound journey on the Indian coast of the Arabian Sea, passing through the UAE, and towards major international markets.

With its ability to establish high volume trade of foods, the corridor stands to emerge as a world-class template of successful agri-trade for India, while also unlocking greater productivity, efficiency and growth for its millions of workers and employees.

For the UAE, the benefits go beyond maintaining and diversifying its food reserves, and trade linkages could enable the Emirates to leverage its strategically placed location between Asia and Europe to serve as India's food export gateway to West Asia and the Africa region, and further beyond.

Given the food corridor's incredible commercial potential, several UAE-based companies have expressed interest in constructing a supporting logistics and infrastructure pipeline to accelerate trade and reinforce the food corridor.

The Dubai Multi Commodities Centre, the UAE's largest free trade zone, launched Agriota, an agri-trading and commodity platform to link Indian farmers to food

companies in the UAE.

Agriota gives millions of Indian farmers the opportunity to directly reach out to the entirety of the UAE's food ecosystem (processing companies, traders, wholesalers) and stock their products in Emirati stores.

Alongside this initiative, a consortium of UAE-based entities are investing up to \$7 billion in mega food parks, contract farming and the sourcing of agrocommodities in India. The initiative will include mega food parks, logistics and warehouse hubs, and fruits and vegetable hubs.

### **The benefits**

There is much that India stands to gain from the UAE's private sector projects spanning its agricultural and food processing sector. Those

projects will generate lakhs of non-farm agri-jobs, while enabling farmers to discover better prices for their products.

Bolstered by the UAE's infrastructural capabilities, India's agricultural products will have more resilient and diversified pathways to the global marketplace.

India's G-20 presidency offers an opportune moment for both India and the UAE to show-case viable strategies and frameworks that can forge the basis of food security in the Global South.

As it sets the global developmental agenda, India can look to leverage and strengthen trade pathways with the UAE to forge a sustainable, inclusive, efficient, and resilient future of food.



# SOCIETY &

# SOCIAL JUSTICE

What's Inside?

1. DENOTIFIED, NOMADIC AND SEMI-NOMADIC TRIBES
2. SAFE CITY PROJECT
3. HIKIKOMORI, A PHENOMENON OF SOCIAL WITHDRAWAL
4. STATE OF WORLD POPULATION REPORT 2023
5. SMART CITIES MISSION



## DENOTIFIED, NOMADIC AND SEMI-NOMADIC TRIBES

### Context:

Recently, A three-day national conclave on denotified, nomadic and semi-nomadic tribes concluded in Hyderabad.

### About Denotified, nomadic and semi-nomadic tribes:

The De-notified, Nomadic and Semi-Nomadic Tribes are the most neglected, marginalized and economically and socially deprived communities.

Denotified tribes (DNTs) are communities that were 'notified' as being 'born criminal' during the British regime under a series of laws starting with the Criminal Tribes Act of 1871 and 1947.

These Acts were repealed by the Independent Indian Government in 1952, and these communities were "De-Notified".

These tribes somehow escaped the attention of our developmental framework and thus are deprived of the support unlike Scheduled Castes and Scheduled Tribes.

Development and Welfare Board:

It has constituted by the ministry in 2019 on the recommendation of National Commission formed in 2017.

The Board has been mandated to formulate

and implement welfare and development programmes for these communities.

### Scheme for Economic Empowerment of DNTs (SEED)

Aim: To provide free competitive exam coaching, health insurance, housing assistance and livelihood initiatives at community level and financial assistance for construction of houses will be provided to the members of DNT/NT/SNT Communities.

An amount of 200 crore has been allocated for this scheme — to be spent over five years from FY2021-22 to FY2025-26.

Nodal Ministry: Social Justice and Empowerment Ministry.

### The National Commission for Denotified, Nomadic and Semi-Nomadic Tribes

The National Commission for Denotified, Nomadic and Semi-Nomadic Tribes was constituted by the Ministry in 2005.

Its mandate was to study the socio-economic conditions of the "most disadvantaged and vulnerable sections of Indian society" and to identify measures for their development.

## SAFE CITY PROJECT

Delhi will soon have a seamless network of sensors implemented as part of the first phase of the Safe City Project.

The Safe City Project is an initiative of the Ministry of Home Affairs, in collaboration with the Ministry of Women and Child Development under the Nirbhaya Fund, aimed at creating a safe, secure, and empowering environment for women and girls in public spaces. The project is being implemented in eight metro cities, including Delhi, Mumbai, Chennai, Kolkata, Hyderabad, Ahmedabad,

Lucknow, and Bengaluru.

Under the project, CCTV cameras will be installed, along with a command-and-control center with facilities for video analytics, AI, machine learning, and facial recognition. The cost of the projects is shared in a 60:40 ratio between the Central government.

The Delhi project is fully funded by the Central government and will be implemented by the Delhi Police through the Centre for Development of Advanced

Computing (C-DAC). RailTel and NEC India have been appointed by C-DAC to install CCTV cameras and connect them to feeders and main servers, respectively. Additionally, 88 Prakhar Vans equipped with mobile data terminals, body-worn cameras, and other features will be deployed across the city.

### Enhancing Policing and Security through the Project:

The Safe City Project in Delhi is an initiative that aims to enhance policing and security in the city using AI-based applications.

The project will use AI to assess crowds in real-time, picking up behavioral traits and discrepancies. AI will immediately notify command and control centers in police headquarters, district offices, and police stations in case of deviations that indicate impending crime.

The project's goal is to prevent crime by providing real-time information to police officers and enabling them to take timely action. The project is a step forward towards a safer and more secure environment for all.

## HIKIKOMORI, A PHENOMENON OF SOCIAL WITHDRAWAL

Hikikomori is a term used to describe people who have withdrawn from society, often for a period of six months or longer. It is associated with feelings of anxiety, depression, and social phobia. It is thought to be a response to the pressures of modern society, including high academic expectations, intense competition, and social isolation.

### Effects:

Hikikomori can lead to further mental health problems, including depression and anxiety, and can make it difficult for individuals to reintegrate into society. It can also have long-term effects on individuals' social and economic prospects, making it harder for them to find work or form relationships.

Hikikomori can lead to reduced productivity and can make it harder for individuals to contribute to the wider economy. It can also exacerbate demographic challenges, including an aging population and a declining birth rate.



## STATE OF WORLD POPULATION REPORT 2023

### Why in news?

The latest State of World Population Report, an authoritative analysis by the UN, has officially stamped what has been known for a while: that India will become the most populous country in mid-2023, surpassing China's 142.5 crore by about 3 million.

### About

**SOWP Report** - The State of World Population is **published annually which covers and analyses developments and trends in world population** and demographics, as well as shedding a light on specific regions, countries and population groups and the unique challenges they face.

The UN body suggested focusing on women's reproductive rights rather than the numbers.

### Global estimates

The total world population was projected at **8.045 billion**.

UNFPA data estimates **India's population** will go **up to 1.4286 billion** against **1.4257 billion** for **China** by the middle of the year

Population growth in both India and China has been **slowing**, despite accounting for more than one-third of the estimated global population

With a population of **340 million**, the **United States** is a distant third, according to the demographic indicators in the report

**Developed regions** projected a **fertility rate of 1.5**, less **developed regions 2.4** and least developed countries 3.9.

On average, the **life expectancy for males** globally was projected **71 and 76 for females**

Global experience has shown that **family planning targets can lead to gender-based discrimination** and other harmful practices.

### Position of India

India will also have the largest youth cohort — **254 million** in the age range of **15-24 years**. With almost half the population under 25 years of age, India has a time-bound opportunity to benefit from the **demographic dividend**

**India's total fertility rate**, or births per woman, was estimated **at 2**, lower than the world average of 2.3.

The average **life expectancy** for an Indian

**male** was projected **71 and 74 for females**.

The report also brought up worrying statistics regarding **gender rights in India**. The **adolescent birth rate per 1,000 girls aged 15–19 was 11**, while **23 per cent of girls were married off before the age of 18**.

**Violence by an intimate partner** in the last 12 months was reported by 18 per cent of women, while 66 per cent of women had decision-making on sexual and reproductive health and reproductive rights. A little over 80 per cent of women had some say in decision-making regarding their own healthcare.

### United Nations Population Fund's (UNFPA)

It is an international development agency created in 1968 to support the execution of projects and programmes in the **area of population and sexual and reproductive health**.

Its mission is to deliver a world where every pregnancy is wanted, every childbirth is safe and every young person's potential is fulfilled.

In 1987, it was officially **renamed as the United Nations Population Fund** but the original abbreviation UNFPA (**United Nations Fund for Population Activities**) was retained.

**Headquarters:** New York

It is **not directly responsible for the collection of primary statistics**; it plays an important role in the technical and financial support of statistical activities in countries, such as population censuses and thematic surveys etc.

## SMART CITIES MISSION

- It is an initiative of the MoHUA launched as a Centrally Sponsored Scheme on June 25, 2015.
- To promote cities that provide core infrastructure, and a clean and sustainable environment, 100 cities (to be developed as Smart Cities) have been selected through a two-stage competition (from January 2016 to June 2018).

- 66 of the cities are small (less than 1 million population) and are implementing two-thirds of the projects.

### Aim:

- Drive economic growth through comprehensive work on social, economic, physical and institutional pillars of the city and

- Improve the quality of life through smart solutions.
- Focus on sustainable and inclusive development by the creation of replicable models which act as lighthouses to other aspiring cities.

### **What kinds of projects were proposed?**

- The project includes making certain stretches of pedestrian-friendly roads into more capital-intensive ones like laying water pipelines and constructing STPs.
- In addition, some PPP infrastructure projects like multi-modal transport hubs, common mobility cards and public bike sharing are included.
- All 100 cities have also constructed Integrated Command and Control Centres to monitor all security, emergency and civic services.

During the peak of the Covid-19 pandemic, these were converted into emergency response units by many of the cities.

### **What is the status of the projects?**

- The projects were supposed to be completed within five years, but in 2021 the Ministry changed the deadline for all cities to June 2023.
- As of March 2023, the 100 cities have issued work orders for 7,799 projects worth Rs 1.80 lakh crore.
- 50 out of the 100 cities have completed 75% of the projects and would be able to complete the remaining works by June.
- However, they would need more time to carry out the documentation, dissemination and institutionalisation of the best practices and innovations.

# Economic Development & Agriculture



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# THE GLOBAL SOVEREIGN DEBT ROUNDTABLE (GSDR)

## Why in the News?

Recently, The Global Sovereign Debt Roundtable (GSDR), co-chaired by the IMF, WBG, and India as the Group of Twenty (G20) 2023 presidency.

## About

The World Bank and IMF will present proposals to address the mounting debt problems of poor countries at the Global Sovereign Debt Roundtable.

The proposals aim to improve transparency and accelerate debt restructuring, which has been delayed by disagreements between traditional sovereign debt restructuring countries and China, a major international creditor.

GSDR met with bilateral creditors (France — chair of the Paris Club, US, the United Kingdom, China, Saudi Arabia and Japan) and debtor countries (Ecuador, Suriname, Zambia, Sri Lanka, Ethiopia and Ghana) and Brazil as the forthcoming presidency of the G20 in 2024.

## Reasons for Mounting Debt of Developing Countries in Recent Years

### *Covid-19 Pandemic*

Pandemic-related spending and revenue loss have worsened the debt outlook. Countries had to borrow heavily to finance stimulus packages and health measures. The sharp drop in economic activity and reduced trade and investment flows have also hurt revenues.

### *Commodity Price Decline*

Developing countries reliant on commodity exports have been hit by falling prices. Reduced export revenues have led to balance of payment pressures and higher borrowing.

## High-Interest Rates

Many developing countries have had to borrow at high-interest rates due to their weak creditworthiness. This has made debt servicing costs high, further exacerbating debt problems.

### *Capital Flight*

Capital flight from developing countries has increased due to economic uncertainty and global market volatility. This has led to a shortage of foreign exchange reserves and increased borrowing to fill the gap.

### *Weak Governance and Corruption*

Weak governance and corruption have led to poor economic policies and wasteful spending, exacerbating debt problems. Mismanagement of loans and inadequate debt monitoring has led to debt accumulation.

### *Climate Change*

Developing countries are disproportionately affected by climate change, which has led to natural disasters and reduced agricultural yields. These impacts have led to economic and fiscal pressures, increasing the need for borrowing.

### *China's Belt and Road Initiative*

China's Belt and Road Initiative has led to increased borrowing by developing countries for infrastructure projects. Concerns have been raised over the sustainability of these projects and their impact on debt levels.

For example, the recent Sri Lankan economic crisis.

### *Conflict and Political Instability*

Conflict and political instability, such as the ongoing Russia-Ukraine conflict, have led to increased military spending and economic disruption. This has led to reduced revenue and

increased borrowing to finance military operations and rebuilding efforts, exacerbating debt problems.

The conflict has also contributed to higher global food and petroleum prices, which have impacted developing countries' balance of trade and inflation, adding to their debt burdens.

## **Possible Consequences of Developing Countries getting Bankrupt**

### ***Economic Recession:***

Bankruptcy could trigger an economic recession in the country, with reduced economic activity, rising unemployment, and falling incomes.

Reduced economic activity would mean lower tax revenues for the government, making it more difficult to service its debts and implement economic reforms.

### ***Social Unrest:***

Bankruptcy could lead to social unrest, as people protest against rising unemployment, falling incomes, and reduced public services.

Social unrest could further undermine economic stability and increase the risk of political instability.

### ***Reduced Access to Capital:***

Bankruptcy would likely lead to a reduction in the country's credit rating, making it more difficult and expensive for the government and private sector to access capital markets.

This could make it more difficult for the country to fund investment and infrastructure projects, further undermining economic growth.

### ***Loss of Sovereignty:***

In extreme cases, bankruptcy could lead to loss of sovereignty, as international financial institutions or other countries demand control over the country's economic policies in exchange for financial support.

Loss of sovereignty could further undermine

public trust in government institutions and lead to political instability.

### **Negative Impact on Global Economy:**

A wave of bankruptcies in developing countries could have a negative impact on the global economy, as it would reduce demand for goods and services from developed countries and reduce investment flows.

This could lead to a global economic slowdown or recession, with potentially significant negative consequences for the world's poorest and most vulnerable populations.

### **The Solutions proposed by World Bank**

#### **Debt Sustainability Analysis:**

The World Bank and IMF propose to share their debt sustainability analysis with all creditors involved in discussions at the same time, in order to improve transparency and information sharing.

This would help to calculate the size of debt relief needs and provide a more comprehensive picture of the debtor's financial position.

#### **Accelerated and Strengthened Restructuring:**

Creating clear timelines for steps, including the formation of creditor committees, the provision of financing assurances, and the signing of actual restructuring agreements, would accelerate and strengthen the restructuring process.

Suspending debt service payments at the start of the process would provide incentives for reaching a deal and protect debt repayment ability.

### ***Country-Specific Solutions:***

The World Bank is actively engaged in individual country cases, such as Zambia, Ghana, and Ethiopia, to find solutions for their debt problems.

The official creditor committee for Zambia, led by China and France, plans to meet in April 2023, and the World Bank is hoping for a positive outcome.

Technical meetings on Ghana are progressing well, but faster progress is needed on Ethiopia.

### **Urgent Action:**

With more than half of the world's low-income countries at high risk of debt distress, urgent action is needed to address the growing debt crisis.

The G-20 largest economies agreed in 2020

on a plan called the Common Framework to smooth the process of restructuring loans that governments could no longer afford to service or repay, but not a single nation has yet received relief under it.

All parties must turn their words into action to address the debt crisis.

## FOREIGN EXCHANGE MANAGEMENT ACT CASE AGAINST BBC INDIA

Enforcement Directorate (ED) has recently registered a case against the British Broadcasting Corporation (BBC) India under the Foreign Exchange Management Act (FEMA).

The ED registered a case against BBC, under FEMA, for the alleged violation is the Foreign Direct Investment (FDI). Earlier, the Income-Tax Department had also carried out surveys in the offices of BBC in New Delhi and Mumbai on non-compliance with transfer pricing rules and vast diversion of profits.

Transfer pricing refers to the prices of transactions between associated enterprises. In other words, Transfer pricing refers to the value attached to transfers of goods, services, and technology between related entities, and between unrelated parties that are controlled by a common entity.

Provisions	FERA	FEMA
Origin	1973	1999
Aim	To regulate foreign exchange in order to conserve foreign exchange reserves.	To facilitate external trade & payments and promoting orderly development and maintenance of foreign exchange market.
Background	Formulated at a time when the foreign reserves were limited	Enacted at a time when the foreign reserves were satisfactory
Provisions	Complex: consisted of 81 sections	Simple: consist of 49 sections
Right of Assistance	It did not contain any provision on the defaulter to seek any legal assistance	It expressly recognizes the right of appellant to take assistance of legal practitioner
Category of violation	Criminal offence	Civil offence
Punishment	Imprisonment	Monetary penalty
Search & Seizure	It conferred wide powers to make a search	The scope and power of search and seizure has been curtailed and confined to officers of Enforcement
Transactions	All foreign exchange dealings required permission from RBI or Central government	Current account transactions are free from permissions and certain Capital Account transactions required special permission from RBI

### **FEMA Act, 1999:**

Foreign Exchange Management Act

(FEMA) came in 1999 as a successor to the Foreign Exchange Regulation Act (FERA) of 1973. It



was drafted while keeping in mind the changing economic conditions in a post-liberalisation India. The aim of the act was to facilitate external

growth, encourage foreign exchanges, maintenance of foreign exchange market in India.

## NIFTY REITS AND INVITS INDEX

### Why in news?

NSE Indices Ltd, an arm of the National Stock Exchange (NSE), on Tuesday launched the country's first-ever Real Estate Investment Trusts and Infrastructure Investment Trusts index — Nifty REITs and InvITs Index.

### About

The new index— Nifty Reits and InvITs index—aims to **track the performance of Reits and InvITs that are publicly listed** and traded on the NSE.

The weights of securities within the index are **based on their free-float market capitalization**, subject to a security cap of 33% each and aggregate weight of top-3 securities is capped at 72%.

The Nifty Reits & InvITs Index has a **base date of 1 July 2019** and a **base value of 1,000**. The index will be reviewed and **rebalanced on a quarterly basis**.

The top constituents of the Nifty Reits & InvITs index include **Embassy Office Parks Reit, Powergrid Infrastructure Investment, Mindspace Business Parks Reit, and India Grid Trust**.

The index has 57.5% weight to Real estate, 35.6% to power, and 6.8% to services.

### REIT and InvIT

REIT and InvIT are two different investment vehicles used in the financial markets. Here's a brief overview of both:

**Real Estate Investment Trust (REIT):** A Real Estate Investment Trust (REIT) is a company that owns, operates, or finances income-generating real estate properties.

REITs pool capital from multiple investors and use it to invest in a diversified portfolio

of properties, which can include commercial buildings, residential complexes, hotels, malls, or other types of real estate assets. REITs typically generate income through rental or lease payments from their properties.

REITs offer investors the opportunity to invest in **real estate without directly owning and managing properties**. They provide a way to access real estate investments with liquidity, as REIT units are listed and traded on stock exchanges. Additionally, REITs are required to **distribute a significant portion of their earnings as dividends to shareholders**, which can make them attractive for income-seeking investors.

**Infrastructure Investment Trust (InvIT):** An Infrastructure Investment Trust (InvIT) is an investment vehicle that **allows investors to invest in infrastructure projects**. InvITs pool funds from investors and use them to **invest in completed and revenue-generating infrastructure** assets such as highways, power transmission lines, airports, or renewable energy projects.

Similar to REITs, InvITs are required to **distribute a significant portion of their income as dividends to investors**. They are listed and traded on stock exchanges, providing liquidity to investors. By investing in InvITs, individuals can indirectly participate in infrastructure projects and potentially benefit from the stable income streams generated by these assets.

InvITs and REITs share some similarities, such as the requirement to distribute dividends and being listed on stock exchanges. However, they differ in terms of the underlying assets they invest in. REITs focus on income-generating real estate properties, while InvITs focus on revenue-generating infrastructure assets.

## National Stock Exchange

The National Stock Exchange (NSE) is one of the major stock exchanges in India. It is the leading exchange in terms of market share and trading volume and is recognized as the largest stock exchange in India in terms of listed companies.

The NSE was established in 1992 and was the first electronic exchange in India. It was set up with the goal of providing a transparent and efficient trading platform for various financial instruments. The exchange operates under the

regulatory framework of the Securities and Exchange Board of India (SEBI), which is the primary regulatory authority for the securities market in India.

The NSE is closely associated with the Nifty Index, which is a widely followed benchmark index of the Indian stock market. The Nifty consists of 50 large-cap and liquid stocks from various sectors and provides a measure of the overall market performance.

## BLUEWASHING

### Why in news?

A new research has highlighted how **corporate capture of global food governance is increasingly taking place** in more visible ways. When corporations are involved in public governance, they can also **justify involvement by reframing the concept of public interest in terms that benefit corporations** and large private businesses rather than people and the environment, noted Who's tipping the scales report, released by the International Panel of Experts on Sustainable Food Systems (IPES) on April 25, 2023.

### About

Bluewashing is a term used to describe **the practice of corporations or organizations presenting themselves as environmentally friendly** or socially responsible **without taking meaningful actions** to address the underlying issues.

It is often associated with companies engaging in public relations or marketing campaigns **to create a positive image related to sustainability or social responsibility**, while their actual practices may not align with the values they claim to uphold.

The term "bluewashing" is derived from the concept of "greenwashing," which refers to **misleading or exaggerated claims of environmental friendliness**. Bluewashing specifically focuses on the realm of water-related issues, such as water conservation, pollution, or

access to clean water.

**Active disinformation is a tool** that companies use **to make their goods or services more attractive to their consumers and shareholders**.

### IPES

IPES-Food - the International Panel of Experts on Sustainable Food Systems - is a diverse and independent panel of experts guided by new ways of thinking about research, sustainability, and food systems. Since 2015, IPES-Food has uniquely shaped the debate on global food systems reform, through policy-oriented research and direct engagement with policy processes.

The experts called the 2021 UN Food Systems Summit (UNFSS) a watershed moment in drawing attention to corporate influence over public food governance.

### Food system

The food system refers to the complex web of activities, processes, and relationships involved in producing, processing, distributing, and consuming food. It encompasses all the stages from agricultural production and harvesting to transportation, storage, processing, packaging, marketing, retailing, and consumption of food products. The food system also includes the waste management and recycling processes related to food.

## UN Food Systems Summit

Originally announced on 16 October 2019 by UN Secretary-General António Guterres, the UN Food Systems Summit, including a Pre-Summit, was conceived following conversations with the joint leadership of the three Rome-based United Nations agencies – the Food and Agriculture Organization, the International Fund for Agricultural Development and the World Food Programme – at the High-level Political Forum

in July 2019.

The Food Systems Summit was convened in 2021 as part of the Decade of Action to achieve the Sustainable Development Goals (SDGs) by 2030.

The Summit launched bold new actions to deliver progress on all 17 SDGs, each of which relies to some degree on healthier, more sustainable and equitable food systems.

## OECD'S AUTOMATIC EXCHANGE OF INFORMATION (AEOI) FRAMEWORK

### Why in news?

India is pushing to widen the **scope of the common reporting standard (CRS)** at the G20 grouping to include non-financial assets like real estate properties under the automatic exchange of information among OECD countries.

### About

OECD AEOI stands for the Organisation for Economic Co-operation and Development's Automatic Exchange of Information. It is an **international standard for the automatic exchange of financial account information** between tax authorities of different countries.

The purpose of OECD AEOI is to **combat tax evasion** and **promote global tax transparency**. It requires financial institutions to collect and report certain financial information about their customers, who are tax residents in other countries, to the tax authorities in their home countries. This information is then automatically exchanged with the tax authorities of the customers' countries of residence.

India currently has AEOI with 108 jurisdictions for receiving financial information and with 79 jurisdictions for sending information automatically.

**Common Reporting Standard (CRS)** is the framework developed by the OECD for the implementation of AEOI. It establishes the **reporting requirements** and due diligence

procedures that financial institutions must follow.

**Multilateral Competent Authority Agreement (MCAA)** is a framework agreement that facilitates the implementation of AEOI among participating jurisdictions. It sets out the **legal and administrative procedures** for the exchange of information and establishes the obligations of participating countries.

In August 2022, the OECD also approved the **Crypto-Asset Reporting Framework (CARF)** which provides for the **reporting of tax information on transactions in Crypto-Assets** in a standardised manner, with a view to automatically exchanging such information.

### OECD

The Organisation for Economic Co-operation and Development (OECD) is an international organization that promotes **economic growth, stability, and improved living standards** for people around the world.

It serves as a forum for governments to discuss and coordinate policies, share information, and address global challenges.

The OECD currently **has 38 member countries**, mostly high-income economies. Its membership includes countries from North and South America, Europe, Asia-Pacific, and the Middle East.

The primary mission of the OECD is to **promote policies that foster economic prosperity**,

**social well-being, and sustainable development.** It aims to facilitate international cooperation, provide analysis and recommendations, and help governments make informed decisions on a wide range of policy issues.

The OECD covers various policy areas,

including economics, finance, trade, education, employment, taxation, innovation, science and technology, health, environment, and more. It conducts research, produces reports, and offers policy advice to member countries on these topics.

## SAI20: BLUEPRINT FOR A BLUE ECONOMY

### What is SAI20?

The SAI20 Engagement Group of G20 was established in 2022 during Indonesia's Presidency of the G20.

The constitution of SAI20 stems from a recognition of the role of SAIs in –

Promoting the efficiency, accountability, and transparency of public administration, and supporting SDG implementation.

Promoting intergenerational equity and addressing climate change concerns.

### What is expected in the blue economy deliberations?

Preparation of technology-driven tools to assess authorised development in coastal stretches and track marine water quality.

Evolution of globally relevant audit toolkits for coastal spaces, which include –

- Legal and institutional frameworks,
- Compliance with coastal regulations,
- Biodiversity conservation,
- Capacity building and compliance to SDGs.

The global annual value of the blue/ocean economy is ~\$2.5 trillion.

About 90% of global trade by volume [75% by value] is carried out through sea routes.

### Challenges:

The measurement of the blue economy is



challenging due to conflicting definitions and issues while classifying different sectors and sub-sectors.

Climate change: Sea-level rise, water temperature, storm surges, cyclones and wave conditions are some of the signs.

Land use changes, sand mining and deforestation impinge on the coastal ecosystem.

### In the context of India,

~15% of India's coastal areas have witnessed changes between 1992 and 2018 due to agriculture, depleting forest cover and urbanisation.

The population living in the country's coastal areas is expected to rise from 64 million in 2000 to 216 million by 2060.

Two priorities for SAI20 deliberations: Blue economy and responsible Artificial Intelligence (AI).

### Way ahead:

Disaster-resilient infrastructure along coasts  
ICT hubs for early warning systems

The SAI20 audit toolkits being prepared under the leadership of the CAG of India will provide a

unique opportunity for constructive dialogue to improve the auditing of ocean-based activities.

### Conclusion:

The audit toolkits will help in the assessment of policy goals, and resource efficiency while leveraging economic opportunities towards a truly sustainable blue economy-based global development model.

## INSTITUTE OF COMPANY SECRETARIES OF INDIA

### Why in news?

The Institute of Company Secretaries of India will now be able to induct members from regulators as well as sectoral experts in its **secretarial and auditing standards board** after recent amendments by the government.

### About

### Institute of Company Secretaries of India (ICSI)

The Institute of Company Secretaries of India (ICSI) is a **professional body** in India that regulates and develops the profession of **company secretaries**. It was established under the **Company Secretaries Act, 1980**, which grants statutory recognition to the profession.

The primary objective of the ICSI is to **promote** and regulate the profession of **company secretaries** in India. It sets standards for professional education, conducts examinations, grants membership, and regulates the professional

conduct of its members.

The ICSI has a **well-established disciplinary mechanism** to ensure compliance with professional standards and ethical conduct. It **investigates complaints against members** and takes appropriate disciplinary actions if necessary.

Its headquarters is located at **New Delhi**

Four Regional Offices at New Delhi, Chennai, Kolkata, Mumbai and 69 Chapters across India.

The ICSI, country's only recognised professional body for developing and regulating the profession of Company Secretaries, can now form a Secretarial Standards Board and an Auditing Standards Board, both of which can include eminent Company Secretaries in employment or practice, as well as representatives from regulatory authorities.

Previously, the ICSI had a secretarial standards committee and auditing standards committee comprising members of the Council of ICSI.

## DABBA TRADING

### Why in news?

In the past week, the National Stock Exchange (NSE) issued a string of notices naming entities involved in 'dabba trading'. The bourse cautioned retail investors to not subscribe (or invest) using any of these products offering indicative/assured/guaranteed returns in the stock market as they are prohibited by law. It added that the entities are not recognised as authorised members by the

exchange.

### About

Dabba (box) trading refers to **informal trading** that takes place outside the purview of the stock exchanges. Traders **bet on stock price movements without incurring a real transaction** to take physical ownership of a particular stock as is done in an exchange. In simple words, it is

**gambling centred around stock price movements.**

For example, an investor places a bet on a stock at a price point, say ₹1,000. If the price point rose to ₹1,500, he/she would make a gain of ₹500. However, if the price point falls to ₹900, the investor would have to pay the difference to the dabba broker. Thus, it could be concluded that the broker's profit equates the investor's loss and vice-versa. The equations are particularly consequential during bull runs or bear market.

The primary purpose of such trades is to **stay outside the purview of the regulatory mechanism**, and thus, transactions are **facilitated using cash and the mechanism is operated using unrecognised software terminals.**

Other than this, it could also be facilitated using informal or kaccha (rough) records, sauda (transaction) books, challans, DD receipts, cash receipts alongside bills/contract notes as proof of trading.

### Effects of dabba trading

**Illegal Nature:** Dabba trading is illegal in India. It operates outside the regulatory framework established by the Securities and Exchange Board of India (SEBI) and the recognized stock exchanges. The trades conducted in dabba trading are not reported, monitored, or regulated by the authorities.

**Tax evasion :** Since there are no proper records of income or gain, it helps dabba traders

**escape taxation.** They would not have to pay the Commodity Transaction Tax (CTT) or the Securities Transaction Tax (STT) on their transactions. The use of cash also means that they are **outside the purview of the formal banking system.** All of it combined results in a loss to the government exchequer.

**Investor Risks :** In 'dabba trading', the primary risk entails the possibility that the broker defaults in paying the investor or the entity becomes insolvent or bankrupt. Being outside the regulatory purview implies that investors are without formal provisions for investor protection, dispute resolution mechanisms and grievance redressal mechanisms that are available within an exchange.

**Shadow economy expansion :** Since all activities are facilitated using cash, and without any auditable records, it could potentially encourage **the growth of 'black money'** alongside perpetuating a **parallel economy.** This could potentially translate to risks entailing money laundering and criminal activities.

**Damage to Market Integrity:** Dabba trading undermines the integrity of the overall stock market. It erodes investor confidence, distorts market prices, and creates an unfair advantage for those engaged in illegal activities. It can also impact the liquidity and efficiency of the legitimate stock exchanges by diverting trading volumes away from the regulated markets.

## LONDON INTERBANK OFFERED RATE (LIBOR)

The Reserve Bank of India (RBI) has asked the banks and financial institutions to facilitate a complete transition away from the London Interbank Offered Rate (LIBOR) by the 1st of July 2023.

### About LIBOR

LIBOR is a globally accepted benchmark interest rate at which major global banks may borrow from one another in the international (London) interbank market for short-term loans.

LIBOR is used as a benchmark to settle trades

in futures, options, swaps and other derivative financial instruments in over-the-counter markets and on exchanges.

Furthermore, LIBOR is also used as a benchmark rate for consumer lending products such as credit cards, mortgages, student loans, corporate debt, etc.

### Controversy surrounding LIBOR

Recently, there have been efforts to phase out LIBOR because of its role in worsening the Financial Crisis of 2008 and also due to the

scandals involving LIBOR manipulation among rate-setting banks.

Critics have pointed out that the mechanism adopted by LIBOR relied heavily on banks to be honest with their reporting disregarding their commercial interests.

Investigations have revealed a long-lasting scheme among various banks to manipulate rates in order to acquire more profit.

### Other alternatives to LIBOR

The U.S. Federal Reserve in 2017, announced the Secured Overnight Financing Rate (SOFR) as an alternative to LIBOR.

Post the introduction of SOFR, new transactions in India were to be undertaken using the SOFR and the Modified Mumbai Interbank Forward Outright Rate (MMIFOR), replacing LIBOR and its corresponding domestic Mumbai Interbank Forward Outright Rate (MIFOR).

SOFR is a rate produced by the U.S. Federal Reserve Bank based on transaction data

(observable repo rates which are collateralised by U.S. Treasury securities) and is not based on estimates by experts as in LIBOR.

Thus, SOFR is considered to be more accurate and less prone to market manipulation.

RBI had asked banks in India to assess their LIBOR exposures and initiate their preparations to adopt alternative reference rates.

Contracts that were signed after December 31, 2021, were told not to use the LIBOR as a reference rate and the contracts that were entered before the date were to have fallback clauses for revised considerations when the LIBOR is completely phased out.

As both LIBOR and MIFOR would cease to be a representative benchmark from June 30 2023, the RBI has asked banks and financial institutions to develop their systems and processes to facilitate the complete transition to SOFR and MMIFOR from July 1st, 2023.

## RBI REGULATIONS ON GREEN DEPOSITS

### Why in the News?

Recently, the Reserve Bank of India (RBI) came up with a regulatory framework for banks to accept green deposits from customers.

Under the new framework, banks that accept green deposits will have to disclose more information on how they invest these deposits.

### Green Deposits

Green deposits are not very different from the regular deposits that banks accept from their customers. The only major difference is that banks promise to earmark the money that they receive as green deposits towards environment-friendly projects.

For example, a bank may promise that green deposits will be used towards financing renewable energy projects that fight climate change. A green deposit is just one product in a wide array of other financial products such as green bonds, green shares, etc., that help investors put money into

environmentally sustainable projects.

### RBI's Regulatory Framework for Green Deposits:

It lays down certain conditions that banks must fulfill to accept green deposits from customers.

Firstly, banks will have to come up with a set of rules or policies approved by their respective Boards that need to be followed while investing green deposits from customers. These rules need to be made public on the banks' websites.

The banks will also have to disclose regular information about the amount of green deposits received, how these deposits were allocated towards various green projects, and the impact of such investments on the environment.

A third party will have to verify the claims made by banks regarding the projects in which the banks invest their green deposits. The RBI has come up with a list of sectors that can be

classified as sustainable and thus eligible to receive green deposits.

These include renewable energy, waste management, clean transportation, energy efficiency, and afforestation. The new rules are aimed at preventing greenwashing, which refers to making misleading claims about the positive environmental impact of an activity.

For example, a bank may advertise that their green deposits will have a huge positive impact on the environment, while the actual impact may be minimal.

### Will Green Deposits help Depositors/ Investors and the Environment?

Depositors who care about the environment

may get some satisfaction from investing their money in environmentally sustainable investment products.

However, there are challenges, since the bank is only able to invest in a certain number of projects with green funds.

When it comes to protecting the environment, green investing enthusiasts believe that putting money into green projects may be one of the best ways to help the environment.

However, critics call green investing “a feel-good scam” that enriches only consultants.

In a complex world, it can be extremely hard to know if a project is really environmentally sustainable.

## LIGHTWEIGHT AND PORTABLE PAYMENT SYSTEM

### Why in the News?

The Reserve Bank of India (RBI) is developing a lightweight and portable payment system designed to operate during catastrophic events.

### About

The RBI has conceptualized this system which it is calling a bunker which is an equivalent of digital payments that can be operated from anywhere by a bare minimum staff in exigencies such as natural calamities or war.

It is expected to operate on minimalistic hardware and software and would be made active only on a need basis.

The infrastructure for this system will be

independent of the technologies that underlie the existing systems of payments such as UPI, NEFT, and RTGS.

The system is expected to process transactions that are critical to ensure the stability of the economy, including government and market-related transactions.

The existing conventional payment systems such as RTGS, NEFT, and UPI are designed to handle large volumes of transactions while ensuring sustained availability.

As a result, they are dependent on complex wired networks backed by advanced IT infrastructure.

## OFFER FOR SALE (OFS)

### Why in the News?

Govt to sell up to 3% stake in Coal India via OFS

### About Offer For Sale (OFS)

OFS is a simpler method of share sale through the exchange platform for listed companies. The OFS method was brought in by the Securities and Exchange Board of India

(SEBI) in 2012 as a simpler one to aid promoters of listed firms to dilute their stake and comply with the minimum public shareholding norms by June 2013.

The method was largely adopted by listed companies, both state-run and private, to adhere to the SEBI order. Later, the government started using this route to divest its shareholding in public sector enterprises.



## Features

Unlike a follow-on public offering (FPO), where companies can raise funds by issuing fresh shares or promoters can sell their existing stakes, or both, the OFS mechanism is used only when existing shares are put on the block.

Only promoters or shareholders holding more than 10 per cent of the share capital in a company can come up with such an issue.

The mechanism is available to 200 top companies in terms of market capitalisation.

In an OFS, a minimum of 25 percent of the shares offered, are reserved for mutual funds (MFs) and insurance companies. At any point, no single bidder other than these two institutional

categories is allocated more than 25 per cent of the size of the offering.

A minimum of 10 percent of the offer size is reserved for retail investors.

A seller can offer a discount to retail investors either on the bid price or on the final allotment price.

It is mandatory for the company to inform the stock exchanges two banking days prior to the OFS about its intention.

Anyone can bid for these shares, be it foreign institutional investors, retail investors or companies.

## NPCI INTRODUCED INTERCHANGE FEES

The National Payments Corporation of India (NPCI) has introduced interchange fees of up to 1.1% on merchant UPI transactions done using prepaid payment instruments (PPI) from April 1, 2023.

A PPI payment via UPI means a transaction done via a wallet, like Paytm Wallet, through a UPI QR code.

Interchange fee is a fee charged by the receiver bank/payment service provider to the merchant.

The PPI owner will receive the applicable interchange fee from the merchant. It is usually levied to cover the cost of accepting, processing and authorising the transaction.

Users will not be charged for these transactions. Peer-to-peer (P2P) and peer-to-peer-merchant (P2PM) transactions also remain unaffected.

### National Payments Corporation of

## ELECTRONICS REPAIR SERVICES OUTSOURCING (ERSO) INITIATIVE

### Why in the News?

Recently, the Union Ministry of Electronics & IT launched the ERSO Pilot initiative to validate

### India

NPCI is an umbrella organisation for all retail payments systems in India. Its primary objective is to provide safe, secure, and efficient retail payment systems in India.

It aims to promote digital payments and financial inclusion in the country.

NPCI was established in 2008 under the guidance of RBI and Indian Banks' Association (IBA).

NPCI is a not-for-profit company, and its ownership is shared by a consortium of major banks in India.

NPCI offers a range of products and services, including Unified Payments Interface (UPI), National Electronic Funds Transfer (NEFT), Immediate Payment Service (IMPS), Bharat Bill Payment System (BBPS), RuPay card, and others.

certain transformational policy and process changes to make India the Repair Capital of the World.

## About

It aims to promote India as a hub for repairing electronic goods and to assess the feasibility and potential of capturing 20% of the global repair service market within five years.

The pilot is being held in Bengaluru and will be run for three months.

India's e-waste policy will be modified to enable repair companies to domestically recycle

5% of imported goods by weight on a trial basis.

The repaired goods will not be permitted to be sold in the domestic market.

New provisions will be made to allow their exportation to regions other than their country of origin.

Nodal Ministry: Ministry of Electronics & IT.

## LIBERALISED REMITTANCE SCHEME (LRS)

### Why in news?

The Central Government, in consultation with the Reserve Bank of India, amended rules under the Foreign Exchange Management Act, bringing in international credit card spends outside India under the Liberalised Remittance Scheme (LRS). As a consequence, the spending by international credit cards will also attract a higher rate of Tax Collected at Source (TCS) at 20 per cent effective July 1.

### About

Liberalized remittance scheme (LRS) was introduced in India in 2004 by the Reserve Bank of India (RBI). It is a scheme that **enables Indian residents to remit funds abroad for certain specified purposes.**

The scheme has been one of the most important instruments for **promoting international trade and investment**, as well as for facilitating capital flows into and out of India.

Prior to this, the Foreign Exchange Management Act (FEMA) 1999 had imposed several restrictions on the transfer of funds from India to other countries. Under the new scheme, **individuals were allowed to remit up to USD 25,000 per financial year for eligible transactions.** The amount was subsequently increased to USD 50,000 in 2007 and further increased to USD 250,000 in 2013.

The primary objective of the liberalized remittance scheme is to **liberalize the existing foreign exchange regulations and facilitate the smooth transfer of funds abroad by Indian residents.** The scheme also aims to promote and encourage non-residents to invest in India and promote outward remittances from India.

### Beneficiaries -

In order to avail the benefit of the LRS, the individual must be an Indian resident as defined under the Foreign Exchange Management Act (FEMA).

This amount can be used for business, personal, educational, and other purposes.

#### Benefits

One of the major advantages of the scheme is that it **enables individuals to make investments in international financial markets** without having to go through the cumbersome process of obtaining permission from the RBI. This helps them to **diversify their investment portfolios** and get access to a wider range of financial instruments.

The scheme also provides **an avenue for Indians to transfer funds to their family members or friends who are residing abroad.** This is especially useful when there is an emergency situation where funds are needed urgently.

# PRADHAN MANTRI MUDRA YOJANA (PMMY)

## Launch and Aim:

It was launched by the government in 2015 for providing loans up to Rs. 10 lakh to the non-corporate, non-farm small/micro-enterprises.

## Funding Provision:

MUDRA, which stands for Micro Units Development & Refinance Agency Ltd., is a financial institution set up by the Government.

It provides funding to the non-corporate small business sector through various last-mile financial institutions like Banks, Non-Banking Financial Companies (NBFCs) and Micro Finance Institutions (MFIs).

MUDRA does not lend directly to micro-entrepreneurs/individuals.

## Three Products:

MUDRA has created three products i.e. 'Shishu', 'Kishore' and 'Tarun' as per the stage

of growth and funding needs of the beneficiary micro unit.

Shishu: Covering loans up to Rs. 50,000.

Kishore: Covering loans above Rs. 50,000 and up to Rs. 5 lakh.

Tarun: Covering loans above Rs. 5 lakh and up to Rs. 10 lakh.

Loans under this scheme are collateral-free loans.

## Achievements:

Loans have been given to disadvantaged sections of society such as women entrepreneurs, SC/ST/OBC borrowers, Minority community borrowers, etc. The focus has also been on new entrepreneurs.

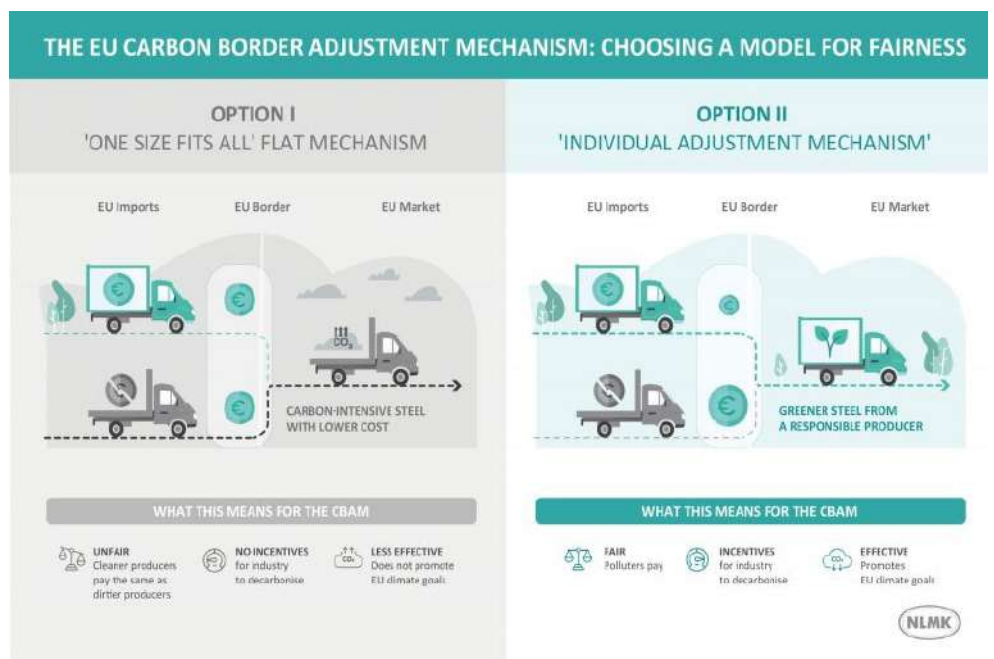
As per a survey conducted by Ministry of Labour and Employment, PMMY helped in generation of 1.12 crore net additional employment from 2015 to 2018.

# EU'S CARBON BORDER TAX

## Why in News?

The European Union (EU) has announced that its Carbon Border Adjustment Mechanism (CBAM) will be introduced in its transitional phase from October 2023, which will levy a carbon tax on imports of products made from the processes which are not Environmentally sustainable or non-Green.

CBAM will translate into a 20-35 % tax on select imports



into the EU starting 1st January 2026.

### What is CBAM?

CBAM is part of the “Fit for 55 in 2030 package”, which is the EU’s plan to reduce greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels in line with the European Climate Law.

The CBAM is a policy tool aimed at reducing Carbon Emissions by ensuring that imported goods are subject to the same carbon costs as products produced within the EU.

### Implementation:

The CBAM will be implemented by requiring importers to declare the quantity of goods imported into the EU and their embedded Greenhouse Gas (GHG) emissions on an annual basis.

To offset these emissions, importers will need to surrender a corresponding number of CBAM certificates, the price of which will be based on the weekly average auction price of EU Emission Trading System (ETS) allowances in €/tonne of CO<sub>2</sub> emitted.

### Objectives:

CBAM will ensure its climate objectives are not undermined by carbon-intensive imports and spur cleaner production in the rest of the world.

### Significance:

It can encourage non-EU countries to adopt more stringent environmental regulations, which would reduce global carbon emissions.

It can prevent carbon leakage by discouraging companies from relocating to countries with weaker environmental regulations.

The revenue generated from CBAM will be used to support EU climate policies, which can be learned by other countries to support Green Energy.

### How can it Impact India?

#### Impact India’s Export:

It will have an adverse impact on India’s exports of metals such as Iron, Steel and aluminum

products to the EU, because these will face extra scrutiny under the mechanism.

India’s major exports to the EU, such as iron ore and steel, face a significant threat due to the carbon levies ranging from 19.8% to 52.7%.

From 1st January 2026, the EU will start collecting the carbon tax on each consignment of steel, aluminum, cement, fertilizer, hydrogen and electricity.

#### Carbon Intensity and Higher Tariffs:

The carbon intensity of Indian products is significantly higher than that of the EU and many other countries because coal dominates the overall energy consumption.

The proportion of coal-fired power in India is close to 75%, which is much higher than the EU (15%) and the global average (36%).

Therefore, direct and indirect emissions from iron and steel and aluminium are a major concern for India as higher emissions would translate to higher carbon tariffs to be paid to the EU.

#### Risk to Export Competitiveness:

It will initially affect a few sectors but may expand to other sectors in the future, such as refined petroleum products, organic chemicals, pharma medicaments, and textiles, which are among the top 20 goods imported from India by the EU.

Since India has no domestic carbon pricing scheme in place, this poses a greater risk to export competitiveness, as other countries with a carbon pricing system in place might have to pay less carbon tax or get exemptions.

### What Measures can India Take to Mitigate the Impact of CBAM?

#### Decarbonization Principle:

On the domestic front, the government has schemes like National Steel Policy, and the Production Linked Incentive (PLI) scheme aims to increase India’s production capacity, but carbon efficiency has been out of the objectives of such schemes.

The government can complement these schemes with a Decarbonization Principle.

#### **Negotiation with EU for Tax Reduction:**

India could negotiate with the EU to recognize its energy taxes as equivalent to a carbon price, which would make its exports less susceptible to CBAM.

For example, India could argue that its tax on coal is a measure to internalize the costs of carbon emissions, and therefore equivalent to a carbon tax.

#### **Transfer of Clean Technologies:**

India should negotiate with the EU to transfer clean technologies and financing mechanisms to aid in making India's production sector more carbon efficient.

One way to finance this is to propose to the EU to set aside a portion of their CBAM revenue for supporting India's climate commitments.

Besides, India should also begin preparing for the new system just as China and Russia are doing by establishing a Carbon Trading System.

#### **Incentivizing Greener Production:**

India can begin preparations and in fact, seize the opportunity to make production greener and sustainable by incentivizing cleaner production which will benefit India in both remaining competitive in a more carbon-conscious future.

International economic system and achieving its 2070 Net Zero Targets without compromising on its developmental goals and economic aspirations.

### **Conclusion**

The CBAM is a policy to reduce carbon emissions from imported goods and create a fair-trade environment.

It can encourage other countries to have stricter environmental regulations and reduce global carbon emissions.

## WINDFALL TAX BACK ON LOCAL CRUDE OIL

The government has cut windfall gains tax on domestically-produced crude oil to nil while continuing the rate at zero on the export of diesel and Aviation Turbine Fuel (ATF), in line with softening international oil prices.

### Overview

The government levies a windfall tax on business entities due to abnormal gains from financial windfalls.

The main objective of such a tax is reallocating abnormal profits favourably in one sector for social causes.

Taxes on winnings from game shows and horse racing lottery tax, gambling or betting are examples of the same.

### About Windfall Tax

A windfall tax refers to the tax levied against certain industries by the government when economic conditions permit those industries to experience significantly above-average profits.

Such economic conditions come from a sudden windfall gain to a certain business or industry, typically as a result of a geopolitical disruption, natural disaster, or war that causes unusual spikes in demand or supply interruptions. A good example is a confrontation between Russia and Ukraine.

A tax imposed on such an unexpected rise in profits is

called a windfall tax. They are usually imposed when there is a sudden increase in profits in a particular sector. They are also imposed if there is an acute need for a temporary spurt in public spending at the same time.

### Background

In July 2022, the government of India enacted windfall taxes amid domestic crude producers making exceptional gains due to the global impact of the Russia-Ukraine war. Domestic players gained tremendous profit by selling crude to refiners at internationally bench-marked pricing.

Also, due to the confrontation between Russia and Ukraine the central excise charge was reduced, and there were additional expenditures on food and fertilizer. These factors led to an increase in government spending. In order to close the shortfall, the government levied a windfall tax on the oil industry.

While ₹6/litre was added to petrol and ATF (aviation turbine fuel), ₹13/litre was imposed on diesel.

### Why are countries levying windfall taxes now?

Petrol, crude oil, gas and coal prices have seen major increases since late last year and the increase has been

exacerbated by COVID-19 and the Ukraine-Russia conflict (and the subsequent sanctions on Russia).

As a result, energy companies have made windfall gains at the cost of customers who have had to pay much higher prices for their energy consumption.

Therefore, the UN Secretary-General urged countries to impose windfall taxes on such companies that have profited massively from the rise in fossil fuel prices.

Therefore, not just India, but many other countries such as the UK, Germany etc. are contemplating the imposition of windfall taxes.

### Reasons for Implementing Windfall Tax

India's record-high trade deficit and a depreciating rupee have raised the value of imports, which is the economic justification for implementing windfall taxes.

Additionally, the government's spending increased as a result of the recent reduction in Central Excise Duty and increased spending on fertilizers and food. In order to close this imbalance, it subsequently decided to impose a windfall tax on the oil industry, which increases the government's revenue.

Oil prices are now fluctuating due to the Russia-Ukraine war, and Russian oil is now less expensive.

These actions can reduce the trade deficit that the nation now experiences as a result of its high oil import costs.

The general public should receive a portion of the company's revenues.

The nation will protect its inhabitants from global inflation by enacting taxes.

The profits can be put toward a social welfare program.

The government's revenue will rise as a direct result of these taxes.

### **Benefits of Windfall Tax**

It has the ability to boost the government's revenue by helping it substantially provide public services to the citizens of the country, like building civil infrastructure, health facilities, sanitation, and building the nation's military strength.

The additional funds raised through windfall tax can service the debts by the countries to various global financial institutions and may bolster the national economy.

### **Drawbacks of Windfall Tax**

The economic impact of such taxation might lead to its immediate rejection because it is an arbitrary taxation system that would increase the

risks of investing resulting, the investors demanding a higher return on their investments or choosing to stop investing altogether.

A reduction in the number of profits left over for corporate reinvestment. The government may decrease the amount of investment made by businesses by eliminating this easy source of funding.

Windfall taxes make the tax system unpredictable. Businesses may have legitimate suspicions that the tax will be reimposed in the future. That might deter them from making capital expenditures (investments to increase their output and earnings) because they might be worried that the government might tax some of the potential returns away. As a result, economic growth may be slowed, and the government may face a loss of business from better-established multinational companies.

Another issue is the idea that retrospective windfall taxes are unfair; in other words, businesses should be informed in advance of the tax laws so they may make decisions about how to behave rather than having their lawfully obtained earnings confiscated.

It is hard to give an objective rationale on how much to tax, on what extent of excess income to impose the tax upon, which sectors to tax etc. Hence, it may create discontent among companies, especially smaller companies who could not charge as high an amount

during supply shortages, who think that the tax is unfair.

Moreover, not all companies may understand the windfall tax definition and may think that it is a tax that is here to stay or it is going to be imposed from time to time for any small increase in the firm's individual profits.

Due to these taxes, there can be a reduction in the dividend payout to investors investing in oil-producing companies. These companies are not owned by cash-rich investors but by pension funds and insurance companies.

Finally, it would reduce the funds available for investment in sources of fuel, consequently spiking energy costs.

### **Challenges of imposing the Windfall Tax:**

Private sector investment may decrease.

If this tax applies to the goods that India exports to other nations, they may be burdened (it is implemented only on crude oil yet)

In an era of inflation, it is challenging to retain the windfall tax. Businesses can experience losses and market collapse.

### **Conclusion**

Windfall taxes do negatively impact the production levels and revenues of oil companies. However, they also bring stabilization in the overall market indices such as Nifty or Sensex if the money

collected from the additional tax is used judiciously and the reduced exports allow greater availability of the key raw materials (like crude and

refined oil) for the domestic economy. Therefore, overall, it may have a positive impact on India's overall economic stability.

Out of the 1.12 crore of estimated increase in employment, women accounted for 69 lakh (62%).



# GEOGRAPHY,

# ENVIRONMENT,

# BIODIVERSITY AND

# DISASTER MANAGEMENT

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## THE MELTING OF POLAR ICE

### Arctic Ice Melting:

Arctic sea ice refers to the frozen seawater that covers the Arctic Ocean and surrounding seas.

Over the past few decades, Arctic sea ice has been declining at a significant rate, both in terms of extent (surface area) and thickness.

The summer minimum extent of Arctic sea ice has reached record lows in recent years, indicating a reduction in ice cover.

The melting of Arctic sea ice is primarily attributed to rising global temperatures caused by human activities, mainly the emission of greenhouse gases.

The loss of Arctic sea ice has various consequences, including rising sea levels, changes in ocean currents, impacts on wildlife habitats, and potential climate feedback loops.

### Antarctic Ice Melting:

The Antarctic ice sheet is a massive layer of ice covering the continent of Antarctica.

While most of the ice in Antarctica is in the form of land ice, there are also floating ice shelves along the coast.

The Antarctic ice sheet has shown complex patterns of ice gain and loss in different regions, making it more challenging to study compared to Arctic sea ice.

Some parts of Antarctica have experienced

ice mass loss, primarily due to the melting of ice shelves from below as a result of warm ocean currents.

However, other regions of Antarctica have shown ice mass gain, mainly due to increased snowfall caused by changing atmospheric circulation patterns.

### Implications of Polar Ice Melting:

Rising global temperatures and melting polar ice contribute to rising sea levels worldwide.

As ice on land melts and flows into the oceans, it adds to the volume of water, leading to coastal erosion, flooding, and the loss of coastal habitats.

The loss of polar ice can disrupt ocean currents and regional weather patterns, impacting global climate systems.

Melting sea ice affects Arctic and Antarctic ecosystems, affecting wildlife such as polar bears, seals, penguins, and other species that rely on ice for hunting, breeding, and resting.

The exposed dark ocean absorbs more solar radiation than the reflective ice, further contributing to global warming.

Efforts to address polar ice melting involve reducing greenhouse gas emissions, promoting sustainable practices, and international collaborations focused on climate change mitigation and adaptation.

## OVERCROWDING IN ANTARCTICA

Rising commercial interest in Southern Ocean's resources undermine protection efforts around Antarctica. In June, delegates from 27 countries, including India, will gather in Chile's Santiago to discuss Antarctica. Researchers say Antarctica and the Southern Ocean that surrounds the continent are heating up at an alarming rate.

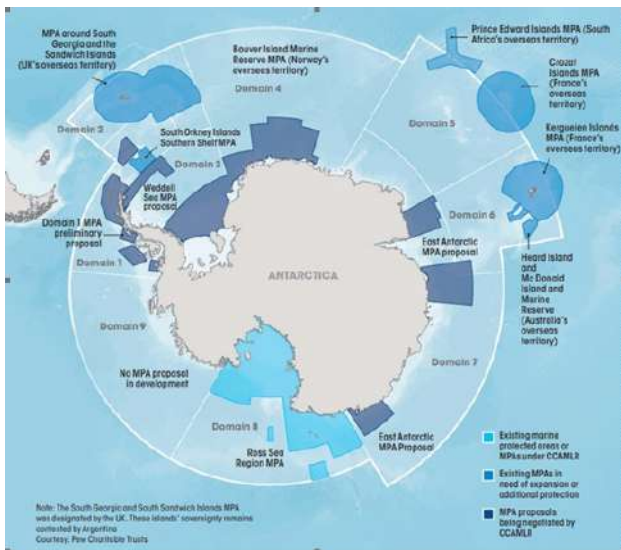
### Conservational Efforts:

In 2009, an international treaty called the Commission for the Conservation of Antarctic

Marine Living Resources (CCAMLR) signed to manage fisheries, and preserve species diversity and stability of the region's marine ecosystem.

It pledged to designate a network of marine protected areas (MPAs) by 2012. So far, CCAMLR has established only two MPAs and three others are under consideration.

As agreed by CCAMLR, all types of fishing and discharges and dumping from fishing vessels are prohibited in this MPA.



The major fact behind the tussle is that the region is home to abundant natural resources like minerals, marine life etc.

Region has the highest concentration of Antarctic krills, a tiny shrimplike crustacean which is highly prized as fish feed and countries are competing to claim maximum profit from it.

Not all countries are convinced about setting

up MPAs in the Southern Ocean.

At the annual meetings of CCAMLR, China and Russia have blocked the proposals questioning the need for

protection to organisms that are not threatened.

Some countries have voiced concerns that nations proposing MPAs might use it as a front to secure sovereign control over Antarctic waters.

Moreover MPAs established in the middle of nowhere could be a ploy of some countries to meet their targets under the **Global Biodiversity Framework** that calls for 30 per cent of the earth's land and sea to be conserved by 2030.

### Way Forward:

G-20 meetings and India's presidency could take forward the protection of Antarctica and regions around it. India has agreed to support MPAs in the Weddell Sea and East Antarctica.

MPAs will help the world benefit from the Antarctic resources while conserving them.

## IDU MISHMI TRIBE

### Why in the News?

Recently, the National Tiger Conservation Authority (NTCA) announced that the **Dibang Wildlife Sanctuary** in Arunachal Pradesh would soon be notified as a **tiger reserve**. This move has caused unrest among the Idu Mishmi tribe who feel that a tiger reserve would “hinder their access” to the forest.

### About Idu Mishmis

The Idu Mishmi is a sub-tribe of the larger Mishmi group (the other two Mishmi groups are Digaru and Miju) in **Arunachal Pradesh** and neighbouring Tibet. They primarily live in Mishmi Hills, bordering Tibet in Arunachal Pradesh.

Their ancestral homelands are spread over the districts of Dibang Valley and Lower Dibang Valley, as well as parts of Upper Siang and Lohit. They are known for their weaving and



craftsmanship skills. They can be distinctively identified by their typical hairstyle, distinctive customs and artistic pattern embedded on their clothes.

**Population:** The tribe is estimated to comprise around **12,000 people** (as per the census 2011).

**Language:** Their language, called 'Idu Mishmi', is considered endangered by UNESCO.

### Relation with nature:

Traditionally **animists**, the tribe has strong ties with the region's rich flora and fauna.

Tigers are especially important to the Idu Mishmis — according to Idu mythology, they were born to the same mother, and thus, **tigers are their "elder brothers"**.

While hunting has traditionally been a way of life, the Idu Mishmis also follow a strict belief system of myths and taboos — 'iyu-ena' — that restrict them from hunting many animals, including a complete prohibition on killing tigers.

### About Dibang Wildlife Sanctuary

**Location:** The Dibang Wildlife Sanctuary is located in the northeastern state of Arunachal Pradesh in India. The sanctuary is named after the Dibang River, which flows through it.

**Biodiversity hotspot:** It is considered a biodiversity hotspot and is part of the Eastern Himalayas Endemic Bird Area.

#### Flora

The sanctuary has a diverse range of flora, including tropical evergreen forests, subtropical

broadleaf forests, alpine meadows, and subalpine coniferous forests.

Some of the important tree species found here include oak, rhododendron, bamboo, and fir.

#### Fauna

The Sanctuary is home to several rare and endangered species of animals, including the Mishmi takin, musk deer, goral, clouded leopard, snow leopard, and tiger.

It is also home to several bird species such as the Satyr tragopan, Blyth's tragopan, and Temminck's tragopan.

### People

The sanctuary is home to several indigenous communities, such as Idu Mishmi.

### Conservation efforts

The Dibang Wildlife Sanctuary was notified in 1998 to protect its rich biodiversity.

Over the years, several conservation efforts have been undertaken, including mapping the tiger habitat and counting tigers in the area.

The proposal to declare the sanctuary as a tiger reserve is part of these efforts.

### Threats

The Dibang Wildlife Sanctuary is facing several threats, including habitat loss, poaching, and human-wildlife conflict.

The proposed tiger reserve is expected to provide better protection to the sanctuary's wildlife and their habitat.

## FINDING GONDRA AMID THE FLOODS

### Why in the News?

Sahariya adivasis gather and treat a river sedge called 'gondra', the roots of which are used in manufacturing perfume. The Sahariyas rely on gondra for subsistence.

### About

Sahariyas living in Madhya Pradesh on the banks of Sindh river were impacted by a flash

flood in August 2021 and other subsequent weather events. Changes in the river's ecology and climate impact the accessibility of gondra, and consequently the livelihoods of one of the most vulnerable communities in India.

### River Sedge (Gondra)

River sedge, locally called 'gondra', is a grass-like plant species that grows in the riverine plains of the Himalayan region. It belongs to the

**Cyperaceae family** and is found in the foothills of the Himalayas, in states like Uttarakhand, Uttar Pradesh, Bihar, and West Bengal.

It is used by local communities for weaving traditional baskets, mats, and other handicrafts, and is an important source of livelihood for them. The sedge is also used for making ropes, for thatching roofs, and as a **bio fencing material**. The plant is **drought-resistant** and can grow on sandy and moist river banks.

Gondra is a **medicinal plant** that is used in Ayurvedic cures in dry or powdered form. The essential oil (0.5-0.9%) from the tuber is used in perfumery, soap making and in insect repellents. The raw material that remains after extracting the oil is used for making the body of incense sticks.

Additionally, some species of gondra are used

for **soil stabilization and phytoremediation of contaminated sites**.

### Sahariya Tribe

Sahariyas are a tribe living in the border regions of Rajasthan and Madhya Pradesh in India.

They are classified as particularly vulnerable tribal groups.

The Sahariya community considers every adult member part of a governing council which is headed by a patel.

The Sahariyas are expert woodsmen and forest product gatherers.

They are particularly skilled in making catechu from Khair trees.

## MARINE HEAT WAVES

### Why in the News?

El Niño tends to trigger intense and widespread periods of extreme ocean warming known as marine heat waves.

### About

By July, most forecast models agree that the climate system's biggest player – El Niño – will return for the first time in nearly four years.

El Niño can also wreak havoc on the many marine ecosystems that support the world's fishing industries, including coral reefs and seagrass meadows.

El Niño tends to trigger intense and widespread periods of extreme ocean warming known as marine heat waves.

Marine heat waves also unfold along the seafloor of coastal regions.

In the Bay of Bengal east of India, interactions between El Niño and a tropical air flow pattern known as the Walker Circulation elevate the risk for marine heat waves.

### Marine Heatwaves

Heatwaves are periods of extreme warmth

when temperatures rise beyond the normal range for at least two consecutive days or nights.

### Formation of Marine Heatwaves

Marine heat waves form much like land-based ones: weather systems intensify over time, leading to extremely high temperatures over large ocean surface areas. But there are key differences between them that drive their formation processes:

**Land-based heat waves** depend on atmospheric conditions like high-pressure systems (anticyclones) over land masses such as continents or oceans that block cold air from reaching those areas.

**Marine heatwaves** are periods when sea surface temperature reaches extreme levels for an extended period, sometimes lasting weeks or months. These events occur in various ocean regions and can be caused by natural variability or human-induced climate change.

### Causes of Marine Heatwaves

The main cause of marine heat waves is the increase in ocean temperature due to the absorption of greenhouse gases from the atmosphere, which leads to global warming.

Natural climate variability can also contribute to marine heat waves, including changes in ocean currents, weather patterns, and atmospheric circulation.

El Niño-Southern Oscillation (ENSO) and the Indian Ocean Dipole (IOD) can contribute to the occurrence of marine heat waves.

### Impacts of Marine Heatwaves

**Coral bleaching:** Marine heatwaves can lead to coral bleaching, which is the loss of photosynthetic algae, called zooxanthellae, from the coral. This can ultimately lead to the death of coral.

**Ocean acidification:** Marine heatwaves can exacerbate ocean acidification, which is the increase in acidity of seawater due to the absorption

of carbon dioxide from the atmosphere. This can have negative impacts on marine organisms that build shells or skeletons out of calcium carbonate, such as corals and some types of plankton.

**Harmful algal blooms:** Marine heatwaves can cause harmful algal blooms, which can produce toxins that are harmful to humans and marine life.

**Ocean circulation:** Marine heatwaves can also affect ocean circulation by altering the temperature and density of ocean water, which can have implications for ocean currents and the transport of nutrients and heat around the globe.

**Marine biodiversity:** Marine heatwaves can affect the composition and abundance of marine species, leading to changes in marine biodiversity.

## UNITED NATIONS 2023 WATER CONFERENCE

Recently, the United Nations held its first water conference in 46 years on March 22-24 in New York. The conference coincided with the mid-term review of the International Decade for Action.

The UN 2023 Water Conference is formally known as the 2023 Conference for the Midterm Comprehensive Review of Implementation of the UN Decade for Action on Water and Sanitation (2018-2028). It took place at UN Headquarters in New York. It was co-hosted by Tajikistan and the Netherlands.

Aim - "Our watershed moment: uniting the world for water", aims to support the achievement of internationally agreed water-related goals and targets, including those contained in the 2030 Agenda for Sustainable Development.

The last water conference was held in 1977 (in Mar Del Plata, Argentina) and resulted in a global action plan to provide safe drinking water for everyone. This plan helped reduce the number of people without access to safe drinking water in many developing countries. The following are some commitments announced at the event, with examples of projects that showed potential:

**Technology** – There were specific innovations in wastewater treatment or solar treatment of water in remote areas, and a number of proposals for incubation platforms, including the IBM Sustainability Accelerator, focused on water management.

**Data and models** – Before every large investment, we must anticipate potential impact. Simulations are often important to do this, and they need large amounts of input data. Cost-effective approaches to data-generation included sensors and satellite data. Other efforts, like the World Meteorological Organisation's Hydrological Status and Outlook System, offered data analysis tools.

**Knowledge sharing** – Solutions to most of these problems already exist, but each region and country often reinvents the wheel. We need to accelerate cross-learning. One useful tool here was the W12+ Blueprint, a UNESCO platform that hosts city profiles and case studies of programs, technologies, policies that addresses common water security challenges.

**Capacity building** – Many people lack access to basic services because they are unable to advocate for themselves and because infrastructure

projects are designed for and by powerful actors in society. Efforts like the Making Rights Real initiative offered to help marginalised communities and women understand how to exercise their rights. Similarly, the ‘Water for Women Fund’ offered support mechanisms for more effective and sustainable water, sanitation, and hygiene outcomes for women.

**Civil society** – There were several platforms for collective action by civil society groups lobbying for changes in regulations, e.g. creating transnational networks to advocate for national and international bodies to criminalise the use of certain pesticides harmful to aquatic life.

**Environmental, social, and corporate**

**governance** – The conference concluded that a big barrier to farmers and industries using water more efficiently is that they have no incentive. Specifically, farmers aren’t becoming more efficient or going pesticide-free unless consumers are willing to pay a premium for more sustainably produced goods.

**Challenges:**

The commitments are non-binding in nature. The water action agenda should include diverse experiences and did not include the necessary communities of water management. The conference failed to address the violence and threats faced by communities trying to protect dwindling water sources.

## KAMCHATKA PENINSULA

A volcano erupted recently on Russia’s far eastern Kamchatka Peninsula, spewing clouds of dust 20 kilometers (12 miles) into the sky and covering broad areas with ash.

The Kamchatka Peninsula is a 1,250-kilometre-long peninsula in the Russian Far East. The Pacific Ocean and the Sea of Okhotsk make up the peninsula’s eastern and western coastlines, respectively. Immediately offshore along the Pacific coast of the peninsula runs the 10,500-metre-deep Kuril–Kamchatka Trench.

The Kamchatka Peninsula, the Commander Islands, and Karaginsky Island constitute the



Kamchatka Krai of the Russian Federation. The vast majority of the 322,079 inhabitants are ethnic Russians, although about 13,000 are Koryaks (2014). The Kamchatka peninsula contains the volcanoes of Kamchatka, a UNESCO World Heritage Site.

## TOQUE MACAQUE

Sri Lanka is exploring the possibility of exporting 1,00,000 endangered Toque Macaque monkeys to China, one of its largest bilateral lenders.

Toque Macaque is a reddish-brown-coloured Old World monkey endemic to Sri Lanka, where it is locally known as the “rilewa” or “rilawa”. They are native and endemic exclusively to Sri Lanka. They generally occupy three types of habitat; hence can be divided into three subspecies. These are

the Common toque macaque (*Macaca sinica sinica*), occurring in dry habitat;

the Pale-fronted toque macaque (*Macaca sinica aurifrons*), inhabiting wet areas;

the Hill-zone toque macaque (*Macaca sinica opisthomelas*), found at high elevations;

### Features:

The most characteristic feature of this primate is the toque-like swirl of hair on its head top. They exhibit sexual dimorphism: males are physically larger than females, and males are fitted with larger canine teeth. They are fitted with exceptionally long, thin tails. They have the distinction of being the smallest species belonging to the genus *Macaca* with the longest tails relative to their body size.

They are equally agile on the trees, where they sleep, sometimes huddled together. The toque macaques can also swim proficiently, and may even hide underwater when escaping predators. They are highly social animals, living in units of up to 40 individuals. They are classified as endangered under IUCN.

## C+C5 GROUPING

### Why in news?

Earlier this week, China convened an online meeting of trade ministers of the grouping known as C+C5

### About

China convened an **online meeting of trade ministers** of the grouping known as C+C5 — China and the five Central Asian republics, namely Uzbekistan, Kazakhstan, Tajikistan, Turkmenistan, and Kyrgyzstan.

It was the latest in a series of diplomatic engagements by Beijing with the region since the Russian invasion of Ukraine in February 2022.

The **first C+C5 summit** was held in virtual format on **January 25 last year**, to commemorate the 30th anniversary of diplomatic relations. Two days later, Prime Minister Narendra Modi hosted a virtual summit of the C5 — India’s first engagement with the Central Asian nations collectively at the highest level.

### China and Central Asia

China shares a long history of trade, cultural,

and people-to-people links with the **Central Asian region**, which lies on the **ancient Silk Route**.

Modern China’s involvement with the region began with the break-up of the Soviet Union in 1991, when it moved deftly to formalise its boundaries with Kyrgyzstan, Kazakhstan, and Tajikistan, as well as Russia.

Diplomatic relations were established in **January 1992**, and China’s relationship with the region was institutionalised as the **Shanghai Five**, the forerunner of the Shanghai Cooperation Organisation (SCO).

Over the next two decades, China’s interest in the region grew rapidly. Central Asia was a readymade market for cheap exports, and gave China overland access to markets in Europe and West Asia.

### The BRI and Central Asian resources

The region is resource-rich, with massive gas and oil reserves, and strategic **minerals such as uranium, copper, and gold**. It grows foodgrains and cotton. China also had another priority in its relationship with these countries — to **ensure**



peace in Xinjiang Autonomous Region, which forms its frontier with Central Asia.

To the landlocked region, China offered access to the Pacific Ocean and East Asia. President Xi launched his **Belt and Road Initiative**, a modern version of the Silk Road, during his 2013 visit to the Kazakh capital Almaty. As many as **51 BRI projects are said to be located in the country**, which plays a critical role as a transit hub for China's trade with Europe.

Beijing has also **pumped billions of dollars into Uzbekistan** and the other three smaller countries in the region. These investments cover projects from **oil and gas exploration, processing and manufacturing, and rail, road and seaport connectivity to digital technologies and green energy including solar power.**

## India and Central Asia

New Delhi made its **biggest outreach to Central Asia** with last year's summit, but its **relationships** in the region, including in the SCO, **remain security-driven.**

While India has trading ties with these countries, it is hobbled by the absence of a land route to Central Asia, with Pakistan denying it passage and Afghanistan being uncertain territory after the Taliban takeover. The **Chabahar port in Iran** offers an alternative route, but it is not fully developed yet.

There have been suggestions that India should provide connectivity for people and trade in Central Asia through "**air corridors**", as it had done for Afghanistan. New Delhi's leadership of the SCO this year may provide it an opportunity to diversify relations with this strategic region.

## KALININGRAD

### Why in news?

Poland will stop using the official name for Russia's Kaliningrad enclave and revert to its historic equivalent in the Polish language and now officially be called Königsberg

### About

Formerly the capital of the dukes of Prussia and later the capital of East Prussia, the city was ceded to the Soviet Union in 1945 under the **Potsdam agreement.**

During the Soviet period, the **Kaliningrad oblast or region**, administratively part of the Russian Federation, was separated from the rest of Russia, more than 300km to the east, by the then **Soviet republics of Lithuania, Latvia and Belarus.**

Since **Lithuania and Poland** joined the EU in 2004 it has been impossible to travel between Kaliningrad and the rest of Russia over land without crossing the territory of at least one EU state. There has been friction, particularly with Lithuania, over transit regulations.

Kaliningrad is still of **great strategic**

**importance to Moscow.** It houses the **Russian Baltic Fleet at the port of Baltiysk** and is the **country's only ice-free European port.**

During the Soviet period, agriculture was a key industry. The market for Kaliningrad's produce was largely dismantled with the collapse of the USSR, causing the economy to nosedive in the early 1990s. Unemployment soared and poverty became very widespread, particularly in rural areas. Organised crime and drugs became increasingly problematic.

In a bid to tackle the region's problems, in 1996 the Russian authorities granted it special economic status and tax advantages intended to attract investors. The region's economy benefited substantially.

Kaliningrad underwent an unprecedented boom, and in 2007 a new \$45m airport terminal was opened.

The region began to see increasing trade with the countries of the EU as well as increasing economic growth and rising industrial output.

However, **the global financial crisis of 2008-9 affected the region badly**, and by the beginning

of 2010 unemployment had climbed to over 10% - considerably higher than the Russian average.

In 2013, Russia **deployed short-range Iskander ballistic missiles** capable of carrying nuclear warheads in the region, in what it said was a **response to US plans to deploy a ballistic missile defence system in Europe**.

In June 2022, following Russia's invasion of Ukraine, **Lithuania implemented EU sanctions on certain Russian goods** - including construction materials - and **banned their movement by rail across its territory**.

Kaliningrad is heavily reliant on transit routes



from the rest of Russia through Lithuania, and the move angered Russia. Lithuania lifted the ban a month later when the EU clarified that the sanctions applied to road and not rail.

## CENSUS OF WATER BODIES

### Why in news?

Jal Shakti ministry releases report enumerating over 2.4 million water bodies

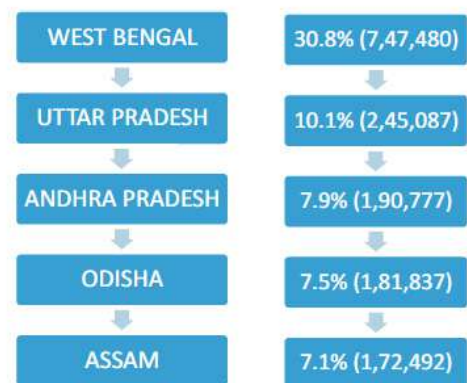
### About

The Ministry of Jal Shakti has carried out the **first-ever census of water bodies** across the country.

The census was conducted in 2018-19, and enumerated more than 2.4 million water bodies across **all states and Union Territories**.

According to the Jal Shakti ministry's census of water bodies, there are **2.4 million water bodies** in the country, 2.3 million of which are in rural areas and 69,485 of which are in urban areas.

The **objective** of the Census of Water Bodies is to develop a national database for all water bodies by collecting information on all important aspects of the subject including their size, condition, status of encroachments, use, storage capacity, status of filling up of storage etc.



**Definition of water body** → In this census, water bodies are defined as follows.

All natural or man-made units bounded on all sides with some or no masonry work used for storing water for irrigation or other purposes (e.g. industrial, pisciculture, domestic/drinking, recreation, religious, ground water recharge etc.) will be treated as water bodies in this Census

The **sixth minor irrigation census** was

conducted concurrently with the census. All natural or artificial water units used for irrigation or other purposes—such as industrial, pisciculture, drinking, groundwater recharge, etc.—and surrounded by some or no masonry work qualify.

The census considered **all the different uses of water bodies**, including irrigation, industry, pisciculture, domestic drinking, recreation, religion, groundwater recharge etc. The census report is being disseminated by the IEC section of the Jal Shakti ministry, primarily for planners, researchers, agricultural and water experts, policymakers, administrators, and all other stakeholders across the country

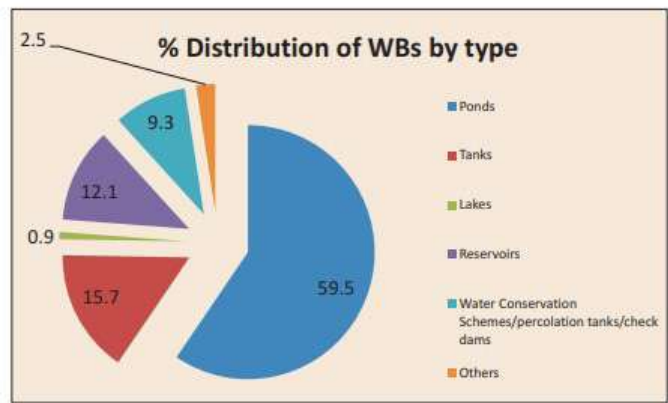
### Key Highlights

The five states with the highest percentages of water bodies i.e., 63%, are **West Bengal, Uttar Pradesh, Andhra Pradesh, Odisha, and Assam**.

Maharashtra State is the leading state for water conservation schemes. Whereas West Bengal has highest number of ponds & reservoirs, whereas Andhra Pradesh has highest number of tanks, Tamil Nadu has highest number of lakes.

Approximately 55.2% of water bodies are owned by private companies, while 44.8% are under public ownership.

Only 1.6% of the total number of water bodies listed have experienced encroachment, according to data on the subject that has been gathered. 95.4%



of the encroached bodies in this pool are in rural areas, and the remaining 4.6% are in urban areas.

According to the report, South 24 Parganas in West Bengal has the most water bodies in all of India (0.35 million). Anantapur in Andhra Pradesh (50,537) and Howrah in West Bengal (37,301) are the districts that come next. Most privately held water bodies are either owned by individuals or farmers, then by groups of individuals and other private entities.

### Kerala’s Water Budget

On April 17, 2023, Kerala became the first state to implement a water budget as a response to summertime water shortages and to ensure equitable water distribution. According to experts, the budget’s investigation of water availability and usage can help the state manage the resource more effectively.

The initiative will also raise awareness of efficient water usage and avoidance of waste.

The state still possesses three times more water than the national average, despite the growing scarcity.

## CARBON PRICING

### Why in news?

In the absence of a price for the use of natural resources such as air and forests, environmental destruction has been part of every country’s recipe for boosting GDP growth. India can take the lead, as president of the G-20 this year, in carbon pricing, which will open unexpected avenues of

decarbonisation.

### About

Carbon pricing refers to the **implementation of a cost or price on carbon dioxide (CO2) emissions**, which is one of the primary greenhouse gases contributing to climate change. The purpose of carbon pricing is to **internalize the**

**environmental costs of carbon emissions** and create economic incentives to reduce greenhouse gas emissions.

### There are three main approaches to carbon pricing:

**Carbon Tax:** A carbon tax is a direct tax imposed on the carbon content of fossil fuels or the amount of CO<sub>2</sub> emitted. The tax is usually levied per ton of CO<sub>2</sub> emitted or per unit of fossil fuel consumed. The idea is **to make carbon-intensive activities more expensive**, providing an economic incentive for individuals and businesses to reduce their carbon emissions. The **revenue** generated from the carbon tax can be used for various purposes, such as **funding renewable energy projects** or compensating low-income households. Eg.- Korea and Singapore

**Emissions Trading Systems (ETS):** An emissions trading system, also known as **cap-and-trade**, sets a limit or cap on the total amount of CO<sub>2</sub> emissions allowed within a specific jurisdiction. **Permits or allowances** representing the right to emit a certain amount of CO<sub>2</sub> are distributed among participating entities, such as companies or industries. If a company emits less than its allocated permits, **it can sell the surplus allowances to others**. Conversely, if a company exceeds its allowances, it must buy additional permits from the market. This creates a market-based mechanism that rewards emission reductions and penalizes high-emitting activities. Eg.- China and EU

**Import tariff:** The application of an import tariff on the carbon content, as the EU is proposing. The tariff approach, also known as a carbon border adjustment mechanism (CBAM), is a policy tool that aims to address the issue of carbon leakage in international trade. Carbon leakage occurs when carbon-intensive industries relocate their production to countries with laxer emissions regulations, thereby undermining the effectiveness of domestic climate policies.

UNFCCC and Carbon market

While the United Nations Framework Convention on Climate Change (UNFCCC) does

not directly mandate or enforce carbon pricing, it provides a global framework for countries to address climate change and encourages the use of market-based approaches, including carbon pricing, to achieve emission reductions. Here is a brief background of carbon pricing from the perspective of the UNFCCC:

**Kyoto Protocol:** The Kyoto Protocol, an international treaty under the UNFCCC adopted in **1997**, introduced the concept of **emissions trading** as a mechanism to achieve emission reduction targets. It allowed countries with emission reduction commitments **to meet their targets by trading emission allowances** with each other.

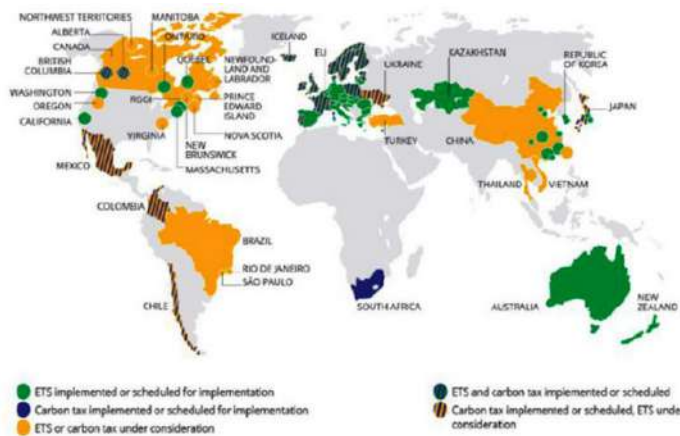
**Clean Development Mechanism (CDM):** The Kyoto Protocol also established the Clean Development Mechanism, which enabled developed countries to invest in emission reduction projects in developing countries. These projects generated **Certified Emission Reductions (CERs)**, which could be used by developed countries to meet their emission reduction obligations.

**Paris Agreement:** The Paris Agreement, adopted in **2015** under the UNFCCC, marked a significant milestone in global climate efforts. While the agreement does not specifically mention carbon pricing, it **acknowledges the importance of market-based approaches** and calls for the promotion of sustainable development while addressing climate change.

**Article 6 of the Paris Agreement:** Article 6 of the Paris Agreement provides a framework for voluntary cooperation among countries through market and non-market approaches to achieve emission reductions. It allows for the implementation of carbon pricing mechanisms, including international emissions trading and the use of market mechanisms to support emission reductions. The UNFCCC has been working on the development of rules and guidelines for the operationalization of Article 6, including the **establishment of an international carbon market**. The aim is to ensure environmental integrity, transparency, and the avoidance of double counting of emission reductions.

## Global landscape of Carbon pricing

Sweden have been able to effectively thread the needle between carbon pricing and economic growth: Sweden’s economy grew by 60 percent since the introduction of the Swedish carbon tax in 1991, while its carbon emissions decreased by 25 percent



Source: Carbon Pricing Dashboard, World Bank Group

After nearly three decades of policy efforts, carbon pricing continues to be a mere footnote in international climate negotiations. Proposals for realistic carbon emissions pricing have so far made little headway around the world.

Despite its apparent simplicity, carbon-pricing is supported by rather underwhelming evidence. There are 64 carbon pricing initiatives implemented or scheduled for implementation — 34 in the form of an explicit carbon tax, 31 covered by an ETS — across 46 national jurisdictions and 35 sub-national jurisdictions.

In 2020, these initiatives covered 12 GtCO<sub>2</sub>e, representing just 22.3 percent of global GHG emissions. Even more striking is that **less than one percent** of global emissions are currently subject to a carbon price equal to even a low-end estimate of the social cost of carbon

In stark contrast to the IMF’s projected global tax of US\$ 75 per tonne, the current average price of carbon globally is US\$ 2 a tonne.

## Position of India

In 2010, the government of India **introduced**

a **tax on coal**, to be levied as excise duty on items listed in the tenth schedule to the Finance Act, 2010. These items are coal, lignite, and peat. The cess was implemented at a rate of INR 50 per tonne, and subsequently increased to INR 100 in 2014, INR 200 in 2015 and INR 400 IN 2016. Revenue collected through the cess was transferred to the **National Clean Energy Fund (NCEF)**, which sought to finance clean-energy initiatives and research in this area. This setup, while promising in theory, failed to achieve the desired outcomes

**Renewable Purchase Obligations (RPO) and Renewable Energy Certificates (REC):** To provide a fillip to India’s growing renewable energy sector, **all electricity distribution** licensees are required to purchase or produce a minimum specified quantity of their requirements from renewable energy sources. The RPO for each state is fixed and regulated by the respective **State Electricity Regulatory Commission.**

The renewable energy certificates (RECs) are market-based instruments that have been introduced to facilitate the **fulfilment of RPO by the obligated entities.** These certificates are traded at the power exchanges. RECs decouple the electricity component from the environmental attributes of the power generated from renewable sources and enable both the components to be traded separately.

**Internal carbon pricing** refers to the practice of incorporating the cost of carbon emissions into a company’s or organization’s decision-making processes, even in the absence of a national or international carbon pricing policy. It is a voluntary approach adopted by companies to account for the potential future costs associated with carbon emissions and to drive internal efforts to reduce greenhouse gas emissions. In the context of India, several companies have implemented internal carbon pricing as part of their sustainability strategies

The Parliament passed the Energy Conservation (Amendment) Bill, 2022 on Monday, December 12. The Bill amends the Energy Conservation Act, 2001, to empower the

Government to **establish carbon markets** in India and specify a carbon credit trading scheme.

The Bureau of Energy Efficiency (BEE) is developing a **framework to roll out Perform Achieve and Trade (PAT) and Renewable Energy Certificates (REC) schemes** into such a market, while creating avenues for voluntary participation.

### Challenges in Pricing Carbon

The political economy of carbon pricing constitutes the single-largest hurdle to its successful implementation across the world. Its diffused benefits and concentrated costs, such that the scattered beneficiaries of the policy are less likely to support it in the political process. On the other hand, carbon-intensive companies (and communities) will vehemently oppose a carbon price, such as oil producers and refiners, large electric utilities with carbon-heavy fleets, large energy-intensive manufacturers, and other such concentrated interests.

Carbon tax policy (whether through cap-and-

trade or an outright tax) has also been accused of being regressive, affecting lower-income households more than their middle and high-income counterparts, since they spend a higher proportion of their incomes on energy-intensive goods and services. The distributional and welfare concerns associated with a carbon tax are primarily determined by how the revenues are spent. If the proceeds from the tax are diverted for financing the fiscal deficit, the impact is likely to be more regressive, compared to the proceeds being used for compensating households

The concern that higher domestic prices will raise costs for local industries, making them less competitive in global markets. However, evidence that a carbon price leads to a fall in competitiveness is rather scarce.

From an international standpoint, carbon leakage — the movement of carbon-intensive industries to countries with a lax carbon policy — is another serious concern.

## HAKKI PIKKI TRIBAL COMMUNITY

### Why in news?

More than 181 members of the Hakki Pikki tribal community from Karnataka are stuck in violence-hit Sudan, even as the government is making efforts to bring them back.

### About

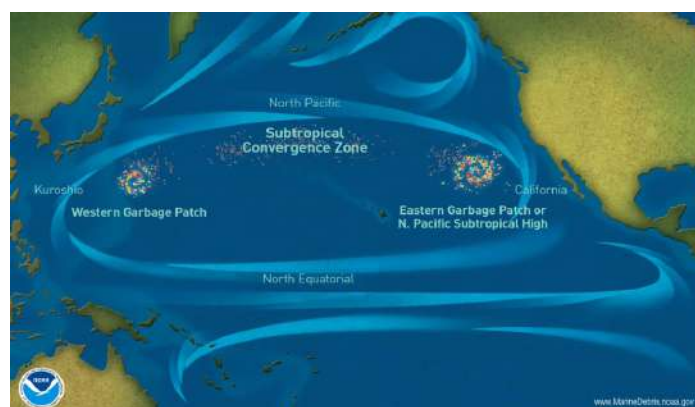
The Hakki Pikki is a tribe that lives in several states in west and south India, especially **near forest areas**. Hakki Pikkis (Hakki in Kannada means 'bird' and Pikki means 'catchers') are a **semi-nomadic tribe**, traditionally of bird catchers and hunters. Traditionally, Hakki Pikkis lived in forest areas, leading a nomadic life for nine months a year and coming back to their permanent camps for three

According to the 2011 census, the Hakki Pikki population in **Karnataka** is 11,892, and they live majorly in **Davangere, Mysuru, Kolar, Hassan and Shivmogga districts**. In different regions, they are known by different names, such as **Mel-Shikari** in northern

Karnataka and Maharashtra.

Hakki Pikkis in Karnataka follow **Hindu traditions** and celebrate all Hindu festivals. They are **non-vegetarians**. The eldest son in a family is not supposed to cut his hair so that he can be identified easily.

The tribe prefers **cross-cousin marriages**. According to locals, the usual age of **marriage is 18 for women and 22 for men**. The society is matriarchal, where the groom gives dowry to the



bride's family

In recent years, members of the Hakki Pikki tribe have been travelling to African countries to sell their products as there is a **huge demand for Ayurvedic products in the continent.**

African countries **offer better market opportunities**, with the potential for higher returns on investment in raw materials such as hibiscus powder, oil extraction, gooseberry, Ayurvedic plants, etc.



## GREAT PACIFIC GARBAGE PATCH

A new study published in the Nature Ecology & Evolution journal reveals those dozens of coastal invertebrate organisms, including tiny crabs and anemones, have been able to survive and reproduce on plastic debris in the Great Pacific Garbage Patch

The Great Pacific garbage patch is a garbage patch, gyre of marine debris particles, in the central North Pacific Ocean. The collection of plastic and floating trash originates from the Pacific Rim, including countries in Asia, North America, and South America.

There are some water currents in the oceans that, driven by winds and the Coriolis force, form loops. These are called gyres. The North Pacific Subtropical Gyre (NPSG) is one such, located just north of the equator in the Pacific Ocean. NPSG consists of the Kuroshio, North Pacific, California, and North Equatorial currents. It moves in a clockwise direction.

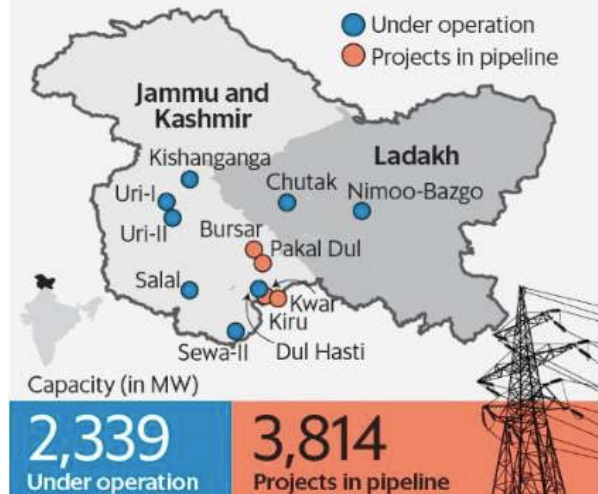
These currents flow adjacent to 51 Pacific Rim countries. Any trash that enters one of these currents, from any of these countries, could become part of the gyre. Inside this gyre, just north of Hawai'i, lies a long east-west strip where some of the debris in these currents has collected over the years. The eastern part of this is the Great Pacific Garbage Patch.

The Great Pacific Garbage Patch is, 6 million sq. km big and more than 50 years old.

The patch contains an estimated 45,000-1,29,000 metric tonnes of plastic, predominantly in the form of microplastics. The numerical density of plastics here is around 4 particles per cubic meter. Mass-wise, however, heavier, more visible objects that haven't yet broken down into smaller particles accounted for 92% in 2018.

### Power play

NHPC has been present in J&K for around 40 years and has invested ₹20,778.38 cr. Going forward, the plan is to build hydropower projects totalling 3,814MW.



### Implications of the New Findings

*Commencement of the Anthropocene epoch*

The Anthropocene Epoch is an unofficial unit of geologic time, used to describe the most recent period in Earth's history when the human activity started to have a significant impact on the planet's climate and ecosystems. As it happens, the layers of rock record everything from the evidence of nuclear tests to the burning of fossil fuels – the Anthropocene epoch can be said to have commenced.

Example, in another recent study researchers reported that polyethylene films had chemically bonded with rocks in China – which is reminiscent, in turn, of the “anthropoquinas” of Brazil (sedimentary rocks embedded with plastic earrings) and the “plastiglomerates” of Hawai'i

(beach sediment + organic debris + basaltic lava + melted plastic).

### *Emergence of Neopelagic Community*

The introduction of a vast sea of relatively permanent anthropogenic rafts since the 1950s” has given rise to a new kind of “standing coastal community ... in the open ocean”. They've named it the neopelagic community. While coastal species have been found on human-made objects in the open ocean before, they were always considered to have been “misplaced” from their intended habitats. The neopelagic community, on the other hand, is not misplaced but lives on plastic items in the garbage patch, including reproducing there.

## KIRU HYDROELECTRIC POWER PROJECT

The Central Bureau of Investigation (CBI) searched various locations in Delhi and Rajasthan in connection with a case alleging corruption in the award of ₹2,200 crore civil works related to the Kiru hydroelectric power project.

### About

Kiru Hydro Electric Project is a 624 MW project being constructed in Kiru village located in the Kishtwar district of Jammu and Kashmir.

The project is proposed on River Chenab and is being built between Kirthai II (upstream) and Kwar (downstream) hydroelectric plants.

The project is said to be a Run-of-River Scheme.

Run-of-the-river hydroelectric systems harvest the energy from flowing water to generate electricity in the absence of a large dam and reservoir.

The project is being built by Chenab Valley Power Projects (CVPP), which is a joint venture between National Hydroelectric Power Corporation (NHPC), Jammu & Kashmir State Power Development Corporation (JKSPDC) and Power Trading Corporation (PTC).

The project is expected to increase access to energy in the rural parts of northern India and will also improve the transportation, education, medical, and road transportation network in the region.

## BLACK TIGER

### Why in the News?

Death of a rare black tiger in Odisha's Similipal Tiger Reserve will have a big impact on its population.

### About

They are a **rare colour variant** of the tiger and are not a distinct species or geographic subspecies.

The abnormally dark or black coat in such

tigers is termed **pseudo melanistic** or false coloured.

The only other black tigers outside of Similipal in India exist at the **Nandankanan** Zoological Park in Bhubaneswar, Ranchi Zoo and Chennai's Arignar Anna Zoological Park.

**Simlipal has the world's highest rate of**



**black tiger sightings in the world.** The reserve had last reported eight tigers, according to the Tiger Status Report 2018.

The tigers in the Similipal Tiger Reserve are an isolated population in eastern India and gene flow between them and other tiger populations is very restricted.

### **Simplipal Tiger Reserve**

Similipal National Park is a national park and a tiger reserve in the Mayurbhanj district in the Indian state of Odisha covering 2,750 km<sup>2</sup> (1,060 sq mi).

It is part of the Mayurbhanj Elephant Reserve, which includes three protected areas — Similipal Tiger Reserve, Hadgarh Wildlife Sanctuary and Kuldiha Wildlife Sanctuary.

Similipal National Park derives its name from the abundance of **red silk cotton trees** growing in the area.

This protected area is part of the **UNESCO World Network of**



**Biosphere Reserves** since 2009.

Similipal Elephant Reserve is an ecosystem complete with forest vegetation (mainly sal trees), fauna and the adjoining **Ho / Santhal tribal settlements**.

Two tribes, the **Erenga Kharias** and the **Mankirdias**, inhabit the reserve's forests and practice traditional agricultural activities (the collection of seeds and timber).

## **EKATHA HARBOUR**

The Indian Defence Minister and his Maldivian counterpart laid the foundation for “Ekatha Harbour”.

It is being constructed at Sifavaru in Uthuru Thila Falhu (UTF) atoll for the Maldives National Defence Forces Coast Guard.

India is assisting the construction of the naval dockyard and it is regarded as one of the biggest grant-in-aid projects of India.

Maldives is said to be one of India's crucial maritime neighbours in the Indian Ocean Region (IOR) and the Indian government is looking to expand ties with Male in areas of defence and security amid China's efforts to expand its influence in the region.

The Ministers further have agreed to explore additional avenues for cooperation, including in the areas of defence trade, capacity building and joint exercises.

## **PETERSBERG CLIMATE DIALOGUE 2023**

### **Why in news?**

Recently, the Petersberg Dialogue on Climate Change was held in Berlin.

### **About**

The Petersberg Climate Dialogue (PCD) is an **annual high-level political** and international forum that took place from 2 -3 May 2023 ahead of the annual United Nations Climate Change Conferences (Conference of the Parties or COP).

The PCD series was **co-hosted in Berlin by the German Federal Foreign Office and the United Arab Emirates** – the incoming COP28-Presidency.

The first Petersberg Climate Dialogue, aimed at improving communication between leaders and environmental ministers following the nearly unsuccessful negotiations at the 2009 United Nations Climate Change Conference in Copenhagen (COP15), was initiated by German politician and former German Chancellor Angela Merkel.

Delegates from 40 countries attended this year's high-level dialogue series, the 14th such event. Its central goal is **to strengthen trust both in multilateral climate negotiations and between states.**

The PCD aims at strengthening strategic dialogue on just energy transition, global transformation and responses to climate impacts. The focus this year included topics such as climate adaptation, climate finance and dealing with loss and damage, but in particular the first-ever global stocktake.

### Key takeaways

Global renewables target:-

Discussions around a potential global target for renewables at the next climate conference.

Possibility of an agreement on a **global target**

for renewables and energy efficiency among the G7 countries.

### \$100 billion climate finance:-

It was stated that **developed countries are “on a good track”** to deliver the \$100 billion per year as promised to mobilise by 2020 during the COP15 in 2009.

However, a recent estimate pegs **climate finance needs at \$1 trillion per year** by 2030 for emerging markets alone.

This means that **climate finance needs are more than 10 times the amount that developed countries have been able to mobilise**, 14 years after committing to the \$100 billion figure.

This underlines the **urgent need for financial reparations.**

### Global Stocktake:-

2023 is the year for the **Global Stocktake.**

Global Stocktake: a periodic review of global climate action.

It aims to assess whether current efforts will enable us to reach the objectives set out in the Paris Agreement.

This is the first Global Stocktake year since the Paris Agreement was signed in 2015.

The report is set to be released in September of 2023.

## INNOVATIVE FINANCE FACILITY FOR CLIMATE IN ASIA AND THE PACIFIC FINANCING PARTNERSHIP FACILITY (IF-CAP)

### Why in news?

Recently a new funding mechanism ‘the Innovative Finance Facility for Climate in Asia and the Pacific Financing Partnership Facility (IF-CAP)’ was launched.

### About

The **Asian Development Bank (ADB)**, together with several government partners, have created a funding mechanism that will mobilise

billions of dollars in **financing to address climate change** in the region—the Innovative Finance Facility for Climate in Asia and the Pacific Financing Partnership Facility (IF-CAP). ADB has published a paper describing the arrangements for the new facility.

The Manila-based Multilateral Development Bank (MDB) plans for IF-CAP to reach an **overall size of US\$3 billion**. IF-CAP will pilot a **guarantee mechanism**, where every **US\$1 guarantee from**

**financing partners can generate up to US\$5** in new loans for climate adaptation and mitigation projects across Asia.

Through such leverage, ADB could ultimately **generate up to US\$15 billion** in funding for climate action.

The facility will **support ADB's raised ambition for \$100 billion in climate finance** from 2019-2030

IF-CAP's initial partners are **Denmark, Japan, the Republic of Korea, Sweden, the United Kingdom, and the United States.**

IF-CAP substantially boosts ADB's ability to financially support Asia's developing economies in addressing the climate challenge.

The creation of the facility also means that **ADB is among the first international financial institutions** to respond to the recommendation of the G20 expert panel on MDB investing capacity to expand the use of financial innovations.

**All developing countries that are eligible to receive assistance from ADB** are also eligible for support from IF-CAP.

The facility will finance projects over a **five-**

**year investment period**, but **guarantees** will remain effective for **25 years**.

In addition, ADB will establish **donor trust funds**, framework arrangements, and other forms of financing partnerships, such as grants, guarantees, and similar arrangements that support IF-CAP's objectives and scope.

Most contributions to the facility will be in the form of **guarantees or grants**

### **Facets of IF-CAP**

IF-CAP operates as **an umbrella mechanism** for mobilising resources for climate adaptation and mitigation projects.

Situated under this umbrella is the **IF-CAP Guarantee Trust Fund**, which will provide guarantees to ADB covering payment defaults. The guarantee of a portfolio of ADB's sovereign lending exposure will release parts of ADB's capital currently allocated to that portfolio. The released capital will then allow ADB to enter into new sovereign and non-sovereign (private sector) climate loans. The facility will finance projects over a five-year investment period, but guarantees will remain effective for 25 years.

## **GONGADI SHAWL**

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

Recently, Telangana's woollen gongadi shawls has been refashioned into shoes for farmers by alumni of the National Institute of Design, Ahmedabad.

### **About**

Gongadi, (known also as Kambal) is the traditional woollen blanket woven by the indigenous Kuruma pastoralist communities from wool of the indigenous Deccani sheep (known locally as Nalla gorrae) breed found in the Deccan Plateau region including the Indian state of Telangana.

The coarse woollen blanket is famous for its durability and versatility.

The tough gongadi usually lasts for more than a decade and acquires this unique quality from the craft of hand weaving.

One of the unique natures of gongadi is that it does not fade but grows darker in time.

The traditional gongadi is produced organically, without using any dyes either natural or synthetic. Sizing of the strings is done using the paste of soaked and cooked tamarind seeds

## 5<sup>TH</sup> INTERNATIONAL CONFERENCE ON DISASTER RESILIENT INFRASTRUCTURE

Recently, the Prime Minister of India, addressed the 5<sup>th</sup> International Conference on Disaster Resilient Infrastructure (ICDRI) 2023.

### About ICDRI

ICDRI is the annual international conference of the Coalition for Disaster Resilient Infrastructure (CDRI) in partnership with member countries, organizations and institutions to strengthen the global discourse on disaster and climate-resilient infrastructure.

### Highlights of ICDRI 2023

The Prime Minister said that since India is leading the G20 group, the CDRI will be included in many important discussions.

This means that the solutions discussed in the CDRI will be considered at the highest levels of global policymaking.

### About CDRI

CDRI is an Independent International Organization consisting of global partnership of national governments, UN agencies and programs, multilateral development banks and financing mechanisms, the private sector, and academic and research institutions.

It aims to increase the resilience of infrastructure systems to climate and disaster risks, thereby ensuring sustainable development.

It was launched in 2019, at the UN Climate Action Summit in New York.

CDRI is India's second major global initiative after the International Solar Alliance (ISA).

The CDRI Secretariat is based in New Delhi, India.

Since its inception, 31 countries, 6 international organisations and 2 private sector organisations have joined CDRI as members.

### Significance for India

CDRI provides a platform for India to emerge as a global leader in climate Action and Disaster Resilience.

It boosts India's soft power, but more importantly it has a wider connotation than just economics, as synergy between disaster risk reduction, Sustainable Development Goals (SDGs) and Climate Accord provides for sustainable and inclusive growth.

### Initiatives of CDRI

#### Infrastructure for Resilient Island States (IRIS):

It would focus on building capacity, having pilot projects, especially in Small Island Developing States (SIDS) as they face the biggest threat from climate change.

ISRO will build a special data window for them to provide them with timely information about cyclones, coral-reef monitoring, coastline monitoring etc. through satellite.

#### Infrastructure Resilience Accelerator Fund:

It is supported by both the UNDP and UN Office for Disaster Risk Reduction (UNDRR).

It will be managed by the UN Multi-Partner Trust Fund Office (UN MPTFO) to help in improving the ability of infrastructure systems to withstand disasters, with a special focus on developing countries and Small Island Developing States (SIDS).

## GI TAG FOR LADAKH'S WOOD CARVING

In a major recognition for Ladakh, its wood carving has been granted the Geographical Indication (GI) Tag.

Wood carving of Ladakh has been an aesthetically vibrant art form in the Ladakh region.

It is known for its intricate designs and unique

patterns which are mostly inspired by Buddhist themes and motifs.

The wood carvings are made from local wood such as willow and apricot.

The most ubiquitous piece of furniture is the ‘chokste’, a low height wooden table.

The GI tag will make the cultural traditions of Ladakh popular and benefit wood carving artisans of Ladakh.



## GI TAG FOR CUMBUM GRAPES

Tamil Nadu’s famous Cumbum Panneer Thratchai, also known as Cumbum grapes recently earned the Geographical Indication (GI) tag.

The Cumbum Valley located at the Western Ghats in Tamil Nadu is known as the ‘Grapes City of South India’ and cultivates the Panneer Thratchai. This variety, also known as Muscat Hamburg, is popular for its quick growth and early maturity, ensuring that the crop is available in the market almost throughout the year.

It is rich in vitamins, tartaric acid and antioxidants and reduce the risk of some chronic diseases. They are also known for a superior taste apart from the purplish brown-colour.

### About GI tag

Geographical Indication (GI) tag is a sign used on products that have a specific geographical

origin and possess qualities or a reputation that are due to that origin.



The Geographical Indications of Goods (Registration and Protection) Act, 1999 seeks to provide for the registration and better protection of geographical indications relating to goods in India. It is governed and directed by the WTO Agreement on TRIPS.

## BAILEY BRIDGES IN THE KAZIRANGA NATIONAL PARK

The Army may help build Bailey bridges in the Kaziranga National Park.

### About Bailey Bridge

A Bailey bridge is a type of portable, pre-fabricated, truss bridge. It was developed in 1940–1941 by the British for military use during the Second World War.

A Bailey bridge has the advantage of requiring no special tools or heavy equipment to assemble. The wood and steel bridge elements were small



and light enough to be carried in trucks and lifted into place by hand, without the use of a crane.

The bridges are strong enough to carry tanks.

### **Kaziranga National Park**

The Park is the abode of more than 70% of One Horned Rhinoceros in the world.

According to the 2022 count, the park has an estimated 2,613 rhinos. Kaziranga also has the highest density of tigers in India.

It was declared a Wildlife Sanctuary in 1950

and notified as Kaziranga National Park in 1974 under the Wildlife (Protection) Act, of 1972.

It was declared a World Heritage Site back in 1985. It is recognized as an Important Bird Area by BirdLife International.

### **Know about the Rhinoceroses**

Rhinoceroses are large, herbivorous mammals identified by their characteristic horned snouts.

There are five species and 11 subspecies of rhino; some have two horns, while others have one.

## **MANGROVE PITTA BIRD**

Recently, the first mangrove pitta bird census was conducted in two coastal districts of Odisha (Kendrapara and Jagatsingpur).

### **About Mangrove Pitta**

The Mangrove Pitta bird (*Pitta megarhyncha*) is a species of bird that can be found in a few pockets of eastern India, including Odisha's Bhitarkanika and West Bengal's Sundarbans.

The Mangrove Pitta bird is a ground forager (an animal that searches widely for food) and tree refter that primarily inhabits coastal mangrove forests in India.

The IUCN (International Union for Conservation of Nature) has categorized and evaluated the species and has listed it as "Near Threatened".

Distribution: India, Bangladesh, Myanmar, Thailand, Malaysia, Singapore, Indonesia.

This species is important because it is a bio-



indicator of the health of mangrove forests, which are crucial to maintaining the ecological balance in coastal areas.

The highest concentration of these birds was found in the mangroves near the Mahipura river mouth inside the Bhitarkanika National Park.

## **GUARANI TRIBE**

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

Recently, protests by Guarani tribal people have erupted across Brazil as the country's Chamber of Deputies approved a new land bill that will restrict the new recognition of ancestral land of indigenous people.

According to the new law, tribal people can get recognition only for the land they have been occupying since before the constitution of the country came into effect in 1988.

### **About**

The Guarani were one of the first peoples

contacted after Europeans arrived in South America around 500 years ago.

In Brazil, there are today around 51,000

Guarani living in seven states, making them the country's most numerous tribes. Many others live in neighbouring Paraguay, Bolivia, and Argentina.

## CITIIS 2.0 PROGRAM

### Why in the News?

Recently, the Union Cabinet chaired by the Indian Prime Minister has approved the City Investments to Innovate, Integrate and Sustain 2.0 (CITIIS 2.0) programme.

### About

It is a program conceived by the Ministry of Housing and Urban Affairs (MoHUA) in partnership with the French Development Agency (AFD), Kreditanstalt für Wiederaufbau (KfW), the European Union (EU), and National Institute of Urban Affairs (NIUA).

The program will run for four years, i.e., from 2023 to 2027.

### Objective:

The program envisages supporting competitively selected projects promoting a circular economy with a focus on integrated waste management at the city level, climate-oriented reform actions at the State level, and institutional strengthening and knowledge dissemination at the National level.

### Funding:

The funding for this program would include a loan from AFD and KfW and a technical assistance grant of Rs.106 cr from the EU.

It has three major components:

**Component 1:** Financial and technical support for developing projects focused on building climate resilience, adaptation and mitigation in up to 18 smart cities through a selection of competitively selected projects promoting a circular economy with a focus on integrated waste management.

**Component 2:** All States and UTs will be eligible for support on-demand basis.

The States will be provided support to (a) set up/strengthen their existing State climate centres / Climate cells / equivalents (b) create State and city-level Climate Data Observatories (c) facilitate climate-data-driven planning, develop climate action plans and (d) build capacities of municipal functionaries. To achieve these objectives, the PMU at NIUA will coordinate the provision of technical assistance and strategic support to State Governments.

**Component 3:** Interventions at all three levels; Centre, State and City to further climate governance in urban India through institutional strengthening, knowledge dissemination, partnerships, building capacity, research and development to support scale-up across all States and Cities.

## KONDA REDDY TRIBALS FACE CULTURAL TRAUMA

It is one of the most backward tribal groups in the states of Andhra Pradesh and Telangana. They inhabit on both the banks of the Godavari River (East and West Godavari districts), in the hilly-forest region of Khammam (Telangana) and Srikakulam (Andhra Pradesh).

They live in the interior forest areas largely cut-off from the mainstream. Traditionally, they were shifting cultivators and recently, some of them

have adopted settled agriculture and horticulture.

Collection of non timber forest products and basket-making supplement the sources of their livelihood.

Their mother tongue is Telugu with a unique accent.

Konda Reddis have also been recognized as Primitive Tribal Group (now Particularly

Vulnerable Tribal Groups)

The Konda Reddis are known for their eco-friendly practices such as use of household articles

made of bamboo, bottle gourd, and seed.

## PELICANS, MANGROVES AND SALT MARSHES

The island of Sriharikota serves as a barrier that shields a brackish water lagoon that we call the Pulicat lake. Being mostly off-limits to tourists because it is an ISRO launch site, this area is teeming with 76 species of water birds. The lake itself has an average depth of only one metre, although it is nearly 60 km long.

The tidal flats, and both fresh and brackish water wetlands found here are ideal for the spot-billed pelican.

Although classified as 'Near-Threatened' in the IUCN red list, this bird looms large in our minds when we think of water birds.

### Blue spots

The spot-billed pelican's comical walk points to weak leg muscles, which also means that the bird is not a great swimmer, and catches fish near the surface of the water.

### Breeding sites

A detailed survey of spot-billed pelican populations by Kannan and Manakadan placed a crude estimate of their number in India at 6,000-7,000. The survey identified breeding sites for these birds in South India at Karaivetti-Vettangudi near

Thanjavur and Koonthankulam near Tirunelveli in Tamil Nadu, Kokkarebellur (Mandya District) and Karanji Lake (Mysuru city) in Karnataka, and Uppalapadu near Guntur and Nelapattu near the Pulicat lake in Andhra Pradesh.

Andhra Pradesh has recently lost a large breeding colony of the bird at the Kolleru lake, where aquaculture has contributed to a total degradation of the ecosystem.

Paleobotanists have shown that the Pulicat lake, now a salty marsh, was a thick mangrove forest in the 16th century. Wetland ecosystems lock up carbon dioxide from the atmosphere, as 'Blue Carbon'. As carbon sinks, mangroves can store 1,000 tonne of carbon per hectare.

### Ramsar sites

Wetlands of global importance are called Ramsar sites, after the city in Iran where the Treaty on Wetlands was signed.

India has 75 Ramsar sites, of which 14 are in Tamil Nadu, including three added last year: the Karikili bird sanctuary, the Pallikaranai Marsh Reserve Forest and the Pichavaram mangrove. The spot-billed pelican is seen in all these places.

## BIHU TRIBES OF ASSAM

Guinness World Record has been awarded for the largest Bihu dance performance and largest dhol recital at a single venue.

**Description:** About Bihu is a fast-paced (with brisk footsteps), extremely joyful dance, hailing from the state of Assam

**Purpose:** Celebrating the three agricultural festivals of Assam— Rongali/Bohag Bihu (April), Bhogali/Magh Bihu (January), Kongali/Kati Bihu (October)

**Performers:** Young men and women in groups





**Costume:** Colourful traditional costumes

**Music:** Bihu folk music played with instruments such as drums and flutes

**Significance:** Symbolizes fertility and love, celebrates the arrival of spring and the rain needed for crop growth

**Cultural icon:** Sign of Assamese cultural

identity has remained relevant even with increased urbanization

**Historical significance:** One of the earliest depictions of Bihu dance can be found in 9th-century Tezpur and Darrang regions, and it has been referenced in inscriptions from the 14th century.

## GLOBAL GREENHOUSE GAS WATCH (GGGW)

### Context:

The World Meteorological Congress has approved a new greenhouse gas (GHG) monitoring initiative called Global Greenhouse Gas Watch (GGGW).

### About Global Greenhouse Gas Watch (GGGW):

It is a new greenhouse gas (GHG) monitoring initiative of the World Meteorological Organisation (WMO).

GGGW will fill critical information gaps, providing an integrated, operational framework under all space-based and surface-based observing systems under one roof, along with modelling and data assimilation capabilities.

It will build on WMO's experience in coordinating international collaboration in predicting the weather and analysing climate on long-standing activities in greenhouse gas monitoring and research under the guidance of the Global Atmosphere Watch, established in 1989.

GGGW predicts a top-down approach to the flux evaluation, which builds on existing capabilities in surface- and space-based observations and modelling, ensuring the timely exchange of all observations and data.

### The GGGW will consist of four main components:

Comprehensive, sustained, global surface- and satellite-based observations of CO<sub>2</sub>, methane, and nitrous oxide concentrations, partial column amounts, total column amounts, vertical profiles, and fluxes supporting oceanic, meteorological, and



terrestrial variables, internationally exchanged as rapidly as possible.

Prior estimates of the GHG emissions based on the activity data and process-based models.

Global high-resolution Earth system models representing GHG cycles.

Data assimilation systems combining the observations with model calculations to generate products of higher accuracy.

### Key facts about World Meteorological Organisation (WMO):

It is a specialized agency of the United Nations (UN).

It is the UN system's authoritative voice on the state and behavior of the Earth's atmosphere, its interaction with the oceans, the climate it produces, and the resulting distribution of water resources.

It originated from the International Meteorological Organization (IMO), which was founded in 1873.

Established in 1950, WMO became

the specialized agency of the UN for meteorology(weather and climate), operational hydrology and related geophysical sciences.

Headquarters: Geneva, Switzerland.

Currently it has a membership of 187 countries.

### **Governance Structure:**

Its supreme body is the World Meteorological Congress, which consists of representatives of all members. It meets at least every four years to set general policy and adopt regulations.

A 36-member Executive Council meets annually and implements policy.

## **ATAL BHUJAL YOJANA**

### **Context:**

Recently, The fourth meeting of the National Level Steering Committee (NLSC) of the Atal Bhujal Yojana was held in New Delhi.

### **Atal Bhujal Yojana:**

Atal Bhujal Yojana (ATAL JAL) is being implemented as a Central Sector Scheme since April, 2020 in 8220 water stressed Gram Panchayats of 229 administrative blocks/Talukas in 80 districts of seven States Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh.

Implementation Period: for 5 years (2020-21 to 2024-25).

Goal: To demonstrate community-led sustainable ground water management which can be taken to scale.

Objective: **The major objective of the Scheme is to improve the management of groundwater resources in select water stressed areas in identified states.**

Funding: Total outlay of INR 6000 crores. Out of this, INR 3,000 crores will be as loan from the

World Bank and INR 3,000 crores as matching contribution from the Government of India.

### **Program Components:**

Institutional Strengthening & Capacity Building Component: This component is for strengthening institutional arrangements and capacities in the states.


Incentive Component: The incentive component is for incentivizing the States for convergence amongst various schemes of the Central and State Governments.

Nodal agency: The Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti.

Outcomes of meeting:

Overall performance of the scheme is satisfactory and the achievements under Disbursement Linked Indicators are also noteworthy.

The Committee decides Atal Bhujal Yojana should be taken up for continuation for another two years beyond 2025.



# SCIENCE & TECHNOLOGY

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## H5N1 VIRUS

### Types of Influenza Virus

There are four types of influenza viruses: influenza A, B, C, and D

Influenza A and B are the two types of influenza that cause epidemic seasonal infections nearly every year.

Influenza C mainly occurs in humans, but has been known to also occur in dogs and pigs.

Influenza D is found mainly in cattle. It's not known to infect or cause illness in humans yet.

### Avian influenza Type A Viruses

Type A viruses are classified based on two proteins on their surfaces – Hemagglutinin (HA) and Neuraminidase (NA). There are about 18 HA subtypes and 11 NA subtypes.

Several combinations of these two proteins are possible e.g., H5N1, H7N2, H9N6, H17N10, H18N11 etc.

All known subtypes of influenza A viruses can infect birds, except subtypes H17N10 and H18N11, which have only been found in bats.

### H5N1 Avian Influenza

#### About:

Avian influenza or bird flu refers to the disease caused by infection with avian influenza Type A viruses.

Infrequently, the virus can infect mammals from birds, a phenomenon called spillover, and rarely can spread between mammals.

H5N1, a subtype of avian influenza, has the potential to infect other mammals such as minks,

ferrets, seals, domestic cats, and others through contact with infected birds, their faeces, or infected bird carcasses.

#### Symptoms in Humans:

Range from mild to severe influenza-like illnesses such as fever, cough, sore throat, muscle aches, nausea, abdominal pain, diarrhea, vomiting.

People can also develop severe respiratory illness (e.g., difficulty breathing, pneumonia, acute respiratory distress, viral pneumonia) and altered mental status, seizures etc.

#### Avian Influenza in India:

In 2019, India has been declared free from Avian Influenza (H5N1), which has also been notified to the World Organization for Animal Health (OIE).

However, in December 2020 and early 2021, outbreaks of avian influenza H5N1 and H5N8 were reported in poultry in 15 states in India.

#### Treatment:

Evidence suggests that some antiviral drugs can reduce the duration of viral replication and improve prospects of survival, however ongoing clinical studies are needed.

#### Concerns:

The widespread H5N1 outbreaks have substantial economic impact, resulting in significant losses to the poultry industry and threatening food and vaccine security, apart from raising animal welfare and environmental concerns.

## MICROBES AT THE TOP OF THE WORLD – MT. EVEREST

Microbes also exist in extreme environments like Mount Everest, the highest peak in the world. While the summit of Mount Everest is a

challenging and inhospitable environment, there are microorganisms that have been found at lower elevations on the mountain.

## Biodiversity:

Microbes have been detected in various locations on Mount Everest, including soil, snow, and glacial ice.

Studies have shown that microbial diversity decreases with increasing elevation due to the extreme conditions, such as low temperatures, high UV radiation, and limited nutrient availability.

Despite the harsh environment, microbial life persists in microhabitats such as rock crevices, soil layers, and cryoconite holes (meltwater ponds on glaciers).

## Role in Nutrient Cycling:

Microbes on Mount Everest, similar to other environments, play a vital role in nutrient cycling and organic matter decomposition.

They contribute to breaking down organic material and recycling nutrients, allowing for the survival of other organisms in the ecosystem.

## Adaptations:

Microbes in Mount Everest have evolved unique adaptations to survive the extreme

conditions.

Some microorganisms produce specialized enzymes and proteins that allow them to function at low temperatures.

Others form protective structures like biofilms or produce pigments that help them cope with high UV radiation.

## Implications for Climate Change:

The presence and activity of microbes on Mount Everest can have implications for climate change.

Microbes play a role in carbon cycling, and changes in their activity due to environmental shifts can impact the release and storage of greenhouse gases in high-altitude ecosystems.

Research on microbial life in extreme environments, including Mount Everest, provides insights into the limits of life on Earth and expands our understanding of microbial adaptations.

Additionally, these studies contribute to our knowledge of how life may survive in extreme conditions on other planets or moons.

# PSLV (POLAR SATELLITE LAUNCH VEHICLE)-C55/TELEOS-2 MISSION

Recently, **ISRO (Indian Space Research Organization)** has successfully launched the PSLV (Polar Satellite Launch Vehicle)-C55/TeLEOS2- mission from the Satish Dhawan Space Centre, Sriharikota in Andhra Pradesh.

## What is the PSLV C55/TeLEOS-2 Mission?

This is the 57th flight of PSLV and 16th mission using the PSLV Core Alone configuration (PSLV-CA).

It is a dedicated commercial mission through NSIL (NewSpace India Limited) with TeLEOS-2 as primary satellite and Lumelite-4 as a co-passenger satellite, both belonging to Singapore.

The scientists used PSLV Orbital Experimental

Module-2 (POEM-2) as an orbital platform to carry out the scientific experiments through non-separating payloads carried by it.



## TeLEOS-2:

It is an Earth Observation Satellite (EOS) and will be the primary satellite being carried by the rocket.

In 2015, ISRO launched TeLEOS-1, which was launched into a low Earth orbit for remote sensing applications. ISRO has so far launched nine satellites belonging to Singapore.

TeLEOS-2 carries a Synthetic Aperture Radar (SAR) payload capable of imaging at 1m full-polarimetric resolution. It will be able to provide all-weather day and night coverage.

SAR is a type of active radar imaging technology that uses the motion of the radar antenna to create a high-resolution 3D image of the target area.

## LUMILITE-4:

It is an advanced 12U satellite developed for the technological demonstration of the High-Performance Space-borne VHF Data Exchange System (VDES).

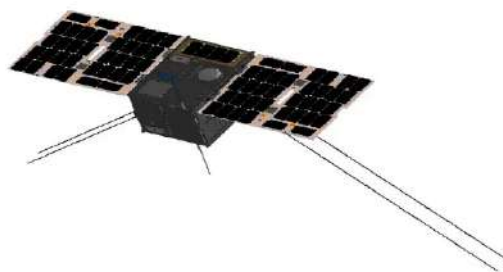
“12U” refers to a standardized form factor for CubeSats, which are small satellites with a modular design.

In the 12U form factor, the CubeSat measures 24 x 24 x 36 cm and has a volume of 20.7 liters.

It aims to augment Singapore’s e-navigation maritime safety and benefit the global shipping

community.

It is the co-passenger satellite being sent along with TeLEOS-2



## AI IN PHARMA SECTOR

Artificial Intelligence has the potential to cut the drug development cycle by half. Yet there are doubts and reliability factors regarding AI tools in drug development.

### CASE STUDY

In 2022, Hong Kong-based pharma company Insilico Medicine along with researchers from Stanford University, US, and the University of Toronto, Canada, began an experiment, powered by three artificial intelligence (AI) tools. The experiment was to find a cure for Hepatocellular carcinoma, the most common form of liver cancer.

The company’s biocomputational platform called PandaOmics scanned through endless research papers online to shortlist 20 potential targets.

In the second stage, the researchers turned to AlphaFold, a Google owned open access AI system. It predicts a protein’s three-dimensional (3D) structure.

Finally, the researchers fed the 3D structure into Chemistry42, an AI algorithm owned by Insilco Medicine, which designed 8,918 new chemicals.

The entire process took just 30 days which otherwise would have taken at least six months to a year.

### AI benefits in Drug development:

Developing a new drug costs about US \$2.6 billion and an average of 12 years which could be reduced significantly using AI predictions.

AI companies complete the drug discovery process and preclinical stages in less than four years, while big pharma takes five to six years to reach that stage.

A branch of AI called machine learning (ML) is widely used in drug discovery where researchers use data sets to train the system and later use it to make predictions in new data sets.

AI models can analyze vast quantities of data from different sources far beyond the capacity of humans.

### Limitations of AI in Pharma:

Most potential drugs fail clinical trials because the wrong target was chosen which remains a challenge since human understanding is limited about it. An AI cannot do much if our understanding of the disease is incomplete or poor.

Eg: Billions of dollars have been spent to develop drugs for Alzheimer's that target beta-amyloid but the process is not yet successful.

AI does not develop an understanding of the subject, creating a "black box". Meaning It does not reveal the logic behind its prediction or

decision, leading to misinterpretation and bias.

There is a high degree of trust issues regarding AI created drugs among biologists and industry leaders.

### Conclusion:

AI is far from perfect but technology will get better over time as it learns since it learns from data fed into it from each cycle of optimizing the design, synthesizing the chemical and testing it.

Technology will be more widely used in the future but cannot take over human discovery of drugs.

As of now, there are no AI designed and developed drugs in the market.

## MAGNETORESISTANCE

Magnetoresistance is a phenomenon where the electrical resistance of a material change in response to a magnetic field. The magnetoresistance observed in the graphene-based device was "almost 100 times higher than that observed in other known semimetals in this magnetic field range."

Usage of GMR: GMR is used in hard disk drives, magnetoresistive RAM in computers, biosensors, automotive sensors, microelectromechanical systems, and medical imagers.

### Features of magnetoresistance:

The element which has these effects is known as the magnetoresistor. In other words, the magneto resistor is a type of resistor whose resistance varies with the magnetic field.

The magnetoresistor is used for determining the presence of a magnetic field their strength and the direction of the force. It is made of the indium antimonide or indium arsenide semiconductor material.

The resistance of the magneto resistor is directly proportional to the magnetic field, i.e., their resistance raises with the increase of the magnetic field. The variation in resistance occurs because of the magneto effect.

The magnetoresistor operates without physical

contacts which is their major advantage. The magnetoresistor has various applications like it is used in the hard disk of the computer, an electronic compass, for measuring the current etc.

The first magnetoresistive effect was discovered in 1856 by William Thomson, better known as Lord Kelvin.

### Working Principle of Magnetoresistor

It works on the principle of electrodynamics, which states that the force acting on the current place in the magnetic field changes their direction. In the unavailability of the magnetic field, the charge carriers of the magneto resistor move in the straight path.

In the presence of the magnetic field, the direction of the current becomes changes, and it flows in the opposite direction. The indirect path of the current increases the mobility of their charge carrier which causes the collision.

The collision increases the loss of energy in the form of heat. This heat increases the resistance of the magneto resistor. The current of very small magnitude flows in the magneto resistor because of few free electrons.

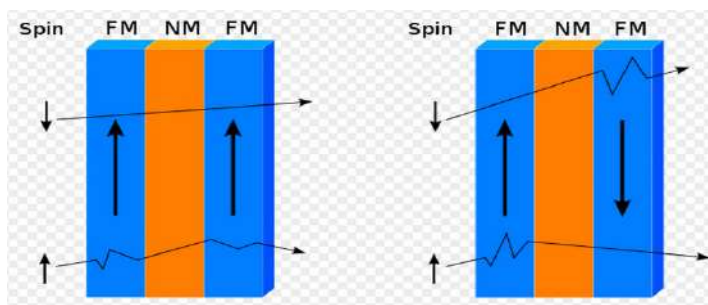
The deflection of the magneto resistor electrons depends on their mobility. It is more

in the semiconductor material as compared to the metals.

### Characteristic of Magnetoresistor

The sensitivity of the magnetoresistor depends on the strength of the magnetic field.

In the absence of the magnetic field, the magnetization of the element becomes zero.



## HIMANSHU ROY CANCER TEST

### Why in the News?

Epigeneres Biotech operationalises the HrC test – An early warning system for cancer, that’s the promise of HrC or the Himanshu Roy Cancer test – a first-of-its-kind prognostic test for cancer.

### About

It was developed by Epigeneres Biotechnology along with Singapore-based Tzar Labs, supported by some marquee investors.

The test is named after Mumbai’s top cop Himanshu roy.

The test involves a single blood test that claims to detect the absence, imminence or presence of cancer.

The test detects all cancers from a blood test; it catches imminent cancer “very early” and it’s “very accurate” of the “stage zero” test that detects a potential cancer risk 18 months earlier, the company claims.

The test has been launched in India, priced at sub-₹10,000. With a capacity of 15 samples daily the aim is to get to 50-100 samples a day.

Besides cancer survivors, the test would help people with a family history of cancer or with a risk profile.

The company is now discussing taking this technology to the United Kingdom and the US.

## PLANT ‘CRIES’: RECALLING JAGADISH CHANDRA BOSE

### Why in the News?

Late last month, a group of researchers from Tel Aviv University in Israel reported that they had been able to pick up distress noises made by plants.

The researchers said these plants had been making very distinct, high-pitched sounds in the ultrasonic range when faced with some kind of stress, like when they were in need of water. This was the first time that plants had been caught making any kind of noise.

### About Jagdish Chandra Bose

Born on 30th November, 1858 to Bama

Sundari Bose and Bhagawan Chandra, Bengal. He was a Plant Physiologist and physicist who invented the crescograph, a device for measuring the growth of plants. He for the first time demonstrated that plants have feelings.

### Education

He earned a BSc from University College London, which was connected with the University of London in 1883, and a BA (Natural Sciences Tripos) from the University of Cambridge in 1884.

### Contributions to science

He made pioneering contributions in both the fields and was the first Indian to have made a



powerful impact on modern science, much before Srinivasa Ramanujan, C V Raman, or Satyendra Nath Bose, a student of Jagadish, arrived on the scene.

Several previous generations of Indians had grown up hearing that Jagadish Chandra Bose had shown, more than a century ago, that plants experienced sensations and were able to feel pleasure and pain just like animals.

The discovery that **plants ‘cry’ in distress**, therefore, did not come as much of a surprise to them. It seemed just a logical extension of J C Bose’s work. Bose discovered wireless **communication and was named the Father of Radio Science** by the Institute of Electrical and Electronics Engineering. He was responsible for the expansion of experimental science in India.

Bose is considered the father of Bengali science fiction. A crater on the moon has been named in his honour. He founded Bose Institute, a premier research institute of India and also one of its oldest. Established in 1917, the Institute was the first interdisciplinary research centre in Asia. He served as the Director of Bose Institute from its inception until his death.

To facilitate his research, he constructed automatic recorders capable of registering extremely slight movements; these instruments produced some striking results, such as quivering of injured plants, which Bose interpreted as a power of feeling in plants.

## Books

His books include *Response in the Living and Non-Living* (1902) and *The Nervous Mechanism of Plants* (1926).

## His work

Jagadish Chandra Bose is remembered for two things - his work on wireless transmission of signals, and on the physiology of plants.

He is also credited as one of the first contributors to solid state physics.

Sir Neville Mott, Nobel Prize winner in 1977, is said to have remarked that Bose was “at least 60 years ahead of his time and he had anticipated

the p-type and n-type semiconductors”.

## Work on radio waves

Bose is widely believed to be the first one to generate electromagnetic signals in the microwave range.

In 1895 he demonstrated how microwaves could be used, wirelessly, to ring an electric bell on the other side of a building.

He published as many as 12 papers on radio waves in the *Proceedings of the Royal Society*, and many more in some other prestigious journals.

He lectured on his work at some highly publicised scientific gatherings in Europe, in the presence of some of the leading scientists of the day.

He was the first one to come up with radio receivers, which enabled wireless telegraphy.

And yet, Guglielmo Marconi, an Italian scientist who carried out the first transmission of signals across the Atlantic in 1901, is recognised as the sole inventor of the radio.

Marconi, along with another colleague, was awarded the 1909 Nobel Prize for work that Bose is known to have accomplished earlier.

It was not just bias but a reluctance on Bose’s part to obtain patents for his work that deprived him of the Nobel.

## Controversies over his work:

Some of his work became controversial as well, particularly when he claimed that not just plants, even inanimate inorganic matter could respond to stimulus, and that there was actually no sharp demarcation between living and non-living worlds.

Such “mental leaps” have sometimes been attributed to Bose’s “deep convictions in Indian philosophy” and his “faith in universalism”.

Bose regarded plants to be the “intermediates in a continuum that extended between animals and the non-living materials”.

Over the years, much of Bose’s work has been confirmed.

## ZERO SHADOW DAY

### Why in the News?

On April 25, Bengaluru experienced a 'Zero Shadow Day', when vertical objects appear to cast no shadow.

### About

Zero Shadow Day' is an astronomical event that occurs twice a year on specific dates in some parts of the world. It is a phenomenon that occurs **when the Sun is directly overhead** and the **shadows of vertical objects** such as poles, trees, and buildings **disappear** completely for a brief period of time.

### Why does a Zero Shadow Day happen?

Uttarayan (movement of the Sun from south to north from winter solstice to summer solstice)

and Dakshinayan (back from north to south) happen because Earth's rotation axis is tilted at an angle of roughly  $23.5^\circ$  to the axis of revolution around the Sun.

Ramanujam explained that the Sun's location moves from  $23.5^\circ\text{N}$  to  $23.5^\circ\text{S}$  of Earth's equator and back. All places whose latitude equals the angle between the Sun's location and the equator on that day experience zero shadow day, with the shadow beneath an object at local noon.

### When does a Zero Shadow Day happen?

The dates of Zero Shadow Day vary from place to place, and the event is more likely to occur near the equator. This phenomenon lasts for a small part of a second, but the effect can be seen for a minute to a minute-and-a-half.

## FLY ASH PARTICLES FOUND IN ANTARCTIC ICE

### Why in the News?

In a first, fly ash particles found in Antarctic ice, thousands of kilometres from potential source.

### Highlights of New study

**Spheroidal carbonaceous particles** (SCP), a component of fly ash, have been identified for the first time in an Antarctic ice core, according to a new study.

Not just that, the particles **recovered dated back to 1936**, according to scientists from the British Antarctic Survey and the University College London.

SCPs have no other anthropogenic or natural sources other than fossil fuel combustion. Thus, they are an unambiguous environmental indicator of industrialisation.

The study provided the first evidence that SCPs have not only been transported to continental Antarctica, but that those enduring physical

markers of fossil fuel combustion have been trapped in ice layers since the early decades of the 20th century.

Atmospheric circulation and transport processes have probably influenced the deposition of SCPs in Antarctica throughout the twentieth century, especially related to the strength and position of the Southern Hemisphere westerly winds.

The westerly winds are predicted to increase in strength during the 21st century and this might lead to an increased deposition of fly ash particles and other anthropogenically-derived atmospheric pollutants in Antarctica in the future.

### What is fly ash?

Fly ash is a residue generated in combustion and comprises the fine particles that rise with the flue gases. Fly ash is a heterogeneous material. The main chemical components present in fly ash are:

Silicon dioxide

Aluminum oxide

Ferric oxide

Calcium oxide (occasionally)

**Source:** Coal-fired power plants are the biggest sources of fly ash, which contains toxic chemicals such as arsenic, barium, cadmium, nickel and lead, among others.

**Impact:** Without proper management, fly ash can pollute the waterways, ground water, drinking water, and air, posing a risk to humans, wildlife, and the environment.

### Applications of Fly Ash

In the commercial and industrial sectors, fly ash has a wide variety of applications and uses, though it is primarily known for improving the durability and workability of concrete mixes.

Fly ash is also a filler in paints, adhesives, and metal and plastic composites.

It's commonly used as structural fill for road construction and fly ash can be used to make bricks, ceramic tiles, plaster, Portland cement, and ready-mix cement.

#### Government measures

- Mobile app for ash management-ASH TRACK.
- Mandatory use of fly ash-based products in all Government schemes e.g. Pradhan Mantri Gramin Sadak Yojana.
- Maharashtra became first state to adopt Fly Ash Utilisation Policy, 2016.

## SUPREME INITIATIVE

### Why in the News?

Recently, the Union Minister of Science and Technology launched the SUPREME initiative to provide financial support for the upgradation and maintenance of analytical instrumentation facilities (AIFs).

### About SUPREME Initiative

Nodal Ministry: Ministry of Science and Technology

The Support for Up-gradation Preventive Repair and Maintenance of Equipment (SUPREME), is a first-of-its-kind programme by the government. It extends financial support for repair, upgradation, maintenance, retrofitting, or acquiring additional attachments to increase the functional capabilities of existing **analytical instrumentation facilities**.

**Eligibility:** Different facilities created under the projects/ Analytical instrumentation facilities (AIFs) created earlier from the support of DST, only will be considered for the funding support under this Scheme

Such facilities at institutions recognized by the University Grants Commission (UGC) are eligible to apply for grants under this initiative.

The duration of support will be for a period **not exceeding 3 years**.

The funding pattern in the scheme would be **75:25** for all private and government owned institutions (except for state-funded institutions for which 100% funding would be considered).

### The Criterion for Selection:

Apart from the academic and research merits of the organizations, details of how the revival of the research facility will benefit the scientific community/MSMEs/Startups will be taken into account for evaluating the proposals.

Proven records of the sample(s) analysed, publications, patents, different beneficiaries/stakeholders associated with the facility and other parameters like Scientific Social Responsibility/ industrial R&D components will be considered for screening of the proposals.

The selection process will be through a peer review mechanism and a visit to the organizations, if necessary.

The Expert Committee will evaluate the proposals and assist DST in making the final selection.

## VACCINE “SHINGRIX”

### Why in the News?

GlaxoSmithKline (GSK) Pharma has launched vaccine “Shingrix” in India to prevent shingles (Herpes Zoster)

### About Shingles

Shingles is caused by the reactivation of the varicella zoster virus (VZV), the same virus that causes chickenpox.

It can occur anywhere in the human body.

It typically looks like a single stripe of blisters that wraps around the left side or the right side of your torso.

It is not contagious, meaning it can't be spread from one person to another.

The risk of shingles goes up as you get older and it is most common in people over age 50.

**Symptoms:** Pain, burning, tingling sensitivity to touch etc.

Those suffering from diabetes, heart disease and kidney diseases are at an increased risk of developing shingles because of weakened

immunity.

### About Shingrix vaccine

Shingrix vaccine aims to prevent shingles (herpes zoster) and post-herpetic neuralgia in adults aged 50 years or more.

It is the world's first non-live, recombinant subunit vaccine to be given intramuscularly in two doses. It was approved by the US Food and Drug Administration and European Commission.

### What other problems can shingles cause?

Postherpetic neuralgia (PHN) is the most common complication of shingles. It causes severe pain in the areas where you had the shingles rash.

**Vision loss:** It can happen if shingles affect the eyes. It may be temporary or permanent.

Hearing or balance problems are possible if you have shingles within or near your ear. You may also have weakness in the muscles on that side of your face. These problems can be temporary or permanent.

## WORLD ENERGY TRANSITIONS OUTLOOK REPORT

Recently, the International Renewable Energy Agency (IRENA) released the World Energy Transitions Outlook report. World Energy Outlook is International Energy Agency's flagship publication. It is an annual report and it appears every year since 1998.

### Highlights of the report

Progress has been made in the energy transition, particularly in the power sector where renewables account for 40 per cent of installed power generation globally and contribute to an unprecedented 83 percent of global power additions in 2022.

The global energy transition is still “off-track” and falls short of the 1.5 degrees Celsius pathway. To keep 1.5°C alive, deployment levels must grow from some 3,000 gigawatts (GW) at

present to over 10,000 GW in 2030, an average of 1,000 GW annually”.

Public sector intervention is required to channel investments towards countries more equitably. Global investment in energy transition technologies reached a new record of \$1.3 trillion in 2022, yearly investments must more than quadruple to over \$5 trillion to stay on the 1.5 degrees Celsius pathway. By 2030, cumulative investments must amount to USD 44 trillion, with transition technologies representing 80 per cent of the total, or \$35 trillion, “prioritising efficiency, electrification, grid expansion and flexibility”. Current pledges and plans fall well short of IRENA's 1.5°C pathway and will result in an emissions gap of 16 gigatonnes (Gt) in 2050.

## International Renewable Energy Agency (IRENA)

The International Renewable Energy Agency (IRENA) is an intergovernmental organisation that supports countries in their transition to a

sustainable energy future. Its head quarter is in Abu Dhabi United Arab Emirates. Its membership comprises 167 countries and the European Union. In 2009, India has become the 77th Founding Member of this organization.

## SLOCUM GLIDERS

Recently, the Indian National Centre for Ocean Information Services (INCOIS), under the Ministry of Earth Sciences (MoES), has just launched two fresh modern deep seas 'Slocum' gliders in the Bay of Bengal.

Slocum gliders are a type of autonomous underwater vehicle (AUV) that are capable of carrying out long-duration missions, spanning several months or even years, to collect scientific data from the ocean. It aims to study the physical and biogeochemical parameters of the sea and get an insight into climate change.

### Features of the gliders

The state-of-the-art gliders are equipped with sensors to track temperature, salinity, chlorophyll, dissolved oxygen, and PAR – photosynthetic active radiation in the seawater among others. The gliders have been deployed from the Ocean Research Vehicle 'Sagar Manjusha' of the National Institute of

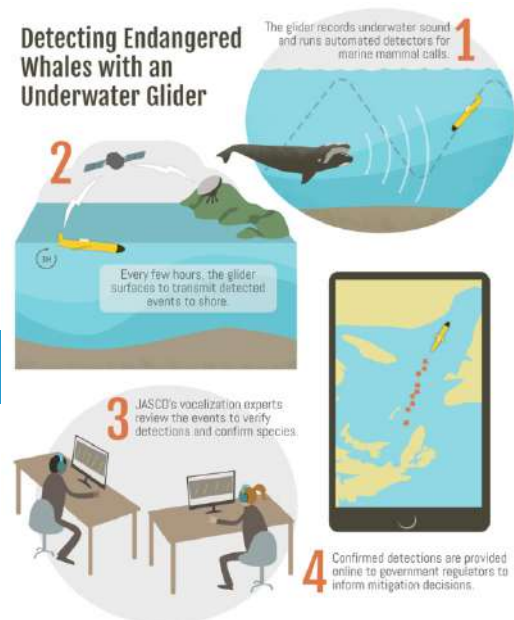
Ocean Technology (NIOT) off the Chennai coast outside of the EEZ - exclusive economic zone boundary

These gliders can go underwater up to a depth of about 1,000 metres and will surface four to five times a day. These gliders which run on the lithium-ion battery is they come with an extended battery life of nine months and more to cover both the north and south transect of the Bay of the Bengal. They can travel up to 15 km a day. The project comes under the 'Deep Ocean Mission of the Ministry of Earth Science.

## LIGO INDIA PROJECT

Recently, the government approved the construction of the Laser Interferometer Gravitational-Wave Observatory (LIGO) project after seven years of in-principle approval. It will be built by the Department of Atomic Energy and the Department of Science and Technology with the U.S. National Science Foundation and several national and international research institutions.

LIGO is an international network of laboratories that detect gravitational waves. LIGOs are designed to measure changes in distance that are several orders of magnitude smaller than the length of the proton. Such



high precision Instruments are needed because of the extremely low strength of gravitational waves that make their detection very difficult.

The LIGO in the US first detected gravitational waves in 2015, which led to a Nobel Prize in Physics in 2017. These gravitational waves were produced by the

merger of two black holes, which were about 29 and 36 times the mass of the Sun, 1.3 billion years ago. Black hole mergers are the source of some of the strongest gravitational waves.

Besides the United States (in Hanford and Livingston), such gravitational wave observatories are currently operational in Italy (Virgo) and Japan (Kagra). To detect gravitational waves, four comparable detectors need to be operating simultaneously around the globe.

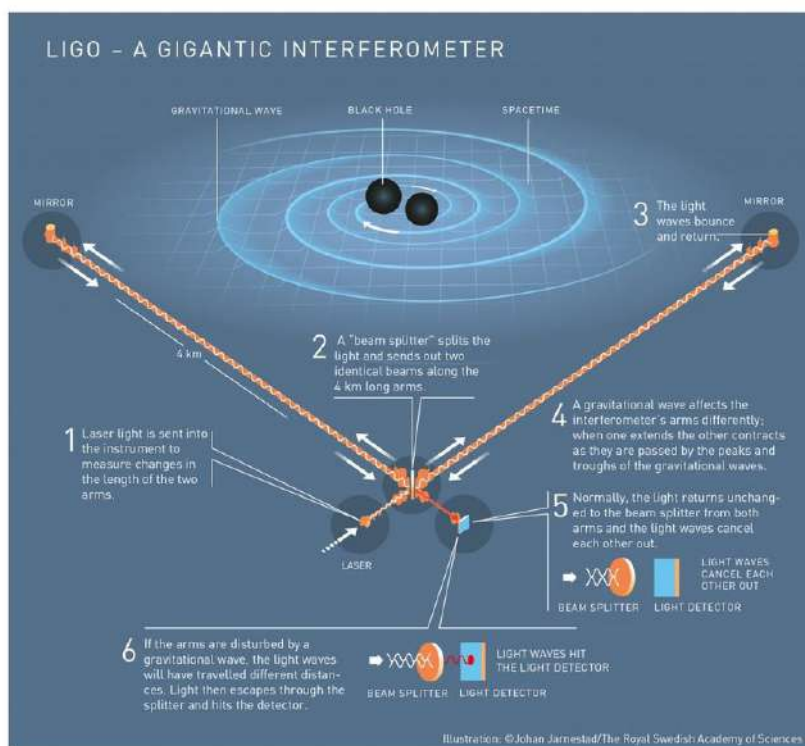
### LIGO-India Project

The project aims to detect gravitational waves from the universe. The Indian LIGO would have two perpendicularly placed 4-km long vacuum chambers, that constitute the most sensitive interferometers in the world. It is expected to begin scientific runs from 2030. It will be located in the Hingoli district of Maharashtra, about 450 km east of Mumbai.

It will be the fifth node of the planned network and will bring India into a prestigious international scientific experiment. It will make India a unique platform that brings together the frontiers of science and technology of the quantum and the cosmos.

### Benefits of LIGO-India:

The LIGO-India project would have several spin-off benefits to Indian science, apart from making India an integral part of one of the most prestigious international scientific experiments. The observatory is expected to enable dramatic returns in astronomy and astrophysics, as well as leapfrog Indian science and technology in cutting-edge frontiers of great national relevance.



### How LIGO works

The observatory comprises two 4-km-long vacuum chambers, built perpendicular to each other. Highly reflective mirrors are placed at the end of the vacuum chambers.

Light rays are released simultaneously in both the vacuum chambers. They hit the mirrors, get reflected, and are captured back. In normal circumstances, the light rays in both the chambers would return simultaneously. But when a gravitational wave arrives, one of the chambers gets a little elongated, while the other one gets squished a bit. In this case, light rays do not return simultaneously, and there is a phase difference. The presence of a phase difference marks the detection of a gravitational wave.

## GRAPHENE'S ANOMALOUS GIANT MAGNETORESISTANCE (GMR)

Recently, researchers in the UK, led by Nobel laureate Andre Geim have found that graphene displays an anomalous giant magnetoresistance (GMR) at room temperature.

Graphene displayed an anomalous giant magnetoresistance (GMR) at room temperature. GMR is the result of the electrical resistance of a conductor being affected by magnetic fields in adjacent materials. It is used in hard disk drives and magnetoresistive RAM in computers, biosensors, automotive sensors, micro-electromechanical systems, and medical imagers.

Magnetoresistance is a phenomenon where the electrical resistance of a material

change in response to a magnetic field. The magnetoresistance observed in the graphene-based device was “almost 100 times higher than that observed in other known semimetals in this magnetic field range.”

GMR is a phenomenon where the electrical resistance of a conductor is affected by magnetic fields in adjacent materials. Say a conductor is sandwiched between two ferromagnetic materials (commonly, metals attracted to magnets, like iron). When the materials are magnetised in the same direction, the electrical resistance in the conductor is low. When the directions are opposite each other, the resistance increases.

## POLAR CROWN PROMINENCE (PCP)

Recently, an Argentina-based astronomer captured a structure that looked like a wall of plasma on the surface of the sun.

Polar Crown Prominence (PCP) is a solar phenomenon that occurs on the sun's Polar Regions. It is a type of solar prominence, which is a large, bright, gaseous feature that extends out from the sun's surface.

Solar prominence is a large, bright feature extending outward from the Sun's surface. These are anchored to the Sun's surface in the photosphere, and extend outwards into the Sun's hot outer atmosphere, called the corona.

It forms over timescales of about a day, and stable prominences may persist in the corona for several months, looping hundreds of thousands of miles into space. The red-glowing looped material is plasma, a hot gas comprised of electrically charged hydrogen and helium. This plasma flows along a tangled and twisted structure of magnetic fields generated by the sun's internal dynamo. An erupting prominence occurs when such a structure becomes unstable and bursts outward, releasing the plasma.

Polar crown prominence (PCP) are similar



to normal solar prominences, which are loops of plasma, or ionized gas, that is ejected from the solar surface by magnetic fields. They occur near the sun's magnetic poles at latitudes between 60 and 70 degrees North and South. Due to the much stronger magnetic fields near the poles they collapse back towards the sun. This collapse back to the sun has earned them the nickname “plasma waterfalls.”

PCPs are important because they provide clues about the sun's magnetic activity and how

it affects the Earth's environment. Solar activity, including PCPs, can cause disturbances in the

Earth's magnetic field, which can lead to auroras and disruptions in communication systems.

## GALAXY GN-Z11

Recently, the spectroscopic results from galaxy GN-z11 identified and confirmed that there is the complete absence of dust particles from its surroundings for an interim period despite possessing a very high star formation rate.

The process of star formation and the subsequent stellar evolution inevitably generates massive amounts of dust and makes the host galaxy opaque to some extent due to the apparent view of a thick veil around it. This phenomenon has been missing in GN-z11's behaviour, leaving

astronomers amazed beyond measure.

It was discovered in 2015 by the Hubble Space Telescope. It is located approximately 32 billion light years away from the Earth.

Galaxy is a huge collection of gas, dust, and billions of stars and their solar systems. A galaxy is held together by gravity. A galaxy starts to form through the accumulation of hydrogen gas in the form of a very large cloud called a nebula and this growing nebula develops localised clumps of gas.

## REUSABLE LAUNCH VEHICLES

### Why in news?

Inching closer to a fully reusable launch vehicle, the Indian Space Research Organisation (ISRO) successfully carried out the landing experiment of the **Reusable Launch Vehicle-Technology Demonstration (RLV-TD) programme** on April 2, 2023.

### About

Primarily, launch vehicles comprise **three or four stages** apart from the payload, which needs to be launched into a **polar or a geosynchronous orbit**, depending on a mission's requirements.

The RLV that ISRO is building has **only two stages** to propel the vehicle into orbit. Once the fuel in the first stage has been expended, the vehicle will shed it, and carry on with the second stage. Once it has been shed, **the first stage will re-enter the atmosphere** and land in an autonomous fashion at a pre-determined location. After some maintenance, **it will be available for reuse**.

ISRO executed the landing experiment at the Aeronautical Test Range in **Challakere, Chitradurga**. The RLV was dropped by an **Indian Air Force (IAF) Chinook helicopter** from an altitude of 4.5 km. The vehicle performed approach and landing manoeuvres on the runway autonomously, under the conditions in which a

re-entry vehicle from space might return — at high speed and without human inputs, to achieve a stable landing.

### Background

**Reusable Launch Vehicle-Technology Demonstration (RLV-TD) Programme** is planned as a series of technology demonstration missions that have been considered as a first step towards realising a Two Stage To Orbit (TSTO) fully reusable vehicle.

A **Winged RLV-TD** has been configured to act as a flying test bed to evaluate various technologies using air breathing propulsion. These technologies will be developed in phases through a series of experimental flights.

**RLV-TD HEX-01 Mission:** ISRO accomplished its maiden RLV-TD HEX-01 mission on May 23, 2016 and successfully demonstrated the **critical technologies for design and flight testing** of re-entry vehicles. However, **it was a suborbital flight and designed to land on sea**.

**RLV Landing Experiment (RLV-LEX) :** One of the critical technologies to be demonstrated is approach and **autonomous landing on a runway**. In order to acquire end-to-end RLV technology capability, this milestone has to be achieved before the RLV ORE mission. For this, a Landing



Experiment is planned (LEX).

In LEX, the RLV will be **carried using a helicopter to an altitude of 3-5 km** and released at a distance of approximately 4-5 km ahead of the runway with a horizontal velocity. After the release, the RLV glides, navigates towards the runway and carries out a conventional autonomous landing with a landing gear. This is planned in a Defence air field near Chitradurga in Karnataka.

**RLV Orbital re-entry Experiment (ORE) :** Now ISRO is working on ORE. In ORE, a wing body called Orbital Re-entry vehicle (ORV) will be **taken to an orbit by an ascent vehicle** derived from the existing GSLV and PSLV stages and **stay in orbit for a stipulated period, re-enter and land in a runway** autonomously with a landing gear.

### Past experiments

The American aerospace manufacturing company McDonnell Douglas in 1993, built the **Delta Clipper (DC-X)** to demonstrate lift-off, maintain altitude, and a landing on its tail. The project was later transferred to **NASA's Reusable**

**Launch Vehicle program** after the cost of each test flight proved to be too expensive. In its twelfth flight in 1996, the DC-X crashed and burned on landing, extensively damaging its exterior chassis.

NASA later shelved the project due to budgetary constraints, bringing this chapter of the single-stage to-orbit launch vehicle to an end.

### Current Reusable technologies in Spaceflight

On November 23, 2015, **Blue Origin's** (Amazon founder Jeff Bezos's space company) reusable space vehicle '**New Shepherd**' successfully undertook a suborbital flight.

**The Falcon 9** in 2010, built by SpaceX, a 54-metre-tall two-stage rocket with nine engines, capable of transporting cargo and crew to the International Space Station (ISS)

The Japan Aerospace Exploration Agency (JAXA), the United Launch Alliance (ULA), the European Space Agency (ESA), and ISRO have also been undertaking R&D on other aspects of reusable launch systems.

## MPOX NO LONGER A PHEIC

### Why in news?

The World Health Organization (WHO) declared that mpox no longer constitutes a global health emergency on Thursday, almost exactly a year after the disease formerly known as monkeypox started spreading globally.

This comes a week after the UN agency also declared that COVID-19 is no longer a public health emergency of international concern (PHEIC), its highest level of alarm.

### About

### Public Health Emergency of International Concern (PHEIC)

A PHEIC is defined in the **International Health Regulations (IHR, 2005)** as, "an **extraordinary event** which is determined to **constitute a public health risk** to other States through the **international spread of disease** and

to potentially require a **coordinated international response**". This definition implies a situation that is:

Serious, sudden, unusual or **unexpected**;

Carries implications for **public health beyond the affected State's national border**; and

May require immediate **international action**.

IHR (2005), represents a binding international legal agreement involving 196 countries across the globe, including all the Member States of the WHO.

The declaration of PHEIC would lead to **boosting public health measures**, funding and resources to prevent and **reduce global spread**. It could include recommendations on trade and travel, although the WHO generally tries to avoid disruptive trade restrictions.

The **Emergency Committee**, made up of

international experts, provide technical advice to the WHO Director-General in the context of a PHEIC.

## Mpox

It is a rare disease caused by a virus.

First identified in 1970 in the Democratic Republic of the Congo region

Infected people break out in a rash that looks like chickenpox. Symptoms include fever, malaise, headache, and enlarged lymph glands

Primary infection is through direct contact

with the blood, bodily fluids, or cutaneous or mucosal lesions of an infected animal. Eating inadequately cooked meat of infected animals is also a risk factor. Human-to-human transmission can occur.

Mpox spreads rapidly and can cause one out of ten deaths if infected

There is no specific treatment or vaccine available for Monkeypox infection, but the European Union has recommended the Smallpox Vaccine, Imvanex.

## ETHANE CRACKER UNIT

### Why in news?

GAIL (India) Ltd., the country's top gas supplier, plans to build a ₹400-billion (\$4.89 billion) ethane cracker near its liquefied natural gas import plant in Western India.

### About

Indian companies are boosting their petrochemical production capacity as the **expanding economy boosts the need for goods ranging from plastics to paints and adhesives**. A cracker produces ethylene, required for products such as plastics.

Demand for petrochemicals could nearly triple by 2040, according to estimates by top refiner Indian Oil, forcing companies to make big investments to set up new facilities across the country.

The company plans to import ethane from

the United States for the project

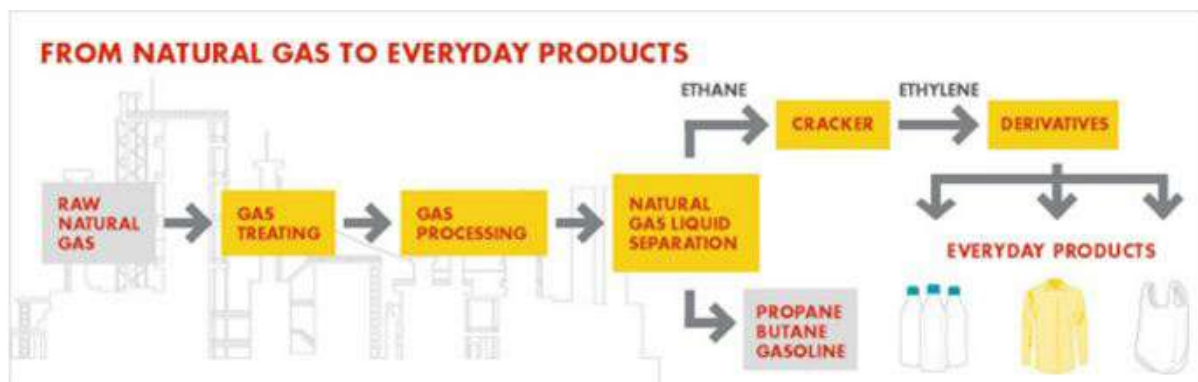
### Ethane cracker Plant

An ethane cracker plant, also known as an **ethylene cracker plant**, is a facility used in the petrochemical industry to produce **ethylene**, a key building block for various chemical products.

Ethane cracker plants **convert ethane**, a natural gas liquid derived from natural gas processing, **into ethylene**. Ethylene is a **crucial raw material** used in the production of plastics, fibers, solvents, and other chemical products.

The primary feedstock for ethane cracker plants is ethane, which is obtained from **natural gas extraction and processing**. Ethane is separated from the other components of natural gas, such as methane and propane, to be used as the main input for ethylene production.

The core process in an ethane cracker plant is



“**cracking.**” In this process, ethane molecules are **heated and broken down** into smaller molecules, primarily ethylene and some other byproducts. This process involves high temperatures, typically ranging from 800 to 900 degrees Celsius (1472 to 1652 degrees Fahrenheit).

Ethylene is the primary output of the ethane cracker plant

### Some Uses of Ethylene

Plastic Production

Packaging Materials

PVC Production

Solvents such as ethylene glycol, which is used in the production of antifreeze, polyester fibers, and polyethylene terephthalate (PET) bottles.

Production of automotive parts, such as tires, hoses, and gaskets. It is also used in manufacturing automotive lubricants and fuels.

Ethylene is employed in agriculture for ripening fruits. It can be used as a gas to accelerate the ripening process of fruits like bananas, tomatoes, and apples.

Ethylene is used as a precursor for the production of various chemical intermediates. Such as ethylene oxide, ethylene dichloride, and ethylbenzene, which are utilized in the production of solvents, detergents, plastics, and synthetic fibers.

Ethylene is a raw material in the production of synthetic rubber

### Gas Authority of India Ltd.

In 1984, GAIL India was established by the Indian government as a **PSU (Public Sector Undertaking)** underneath the **Petroleum and Natural Gas Ministry**.

It is the largest natural gas refining and handling business in India.

### Objectives of GAIL

Distribution & Marketing of Natural Gas

Piped Natural Gas for Domestic/ Commercial/ Industrial purposes

Setting up of facilities for compression of Natural Gas, laying of the pipelines from City Gate Station(s) to the consumption areas , transportation of gas through mobile cascades/ lorries in the various cities of India and along the national highways for building CNG corridors

Building gas business opportunities through participation with Gas Producers/ Strategic partners for the implementation of the downstream distribution projects

Development of City Gas Distribution projects

Secondary distribution of NG/ RLNG to end consumers

## LOCKBIT RANSOMWARE

### Why in news?

Reports emerged that LockBit ransomware was found to be targeting Mac devices, in a first. Earlier in January, the LockBit gang was reportedly behind a cyber-attack on U.K. postal services, causing international shipping to grind to a halt.

### About

First reported in September 2019 **and dubbed the “abcd” virus**, due to the file extension used when encrypting victim’s files, the LockBit ransomware is **designed to infiltrate victims’ systems and encrypt important files**.

The virus is categorised as a “**crypto virus**” due to its requests for payment in cryptocurrency to decrypt the files on the victim’s device.

The ransomware is therefore typically deployed against victims who feel hindered enough by the disruption to pay heavy sums in exchange for access and can afford to do so.

In the past, LockBit ransomware has been used to target enterprises and organisations in the U.S., China, India, Ukraine, and Indonesia. Attacks have also been recorded throughout Europe, including in France, Germany, and the U.K.

The gang behind the LockBit ransomware reportedly **maintains a dark web portal** to recruit members and release data of victims who refuse to meet their demands, as part of their business model.

## The working

It works as a **self-spreading malware**, not requiring additional instructions once it has successfully infiltrated a single device with access to an organisational intranet.

It also known to **hide executable encryption files** by disguising them in the **.PNG format**, thereby **avoiding detection by system defences**.

Attackers use **phishing tactics** and other social engineering methods to impersonate trusted personnel or authorities to lure victims into sharing credentials. Sometimes, the ransomware has also **used brute force to gain access to the intranet server** and network of an organisation.

## Efforts by the state against cyber threats

The Government of India has implemented several initiatives and policies to address cybersecurity challenges and strengthen the country's overall cyber resilience. Here are some prominent initiatives taken by the Indian government in recent years:

**National Cyber Security Policy (2013):** The government introduced the National Cyber Security Policy to protect information and critical infrastructure from cyber threats. However, amid a surge in cyberattacks on India's networks, the Centre is yet to implement the **National Cyber Security Strategy**.

**Cyber Swachhta Kendra (Botnet Cleaning and Malware Analysis Center):** Launched in 2017, this initiative aims **to detect and clean infected systems** from malware and botnets. It provides free tools and services to users to secure their systems and promotes the use of best cybersecurity practices.

**Cyber Surakshit Bharat:** This initiative, launched in **2018**, is a joint effort of the government, industry, and academia to **spread**

**awareness about cybersecurity** among citizens, organizations, and students. It includes training programs, workshops, and capacity-building activities.

**Cyber Coordination Centre (CyCord):** Established in 2017, the CyCord serves as a **central hub for coordination, sharing of information, and monitoring of cybersecurity incidents across the country**.

**Indian Cyber Crime Coordination Centre (I4C):** The I4C was established in **2020** as a **national nodal agency** for dealing with cybercrime-related issues. It focuses on preventing cyber threats, promoting coordination among law enforcement agencies, and providing assistance to states in handling cybercrime incidents.

**National Critical Information Infrastructure Protection Centre (NCIIPC):** The NCIIPC, established in **2014**, is responsible for **protecting critical information infrastructure** in sectors such as power, transportation, finance, and defense. It formulates policies, conducts audits, and coordinates incident response to ensure the security of critical infrastructure.

**CERT-In:** The Indian Computer Emergency Response Team (CERT-In) is the national agency responsible for **responding to cybersecurity incidents**, analyzing threats, and issuing alerts and advisories. It works closely with government agencies, industry, and international organizations to enhance the cybersecurity posture of the country.

**Data Protection and Privacy Initiatives:** The Union government informed the Supreme Court on April 11, 2023 that a new law, namely the Digital Personal Data Protection Bill 2022, to enforce individual privacy in online space is "ready".

## Some terms related to cyber security

**Double Extortion:** A technique used by some ransomware strains where, in addition to encrypting files, attackers also exfiltrate sensitive data from the victim's network. They threaten to publish or sell the data if the ransom is not paid, increasing the pressure on the victim.

**Malware:** Short for malicious software, malware refers to any software specifically designed to cause harm, including ransomware. It can be delivered through various means, such as email attachments, malicious websites, or infected downloads.

**Phishing:** A social engineering technique where attackers impersonate legitimate entities to trick users into revealing sensitive information or downloading malicious attachments. Phishing emails are often used to deliver ransomware payloads.

**Zero-day Vulnerability:** A vulnerability that is unknown to software vendors or developers, making it exploitable by attackers before a patch or fix is available. Zero-day vulnerabilities pose significant risks as there is no defense against them until they are discovered and addressed.

**Firewall:** A network security device that monitors and filters incoming and outgoing network traffic based on predefined security rules. Firewalls act as a barrier between trusted internal networks and untrusted external networks, helping to prevent unauthorized access.

## NATIONAL QUANTUM MISSION

Recently, the union cabinet chaired by the Prime Minister has approved the National Quantum Mission (NQM) to aid scientific and industrial research and development in quantum technology. It'll be implemented by the Department of Science & Technology (DST) under the Ministry of Science & Technology.

The mission planned for 2023-2031 aims to seed, nurture, and scale up scientific and industrial R&D and create a vibrant & innovative ecosystem in Quantum Technology (QT). With the launch of this mission, India will be the seventh country to have a dedicated quantum mission after the US, Austria, Finland, France, Canada and China.

National Quantum Mission will target developing intermediate scale quantum computers with 50-100 physical qubits in 5 years and 50-1000 physical qubits in 8 years. The mission will help develop magnetometers with high sensitivity for precision timing (atomic clocks), communications, and navigation. It will also support design and synthesis of quantum materials such as superconductors, novel semiconductor structures and topological materials for fabrication of quantum devices.

The mission will also help developing:

Satellite based secure quantum communications between ground stations over a range of 2000 km within India.

Long distance secure quantum communications with other countries

Inter-city quantum key distribution over 2000 km

Multi-node Quantum network with quantum memories

Four Thematic Hubs (T-Hubs) would be set up in top academic and National R&D institutes on the domains of Quantum Technology:

Quantum computation

Quantum communication

Quantum Sensing & Metrology

Quantum Materials & Devices

### Significance

This will accelerate QT led economic growth and make India one of the leading nations in the development of Quantum Technologies & Applications (QTA) ranging from healthcare and diagnostics, defence, energy and data security. It will work towards indigenously building quantum-based computers which are far more powerful and are able to solve the most complex problems in a highly secure manner.

### Challenges

Like any new technology, quantum technology has drawbacks also-

Quantum computers are extremely expensive. The materials used to create them can be costly, and many researchers believe that these costs may

never be recovered.

Quantum computing is extremely difficult to program and control- it requires a high-level understanding of complex quantum principles.

When it comes to interference from the outside world, such as temperature variations, magnetic fields, and vibrations, quantum technology is extremely sensitive.

A disruption in current computer architectures is another possible drawback of quantum computing.

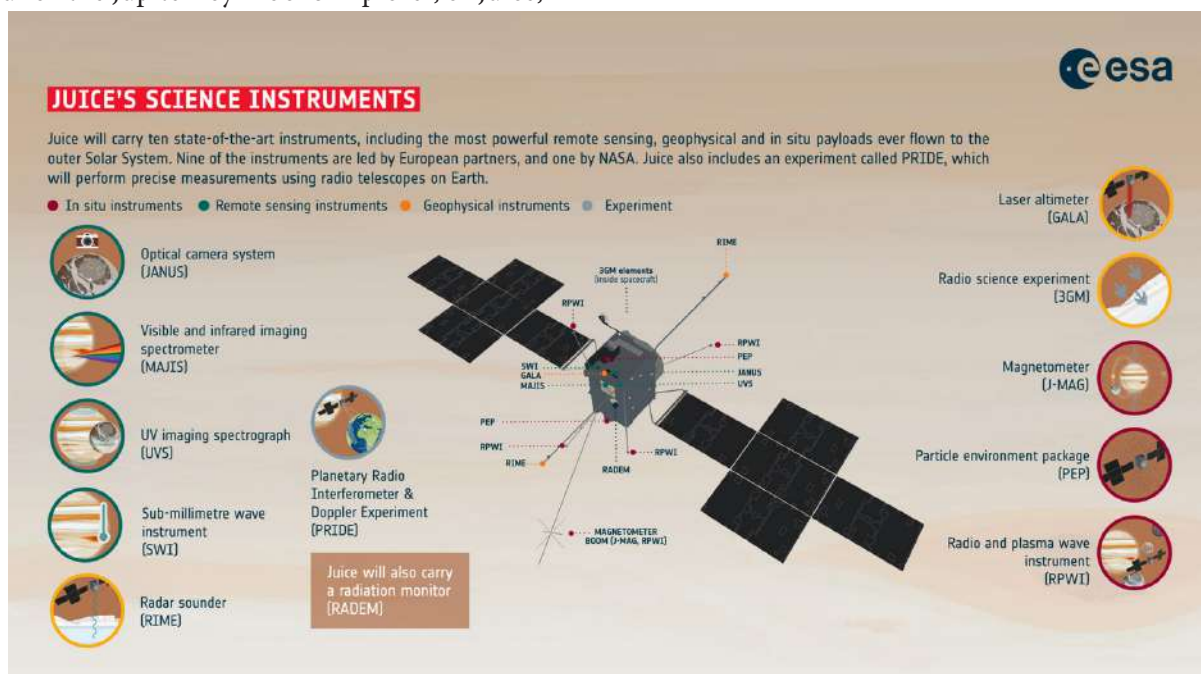
Its reliance on entanglement and superposition, according to many experts, makes it susceptible to assault by hackers who are familiar with the technology.

## JUICE MISSION

### Why in news?

The European Space Agency (ESA) is all set to launch the Jupiter Icy Moons Explorer, or Juice,

explore Jupiter's complex environment in depth, and study the wider Jupiter system as an archetype for gas giants across the Universe.



mission on Friday (April 14) from its spaceport in French Guiana on an Ariane 5 launcher

### About

#### The mission

ESA's Jupiter Icy Moons Explorer, Juice, will make **detailed observations of the giant gas planet** and its three **large ocean-bearing moons** – Ganymede, Callisto and Europa – with a suite of remote sensing, geophysical and in situ instruments.

The mission will characterise these moons as both planetary objects and possible habitats,

Although the mission will examine all three moons, the main focus will be on Ganymede. Juice, which will move into Ganymede's orbit after approximately four of arriving at Jupiter, will “use its suite of ten sophisticated instruments to measure how Ganymede rotates, its gravity, its shape and interior structure, its magnetic field, its composition, and to penetrate its icy crust using radar down to a depth of about nine km

According to ESA, there could be lifeforms on the moons in the form of microbes. More advanced species might also be present, like the ones we detect in deep-sea trenches and at hydrothermal vents on Earth, such as various kinds of coral,

worm, mussel, shrimp and fish, However, Juice isn't equipped to detect life

It is the **first large-class mission** in the ESA Cosmic Vision 2015-2025 programme.

Total duration of the mission is 8 years

**Launch:** 14 April 2023

**Launch location:** Europe's Spaceport in French Guiana

**Launch vehicle:** Ariane 5

### Jupiter and its moons

Jupiter is the **largest planet** in our solar system and the fifth planet from the Sun. It is a gas giant composed mostly of hydrogen and helium. Jupiter has a **strong magnetic field** and is known for its **prominent bands of clouds** and the **Great Red Spot**, a massive storm that has been observed for centuries.

Galilean Moons: Jupiter has **four large moons** known as the **Galilean moons**, named after their discoverer Galileo Galilei. These moons are **Ganymede, Callisto, Europa, and Io**. They were first observed by Galileo in 1610 and are among the most geologically diverse and intriguing objects in the solar system.

**Ganymede:** Ganymede is the **largest moon**

**in the solar system**, even larger than the planet Mercury. It is the **only moon known to have its own magnetic field**. Ganymede has a layered internal structure and a surface covered with both dark and light regions, indicating a complex geological history.

**Callisto:** Callisto is the second-largest moon of Jupiter and is known for its **heavily cratered surface**. It has a relatively thin atmosphere and is composed **mainly of ice and rock**. Callisto's surface features provide insights into the history of impacts in the solar system.

**Europa:** Europa is an intriguing moon that has attracted significant scientific interest due to its potential for **harboring a subsurface ocean of liquid water beneath its icy crust**. This subsurface ocean makes Europa one of the most promising places to search for extraterrestrial life.

**Io:** Io is the innermost of the Galilean moons and **the most volcanically active body in the solar system**. It is characterized by its colorful, sulfur-rich surface and frequent volcanic eruptions, which are driven by tidal forces from Jupiter's gravity.

In addition to the Galilean moons, Jupiter has many smaller moons, with a current total of 79 known moons. Some notable ones include Amalthea, Himalia, and Elara.

## PHONE CLONING

### Why in news?

The Kochi City Police has launched an investigation into the complaint of impersonation and cloning of a personal mobile number lodged by KC Venugopal, Member of Parliament and General Secretary of the All India Congress Committee.

### About

Mobile phone cloning is a way of **making a copy of the entire mobile phone data** in another mobile by an illegal methodology. The purpose of such an activity is to make unauthorized use of the mobile phone. The data in the other phone would contain all the data of the previous phone that can be **used for fraudulent activities or for making anonymous calls from the clone**,

causing the bill to be addressed to the correct mobile owner.

Access to the **Electronic Serial Number (ESN)** and **Mobile Identification Number (MIN)** pairs is required for cloning. This can be done by methods such as sniffing the cellular network, trashing the cellular companies or re-sellers, or by hacking the cellular providers.

Cloning a SIM card is usually only possible if an attacker has physical access to a telecom subscriber's SIM card. This lets an attacker with physical access to a SIM card physically read a card and make a copy of it by copying it to an empty SIM. Since the technology behind physical SIM cards has remained largely unchanged over the years, cloning of SIMs is possible with physical

access.

However, gaining physical access to the SIM card is difficult, as a potential attacker would have to obtain a potential victim's phone himself. A more common attack involves a technique called **SIM swapping**, where an attacker convinces a telecom operator that they are the legitimate owner of the SIM, and need to replace it because they have lost or damaged the original.

**ESN and MIN** -- An electronic serial number (ESN) is the **unique identification number** embedded or inscribed on the microchip in a wireless phone by the manufacturer. Each time a call is placed, the **ESN is automatically transmitted to the base station** so the wireless

carrier's mobile switching office can check the call's validity. The ESN cannot easily be altered in the field. The ESN differs from the **mobile identification number (MIN)**, which is the **wireless carrier's identifier for a phone** in the network. MINs and ESNs can be electronically checked to help prevent fraud.

**IMEI** - The IMEI is a unique number that is used to **identify a device on a mobile network**. It has 15 digits and is like a phone's unique identity. The telecom department and the customs department work together **to check and record the IMEI numbers** of handsets that come into India. The number is used to verify the identity of a device when a user uses the Internet or places a call through it. Phones with a dual-SIM option has two IMEI numbers, one for each SIM.

## FERNARIUM IN ERAVIKULAM

### Why in news?

Eravikulam National Park (ENP), the natural habitat of Nilgiri tahr in Munnar, has a new attraction — a Fernarium set up inside the park.

### About

#### Fernarium

The Fernarium is a **collection of ferns** and it is the first of its kind in Munnar.

Currently, **52 varieties of ferns** have been planted, and the plan is to cover all 104 varieties that are found in the park.

This initiative aims **to provide visitors with awareness about the biodiversity of the park**.

This is the first time such a fern collection has been established in the hill station.

### Ferns

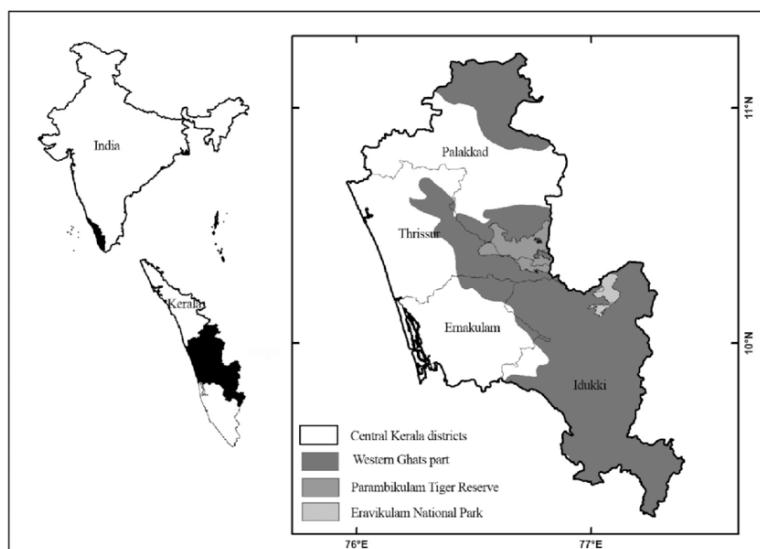
Ferns are part of the **Epiphytic family**. They grow naturally in a **soilless condition**. The plants obtain water and nutrients through leaching from trees.

Ferns are a type of **vascular plant** that reproduces via spores, rather than seeds.

Ferns are ancient non-flowering plants.

They have **distinctive leaves**, called **fronds**, which are often intricately divided into smaller leaflets.

Ferns can grow in a wide variety of environments, from rainforests to deserts, and they play an important role in many ecosystems



as a habitat for animals, as well as by providing food and shelter for a variety of other plants.



There are over 12,000 known species of ferns.

Ferns have been around for millions of years and **formed coal deposits**.

Some ferns are grown as ornamental plants in gardens and indoor settings.

Certain ferns have culinary and medicinal uses

## Eravikulam National Park

Eravikulam National Park is a **97 km<sup>2</sup> national park** located along the Western Ghats in the Idukki and Ernakulam districts of Kerala in India.

The park is known for its **rich biodiversity** and is home to several rare and endangered species, including the **Nilgiri Tahr**, which is a type of mountain goat.

The park features a **diverse landscape** with rolling hills, grasslands, shola forests, and cascading waterfalls.

The highest peak in South India, **Anamudi**, is **located within the boundaries** of the national park.

Apart from the Nilgiri Tahr, the park is home to other wildlife species like elephants, langurs, leopards, and various bird species. It also showcases a variety of plant species, including orchids and several endemic flowering plants.

Eravikulam National Park is famous for the blooming of **Neelakurinji**, a rare flower that blossoms once every twelve years, covering the hillsides in a beautiful blue-purple carpet.

## CARNITINE

### Why in the News?

Researchers from Tokyo Metropolitan University have devised a method for mapping the distribution of carnitine in skeletal muscle cells.

### About

Carnitine is a quaternary ammonium compound involved in metabolism in most mammals, plants, and some bacteria. It is naturally present in many foods—especially foods of animal origin—and is also available as a dietary supplement.

Human body produces it in the liver and kidneys and stores it in the skeletal muscles, heart and brain. About 95% of total body carnitine is

stored in heart and skeletal muscle.

### Importance:

It is a substance that helps the body **turn fat into energy**. It is an essential cofactor that helps transport long-chain **fatty acids into the mitochondria** so that they can be oxidized to produce energy in the form of adenosine triphosphate (ATP)

It is important for **heart and brain function**, muscle movement, and many other body processes.

It also helps transport some toxic compounds out of the mitochondria.

It has been proposed as a treatment for many conditions because it acts as an **antioxidant**.

## THERMOBARIC WEAPONS

### Why in the News?

Human Rights group accuses Myanmar of using fuel-air explosives or Thermobaric weapons

## About

Thermobaric weapons — also known as **aerosol bombs**, fuel air explosives, or **vacuum bombs** — use oxygen from the air for a large, high-temperature blast. A thermobaric weapon causes significantly greater devastation than a conventional bomb of comparable size.

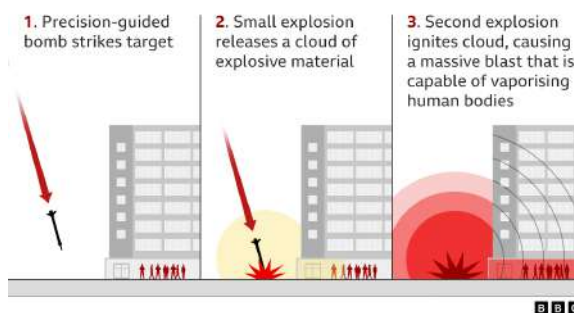
A thermobaric bomb consists of a **fuel** container with **two separate explosive charges**. When it hits its target, the first explosive charge opens the container and widely scatters fuel mixture as a **cloud**. A second charge then detonates the cloud, resulting in a huge fireball, a massive blast wave and a vacuum which **sucks up all surrounding oxygen**.

## Is it legal to use these weapons?

Countries that have ratified the Convention on Cluster Munitions are prohibited from using cluster bombs. As of date, there are 110 state parties

to the convention, and 13 other countries have signed up but are yet to ratify it. Neither Russia

### How thermobaric weapons work



nor Ukraine are signatories.

**Vacuum bombs are not prohibited by any international law or agreement**, but their use against civilian populations in built-up areas, schools or hospitals, could, according to a report in the BBC, attract action under **the Hague Conventions of 1899 and 1907**.

## ISRO SUCCESSFULLY TESTS SEMICRYOGENIC ENGINE

### Why in the News?

ISRO tested an intermediate configuration of its 2000 kN semicryogenic engine at the newly commissioned Semicryogenic Integrated Engine & Stage Test facility in Mahendragiri, Tamil Nadu

### About

Indian Space Research Organisation (ISRO) carried out the first integrated test on an intermediate configuration of its 2000 kN semicryogenic engine at the newly commissioned Semicryogenic Integrated Engine & Stage Test facility at the **ISRO Propulsion Complex (IPRC) in Mahendragiri**.

According to the space agency, the intermediate configuration, designated as Power Head Test Article (PHTA), comprises all the engine systems, except the thrust chamber. The test is the first in a series of tests planned to validate the design of the propellant feed system, including the low-pressure and high-pressure turbo-pumps, the gas generator, and control components.

The **Liquid Propulsion Systems Centre (LPSC)** of ISRO has undertaken the design & development of a semicryogenic engine with 2000 kN thrust with Indian industry participation, and will power the booster stages of future launch vehicles, and works on Liquid Oxygen (LOX) Kerosene propellant combination.

The test was a major milestone before integrating the complete engine, and its qualification. The test demonstrated the complex chill down operation, spanning about 15 hours, that was conducted successfully, meeting all the required conditions for engine start. After the chill down of the LOX circuit, the feed circuit of kerosene was filled, and LOX was admitted into the gas generator by opening the injection valve.

According to ISRO, successful performance of the test article helps derive the sequence of operations for further tests. The newly established test facility at IPRC, Mahendragiri, with a state-of-art PLC-based control system and data acquisition system, is capable of testing semi-cryogenic

engines up to 2600 kN thrust, and will support the subsequent testing and qualification of the fully integrated semicryogenic engine and stage.

According to ISRO, this test has demonstrated the successful performance of the test facility, and power head test article in the first attempt.

## ENDOSULFAN

### Why in the News?

SC transfers endosulfan case to Kerala HC for monitoring government's medical and palliative measures for victims.

### About

Endosulfan was used widely on crops like cashew, cotton, tea, paddy, fruits and others until 2011, when SC banned its production and distribution.

Endosulfan is widely considered to be a Persistent Organic Pollutant (POP) and is a known carcinogen, neurotoxin and genotoxin (damages DNA).

### Hazardous Effects of Endosulfan

It is highly toxic & has a large potential for bioaccumulation (substance does not leave the body).

It has hazardous effects on human genetic & endocrine systems.

Neurotoxic: endosulfan destroys the integrity of the nerve cells.

Endocrine disruptor: enhances the effect of estrogens causing reproductive & developmental damage in both animals & humans.

Delayed reproductive development

Late sexual maturity

Autism

### Endosulfan in India

India was one of the biggest producers & consumers of endosulfan.

After the toxicity of the pesticide came into limelight in 2001 in Kasargod District, Kerala banned it.

In 2011, SC banned the production, distribution & use of endosulfan in India.

SC also directed the Kerala government to pay Rs 500 crores as compensation to over 5,000 victims.

Globally, the use of endosulfan is **banned** under the Stockholm Convention on Persistent Organic Pollutants.

Endosulfan is listed under both the **Rotterdam Convention** on the Prior Informed Consent and the **Stockholm Convention** on Persistent Organic Pollutants.

Under pressure from pesticide firms, India sought remission on the ban for 10 years.

India had agreed to phase out the use of endosulfan by 2017.

## SPACE SCIENCE AND TECHNOLOGY AWARENESS TRAINING (START)

### Why in the News?

The Indian Space Research Organisation (ISRO) has announced a new introductory-level online training programme called Space Science and Technology Awareness Training (START).

### About

The START program is aimed at **post-**

**graduate and final-year undergraduate students** of physical sciences and technology.

The programme will cover various domains of space science, including Astronomy & Astrophysics, Heliophysics & Sun-Earth interaction, Instrumentation, and Aeronomy.

It will be delivered by the scientists from Indian academia and ISRO centres.

## Aim

The programme is part of ISRO's efforts to enable Indian students to become professionals in space science and technology.

It is intended to provide students with an introductory-level training in space science and technology, giving them an overview of different facets of the field, research opportunities, and career options.

The training will also emphasize the cross-disciplinary nature of space science.

## Benefits

# INDIGENOUS DENGUE VACCINE

## Why in the News?

Serum Institute of India and Panacea Biotec apply for Expression of Interest for clinical trials.

## About

Drug makers Serum Institute of India and Panacea Biotec are moving closer to develop the country's first vaccine against dengue.

They have applied to the Indian Council of Medical Research (ICMR) call for 'Expression of Interest' for collaborative Phase-III clinical trials for indigenous manufacturers.

Phase-III clinical trial is being done for evaluation of efficacy, along with safety and immunogenicity of tetravalent dengue vaccine.

The desirable characteristics of a dengue vaccine includes:

Acceptable short and long-term safety profile (no antibody dependent enhancement).

Inducing protection against all four serotypes of dengue.

Reducing risk of severe diseases and deaths.

Inducing a sustained immune response and effectiveness irrespective of the earlier sero-status and age of the individual.

## About Dengue

The programme is expected to help build a human capacity that will lead space science and research in the future.

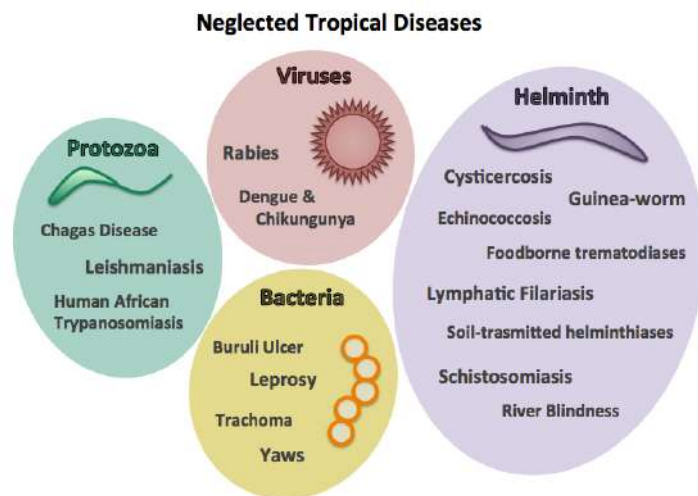
The student community will receive: an overview of the different facets of space science and technology, exposure to the research ongoing in different Indian institutes, insight into how their individual aptitude would suit some of the facets of space science and technology.

Students will also get a chance to appreciate the cross-disciplinary nature of the subject, and accordingly choose their career path.

Dengue fever is a mosquito-borne illness that occurs in tropical and subtropical areas of the world. It is one of the **Neglected tropical diseases**.

Dengue Virus

Dengue fever virus (DENV) is an RNA virus



of the family Flaviviridae; genus Flavivirus.

It has four serotypes: DEN-1, DEN-2, DEN-3, and DEN-4.

## Transmission

The virus is transmitted to humans by mosquitoes that become infected by biting an infected person.

Dengue is spread by several species of female

mosquitoes of the *Aedes* genus, principally *Aedes aegypti*.

### Impact on body

Once the virus enters the human body, it replicates in white blood cells called monocytes and macrophages, which are a part of the body's immune system.

The virus then spreads to other organs, including the liver, spleen, and lymph nodes, causing a range of symptoms.

### Symptoms

Symptoms typically begin three to fourteen days after infection.

These may include a high fever, headache, vomiting, muscle and joint pains, and a characteristic skin itching and skin rash.

### Treatment

Treatment of acute dengue is supportive and includes giving fluid either by mouth or intravenously for mild or moderate disease. For more severe cases, a blood transfusion may be required.

### Prevention

Methods of prevention include reducing mosquito habitat and limiting exposure to bites.

This may be done by getting rid of or covering standing water and wearing clothing that covers much of the body.

#### Vaccines

Two types of dengue vaccines have been approved and are commercially available.

On 5 December 2022 the European Medicines Agency approved Qdenga, a live tetravalent attenuated vaccine for adults, adolescents and kids from four years of age.

The 2016 vaccine Dengvaxia is only recommended in individuals who have been previously infected, or in populations with a high rate of prior infection by age nine.

### Risk posed by Dengue

The global incidence of dengue has grown dramatically with about half of the world's population now at risk.

The World Health Organization (WHO) has identified dengue to be one among the top ten global health threats in 2019.

As of now, there is no specific treatment for dengue/severe dengue. Therefore, there is an urgent need to develop effective vaccines against dengue viral disease.

## BLUEBUGGING

### Why in the News?

Concerned over an increase in instances of cybercrime, Andhra Pradesh police recently asked the people to be wary of "bluebugging."

### About

It is a form of hacking that lets attackers access a device through its discoverable Bluetooth connection. Once a device or phone is bluebugged, a hacker can listen to the calls, read and send messages and steal and modify contacts.

It started out as a threat for laptops with **Bluetooth capability**. Later hackers used the technique to target mobile phones and other devices. This attack is often limited due to the

range of Bluetooth connections, which goes up to **only 10 meters**.

### Process:

Bluebugging attacks work by exploiting Bluetooth-enabled devices.

The device's Bluetooth must be in discoverable mode, which is the default setting on most devices.

The hacker then tries to pair with the device via Bluetooth.

Once a connection is established, hackers can use brute force attacks to bypass authentication.

They can install malware in the compromised device to gain unauthorised access to it.

## Bluejacking and Bluesnarfing

While bluebugging may share some similarities with other Bluetooth attacks, like bluejacking and bluesnarfing, they are not the same.

**Bluejacking** is when someone sends you an unsolicited text message using Bluetooth. It's more of an annoyance than a real security threat. The hacker can't gain access to your device, but they can send messages that contain links to malicious sites.

**Bluesnarfing** is a more serious threat than

bluejacking, as it allows the attacker to gain access to your device and steal data. Unlike bluebugging, bluesnarfing doesn't require any special tools or knowledge; all the attacker needs is access to your Bluetooth-enabled device. Also, bluebugging allows you to take control of the device in the future because of the backdoor, while bluesnarfing is not permanent.

### Prevention from Blue bugging

Turn off the Bluetooth when not in use.

Update device's software.

Update Bluetooth passwords.

Remove all the paired devices.

Turn off the "Auto join" option.

## AMPHIBIAN CHYTRID FUNGUS - WORLD'S WORST WILDLIFE DISEASE

### Why in the News?

For the past 40 years, a devastating fungal disease has been ravaging frog populations around the world, wiping out 90 species. A multinational study has now developed a method to detect all known strains of this disease, caused by the **amphibian chytrid fungus**.

### Pan Zoonotic

Unlike the global COVID-19 pandemic, you may not even be aware of this "panzootic" – a pandemic in the animal world. Yet it's the world's worst wildlife disease.

A panzootic is an epizootic (an outbreak of an infectious disease of animals) that spreads across a large region (for example a continent), or even worldwide. The equivalent in human populations is called a pandemic. A panzootic can start when three conditions have been met:

The emergence of a disease new to the population.

The agent infects a species and causes serious illness.

The agent spreads easily and sustainably

among animals.

### Chytridiomycosis: The deadly frog disease

Chytridiomycosis, also known as chytrid, is a fungal disease that has been decimating frog populations worldwide for the past 40 years. The disease has caused severe declines in over 500 frog species and led to 90 extinctions, making it the deadliest animal disease known.

### How does it get infected?

Chytrid infects frogs by reproducing in their skin, damaging their ability to balance water and salt levels. The disease originated in Asia and spread globally through amphibian trade and travel.

### An extreme mortality rate

The extreme rate of mortality, and the high number of species affected, makes chytrid unequivocally the deadliest animal disease known to date. The single-celled fungus enters a skin cell, multiplies, then breaks back out onto the surface of the animal.

This damage to the skin affects the frog's ability to balance water and salt levels, and eventually leads to death if infection levels are

high enough. It's believed that global travel and trade in amphibians led to the disease being unwittingly spread to other continents like Asia.

### Natural immunity

The most puzzling thing about chytrid is that some amphibian species – even those that have not evolved with the pathogen – don't become sick when they carry the fungus. These species have some form of natural immune resistance.

However, frog immunity is extremely complex. Immunity might come from antimicrobial chemicals within the skin, symbiotic bacteria on the skin, white blood cells and antibodies in the blood, or combinations of these mechanisms.

## HUMAN PANGENOME MAP

Recently, a new study has been published in the Nature journal describing a Pangenome Reference Map, built using genomes from 47 anonymous individuals (19 men and 28 women), mainly from Africa but also from the Caribbean, Americas, East Asia, and Europe.

### What is a genome?

The genome is the blueprint of life, a collection of all the genes and the regions between the genes contained in our 23 pairs of chromosomes. Each chromosome is a contiguous stretch of DNA string. In other words, our genome consists of 23 different strings, each composed of millions of individual building blocks called nucleotides or bases. The four types of building blocks (A, T, G and C) are arranged and repeated millions of times in different combinations to make all of our 23 chromosomes.

**Genome sequencing** is the method used to determine the precise order of the four letters and how they are arranged in chromosomes. Sequencing individual genomes helps us understand human diversity at the genetic level and how prone we are to certain diseases.

The genome is an identity card like Aadhaar. As each of our Aadhaar card is unique, so is our genome. As sequencing individual genomes of all

humans is expensive, we do not yet have all our genome identity cards. To circumvent this, one can have a collective identity card. For example, we can have a single genome identity card for everyone living in a region.

So far, no clear trend has been found between resistance and immune function. To make matters more complicated, there is also evidence chytrid can suppress a host's immune response. Because there haven't been any observed chytrid declines in Asia, and because detecting chytrid in Asia has been difficult, Asia is lagging behind the rest of the world in chytrid research.

### What is a reference genome?

Yet the new qPCR test detected high levels of chytrid in a range of amphibian species across India. While the new qPCR test was successful at detecting chytrid in samples from India, Australia, and Panama, we will need to validate and promote the method so it becomes the new gold standard for chytrid testing.

### What is a reference genome?

When genomes are newly sequenced, they are compared to a reference map called a reference genome. This helps us to understand the regions of differences between the newly sequenced genome and the reference genome.

The first reference genome created in 2001 was a significant scientific achievement. It helped scientists discover disease-related genes, understand genetic aspects of diseases like cancer, and develop new diagnostic tests. However, it had limitations and wasn't perfect.

It was mostly based on the genome of one individual with mixed African and European ancestry, and it had some gaps and errors. While the new reference genome or Pangenome is comprehensive and error-free, it still doesn't represent the full diversity of human genetics.

### What is a pangenome map?

Unlike the earlier reference genome, which is a linear sequence, the pangenome is a graph.

The graph of each chromosome is like a bamboo stem with nodes where a stretch of sequences of all 47 individuals converge (similar), and with internodes of varying lengths representing genetic variations among those individuals from different ancestries.

To create complete and contiguous chromosome maps in the pangenome project, the researchers used long-read DNA sequencing technologies, which produce strings of contiguous DNA strands of tens of thousands of nucleotides long. Using longer reads helps assemble the sequences with minimum errors and read through the repetitive regions of the chromosomes which are hard to sequence with short-read technologies used earlier.

#### Significance of Pangenome Map:

Although any two humans share more than 99% of their DNA, there is still about a 0.4% difference between any two individuals. This may seem small but considering the vast size of the human genome (3.2 billion nucleotides), the difference amounts to around 12.8 million

nucleotides.

A complete and accurate pangenome map of the human genome can help better understand these differences and explain the diversity among individuals. It will also assist in studying genetic variations that contribute to underlying health conditions.

Although the current map doesn't include genomes from Indians, it will still be beneficial in comparing and mapping Indian genomes against the existing accurate reference genomes. Future pangenome maps that include high-quality Indian genomes, including those from diverse and isolated populations within the country, will provide valuable insights into disease prevalence, the discovery of new genes related to rare diseases, improved diagnostic methods, and the development of novel drugs for these diseases.

However, the current pangenome map lacks representation from diverse populations like Africa, the Indian subcontinent, indigenous groups in Asia and Oceania, and West Asian regions.

## WHO GUIDELINES ON NON SUGAR SWEETENERS

The World Health Organization (WHO) has released a new guideline on non-sugar sweeteners (NSS), which recommends against the use of NSS to control body weight or reduce the risk of noncommunicable diseases (NCDs).

**Artificial sweeteners** are sugar substitutes that are used as alternatives to natural sugars. These sweeteners are chemically synthesized and provide a sweet taste without the high calorie content of regular sugar. They are commonly used in various food and beverage products, including diet sodas, sugar-free desserts, and low-calorie snacks. Some examples of artificial sweeteners are saccharin, aspartame, acesulfame potassium (Ace-K), sucralose, neotame, and advantame.

### Benefits:

Artificial sweeteners offer benefits for weight management, diabetes control, tooth decay prevention, and provide safe options for individuals with phenylketonuria (PKU), a genetic disorder,

due to their low or zero-calorie content, minimal impact on blood sugar levels, non-fermentable nature, and absence of phenylalanine.

### Negative Impacts:

Some studies suggest potential negative health effects of artificial sweeteners, such as an increased risk of metabolic disorders, and disrupted gut microbiota. However, scientific evidence remains inconclusive. Some people may experience digestive discomfort, such as bloating, gas, or diarrhea, after consuming products containing artificial sweeteners.

### WHO Guidelines

WHO advises against using artificial sweeteners as a means of achieving weight control or reducing the risk of non-communicable diseases. While short-term use may result in weight loss and reduced body mass index (BMI), long-term consumption of artificial sweeteners has been



associated with weight gain.

Some studies suggest a potential connection between artificial sweeteners and bladder cancer and preterm birth in pregnant women. Higher intake of artificial sweeteners, particularly in beverages and added to foods, is associated with an increased risk of type-2 diabetes, cardiovascular

disease (including stroke and hypertension), and preterm birth. Instead of relying solely on non-sugar sweeteners, the WHO recommends considering other methods to reduce the intake of free sugars, such as consuming naturally occurring sugars from fruits or opting for unsweetened food and beverages.

## ISRO'S NEW NAVIC SATELLITE

The Indian Space Research Organisation (ISRO) recently launched the first of the second-generation satellites for its navigation constellation successfully.

This satellite is the first of the second-generation satellites of ISRO's NVS (Navigational Satellite) series of payloads. It weighs 2,232 kg, making it the heaviest in the constellation. The NVS-01 carried navigation payloads L1, L5 and S bands. Its purpose is to provide continuity for the NavIC (Navigation in Indian Constellation) services, which is an Indian Regional Navigation Satellite System (similar to GPS) that offers accurate and real-time navigation within India and up to a 1,500 km region around the country.

In the First generation, there are seven satellites in the Indian Regional Navigation Satellite System (IRNSS) constellation, operationally named

NavIC, weighing much less — around 1,425 kg — at liftoff.

The satellite will have a Rubidium atomic clock onboard, a significant technology developed by India. Some of the existing satellites in the navigation constellation lost their ability to provide accurate location data due to failed atomic clocks. Satellite-based positioning systems rely on precise time measurements from atomic clocks to determine object locations. When the clocks fail, the satellites cannot provide accurate location information anymore.

NavIC or the IRNSS is designed with a constellation of 7 satellites and a network of ground stations operating 24×7. There are a total of eight satellites however only seven remain active. Three satellites in geostationary orbit and four satellites in geosynchronous orbit.

## XPOSAT

### Why in news?

The Indian Space Research Organisation is collaborating with the Raman Research Institute (RRI), Bengaluru, an autonomous research institute, to build the X-Ray Polarimeter Satellite (XPoSat) that is scheduled to be launched later this year.

### About

XPoSat (X-ray Polarimeter Satellite) is **India's first dedicated polarimetry mission** to study various dynamics of bright astronomical X-ray sources in extreme conditions.

The spacecraft will carry two scientific payloads in a low earth orbit. The primary payload

**POLIX (Polarimeter Instrument in X-rays)** will measure the polarimetry parameters (degree and angle of polarization) in medium X-ray energy range of 8-30 keV photons of astronomical origin. The **XSPECT (X-ray Spectroscopy and Timing)** payload will give spectroscopic information in the energy range of 0.8-15 keV.

The emission mechanism from various astronomical sources such as blackhole, neutron stars, active galactic nuclei, pulsar wind nebulae etc. originates from complex physical processes and are challenging to understand.

While the spectroscopic and timing information by various space based observatories provide a wealth of information, the exact nature

of the emission from such sources still poses deeper challenges to astronomers.

The polarimetry measurements add two more dimension to our understanding, the degree of polarization and the angle of polarization and thus is an excellent diagnostic tool to understand the emission processes from astronomical sources.

### Other Such missions

The other such major mission is NASA's **Imaging X-ray Polarimetry Explorer (IXPE)** that was launched in 2021.

IXPE will help observe polarized X-rays from neutron stars and supermassive black holes. By measuring the polarisation of these X-rays, we can study where the light came from and understand the geometry and inner workings of the light source.

### How are X-Rays witnessed in space?

X-rays have much higher energy and much shorter wavelengths, between 0.03 and 3 nanometers, so small that some x-rays are no bigger than a single atom of many elements. The physical temperature of an object determines the wavelength of the radiation it emits. The hotter the object, the shorter the wavelength of peak emission.

X-rays come from objects that are millions of degrees Celsius — such as pulsars, galactic supernova remnants, and black holes.

Like all forms of light, X-rays consist of moving electric and magnetic waves. Usually, peaks and valleys of these waves move in random directions. Polarised light is more organised with two types of waves vibrating in the same direction.

### Polarisation

Waves are travelling disturbances that carry energy from one place to another along a certain direction, called the **propagation direction**. But a wave is made up of alternating displacements of the medium they are travelling through, and the direction of the displacements is not always the same as the propagation direction.

If the displacement is **parallel to the propagation direction**, the wave is a longitudinal wave. Sound waves are an example of **longitudinal waves**.

In other waves, the displacement is **perpendicular to the propagation direction**. These are called **transverse waves**.

The displacement of a transverse wave can be in any direction in the plane that is perpendicular to the propagation direction. **If the displacements of a transverse wave are restricted to one line then we say it is (linearly) polarised.**

### Polarimetry

Polarimetry is the **measurement and interpretation of the polarization** of transverse waves.

## SCIENTISTS DEVISE 'GLOWSCOPE' TO BRING FLUORESCENT MICROSCOPY TO SCHOOLS

Researchers at the Winona State University, Minnesota, have created a design for a 'glowscope', a device that could democratize access to fluorescence microscopy.

### About Fluorescence Microscopy

A fluorescence microscope views an object by studying how it re-emits light that it has absorbed i.e., how it fluoresces.

The object is illuminated with light of a specific wavelength.

Particles in the object absorb this light and re-emit it at a higher wavelength (i.e., different colour). These particles are called fluorophores.

The object is infused with fluorophores before being placed under the microscope.

When the fluorophores fluoresce, a fluorescent microscope can track them as they move inside the object, revealing the object's internal shape and other characteristics.

Scientists have developed different

fluorophores to identify and study different entities, from specific parts of the DNA to protein complexes.

## Applications

It is used to image specific features of small specimens such as microbes.

It is also used to visually enhance 3-D features at small scales.

It allows the use of multi-colour staining, labelling of structures within cells, and the measurement of the physiological state of a cell.

It is the most popular method for studying the dynamic behaviour exhibited in live-cell imaging.

Different molecules can now be stained with different colours, allowing multiple types of molecules to be tracked simultaneously.

## Optical Microscopy

An optical microscope, also known as a light microscope, views an object by studying how it absorbs, reflects, or scatters visible light.

It uses one or a series of lenses to magnify images of small samples with visible light.

The lenses are placed between the sample and the viewer's eye to magnify the image so that it can be examined in greater detail.

# FOUCAULT'S PENDULUM

## Why in the News?

On May 29, a Foucault pendulum was inaugurated in the new Parliament building.

## About

The Foucault pendulum is a device invented by the French physicist Léon Foucault in 1851 to demonstrate the rotation of the Earth.

It consists of a long, heavy pendulum suspended from a fixed point so that it can swing freely in any direction. The pendulum is set in motion, and over time, it appears to change the direction of its swing, rotating in a clockwise or counterclockwise direction.

The rotation of the pendulum is not due to any external force but is actually caused by the rotation

of the Earth beneath it. As the Earth rotates, the pendulum's plane of oscillation remains fixed in space while the Earth rotates beneath it, giving the illusion of the pendulum's rotation.

The period of the pendulum's rotation depends on the latitude at which it is located. At the North Pole or South Pole, the pendulum would complete a full rotation in 24 hours, while at the equator, it would not rotate at all.

The rotation speed of the pendulum is proportional to the sine of the latitude, meaning it rotates faster as you move toward the poles and slower as you move toward the equator. The Foucault pendulum is a fascinating **scientific demonstration that provides evidence of the Earth's rotation**

# MARBURG VIRUS

Marburg virus disease is a highly virulent disease that causes haemorrhagic fever, with a fatality ratio of up to 88%.

It is in the same family as the virus that causes Ebola virus disease. Two large outbreaks that occurred simultaneously in Marburg and Frankfurt in Germany, and in Belgrade, Serbia, in 1967, led to the initial recognition of the disease.

The outbreak was associated with laboratory

work using African green monkeys (*Cercopithecus aethiops*) imported from Uganda.

Human infection with Marburg virus disease initially results from prolonged exposure to mines or caves inhabited by Rousettus bat colonies. Once an individual is infected with the virus, Marburg can spread through human-to-human transmission via direct contact (through broken skin or mucous membranes) with the blood, secretions, organs or other bodily fluids of infected people, and with

surfaces and materials (e.g. bedding, clothing)

contaminated with these fluids.

## IAC'S NOVEL COMPOUND TREATS DRUG RESISTANT KALA AZAR

Kala-azar is a vector borne (sandfly) neglected tropical disease caused by the protozoan parasites of the genus leishmania that afflicts the world's poorest populations in over 90 countries throughout Asia, Africa, the Middle East, and Central and South America.

Current annual estimates of kala-azar are about 1,00,000, with more than 95% of cases reported to the World Health Organization (WHO) from India and other tropical countries, most importantly co-infection with HIV, which leads

to an immunocompromised state.

The four States endemic for kala-azar in India are: Bihar (33 districts), Jharkhand (4 districts), West Bengal (11 districts), and Uttar Pradesh (six districts).

Overcoming drug resistance in clinical leishmaniasis is a severe challenge in rural India. The current treatment regimens against kala-azar use formulations that are toxic and induce high levels of drug-resistance.

## NATIONAL PROGRAMME FOR PREVENTION & CONTROL OF NON-COMMUNICABLE DISEASES

### Why in news?

The Union government has decided to expand and rebrand its programme for tackling non-communicable diseases (NCDs) in response to the emergence of many new diseases or disease groups and new health initiatives.

### BACKGROUND

The programme, which was previously known as the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS), now covers 12 NCDs and 10 health initiatives, including mental health, oral health, palliative care, geriatric care, trauma care, and emergency medical services.

The new name of the programme is Comprehensive Primary Health Care through Health and Wellness Centres (CPHC-HWC).

National Programme for Prevention & Control of Non-Communicable Diseases (NP-NCD):

1. NPCDCS was launched in 2010, and

will now be called the National Programme for Prevention & Control of Non-Communicable Diseases (NP-NCD).

2. The new name reflects the shift in focus from only controlling the four major non-communicable diseases (NCDs) to preventing them as well.

3. According to the MoHFW, the NP-NCD will aim to reduce the burden of NCDs by promoting healthy lifestyles, early detection and timely treatment.

4. The programme will also integrate with other health initiatives such as Ayushman Bharat and National Health Mission.

5. The programme will also strengthen the health system by enhancing human resources, infrastructure, equipment and drugs.

6. The NP-NCD will also leverage digital technologies such as telemedicine and m-health to improve access and quality of NCD care.

## ADVANCED DRIVER ASSISTANCE SYSTEMS

### Why in news?

Car manufactures have started providing

ADAS which could create a safe traffic environment resulting in reduced accidental death.

Almost all vehicle accidents are caused by human error, which can be avoided with Advanced Driver Assistance Systems (ADAS). The role of ADAS is to prevent deaths and injuries by reducing the number of car accidents and the serious impact of those that cannot be avoided.

### Essential safety-critical ADAS applications include:

- Pedestrian detection/avoidance



- Lane departure warning/correction
- Automatic emergency braking
- Blind spot detection

The modernization of ADAS applications is the first steps toward realizing autonomous vehicles.

### How does ADAS work?

Automobiles are the foundation of the next generation of mobile-connected devices, with rapid advances being made in autonomous vehicles. Autonomous application solutions are partitioned into various chips, called systems on a chip (SoCs). These chips connect sensors to actuators through interfaces and high-performance electronic controller units (ECUs).

### Advanced Driving Assistance System

### (ADAS)

These are some of the most common ADAS applications:

- Adaptive Cruise Control
- Adaptive Light Control
- Autonomous Valet Parking

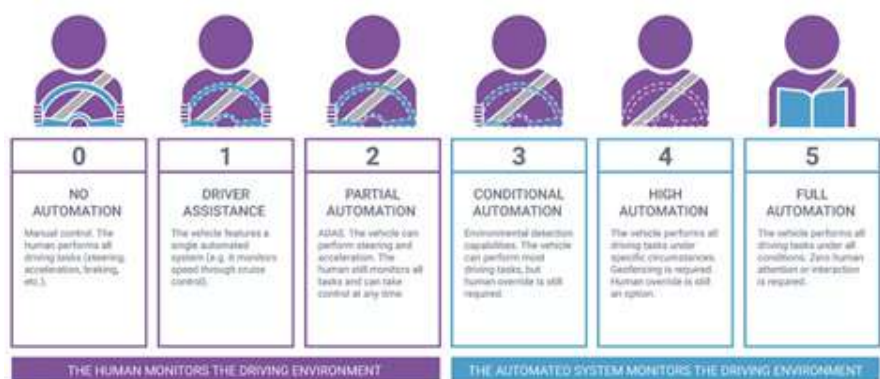
### Advanced Driving Assistance System Applications

- Night Vision
- Unseen Area Monitoring
- Automatic Emergency Braking
- Driver Drowsiness Detection

### 5G and V2X

- This hot new 5G ADAS feature provides

### LEVELS OF DRIVING AUTOMATION



communication between the vehicle and other vehicles or pedestrians with increased reliability and lower latency, generally referred to as V2X.

- Today, millions of vehicles connect to cellular networks for real-time navigation. This application will enhance existing methods and the cellular network to improve situational awareness, control or suggest speed adjustments to account for traffic congestion, and provide real-time updates

to GPS maps.

- V2X is essential to support over-the-air software updates for the now-extensive range of software-driven systems in cars, from map updates to bug fixes to security updates and more.

## AUTONOMOUS DRIVING

Many of the features that are included in an ADAS system are essential for autonomous driving.

### What is autonomous-driving?

- Autonomous driving is the ability of a vehicle to drive itself.
- There are different levels of autonomous driving, each with its own set of requirements and capabilities.

Self-driving is a future concept or vision in which cars would be able to complete all phases

from start to finish without any human input.

### What are the challenges to self-driving cars?

- Limited success - The test conducted by various companies for self-driving have not yielded any success.
- No consensus - While few companies choose cameras for self-driving whereas few companies uses combination of technology such as include LIDAR, radar, sensors and camera.
- Prediction - The available technology at present do not have the capacity of the humans to predict and take decision in the complex traffic scenario.
- Lack of government support - Only the private companies are investing in the self-driving technologies and there is lack of support from the government.

## GENETICALLY MODIFIED CROPS

### Context:

Genetically modified (GM) food is viewed as a controversial as well as a science-based solution for a sustainable global food system.

Challenges the world is facing – Conflict between food security and environmental protection:

- Agriculture is responsible for a quarter of the carbon emissions and the vast majority of the world's biodiversity losses.
- However, there is the need to increase food production (by 50%), as the world's population keeps growing [will reach 10 billion in 2057 (as per UN estimates)].

### Approaches to achieving food security and mitigating climate crisis:

- Dietary changes to make consumption more sustainable.
- Better technologies to create more environmentally friendly methods of agriculture. Gene technologies are a crucial part of the strategy for a sustainable food system.

### What is GM food?

- Genetically modified organisms (GMOs) are organisms that have altered DNA to change their properties.
- Foods produced from or using GMOs are often referred to as GM foods/crops.
- GMOs were first introduced in the US in 1994, to prolong the shelf life of tomato plants.
- Since then, GM soybeans, wheat and rice have been approved for agricultural use.
- Currently, GM crop production uses ~10% of the land as compared to non-GM crops.

### Advantages:

- Can improve yield, delay ripening to prolong their shelf life, builds resistance to disease/pests, frost, or drought, or adds nutrients.
- Can be modified to reduce carbon emissions and boost the sustainability of food production.

### GM controversy:

- Uncertainty (over-regulation) and

concerns about safety (long-term impact on human-animal health and biodiversity).

- The monopoly of big corporations (like Monsanto) → expensive GM seeds.

GM crops in India:

- Indian farmers started cultivating Bt cotton – a pest-resistant, GM version of cotton, in 2002-03.

- By 2014, around 96% of the area under cotton cultivation in India was Bt cotton, making India the 4th-largest cultivator of GM crops by acreage and the 2nd largest producer of cotton.

- The Genetic Engineering Appraisal Committee (GEAC) cleared the environmental release of mustard hybrid Dhara Mustard Hybrid (DMH-11) for its seed production and testing.

- Indian scientists have also developed strains of Sub-1 rice, which are much more resistant to flooding.

- Golden rice is a GM strain modified to contain vitamin A, to combat the shortage of dietary vitamin A in parts of Asia and Africa.

### Way ahead:

- The focus of GM products must be on the social and public enterprise.

- The industry must look at more local solutions that help smallholder farmers in developing countries.

- Easy availability of open-source seeds and GM technologies.

- Creating a licensing landscape that empowers local farmers to adapt to the demands of sustainable agriculture, to meet rising populations and climate change.

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# SECURITY

What's Inside?

1. CYBER INSURANCE
2. COMMAND CYBER OPERATIONS AND SUPPORT WINGS
3. 25TH YEAR OF POKHRAN II
4. SPECIAL PROTECTION GROUP (SPG)



# CYBER INSURANCE

## Why in the News?

Indian entities embrace cyber insurance as attacks surge. Sophos study finds 91% of firms opt for a cyber insurance cover, which aids data recovery.

## About

Businesses steadily rely on digital technology to operate, store data, and communicate with a more extensive customer base, propelling their growth. These businesses are more vulnerable as they are still in the process of establishing robust cybersecurity means and expertise to combat cyber risks. Thus, with the current interconnectivity, it has become crucial for small businesses to financially safeguard themselves from cyberattacks by taking cyber insurance.

If a business experiences a data breach, resulting in the theft or loss of sensitive data, cyber insurance can cover the loss. When a cyberattack causes a business to shut down or experience a disruption, cyber insurance can provide coverage for lost income and expenses.

If it results in damages to third parties, such as customers or partners, the insurance can cover legal defence costs and damages awarded.

## Kinds of coverage

First-party cover shields the business from costs incurred when it is afflicted by fraudulent activities such as a data breach.

Third-party cover offers protection from legal liabilities arising from any third party, including insured's customers, suppliers, business partners, and other stakeholders in the event of them suing the organisation for data breach and mishandling their data.

## What is not covered?

Cyber insurance broadly protects the insured against various risks; however, it comes with some exclusions such as violation of contracts, breach of trade secrets and trademarks, and disputes over registered patents or intellectual property.

In addition, deceitful or deliberate behaviour or any fraudulent act infringing the rule or regulation is not covered.

Property damage, harm, or injuries caused due to negligence, lack of precaution to safeguard confidential banking information, etc., are also not covered.

Ongoing and uninsurable legal cases and physical injury, death, or damage to any tangible object remain uninsured.

# COMMAND CYBER OPERATIONS AND SUPPORT WINGS

## Why in news?

Army Commanders Conference (ACC) had decided to operationalise Command Cyber Operations and Support Wings (CCOSWs) in the immediate future with current focus on net-centric operations.

## About

The Army has decided to raise **Command Cyber Operations and Support Wings (CCOSWs)** and nominate 'Lead Directorates' and 'Test Bed' formations for absorption of niche technologies

and enhancing fighting potential, even in cyberspace

ACC has also decided to convert the five-year Technical Entry Scheme (TES) for entry of officers to four years from January 2024, train motivated soldiers for Paralympic events, and double the sustenance allowance to specially abled children of personnel killed in the line of duty through the Army General Insurance Fund (AGIF)

## CCOSW –

The CCOSWs are a **specialized unit of the**

**Indian Army** that will assist the formations in undertaking mandated **cyber security functions**.

The unit will be responsible for **safeguarding the networks** and enhancing the cybersecurity posture of the **Indian Army**.

They will also facilitate better utilization of modern communication systems and networks within the Indian Army.

### Need for CCOSW

The expansion of cyber warfare capabilities by our adversaries has made the cyber domain more competitive and contested than ever before.

Hence, to safeguard the networks and increase the preparedness levels in this niche domain, CCOSWs are being raised

Cyberspace has emerged as an important component of military domain both in grey-zone warfare as well as conventional operations and Indian Army today is rapidly migrating towards net-centricity, which entails increased reliance on modern communication systems at all levels,

The migration towards network centricity and increased reliance on modern communication systems makes the CCOSWs important.

## 25<sup>TH</sup> YEAR OF POKHRAN II

### Why in news?

On May 11, 1998, India conducted three nuclear bomb test explosions at the Indian Army's Pokhran Test Range. Two days later, on May 13, two more bombs were tested.

### About

#### Pokhran-I and its aftermath

By the 1970s, India was capable of conducting a **nuclear bomb test**. Homi Bhaba's successor at the Department of Atomic Energy, Vikram Sarabhai, had worked to significantly broaden India's nuclear technology.

On May 18, 1974, India carried out its first nuclear test at the Pokhran test site. Pokhran-I, codenamed **Operation Smiling Buddha**, would be billed as a "peaceful nuclear explosion", with "few military implications".

However, the world was not willing to buy India's version of the story. There was near-**universal condemnation** and countries like the US and Canada imposed **significant international sanctions** on India. These sanctions would be a **major setback for India's nuclear journey**, and majorly decelerate its progress.

Beyond international sanctions, India's nuclear journey was also hobbled by domestic political instability. The Emergency of 1975 and Prime Minister Morarji Desai's opposition to nuclear

weapons brought the programme to a grinding halt. However, clamour for developing nuclear weapons picked up once again in the 1980s, as reports on Pakistan's rapidly progressing nuclear capabilities emerged.

### Pokhran II

After a few years of domestic turmoil when the political will to conduct nuclear testing was wanting, in 1998, the National Democratic Alliance (NDA) came with key promises in its manifesto as to "induct nuclear weapons" into India's arsenal.

In March 1998, **Pakistan** launched the **Ghauri missile** – built with assistance from **China**. Two months later, India responded with **Operation Shakti**. While the 1974 tests were ostensibly done for peaceful purposes, the 1998 tests were the **culmination of India's nuclear weaponisation process**. Consequently, the Indian Government declared itself as a state possessing nuclear weapons following Pokhran-II.

### Pokhran and Non Proliferation Treaty

Since the tests were conducted outside the framework of the NPT, they were seen by some as a violation of the treaty's objectives, particularly the goal of preventing the proliferation of nuclear weapons. The tests led to international criticism and concerns about nuclear proliferation in South Asia.

The Pokhran tests conducted by India were seen by some as a challenge to the non-proliferation

objectives of the NPT. They further contributed to India's decision not to join the treaty, as the country has been critical of its provisions and the perceived inequities within it.

## Need for the Pokhran nuclear tests

**1. Security concerns:** India suffered a crushing defeat in the 1962 Sino-Indian War and China's subsequent nuclear bomb test at Lop Nor in 1964. Concerned about India's sovereignty and the looming might of an unfriendly China, the mood in the political establishment towards nuclear weapons was slowly shifting.

**2. Nuclear deterrent:** India's nuclear program has been primarily focused on developing a credible deterrent against potential nuclear threats.

**3. Technological advancement:** The Pokhran tests allowed India to showcase its scientific and technological prowess.

**4. Strategic autonomy:** India has historically pursued an independent foreign policy and strived for strategic autonomy. Conducting the nuclear tests was seen as a reaffirmation of India's commitment to maintaining its sovereignty and not relying on external powers for security guarantees.

## Nuclear Non-Proliferation Treaty

**Treaty on the Non-Proliferation of Nuclear Weapons**, commonly known as the **Non-Proliferation Treaty** or **NPT**, is an international treaty whose objective is to prevent the spread

**of nuclear weapons and weapons technology, to promote cooperation in the peaceful uses of nuclear energy** and to further the goal of achieving nuclear disarmament and general and complete disarmament

It is the only binding commitment in a multilateral treaty to the goal of disarmament by the nuclear-weapon States

It was opened for signature in 1968 and the **Treaty entered into force in 1970**.

It was designed to prevent the spread of nuclear weapons, to further the goals of nuclear disarmament and general and complete disarmament, and to promote cooperation in the peaceful uses of nuclear energy.

**Year 2020 marked the 50<sup>th</sup> anniversary** of the entry-into-force of the **Treaty on the Non-Proliferation of Nuclear Weapons (NPT)**, a legal instrument treated as the cornerstone of the global nuclear non-proliferation regime.

A total of 191 States have joined the Treaty, including the five nuclear-weapon States

Four UN member states have never accepted the NPT, three of which possess or are thought to possess nuclear weapons: India, Israel, and Pakistan.

In addition, South Sudan, founded in 2011, has not joined.

## SPECIAL PROTECTION GROUP (SPG)

### Why in news?

The Ministry of Home Affairs (MHA) notified **fresh rules** for the elite Special Protection Group (SPG)

### About

The rules empower the **Central government** to frame **standard operating procedures (SOP)** to be followed by State governments or Central government departments, Army, diplomatic missions, and local or any civic authority to aid

the SPG in performing its duties.

The notified rules said the **Director of SPG** shall be **appointed by the Central Government** "at a level of not less than the **Additional Director General of Police [ADG] from the Indian Police Service**".

Earlier, the SPG has been headed by an Inspector General of Police (IGP) rank officer and on occasion by an ADG rank officer, but no specific rules were notified yet.



The **general superintendence, direction, command and control, supervision, training, discipline, and administration** of the SPG will be vested in the **Director**.

The **Director of the SPG** shall be the functional head and responsible for the **implementation of the duties** assigned in the Act besides any other duties, orders, and instructions assigned on this behalf by the Central government, the notification said.

According to a 2019 amendment to the SPG Act, 1988, the force now protects only Prime Minister and members of his immediate family residing with him at his official residence.

The amendment said the force would also **provide security to former Prime Ministers and their immediate family members** staying with them at the residence allotted for **a period of five years from the date on which they cease to hold the office**. Mr. Modi assumed office in 2014 and is in his second five-year term as the Prime Minister.

## Special Protection Group and its Genesis

The SPG was raised in 1985 to provide security cover to the Prime Minister, former Prime

Ministers and their immediate family members.

The SPG comprises of the personnel from the CRPF, Border Security Force and other Central and State forces.

On 18 February 1985, **the Ministry of Home Affairs** set up the **Birbal Nath Committee** to examine the issue and submit recommendations to the government for **prime ministerial security**.

In March 1985, the Committee submitted its recommendation for the raising of an independent agency for prime ministerial protection, known as the **Special Protection Unit (SPU)**.

On 30 March 1985, the President of India, by executive order, created 819 posts for the unit within the Cabinet Secretariat. The name of the unit was re-christened Special Protection Group, led by a Director who would be an Indian Police Service officer with the rank of Inspector General of Police.

The SPG does **not directly recruit personnel**. Recruits are instead drawn from **enlisted ranks of the Central Armed Police Forces** and Railway Protection Force. Personnel from these services may apply for deputation to the SPG and undergo rigorous physical and psychological assessments as well as enhanced security screening.



# HISTORY



# ART & CULTURE



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# MAULANA ABUL KALAM AZAD

## Why in the News?

Opposition parties slam the deletion of Maulana Azad's name from NCERT textbook also noting that a scholarship named after Azad had also been discontinued.

## About

Maulana Abul Kalam Azad, originally named Muhiyuddin Ahmad, was born on 11th November 1888 in Mecca, Saudi-Arabia. In 2008, the Ministry of Human Resource Development (Now Ministry of Education) decided to celebrate Azad's birthday (11th November) as National Education Day to commemorate the birth anniversary of independent India's first education minister, Maulana Abul Kalam Azad.

## Contributions of Maulana Abul Kalam Azad

### Pre- Independence

He was a proponent of Hindu Muslim unity, opposed to Partition.

In 1912, he started a weekly journal in Urdu called **Al-Hilal** which played an important role in forging Hindu-Muslim unity after the bad blood created between the two communities in the aftermath of Morley-Minto reforms (1909). The government regarded Al- Hilal as a propagator of secessionist views and banned it in 1914.

Maulana Abul Kalam Azad then started another weekly called **Al-Balagh** with the same mission of propagating Indian nationalism and revolutionary ideas based on **Hindu-Muslim unity**.

In 1916, the government banned this paper too and expelled Maulana Abul Kalam Azad from Calcutta and exiled him to Bihar from where he was released after the First World War 1920.

Azad supported the Non-Cooperation Movement (1920-22) started by Gandhiji and entered the Indian National Congress in 1920.

In 1923, he was elected as the president of



Indian National Congress. At an age of 35, he became **the youngest person to serve as the President of the Indian National Congress**.

Maulana Azad was arrested in 1930 for violation of the salt laws as part of Gandhiji's Salt Satyagraha. He was put in Meerut jail for a year and a half.

He again became the president of Congress in 1940 and remained in the post till 1946.

### An Educationist:

In the field of education, Maulana Azad had been an uncompromising exponent of universalism, a truly liberal and humanitarian educational system.

Azad's ideal was a fusion of the Eastern and Western concepts of man, to create a fully integrated personality. Whereas the Eastern concept dwelt on spiritual excellence and individual salvation, the Western concept laid stress on worldly achievements and social progress.

He was one of the founding members of the **Jamia Millia Islamia University**, originally established at Aligarh in the United Provinces in 1920.

His Works: Basic Concept of Quran, Ghubar-e-Khatir, Dars-e-Wafa, India Wins Freedom, etc.

### Contributions (Post-Independence)

In 1947, he became the first education minister of free India and remained at this post till his death

in 1958. In his tenure, he did tremendous work for the upliftment of the country.

The first IIT, IISc, School of Planning and Architecture and the University Grants Commission were established under his tenure as the education minister.

Played important role in founding

**Indian Council for Cultural Relations**, for introduction of Indian culture to other nations.

**Sahitya Academy** for development of

literature;

**Sangeet Natak Academy** for the development of Indian music and dance;

**Lalit Kala Academy** for the development of painting.

### Awards

Maulana Abul Kalam Azad was posthumously awarded India's highest civilian honour, Bharat Ratna in 1992.

## CHICHEN ITZA ARCHAEOLOGICAL SITE

### Why in the News?

A stone scoreboard used in an ancient soccer-like ball game has been discovered at the famed Mayan Chichen Itza archaeological site in Mexico's Yucatan peninsula.

### About Stone scorecard

The circular piece, measuring just over 32 centimeters (in diameter and weighing 40 kilograms) displays hieroglyphic writing surrounding two players standing next to a ball.

The stone, believed to be a scoreboard, dates from between 800 AD and 900 AD.

The ball game was a traditional practice of Mesoamerican peoples and is believed to have had ritual undertones.

### About Chichen Itza complex

The Chichen Itza complex, declared a **World Heritage Site by UNESCO**, is one of the main archaeological centers of the Mayan civilization in the Yucatan Peninsula.

It was a large pre-Columbian city built by the Maya people of the Terminal Classic period.

It was a major focal point in the Northern Maya Lowlands from the Late Classic (c. AD 600–900) through the Terminal Classic (c. AD 800–900) and into the early portion of the Postclassic period (c. AD 900–1200).

The site exhibits a multitude of architectural

styles, reminiscent of styles seen in central Mexico and of the Puuc and Chenes styles of the Northern Maya lowlands.

It was one of the largest Maya cities and it was likely to have been one of the mythical great cities, or Tollans, referred to in later Mesoamerican literature.

### About Yucatán Peninsula

The Yucatán Peninsula separates the Gulf of Mexico from the Caribbean Sea, encompassing 3 Mexican states, plus portions of Belize and Guatemala.

The Yucatan is known for its tropical rainforests and jungles, as well as its being the home of the ancient Maya people.

The Yucatán Peninsula is the site of the Chicxulub crater impact, which was created 66 million years ago by an asteroid of about 10 to 15 kilometers in diameter at the end of the



Cretaceous Period.

## About Mayan Civilisation

The Maya civilization of the Mesoamerican people is known by its ancient temples and glyphs.

Its Maya script is the most sophisticated and highly developed writing system in the pre-

Columbian Americas.

It is also noted for its art, architecture, mathematics, calendar, and astronomical system.

Dates: c. 250 – c. 1697 CE

Period: Mesoamerican Classic Period

# SAANTINIKETAN

## Why in news?

Santiniketan has been recommended for inclusion in the UNESCO World Heritage List by an international advisory body, Union minister for culture and tourism G Kishan Reddy has said.

## About

Saantinketan the home of Nobel laureate **Rabindra Nath Tagore** has been recommended for inclusion in UNESCO's World Heritage List.

The quaint town in West Bengal's Birbhum district is also home to the **Visva-Bharti University** built by **Tagore** nearly a century ago.

Other notable places in Santiniketan

Tagore's Ashram- Known as "Uttarayan,"

Rabindra Bhavan Museum -The museum within the Visva Bharati University campus showcases a vast collection of Tagore's paintings, manuscripts, and personal belongings.

Kala Bhavana - the College of Fine Arts within Visva Bharati University.

Khoai Mela: A unique fair held during the winter season in Santiniketan,

In 1863, **Debendranath Tagore** took on permanent lease 20 acres of land from **Bhuban Mohan Sinha**, the talukdar of Raipur, Birbhum. He built a **guest house** there and named it **Shantiniketan (the abode of peace)**. Gradually, the whole area came to be known as Shantiniketan

The recommendation was made by the **International Council on Monuments and Sites (ICOMOS)**, which is the advisory body to the UNESCO World Heritage Centre, based on a file moved by the Indian government.

## International Council on Monuments and Sites (ICOMOS)

ICOMOS is a **France-based** International culture body,

ICOMOS is **an international organization** that focuses on conserving and protecting cultural heritage sites.

It was founded in **1965** and operates under the principles of the UNESCO World Heritage Convention.

ICOMOS works to **preserve and manage various types of heritage sites**, such as archaeological sites, historic buildings, and cultural landscapes.

ICOMOS has **national committees in over 140 countries** and scientific committees specialized in different aspects of heritage conservation.

The organization **collaborates with UNESCO and other international bodies** to evaluate and advise on the inscription of sites on the World Heritage List.

## Criteria for selection

To be included on the World Heritage List, sites must be of outstanding universal value and meet at least one out of ten selection criteria.

To represent a masterpiece of **human creative genius**;

To exhibit an **important interchange of human values**, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;



To bear a unique or at least **exceptional testimony to a cultural tradition** or to a civilization which is living or which has disappeared;

To be an **outstanding example of a type of building**, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;

To be an outstanding example of a **traditional human settlement**, land-use, or sea-use which is representative of a culture (or cultures), or human

interaction with the environment especially when it has become vulnerable under the impact of irreversible change;

To be directly or tangibly associated with **events or living traditions**, with ideas, or with beliefs, with **artistic and literary works** of outstanding universal significance. (The Committee considers that this criterion should preferably be used in conjunction with other criteria);

## TRIMBAKESHWAR TEMPLE

### Why in the News?

Maharashtra Government constitutes a Special Investigation Team (SIT), which will probe a recent incident in which a group of people from minority community allegedly attempted to 'forcibly' enter Trimbakeshwar temple in Nashik.

### About

Trimbakeshwar temple is the abode of one of the **12 Jyotirlingas of Lord Shiva**. A Jyotirlinga is a representation of Lord Shiva in Hinduism.

Temple is located at the foothills of mountain Bramhagiri, from which Godavari River flows.

It was constructed by third Peshwa Balaji Bajirao (1740-1760) on the site of an old temple.

Word "Trimbak" indicates Trinities (trideva) - **Lord Brahma, Lord Vishnu, and Lord Mahesh**.

The sanctum, internally a square and externally a stellar structure, houses a small Shivling - Tryambaka.

Temple was built of black stone in Nagara Style of temple architecture, which is mostly prevalent

in northern parts of India.

### Nagara Style of Temple Architecture

Unlike in South India, it does not usually have elaborate boundary walls or gateways. Garbhagriha is always located directly under the tallest tower.

Built on a stone platform called "Jagati" with

Jyotirlinga List with Location

No	Jyotirlinga	Location
1	Somnath Jyotirlinga	Saurashtra, Gujarat
2	Mahakaleshwar Jyotirlinga	Ujjain, Madhya Pradesh
3	Omkareshwar Jyotirlinga	Shivpuri, Madhya Pradesh
4	Mallikarjuna Jyotirlinga	Srisailem, Andhra Pradesh
5	Vajinath Jyotirlinga	Parli, Maharashtra
6	Kedarnath Jyotirlinga	Kedarnath, Uttarakhand
7	Nageshwar Jyotirlinga	Darukavanam, Gujarat
8	Trimbakeshwar Jyotirlinga	Nasik, Maharashtra
9	Bhimashankar Jyotirlinga	Pune, Maharashtra
10	Rameshwar Jyotirlinga	Rameshwaram, Tamil Nadu
11	Grishneshwar Jyotirlinga	Aurangabad, Maharashtra
12	Kashi Vishwanath Jyotirlinga	Varanasi, Uttar Pradesh

steps leading up to it.

There can be multiple curving towers known as Shikharas.

The 'latina' or rekha-prasada, Phamsana and valabhi are important types of Nagara Architecture.

## UTTARAMERUR INSCRIPTION

### Why in news?

Prime Minister Narendra Modi on Thursday (April 14) referred to the Uttaramerur inscription in Kanchipuram, Tamil Nadu, while discussing India's democratic history

### About

While Uttaramerur has multiple inscriptions spanning centuries, the most famous one – being referred to by Prime minister – is from the reign of Parantaka I (907-953 AD). These provide a detailed description about the village's self-governance and have been cited by historians and political leaders alike as evidence of India's history of democratic functioning.

The famous inscription from Parantaka I's reign is found on the walls of the **Vaikunda Perumal Temple**.

The inscription gives details of **the functioning of the local Sabha**, i.e., the village assembly.

A Sabha was an **assembly exclusively of brahmins** and had specialised committees tasked with different things.

This gave details about **how members were selected, the required qualifications**, their roles and responsibilities, and even the circumstances in which they could be removed.

The qualifications includes ownership of a certain **amount of land**, having a house, being between the age of 35 and 70 and **“knowing mantras and Brahmanas”** (from the Vedic corpus).

An exception can be made on land ownership if the person has learnt at least **“one Veda and four Bhashyas”**. One must also be “well-versed in business” and “virtuous”.

### Selection procedure for the Sabha

It says there **were 30 wards**. Everyone living in these 30 wards would assemble and select one representative for the village assembly.

All those eligible and willing would write

their **names on palm leaf tickets** following which, the representative would be chosen based on **an elaborate draw of lots**, conducted by priests in the inner hall of the building where the assembly meets.

**Disqualification:** The inscription then lists several factors which disqualify someone and their family like:

Not **having submitted accounts** while previously serving on a committee.

Committing any of the first four of the five ‘great sins’ (killing a Brahman, drinking alcohol, theft and adultery)

Being associated with outcastes, and eating ‘forbidden’ dishes.

### Parantaka I

Parantaka Chola I, also known as Parantaka Chola the Great, was a renowned ruler of the Chola dynasty in South India. He reigned from around 907 to 955 CE.

Parantaka Chola I expanded the Chola Empire and achieved notable military victories during his reign. He conducted successful campaigns against rival kingdoms, including the **Pandya and Chera dynasties**, and extended Chola control over vast territories in present-day Tamil Nadu, Kerala, and parts of Sri Lanka.

Parantaka Chola I was known for his military prowess and his ability to command a well-disciplined army. He introduced several administrative reforms, including the **establishment of regional administrative units called mandalams**, which facilitated efficient governance and revenue collection. Parantaka Chola I also focused on infrastructure development, including **the construction of irrigation tanks and temples**.

As a patron of arts and culture, Parantaka Chola I contributed to the flourishing of Tamil literature during the Chola period. He

patronized poets and scholars, and his court witnessed the **golden age of Tamil poetry**. The epic poem “**Kalingattupparani**,” which recounts his victorious campaign against the kingdom of Kalinga (present-day Odisha), is one of the significant literary works associated with his reign.

## Vaikunta Perumal Temple

The Vaikunta Perumal Temple in Kanchi, a

village in the South Indian state of Tamil Nadu, is dedicated to the **Hindu god Vishnu**. The temple is constructed in the **Dravidian style** of architecture. Vishnu is worshipped as Vaikunta Perumal and his consort Lakshmi as Anandavalli. It was originally built in the 8th century by **Pallava king Nandivarman** (731-796), with later additions from the Chola.

# SENGOL

## Why in news?

The relevance of Sengol is reignited as the Indian government installed the Sengol in the new Parliament building, leading to heated debates about its history, authenticity, and symbolism it carries in modern India.

## About

The Sengol, a sacred sceptre, traces its roots back to the **ancient Chola dynasty** in Tamil Nadu, where it served as a **potent symbol of royal power transfer**. However, its significance extends beyond mere political authority, representing the ethical-spiritual authority or ‘**Dharma Danda**’ in Indian civilisational tradition.

## Significance

**Symbol of royal power transfer:** In the history of the Chola dynasty the Sengol played a crucial role as a **symbolic instrument for the transfer of power** from one king to another. This practice was carried out by the **Rajaguru**, or the court priest, signifying divine approval for the new monarch.

**Spiritual authority:** In Indian culture, kings and queens were not considered as the ultimate authority. The Sengol, symbolizing the Dharma Danda, was used to remind the monarchs that the **highest authority was Dharma**, the ethical and spiritual order. During coronation rituals, the priest would use the Sengol to assert that Dharma, not the king, held the ultimate power to punish.

**The historical symbol of independence:** The Sengol held a special place in the history of India’s independence. **In 1947, it was used in a ceremony to symbolize the transfer of power**



### What is the 'Sengol'?

Union Home Minister Amit Shah announced that Prime Minister Shri Narendra Modi will install the sacred Sengol in the New Parliament on 28th May 2023



Historically, 'Sengol' is a staff or wand held in the hand by a ruling monarch as an item of royal or imperial insignia, signifying sovereign authority.



The sacred Sengol symbolises governance with righteousness.

It was kept at a museum in Allahabad, and it will be moved to the new Parliament building.

This Sengol became a symbol of the transfer of power.



In 1947, Tamil Nadu's *Thiruvaduthurai Aartheenam*, one of India's oldest mutts, was given the job of making a sceptre to symbolise the transfer of power from British to India.



Around 10.45 pm on August 14, 1947, Pandit Nehru received this Sengol from Tamil Nadu, and in the presence of several senior leaders, he accepted this as a symbol of achieving independence.



**from the British to the first Prime Minister of India, Jawaharlal Nehru.** The act signified the **beginning of self-governance and the transfer of power to the people of India.**

**Present-day significance:** Today, the Sengol continues to hold relevance in the political symbolism of India. The recent decision of the Indian government to install the Sengol in the new Parliament building underlines **its continued importance as a representation of India’s ethical and spiritual governance**. This is seen as a reflection of the value India places on Dharma and the principles it stands for.

## Its history

PM Nehru consulted **C. Rajagopalachari**,

commonly known as Rajaji, who went on to become the last Governor-General of India.

Rajaji suggested that the **Chola model of handing over the Sengol sceptre** could be adopted as a suitable ceremony for India's independence.

The Sengol sceptre was presented to PM Nehru by **Thiruvavaduthurai Adheenam (a 500-year-old Saivaite monastery)** on August 14, 1947.

A golden sceptre was **crafted by Vummidi Bangaru Chetty**, a famous jeweller in Madras (now Chennai).

**The Nandi**, with its unyielding gaze as **the beholder of "Nyaya"**, is hand-carved at the top.

After receiving the Sengol sceptre in 1947, Nehru **kept it at his residence in Delhi** for some time.

He then decided to **donate it to Anand Bhavan Museum in Allahabad** (now Prayagraj), his ancestral home.

The museum was established by his father Motilal Nehru in 1930 to preserve the history and

legacy of India's freedom movement.

The Sengol sceptre remained at Anand Bhavan Museum for over seven decades.

In 2021-22, when the **Central Vista redevelopment project** was underway, the government decided to revive this historical event and install the Sengol sceptre in the new Parliament building.

It will be placed **near the Speaker's seat in the new Parliament building** and will be accompanied by a plaque that will explain its history and meaning.

The installation of Sengol in the new Parliament building is not just a symbolic gesture but also a meaningful message.

It signifies that India's democracy is rooted in its ancient traditions and values and that it is inclusive and respectful of its diversity and plurality.

## DANCING GIRL OF MOHENJO-DARO

### Why in news?

On the occasion of International Museum Day (May 18), Prime Minister inaugurated the International Museum Expo in Delhi's Pragati Maidan. During the ceremony, PM also unveiled the Expo's mascot – a **"contemporised" version of the famous Dancing Girl** of Mohenjodaro.

### About

#### The controversy

The over five-feet tall (mascot) adaptation drew flak from several quarters for distorting the original figure's form. The 4,500 years old bronze figurine, just 10.5 cm in height, is dark and completely in the nude with the exception of multiple bangles and a necklace. However, the adapted mascot has fairer skin, and is dressed in a bright pink blouse and an off-white waist-coat.

The traditional craft of **Channapatna toys**, which is protected by GI tag was employed to

create the mascot.

The Ministry of Culture insists it is not a transformation or a new look to the original piece of art, but just "an inspired craft work". "The idea of introducing the mascot, especially through a toy, was also to bring forth the importance of Museum merchandise and in turn, self-sustainability of these cultural institutions

### The Dancing Girl

After the initial recognition of the Indus Valley civilisation as an ancient civilisation, a spate of excavations were conducted in the two major sites that were known till then – Harappa and Mohenjodaro.

The Dancing Girl was discovered in one such **excavation in 1926**, by British archaeologist **Ernest McKay** in a ruined house in the '**ninth lane**' of the '**HR area**' of Mohenjodaro's citadel.

Even though Mohenjodaro and Harappa

became part of Pakistani territory after the Partition, the **Dancing Girl remained in India as part of an agreement**. Today, the bronze figurine sits in the National Museum of India

It is often referred as its “**star object**”.

This statue is a cultural artifact **reflecting the aesthetics of a female body** as conceptualized during that historical period.

The bronze girl was made using the **lost-wax casting technique** and shows the expertise of the people in making bronze works during that time.

The statuette was named “Dancing Girl” based on an **assumption of her profession**.

She is one of two bronze artworks found at Mohenjo-Daro that shows a more natural pose than compared to other more formal figures.

The statuette has **large eyes, a flat nose, healthy cheeks, curly hair, and a broad forehead**. She is a tall figure with long legs and arms, high neck, subdued belly, and sensuously modeled.

The girl wears **some bangles and a necklace**. She has 25 bracelets on her left arm and four bangles on her right arm and is holding an object in her left hand. Her long hair styled as big bun



rested on her shoulder.

## International Museum Day

International Museum Day, observed on Thursday, **May 18, 2023**, serves the purpose of increasing recognition for the vital role that museums play in fostering cultural exchange, enhancing diverse cultures, and fostering mutual understanding, cooperation, and peace among different communities.

This day, as stated by the **International Council of Museums**, aims to raise awareness about the significance of museums as valuable platforms for promoting global harmony and development

## SHILABHATTARIKA

Researchers at the Pune-based Bhandarkar Oriental Research Institute in India have decoded copper plates revealing that the celebrated Sanskrit poetess Shilabhattacharika was a daughter of the “Satyashraya” Chalukyan ruler Pulakeshin II. The title of “Satyashraya” (patron of truth) was associated with Chalukyan Emperor, Pulakeshin II of Badami

Shilabhattacharika was a 9th-century Sanskrit poet from India. She lived near the Narmada River and the Vindhya mountains. Her poetic skills were praised by medieval Sanskrit literary critics. It is speculated that she may be the same

as Shilamahadevi, the queen of 8th-century Rashtrakuta ruler Dhruv.

Shilabhattacharika is considered a leading figure of the Panchali literary style, which maintains “a balance between words and meaning”. According to Rajashekhara, the Panchali style can be traced to the works of Shilabhattacharika, and possibly in some of the works of the 7th-century poet Bana. Sharangadhara-paddhati, a 14th-century anthology, praises her and three other female poets for their great poetic genius and erudition.

Week 1 (April)

## PATTANAM MYSTERY

### What is the News?

Recent excavation has revealed that the Pattanam Site in Kerala was a thriving urban

centre from the 5th century B.C. to the 5th century A.D., with its peak phase from 100 B.C. to A.D. 300. At present, the excavation has uncovered less than 1% of the site so far.

### Located in:

Central Kerala

Pattanam is part of Muziris, 'first emporium' of the Indian Ocean. It is an example of the Greco-Roman classical age coming into direct contact with an ancient South Indian civilisation.

### Note:

The name Muziris is believed to have originated from the Tamil word "Muciri", which means "the land of seven rivers".

### Significance:

It is the only multi-cultural archaeological site on the southwestern coast of the Indian subcontinent. The excavations have unearthed over 45 lakh sherds (ceramic fragments). Of these approximately 1.4 lakh belongs to the littoral regions of the Mediterranean, the River Nile, the Red Sea, the western and eastern Indian Oceans, and the South China Sea. Further, the recent findings also include the seal of a sphinx, native to the ancient Greek city of Thebes.

### What are the key findings on Pattanam Site?

No Idol Worship: The site is devoid of any idols of gods and goddesses or grandiose places of worship.

No Social Hierarchy: Evidence for institutionalized religion or caste system in ancient Pattanam is also absent. This suggests that there was a secular ethos prevalent in society.

No Weaponry: The absence of sophisticated weaponry also stands in contrast with some other Pattanam-contemporary sites. This suggests that the people of Pattanam may have been peace-loving people who did not harbour religious and caste boundaries.

Cremation and Burial Practices: The burial practices were confined to fragmentary skeleton remains. The burials were of a "secondary" nature. In this, the dead were cremated first and the osseous remains were ceremoniously buried later.

People of widely differing backgrounds were buried the same way, which also highlights the prevalence of a secular society.

Connected to nature: Material evidence from Pattanam site strengthens the belief that Pattanam society may have lived in harmony with nature, like several indigenous societies. Pattanam society also not viewed people as separate from nature. This had the positive fallout of living life in an ecologically responsible manner.

## TRAIN TO KASHMIR VALLEY THROUGH BHARATH GAURAV SCHEME

### What is Bharat Gaurav Scheme?

#### About:

Launched in November 2021, under the scheme, trains now have a third segment for tourism. Till now, the Railways had passenger segments and goods segments.

These trains are not regular trains that will run as per a timetable but will be more on the lines of the Ramayana Express being run by the IRCTC.

It was announced under the theme-based tourist circuit trains. These trains will be run by

both private players and IRCTC, in theme-based circuits.

By theme-based tourism (circuits), the railways mean trains like Guru Kripa that go to all places related to Guru Nanak or a Ramayan-themed train to touch upon places related to Lord Ram.

Anyone, from societies, trusts, consortia and even state governments can apply to take these trains and run them on special tourism circuits based on a theme.

Service Provider will offer all-inclusive

packages to tourists including rail travel, hotel accommodation, sightseeing arrangement, visit to historical/heritage sites, tour guides etc.

### **Benefits of such Scheme:**

These trains will help realise India's rich cultural heritage and magnificent historical places to the people of India and the world.

They will also help in tapping the vast tourism potential of India.

### **What are the other Related Scheme?**

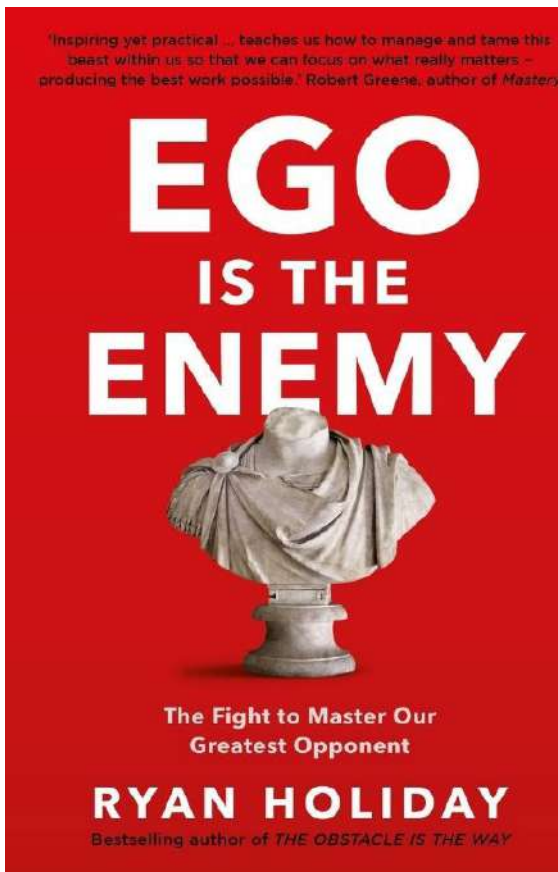
#### **Swadesh Darshan Scheme:**

Swadesh Darshan, a Central Sector Scheme, was launched in 2014 -15 for integrated development of theme-based tourist circuits in the country.

#### **PRASHAD Scheme:**

The 'National Mission on Pilgrimage Rejuvenation and Spiritual Augmentation Drive' (PRASAD) was launched by the Ministry of Tourism in the year 2014-15 with the objective of holistic development of identified pilgrimage

## “EGO IS THE ENEMY” - RYAN HOLIDAY



In *Ego is the Enemy*, Ryan Holiday argues that often our problems are caused not by external factors but from our own ego. The book is divided into 3 parts: aspire, success, and failure. A good book on stoicism.

The book *Ego is the Enemy* by Ryan Holiday is filled with cautionary tales of those who let their egos run amok and were eventually undone by the resulting damage, as well as stories of those who practiced restraint and sobriety, and found success in their endeavors.

This book can be an antidote to the unraveling that is possible when one indulges ego and loses sight of reality—if you let it: “Not in the Freudian sense,” Holiday says of ego, but ego in the colloquial sense, as in “an unhealthy belief in your own importance. Arrogance. Self-centered ambition.”

The book is structured as short essays split into three parts: Aspire, Success, and Failure. These being three phases that one invariably

finds themselves in at any given moment, often alternating between them over the course of a life. As the book says, “Aspiration leads to success (and adversity). Success creates its own adversity (and, hopefully, new ambitions). And adversity leads to aspiration and more success. It’s an endless loop.”

### Aspire – To be humble in our aspirations

The Aspire section of “Ego is the Enemy” explores the importance of humility, learning, and maintaining a student’s mindset as we strive for success. Ryan Holiday emphasizes the need to overcome ego-driven behaviors and cultivate a genuine desire for personal growth and improvement.

“The first principle is that you must not fool yourself - and you are the easiest person to fool”

“You can’t learn if you think you already know.”

“Any student of military history can see how the exact same invasion driven by ego instead of strong sense of purpose would have had a far different ending”

In this section, Holiday encourages readers to let go of the need for validation and recognition from others. He highlights the dangers of ego, which often blinds us to our own limitations and prevents us from learning and growing. Instead, he advocates for embracing a humble approach that values continuous learning and being receptive to feedback and guidance from others.

Passion vs. Purpose is very intricately dealt with in the book. The book explains a passion paradox where someone stays busy without accomplishing anything. Purpose is about pursuing something outside yourself as opposed to passion which is pleasuring yourself.

Passion is a form of mental retardation – deliberately blunting our most critical cognitive functions.

He emphasizes that true success lies in the journey of becoming rather than the pursuit of external accolades. By adopting a student’s mindset,



we open ourselves up to new perspectives, ideas, and opportunities for growth.

The Aspire section also emphasizes the importance of perseverance and patience in the face of challenges and setbacks. Holiday emphasizes that success is not immediate and requires consistent effort, learning from failures, and maintaining a resilient attitude. He encourages readers to focus on the process of becoming, rather than fixating solely on the desired outcome.

## **Success – To be gracious in our success**

The Success section of “Ego is the Enemy” delves into the dangers and pitfalls that success can bring when accompanied by unchecked ego. Ryan Holiday explores the challenges that arise when individuals become blinded by their achievements and highlights the importance of maintaining humility and self-awareness throughout the journey.

In this section, Holiday emphasizes that success often breeds complacency, overconfidence, and a distorted perception of one’s abilities.

“Facts are better than dreams” - Churchill

He presents historical examples and stories of individuals who fell victim to the negative consequences of ego-driven behaviors after achieving success. Through these narratives, he warns readers about the potential downfall of losing touch with reality and becoming disconnected from the qualities that initially led to success.

Holiday encourages readers to stay grounded and maintain a strong work ethic, even in the face of accomplishments. He emphasizes the need for continuous self-improvement and learning, regardless of external recognition. By nurturing a humble mindset, individuals can avoid the pitfalls of ego and remain receptive to feedback, new ideas, and collaboration.

The Success section also highlights the importance of gratitude and recognizing the contributions of others in achieving success. Holiday argues that ego-driven individuals often overlook the support and teamwork that contributed to their accomplishments, leading to

isolation and ultimately hindering future progress.

Moreover, the section touches on the significance of long-term thinking and avoiding short-sightedness. Holiday cautions against becoming trapped in the pursuit of immediate gratification or the desire for quick and easy success. Instead, he advocates for patience, perseverance, and a focus on the continuous process of improvement.

## **Failure – To be resilient in our failures**

The Failure section of “Ego is the Enemy” explores the role of ego in handling setbacks, adversity, and failure. Ryan Holiday emphasizes that ego often prevents individuals from accepting responsibility for their mistakes and hampers their ability to learn and grow from these experiences.

In this section, Holiday argues that ego-driven individuals tend to deny or downplay their failures, shifting blame onto external factors or other people. He cautions against the destructive cycle that ego perpetuates, which hinders personal development and prevents individuals from taking the necessary steps to overcome obstacles.

Holiday encourages readers to embrace failure as a valuable learning opportunity. He emphasizes that setbacks and mistakes are inevitable parts of the journey toward success and that they should be seen as stepping stones rather than permanent defeats. By adopting a humble and open mindset, individuals can extract lessons from failure and use them as catalysts for growth and improvement.

The author highlights the importance of resilience and perseverance in the face of failure. By reframing failure as a temporary setback and maintaining a resilient attitude, individuals can bounce back stronger and wiser.

Additionally, Holiday emphasizes the need to confront one’s own ego during times of failure. He encourages readers to take responsibility for their actions and examine their own shortcomings and mistakes. By doing so, individuals can avoid falling into the trap of ego-driven behavior and instead focus on self-reflection, self-improvement, and taking corrective measures.

## The stoic prescriptions

The book further provides some prescriptions to overcome and confront the internal resistance called the “ego”. Some of them are provided below for a wider view about the book.

- Always have a student mindset
- Avoid complacency
- Don't have early pride over your progress
- Have limits to the passionate behaviour – with self awareness and rationality – eg. Have a strong purpose for your UPSC preparation
- To get out of your own mental construct and live in reality and face real time problems
- Be an antea mbulo – Clear the path for the people above you and you will eventually create a path for yourself.
- Respect other people's work.
- Restrain yourself when you are subjected to treatment ranging from indifference to outright sabotage
- Practice gratitude and collaboration
- Be resilient towards failures
- Consider failure as an opportunity to improve
- Be accountable to your actions and its consequences
- Finally, Be sober and do your job

Thus, Ego Is The Enemy reveals why a tendency that's hardwired into our brains — the belief that the world revolves around us and us alone — keeps holding us back from living the very life it dreams up for us, including what we can do to overcome our ego, be kinder to others and ourselves, and achieve true greatness.

“Focus on continuous self-improvement and humility, for true success lies in the journey, not just the destination.

# FACT SHEET

## GENERAL STUDIES – I

### SOCIETY

#### 'State of World Population (SOWP)' report by UN Population Fund (UNFPA):

- ✦ The population of the world is 8,045 million.
- ✦ The largest share in population has age between 15- 64 years (65%), followed by the 10-24 years (24%) and above 65 years of age (10%).
- ✦ India is now the most populous country in the world, outstripping China's population.
- ✦ The rate of global population growth has fallen and is less than 1% since 2020.

#### India's demography:

- ✦ 68% belong to the 15-64 years and 26% belong to the 10-24 years.
- ✦ India is one of the youngest countries in the world with 50% of its population below the age of 25.
- ✦ The fertility rate in India has been steadily dropping and is lower than 2.1 children per woman.
- ✦ Life expectancy for men is 71 years, while it is lower for women at 74 years.
- ✦ If India's population continues to grow at the current pace, it would double from the present value in the next 75 years.

## GENERAL STUDIES – II

### POLITY

#### World Press Freedom Index 2023:

- ✦ India's ranking in the World Press Freedom Index 2023 has slipped to 161 out of 180 countries (150th in 2022).
- ✦ Indian neighbours such as Sri Lanka (135) and Pakistan (150) have been accorded better ranks as compared to India.
- ✦ Norway ranked 1st for the seventh consecutive year which is followed by Ireland (2nd) and Denmark (3rd).
- ✦ The last three places are occupied by Vietnam (178th), China (179th), and North Korea (180th).

### HEALTH

- ✦ WHO recently published the 'Global Report on Sodium Intake Reduction,' => An average Indian's sodium consumption is more than double the physiological need and dramatically exceeds the

WHO recommended daily intake of <5 g of salt for adults. Excessive sodium intake contributes to the rise of hypertension, heart disease, and stroke.

- ◆ Recently a new study conducted by Journal of Health Management, on the burden of mental illness => 20% of Indian households become poor as a result of spending money on the treatment of mental illnesses. India's national average healthcare burden due to mental illness is 10.4%.

## EDUCATION

### World University Rankings 2023:

- ◆ Indian Institute of Science has outranked all the IITs to rank 155 in the world.
- ◆ There are just 9 Indian universities under the Top 500 in the QS World University Rankings.

## GENERAL STUDIES – III

### ECONOMY

- ◆ A report by Nasscom has pointed out that the patent filings in India increased by about 13.6% year-over-year in fiscal 2022, marking the highest annual increase in the last decade.
- ◆ India has committed to install 60,000 MW of wind power projects by 2022 but has only met two-thirds of the target.

### AGRICULTURE

- ◆ International Food Policy Research Institute (IFPRI) published 'Global Food Policy Report, 2023':
- ◆ In 2021, some 768 million people across the world were undernourished, according to the FAO's State of Food Security and Nutrition Report (572 million reported in 2014).
- ◆ In 2022, food insecurity was exacerbated by the Russia-Ukraine war and related spikes in food and fertiliser prices.
- ◆ Fertiliser prices rose by 199% between 2020 & 2022, stated by World Economic Forum. As a result, there has been an increase in the number of people at risk due to food insecurity, hunger, and malnutrition.

### ENVIRONMENT

- ◆ Results of the 5th cycle of India's Tiger Census indicate that the country's tiger population has climbed once again, and currently stands at 3,167 in the wild as of 2022. (2018 Tiger Census -> 2,967 tigers in India).
- ◆ According to the biennial India State of Forest Report (ISFR) 2021, India's total forest and tree cover now constitutes 24.6% of the geographical area of the country.
- ◆ India has set a target (including the latest draft NFP 2018) of bringing 33% of its geographical area under forest and tree cover.
- ◆ In India, around 68% of the country is prone to drought to varying degrees, according to the Crop Weather Watch Group (CWWG).

# CLIMATE CHANGE

## State of Global Climate 2022 by UN's World Meteorological Organization (WMO):

- ✦ Melting glaciers and warming oceans triggered global sea levels to jump to the highest on record in 2022.
- ✦ Global sea levels have hiked at more than double the rate they did in the first decade of the satellite record from 1993 to 2002.
- ✦ Ocean heat levels broke records, with almost 60% experiencing at least one marine heatwave.
- ✦ Melting glaciers and high ocean temperatures accounted for an average increase in sea levels of 4.62mm a year from 2013 to 2022.
- ✦ The UN's World Meteorological Organization (WMO) has cautioned that 2023 to 2027 will be the warmest 5-year period ever recorded mainly due to the effects of El Nino combined with the increase in the emission of greenhouse gases.
- ✦ The global mean temperature in 2022 was 1.15°C above the 1850-1900 average.
- ✦ According to WMO, there is a 66% chance that annual global surface temperatures will exceed 1.5°C above pre-industrial levels for at least one of the years between 2023 to 2027.
- ✦ Under the Paris Agreement of 2015, countries agree to limit global warming below 2°C above average levels measured between 1850 and 1900 and 1.5°C if possible.

1. Dhanya Rajendran, co-founder of 'The News Minute portal,' has been declared the winner of the Chameli Devi Jain Award for 2022. It is awarded annually to recognise the outstanding work of women in the field of journalism. Chameli Devi Jain was an Indian independence activist during India's struggle for independence.
2. "Even if it is assumed that some dowry was provided to the daughters, that does not mean that the daughters cease to have any right in the family property", the Goa Bench of the Bombay High Court has ruled.
3. FSSAI has initiated the 'Aaj Se Thoda Kam' social media campaign. Despite these efforts, the average sodium consumption of Indians remains alarmingly high. Studies have found that the typical daily intake of sodium in India is around 11 grams, which is much higher than the recommended intake of 5 grams per day.
4. The Maharashtra government is looking to launch the second phase of the Jalyukt Shivar Abhiyan. 1<sup>st</sup> phase launched in 2015-16. It is aimed to make Maharashtra a drought-free state & to make 5000 villages free of water scarcity every year. It involves the deepening and widening of streams, construction of cement and earthen stop dams, work on nullahs and digging of farm ponds. A mobile app is developed to map these locations.
5. As per the report by CREA, despite banning or restricting Russian oil imports, European countries are indirectly obtaining oil from Russia through "laundromat countries." This has resulted in a substantial rise in Russian crude oil import volumes for these countries. India, China, Singapore, the U.A.E. and Turkey are named as laundromat countries.
6. India is at "risk and vulnerable" to the ongoing outbreaks of avian influenza (H5N1) worldwide with the threat of mammalian transmission being on the rise as India accounts for one of the largest livestock reserves across the world. World Economic Forum (WEF) warns that the virus poses a risk of mutations and becoming more harmful and there is no vaccine available. In this context, India has now started an animal pandemic preparedness programme.
7. Indian citizens stranded in Sudan are being brought back to India under 'Operation Kaveri', with the Indian Air Force playing a crucial role in the rescue mission. The IAF's special ops capabilities and their deployment of the C-130J aircraft have been instrumental in conducting these daring operations.
8. In a study conducted on sludge from Indian sewage treatment plants finds high potential for use as fertilizer, but it required treatment before it could be used in an unrestricted manner in farms or as a biofuel.
9. "Arth Ganga" is one of the measures under the National Mission for Clean Ganga that aims to "monetise" and reuse treated wastewater and sludge. This involves converting sludge into usable products such as manure and bricks.
10. Indian Air Force will soon kick off a bilateral 'Cope India' exercise with the US Air Force (USAF) at the Kalaikunda airbase in West Bengal. It began in 2004 as a fighter training exercise.
11. Indian Rafale combat aircrafts participated in a multi-national wargame codenamed 'Orion,' which is being hosted by France. The backdrop of this exercise is the ongoing Russia-Ukraine conflict.
12. Calayampudi Radhakrishna Rao, a prominent Indian-American mathematician and statistician, was awarded the 2023 International Prize in Statistics, the equivalent of a Nobel Prize in the field.
13. A-HELP Program is launched in the State of Uttarakhand. It is being run jointly by the Union Ministry of Rural Development and the Ministry of Fisheries, Animal Husbandry and Dairying. It aims to address the healthcare needs of the livestock population in a village.
14. Recently, astronomers have detected a repeating radio signal from the 'YZ Ceti b exoplanet' that suggests the presence of a magnetic field around it. It is a rocky earth-sized exoplanet rotating around a small red dwarf star. It is barely 12 light-years from Earth.
15. Europe's most powerful nuclear reactor (Olkiluoto 3 reactor) kicks off in Finland. It will help Finland to achieve its carbon neutrality targets and increase energy security.
16. Kerala's community palliative care model, driven by volunteers and nurses, is considered a

global exemplar in inclusive care infrastructure. The success of the model highlights the possibilities of public health integration and demonstrates how diverse groups can come together to create effective care infrastructure.

17. In a significant judgement, the Supreme Court has clarified that being a mere member of an unlawful outfit is an offence under the Unlawful Activities (Prevention) Act. Citizens' right to form unions is subject to "reasonable restrictions" in the interest of public order or the sovereignty and integrity of India.
18. Rajasthan, Madhya Pradesh and Uttar Pradesh have begun a joint action to put an end to the illegal sand mining in the National Chambal Sanctuary, situated at the trijunction of these states. The Chambal River which is a tributary of River Yamuna cuts through the mazes of ravines and hills in the sanctuary which is also listed as an "Important Bird and Biodiversity Area" and is also a proposed Ramsar site.
19. Scientists from Germany and the U.S. have built the world's fastest single-shot laser camera – 1,000x faster than its predecessors at capturing extremely short-lived events. They used the camera to view how a hydrocarbon flame produces soot, an important climate pollutant. It uses a technique called laser-sheet compressed ultrafast photography (LS-CUP).
20. On April 5<sup>th</sup>, India celebrated National Maritime Day, which commemorates the maiden voyage of the first Indian commercial vessel, the 'SS Loyalty,' from Mumbai to London in 1919. This year's theme was "Propelling Indian Maritime to Net Zero." It was organized by the Directorate General of Shipping, Ministry of Ports, Shipping and Waterways in Mumbai, highlighting the need for a coordinated and collaborative approach to achieve the net-zero target in the maritime sector.

## TERMS IN NEWS

1. **"Persona non grata":** In diplomacy, a "persona non grata" refers to a foreign diplomat who is asked to be recalled to their home country by their host country. If the person is not recalled as requested, the host state may refuse to recognize the person concerned as a member of the diplomatic mission.
2. **Snowball effect:** According to the World Economic Forum, India witnessing a 'snowball effect'; set to see exponential growth in coming years. When the snowball starts to roll, it gets bigger and bigger, and that is what is happening with the Indian economy – the growth will lead to more investments, and more jobs leading to exponential growth in the coming years.
3. **Mammography** => is an x-ray imaging method used to examine the breast for the early detection of cancer and other breast diseases. It is used as both a diagnostic and screening tool.

## RELEVANT QUOTES

1. "India to awaken the people, it is the woman who must be awakened. Once she is on the move, the family moves, the village moves, the nation moves"- *J.L. Nehru*.
2. "Overcoming poverty is not a gesture of charity, it is an act of justice"- *Nelson Mandela*.
3. "When the Panchayat Raj is established, public opinion will do what violence can never do"- *Mahatma Gandhi*.
4. "The best way to fight terrorism is by fighting the basic needs of humanity i.e., hunger, poverty and education"- *Unknown*.
5. "Ethics and equity and the principles of justice do not change with the calendar"- *D. H. Lawrence*.