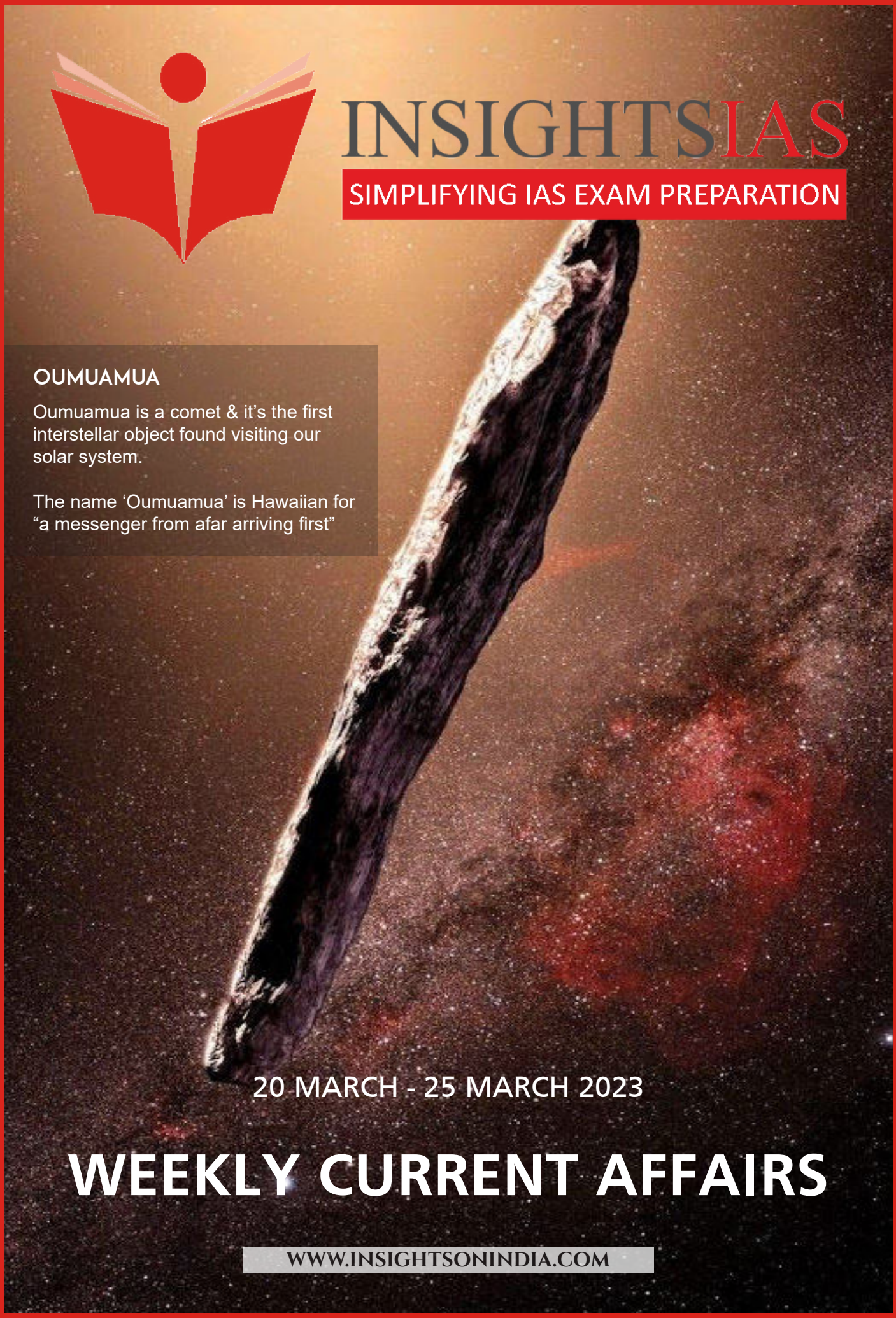
INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION



## OUMUAMUA

Oumuamua is a comet & it's the first interstellar object found visiting our solar system.

The name 'Oumuamua' is Hawaiian for "a messenger from afar arriving first"

20 MARCH - 25 MARCH 2023

# WEEKLY CURRENT AFFAIRS

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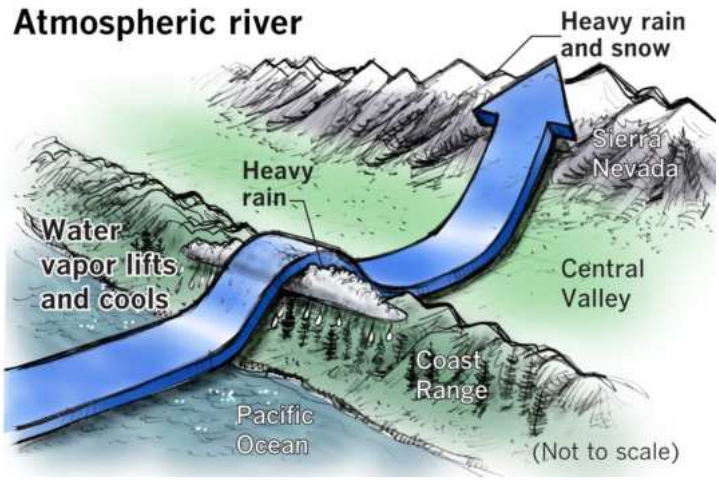


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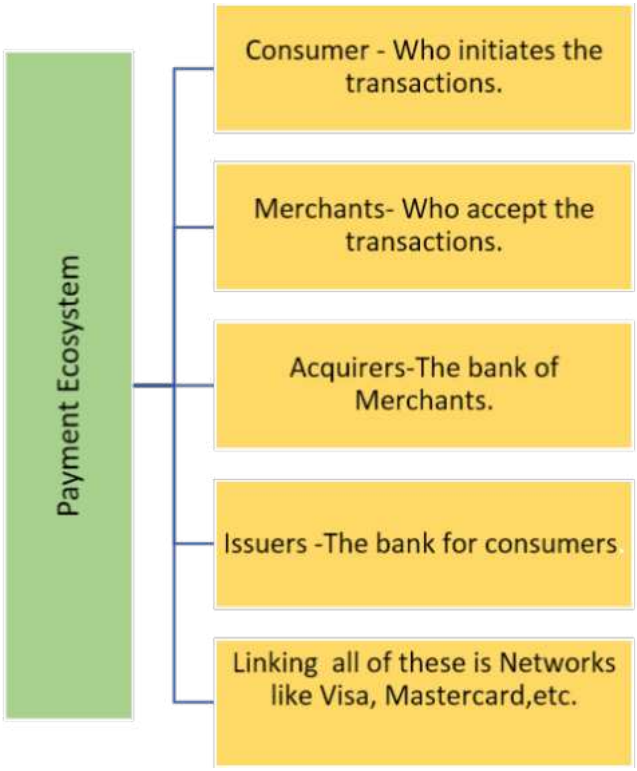


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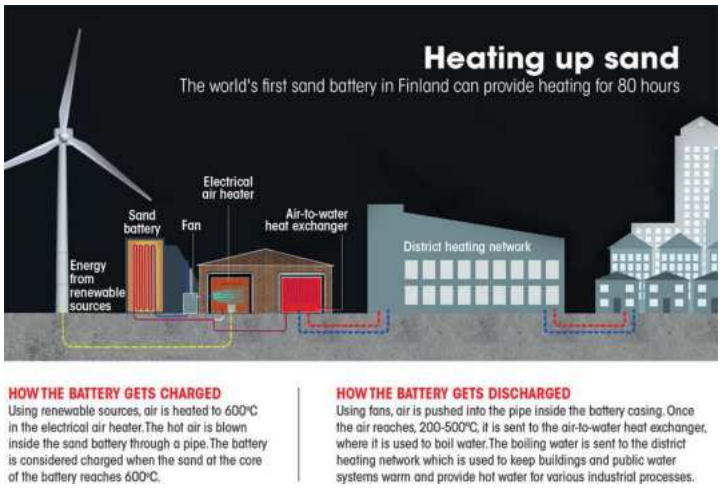



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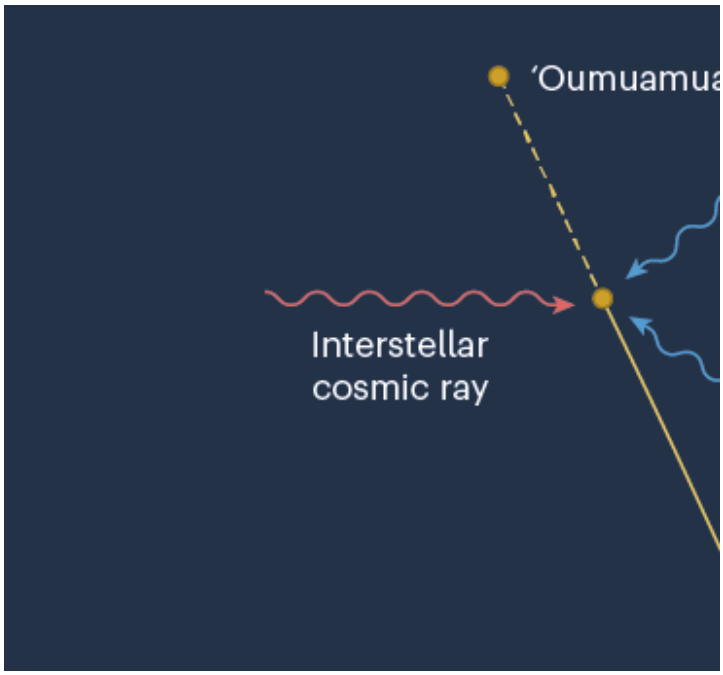



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# GS-1

## GEOPHYSICAL PHENOMENA

## 1. WHAT DO CALIFORNIA'S ATMOSPHERIC RIVERS MEAN FOR DROUGHT, FLOODS, AND FIRES?

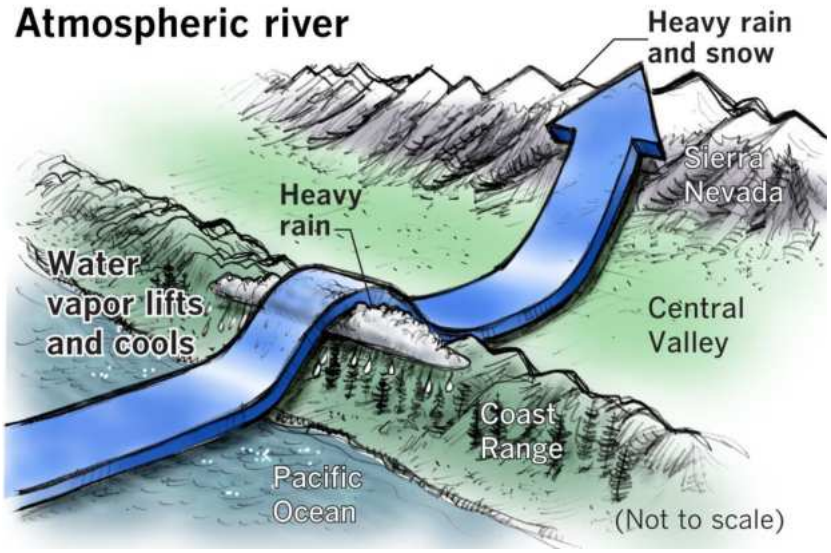
### Context:

California has experienced an exceptionally **wet winter with 11 atmospheric rivers battering the state** and a twelfth such storm **threatening to cause even more flooding, landslides, and road closures.**

- California has received **147% of average rainfall** so far this season, **according to the state Department of Water Resources.**

### About Atmospheric rivers:

- Atmospheric rivers are **vast airborne currents of dense moisture carried aloft for hundreds of miles from the Ocean** and funnelled over **land to fall as bouts of heavy rain and snow.**




### California prone to drought:

- During any **normal 20-year period of the 20th century, about 10 years were wet and 10 years were dry.**
- But in the past 25 years, **only nine years were wet and 16 were dry**, meaning the state needs seven more wet years to recover.
- **Climate change points to future years that are likely to get warmer, exacerbating the increasingly dry climate.**

### How does the rain affect wildfires?

- This winter's bountiful rainfall has already **triggered considerable growth in grasses and scrub that will dry out by summer, leaving a larger, thicker fuel bed for wildfires.**
- The heavy rains can create **dangers around burn scars from previous wildfires**.
- The denuded land becomes susceptible to mudslides.

### Impact on regional climate and people:

- **Heat balance**: They transport huge amounts of water vapour from one place to another which is essential for the transfer of heat and equalizing heat across various latitudes.
- **Precipitation**
- **Climate change**
- **People**:

- **Pros: In dry conditions, atmospheric rivers can replenish water supplies and quench dangerous wildfires.**
- **Cons: In wet conditions, they can cause damaging floods and debris flow, wreaking havoc on local economies.**
- **Visibility is also diminished as these rivers increase haze-fog conditions which harm agriculture and transport.**

## 2. WESTERN DISTURBANCES

### Context:

Recently **large parts of the country experienced hailstorms** which **were also accompanied by torrents of rain**.

- This has led to **extensive damage to standing crops in many states, such as Maharashtra, Rajasthan, and Punjab.**

### Causes for the Rainfall and storms:

- **Multiple** western disturbances (WD), other WD-**associated weather systems, and many troughs, which are extended low-pressure areas, formed due to the interaction of the WDs** and associated systems with winds blowing in from the east, mainly the Bay of Bengal.
- A **warming Arabian Sea could also be responsible**.
- The IMD also cited a **strong subtropical** westerly jet stream, a band of winds that circles the **subtropical regions of the planet in the upper layers of the** troposphere**, as a reason for the storm activity.**
- This was aided by the **incursion of moisture-laden winds from the Bay of Bengal and** the lowering of the freezing level in the atmosphere, which helped in the formation of hail.

### About Western Disturbances:

- Western disturbances are **extra-tropical storms that originate in the Caspian or Mediterranean Sea**, **which is an area of low pressure & bring sudden showers(non-monsoonal), snow, and fog to northwest India.**
- These **travel eastwards on high-altitude westerly jet streams** - massive ribbons of fast winds traversing the earth from west to east.

**Related News: Climate change is causing Western Disturbances to weaken**

**Context:**

Recent studies have shown that the w**arming of the Arctic and the Mediterranean Sea** means **that Western Disturbances are striking India less in winter** and more in summer; with **catastrophic consequences.**

**Reason for weakening Western Disturbances:**

- Climate Change

One of the reasons for the **abnormally hot February was the formation of a high-pressure area near the land surface, which caused the air to descend, compress and heat up.**

**Insta Links:**

RSTV: IN-DEPTH- WESTERN DISTURBANCE

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Time table

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# GS2

## MECHANISMS, LAWS, INSTITUTIONS, AND BODIES CONSTITUTED FOR THE PROTECTION AND BETTERMENT OF THESE VULNERABLE SECTIONS

## 1. INDIA'S STAND ON SAME-SEX MARRIAGE

### Context:

A Bench referred petitions to **legally recognise same-sex marriages to a Constitution Bench of five judges** of the SC.

### What is the case?

- Even if LGBTQIA+ couples may live together, they do not enjoy the rights married couples do.
- **For example,**
  - **They cannot adopt children or have a child by surrogacy;**
  - **They do not have automatic rights to inheritance, maintenance and tax benefits after a partner passes away.**
  - **They cannot avail of benefits like pension or compensation.**
- Multiple petitioners' have requested for **legal recognition of same-sex marriages** under the **Special Marriage Act (SMA) 1954** and making the law **gender-neutral**.

### SC on LGBTQIA+ rights

- **Navtej Singh Johar (2018): decriminalised homosexuality** by reading down Section 377 (IPC). The community is entitled to the benefit of **equal citizenship and to the equal protection of the law.**
  - **Article 21 of the Indian constitution (right to life and liberty) guarantees the freedom to choose one's life partner, the ability to find fulfilment in sexual intimacies, etc.**
- **K.S. Puttaswamy's (2017)** : The fundamental **right to privacy (including bodily autonomy, and sexual orientation)** is intrinsic to life and liberty and thus **integral to Article 21.**

### What is the Centre's stand?

- **Opposed** same-sex marriage
- Opined that **judicial interference will cause complete havoc with the delicate balance of personal laws**.
- The definition of marriage is **socially, culturally, and legally** ingrained into the very idea of the heterogeneous institution (a union between two persons of the **opposite sex**) of marriage.
- The decriminalization of Section 377 IPC does not give rise to a claim to seek recognition for same-sex marriage.
- Even if same-sex marriage is claimed under Article 21, **the right can be curtailed by the competent legislature** on permissible constitutional grounds including **legitimate state interest.**

### Way ahead:

- It is clear that the **two organs of the state are not in agreement** on same-sex marriages.
- The march towards same-sex marriage **in a diverse country with well-entrenched traditions will not be easy.**
- Therefore, raising **awareness of sex, gender, and constitutional rights** from the school level to change things on the ground is the need of the hour.

**Insta Links:**

**SC transfers to itself all pleas related to same-sex marriage**

# SOCIAL JUSTICE- HUMAN DEVELOPMENT

## 2. THE WIDE DISPARITIES IN HUMAN DEVELOPMENT

### Context:

India is now one of the **fastest-growing economies globally**. However, this **growth has not resulted in a corresponding increase in its Human Development Index (HDI).**

### About Human Development Index:

- The HDI is a composite statistical measure created by the **United Nations Development Programme** to **evaluate and compare the level of human development** in different regions around the world.
- It was introduced in **1990 as an alternative to conventional economic measures such as Gross Domestic Product (GDP), which do not consider the broader aspects of human development.**
- The HDI assesses a country's average accomplishment in three aspects:
  - **a long and healthy life**
  - **Knowledge**
  - **Decent standard of living.**

### Human Development Report 2021-22:

- **India ranks 132 out of 191 countries, behind Bangladesh (129) and Sri Lanka (73).**
- The HDI **scores range from 0 to 1**, with **higher values indicating higher levels of human development.**
- The subnational HDI in India: W**hile some states have made considerable progress, others continue to struggle**.
- The **five states with the highest HDI scores are Delhi, Goa, Kerala, Sikkim, and Chandigarh**. Nineteen states are classified as high human development states, while the **bottom five states are Bihar, Uttar Pradesh, Madhya Pradesh, Jharkhand, and Assam, with medium levels of human development.**

### Reasons for the wide disparity:

- **Economic growth** has been **unevenly distributed in India**.
- **Quality of education, healthcare and basic amenities** remain a concern.
- **Not prioritising human development** alongside **economic growth.**

### Way Forward:

- Improving access to **quality social services, and addressing environmental challenges.**
- India must **prioritise investments in human development and job creation**, particularly for its youth.

**Insta Links:**
Human Development Index (HDI).

**Mains Link:**
**Q. Despite the consistent experience of High growth, India still goes with the lowest indicators of human development. Examine the issues that make balanced and inclusive development elusive. UPSC 2019**

**Prelims Links**
**Q. The Multi-Dimensional Poverty Index developed by Oxford Poverty and Human Development Initiative with UNDP support covers which of the following?**

1. Deprivation of education, health, assets and services at the household level
2. Purchasing power parity at the national level
3. The extent of the budget deficit and GDP growth rate at the national level

**Select the correct answer using the codes given below:**
(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3
**Solution: A**

## GOVERNMENT POLICIES/ISSUES RELATING TO HEALTH/ECONOMY

## 3. NATIONAL STRATEGY AND ROADMAP FOR MEDICAL AND WELLNESS TOURISM

### Context:

With an aim to improve **medical tourism** in the country, the Ministry of Tourism has formulated a **National Strategy and Roadmap for Medical and Wellness Tourism (2022).**

### Background:

India has been ranked **10th** in the **Medical Tourism Index (MTI) for 2020-2021 out of 46** destinations in the world by the Medical Tourism Association.

## Medical vs wellness tourism:

- **Medical tourism** (valued at $60-80 billion globally) primarily addresses the "**poor health**" end of the market, with patients travelling to another place for specific medical treatments.
- **Wellness tourism** (valued at $639 billion) attracts those seeking destinations that extend their **wellness lifestyle** and help them proactively maintain and improve their health and well-being.
- As far as medical tourism is concerned, India currently has a **$5-6 billion market** (2019 figure) that may rise to **$13 billion by 2026.**

## Govt. efforts to boost the medical tourism sector in India:

- **Streamlining Medical Value Travel (MVT)**: A segment that attracted **0.7 million foreign tourists** in pre-pandemic 2019.
    - **MVT is a specialised service by Hospitals and Wellness centres**
    - **It includes both modern as well as traditional systems of medicine.**
    - **It involves healthcare service providers, VISA requirements, insurance, MVT facilitators, etc.**

**National Strategy and Roadmap for Medical and Wellness Tourism (2022):**

Key pillars for the development of MVT in the country:

- **Develop a brand** for India as a wellness destination
- **Strengthen the ecosystem** for medical and wellness tourism
- **Enable digitalization** by setting up an **Online Medical Value Travel (MVT) Portal**
- Enhancement of **accessibility** for Medical Value Travel
- **Promoting** Wellness Tourism
- **Governance and Institutional Framework**

## Heal in India Initiative:

The Ministry of Health and Family Welfare and the Ministry of Ayush have been working with C-DAC and the Services Export Promotion Council for developing **a One Step Heal in India portal for the Promotion of MVT.**

- **Champion Service Sector Scheme:** The Ministry of Ayush developed a Central Sector Scheme for MVT to **incentivise private investors** for the establishment of Super Specialty Hospitals, etc.
- **e-Tourist Visa scheme:** It was liberalised and renamed as an e-Visa scheme and at present, it has **e-Medical Visa and e-Medical Attendant Visa** as sub-categories of e-visa.
- **National Medical & Wellness Tourism Board (NMWTB):** The Ministry of Tourism constituted the Board in 2015 to provide a dedicated institutional framework to take forward the cause of promotion of Medical and Wellness Tourism.

| Opportunities | Challenges | Way ahead |
|---|---|---|
| **A huge demand** –<br>• an ageing population<br>• long waiting periods in developed countries, etc | • **Regional competition** (Singapore, Thailand, Malaysia)<br>• Lack of international **accreditation** (limited awareness about **NABH**)<br>• Overseas medical care not covered by the insurer<br>• **Exploitation** by middlemen | • India is currently promoted as a destination under the **"Incredible India"** umbrella.<br>• There is **an urgent need to highlight the wellness/medical tourism offerings** for patients seeking such services.<br>• Establish linkages between stakeholders<br>• **Digitalisation** |

**Insta Links:** Heal in India

# 4. ICMR RELEASES GUIDELINES FOR ARTIFICIAL INTELLIGENCE USE IN THE HEALTH SECTOR

## Context:

The Indian Council of Medical Research (ICMR) has released **Ethical Guidelines for AI in Healthcare and Biomedical Research** to guide the effective, safe development/deployment/adoption of AI-based technologies.

## Background:

- India has a host of frameworks which marry technological advances with healthcare. These include –
  - The Digital Health Authority for leveraging Digital health Technologies under the National Health Policy (2017),
  - The Digital Information Security in Healthcare Act (DISHA) 2018 and
  - The Medical Device Rules, 2017.
- **Artificial Intelligence** (AI) has made inroads into every sector and healthcare is no exception.
- Diagnosis and screening, therapeutics, preventive treatments, clinical decision-making, public health surveillance, etc., are among the recognised applications of AI in healthcare.
- Since AI cannot be held accountable for the decisions it makes, **an ethically sound policy framework is essential to guide AI technology development**.

## Highlights of the guidelines:

| **10 key patient-centric ethical principles** for AI application in the health sector for all stakeholders involved: |
|---|
| Accountability and liability |
| Autonomy |
| Data privacy |
| Collaboration |
| Risk minimisation and safety |
| Accessibility and equity |
| Optimisation of data quality |
| Non-discrimination and fairness |
| Validity |
| Trustworthiness |

- The ethical review process came under the domain of the **ethics committee** which assesses a host of factors including **data source, quality, safety, anonymization**, etc.

## Significance of the guidelines:

- **The autonomy principle ensures human oversight** of the functioning and performance of the AI system.
  - **It is also critical to attain informed consent from the patient on the physical, psychological, and social risks involved.**
- It aims to prevent **unintended or deliberate misuse** and cyber-attacks and mandates a **benefit-risk assessment by an ethical committee**.

- It underlines the importance of **regular internal and external audits** to ensure the optimum functioning of AI systems.
- It acknowledges the widespread availability of appropriate infrastructure and thus aims **to bridge the digital divide.**

### Way ahead:

- **Standard practices** to make the AI-based solutions technically sound, ethically justified, and applicable to a large number of individuals with **equity and fairness**.
- **All the stakeholders should adhere to these guiding principles** to make the technology more useful and acceptable to the users and beneficiaries of the technology.

**Insta Links:** Artificial Intelligence in Pandemics

## 5. THE ROAD TO ENDING TUBERCULOSIS

### Context:

The existing target of **ending tuberculosis (TB) by 2030** lacks implementation and clarity about the definition of "end".

### Background:

- In **1993**, the World Health Organisation (WHO) declared **TB a global health emergency**.
- **Stop TB Partnership** (UN-hosted organisation) takes bold and smart risks to serve the needs and amplify the voices of the people, communities, and countries affected by TB (Met in Varanasi coinciding with World TB Day 2023)
- **The Global Fund to Fight AIDS, TB, and Malaria** (2002) began disbursing money directed toward the global TB epidemic in 2003.

### Current obstacles in the global fight against TB:

- The response has been **short on urgency and long on processes**.
- For example, The Global Fund r**emains hostage to the zero-sum games** imposed by donors and the champions of the three diseases.

### Key areas that remain under-served:

- **Development and wide use of an adult TB vaccine:** The current vaccine is delivered at birth.
- **Getting newer therapeutic agents for TB**.
    - **Moving to an injection-free and shorter all-oral pills regimen for TB (the current standard is for at least six months) will improve compliance and reduce patient fatigue.**
- **The space of diagnostics.** Use of AI-assisted handheld radiology with 90-second reporting and 95% plus accuracy for diagnosing TB.

### Best practices:

- **The COVID-19 vaccine development process** shows what can be done with the help of **collective will and action.**
- India convened the **InDx** diagnostics coalition in Bengaluru for COVID-19.
- **TN-KET (Tamil Nadu Kasanoi Erappila Thittam/TB death-free project)**

# Saving lives by cutting down delay, beginning treatment

**The TN-KET (Tamil Nadu-Kasanoi Erappila Thittam) initiative began in April 2022 in 2,500-odd public healthcare facilities that diagnosed tuberculosis in 30 districts**

- The heart of the initiative is the 'Differentiated TB Care' aimed at assessing whether people with TB need ambulatory care or admission in a health facility to manage severe illness at the time of diagnosis
- Nearly 70% of all TB deaths among notified TB patients take place in the first two months after diagnosis
- Preliminary assessment of patients based on just three conditions was sufficient for quick identification at diagnosis and referral for admission in a hospital
- This resulted in admission of people with severe TB illness in a hospital on the same day of diagnosis, thus increasing the chances of saving lives

**Lacking:** Most PHCs, many taluk and block-level healthcare facilities lack clinical and diagnostic capacity

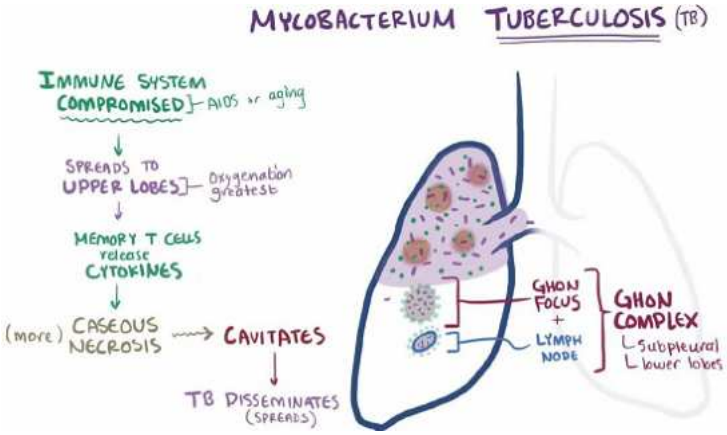
- Around 150 nodal inpatient care facilities have been identified, and nearly 900 beds earmarked for people with TB who are severely ill
- In December 2022, the State achieved 90% triaging of patients, 90% referral and confirmation of severe illness, and 90% admission among confirmed

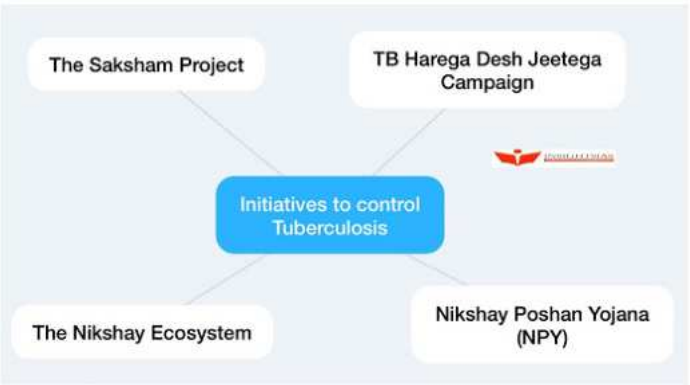
## Way ahead:

- Using **social safety programmes** to address the poverty drivers of the TB epidemic.
- Leveraging the **mobile and computational data revolution** to improve treatment outcomes.

## Conclusion:

- **India's leadership of the G20** and the focus on health could be catalytic, in the same manner, that the Japanese G7 presidency in 2001 was for the creation of the Global Fund.
- Providing historical symmetry, Japan leads the G7 in 2023, **providing leaders of both nations and groupings to act synergistically towards ending TB.**




**Insta Links:** Tuberculosis in India: Road to Elimination

# JUDICIARY

## 6. HIGHER JUDICIARY'S MOVE ON DEATH PENALTY

### Context:

The Supreme Court asked the Centre to **provide data that may point to a more dignified, less painful, and socially acceptable** method of executing prisoners other than death by hanging.

- The Bench has sought **fresh data to substantiate the argument that a more humane means of execution can be found.**

### Death penalty:

- The death penalty, **also known as capital punishment**, is a legal sentence in some countries where a **person is put to death by the state as a punishment for a crime they have committed.**
- **Section 354 (5) of the Code of Criminal Procedure** mandates that a person sentenced to death shall **"be hanged by the neck till he is dead".**

**Table: Pros and Cons of the Death Penalty**

| Pros | Cons |
|---|---|
| Deterrent to crime | Violation of human rights |
| Provides justice for victims and families | Risk of executing innocent people |
| Appropriate punishment for heinous crimes | Irreversible |
| Reduces prison overcrowding and expenses | Discriminatory against marginalized communities |
| Closure for victims and families | The fallibility of the justice system |
| Vengeance for the victims and families | Potential for wrongful convictions and biases |
| Supported by a majority of the public | Can be expensive and time-consuming to execute |

### Judgements/Reports related to death sentences:

- There are two leading judgments on the issue —
  - **Bachan Singh vs the State of Punjab (1980)**
    - **upheld the death penalty,** but limited it to the 'rarest of rare cases'
  - **Deena Dayal vs Union of India and Others (1983):**
    - **upheld the method** by ruling that **hanging is "as painless as possible" and "causes no greater pain than any other known method".**
- The **35th Report of the Law Commission (1967)** noted that **electrocution, the use of a gas chamber and lethal injection** were considered by some to be less painful.

### Centre's stand on death by hanging:

- In its 2018 affidavit, the government argued that **death by hanging was the only "viable" option to execute a death warrant**. However, the **government also sought additional time to examine the methods followed in other countries.**

### What is the practice in other countries?

- According to Amnesty International**, 55 countries around the world have the death sentence on the books**.
- In the United States, an **intravenous lethal injection is given in every state (27 states and American Samoa) that allows the death penalty.**
- **Execution by firing squad is employed in China and Saudi Arabia** uses beheading apart from other methods.

**Insta Links:** Death Penalty

**Mains Link:**

**Q. Instances of President's delay in commuting death sentences have come under public debate as denial of justice. Should there be a time limit specified for the President to accept/reject such petitions? Analyse. UPSC 2014**

# FUNCTIONING OF INDIAN DEMOCRACY

## 7. INDIA'S DEMOCRATIC VALUES HAVE ERODED SIGNIFICANTLY

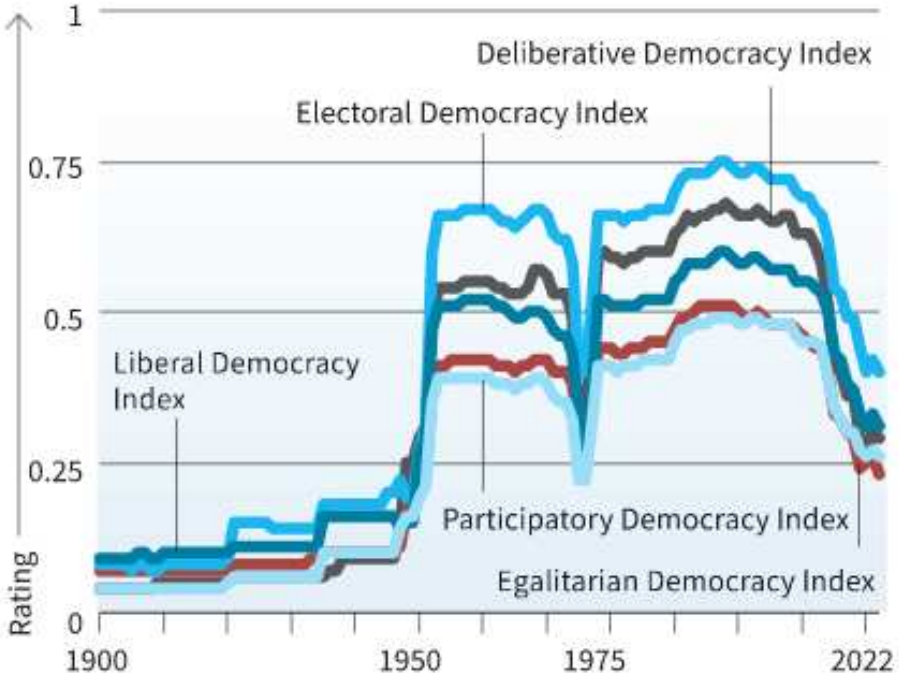
### Context:

The question of whether or not India's democratic values have declined in recent years has been debated at the University of Cambridge.

### Data on democratic values in India:

By the Sweden-based V-Dem (Varieties of Democracy) Institute –

| | |
|---|---|
| **The deliberative democracy index** | It measures whether political decisions are made through public reasoning or emotional appeals and coercion. |
| **The egalitarian democracy index** | It examines equal access to rights and liberties. |
| **The electoral democracy index** | It evaluates election cleanliness and lack of fraud |
| **The liberal democracy index:** | It measures the protection of individual and minority rights against state tyranny. |
| **The participatory democracy index** | It measures active citizen engagement in electoral and non-electoral political processes. |
| The values of these indexes have been declining, and **in 2022 they reached the levels last seen during the 1975 Emergency.** | |



## Some incidents depicting declining democratic values in India:

- The arrest of citizens for posting online content critical of the government.
- The shutdown of domestic access to the Internet.
- The government **censored** political information on the Internet.
- Allegations of the government using **social media to disseminate misleading/false information** to influence the population.
- Harassment of journalists.

## Analysing Indian Democracy:

| Strengths | Challenges | Conclusion |
|---|---|---|
| • Indian political system - **Parliamentary** form of govt.<br>• **Largest democracy** - A government **of** the people, **for** the people, and **by the people.**<br>• Indirect, direct (**participatory** - Gram Sabha) democracy<br>• Free and fair **elections**.<br>• **Independent judiciary** - checks executive exigencies<br>• **Upholding democratic values** - fundamental beliefs and Constitutional principles - liberty, justice, voting, right to life and minority rights, inclusiveness, and equality, etc. | • **Caste system** - a hierarchical social structure<br>• Level of **inequality** - income, class structure, lack of sustained-inclusive economic development<br>• **Degree of ethnic diversity** - Nationalism and populism scapegoating religious minorities<br>• **Overburdened legal system**<br>• The criminalisation of politics.<br>• Corruption | • India's record as an **electoral democracy** is far better than its record as a **liberal democracy.**<br>• India's **democratic longevity** depends on **power elites** (politicians).<br>• As long as **Power remains diffused** (not monopolized by one political party/office) democratic longevity can be ensured.<br>• For successful working of democracy, **citizens' participation is a must**.<br>• The **corrective measure**s to meet the challenges can be actualized **only when citizens play a proactive role.** |

**Insta Links:** India's democracy, diminished and declining

**Mains Links:**

**Q. To enhance the quality of democracy in India the Election Commission of India has proposed electoral reforms in 2016. What are the suggested reforms and how far are they significant to make democracy successful? (UPSC 2017)**

**Prelims Links: UPSC 2021**

Which of the following factors constitutes the best safeguard of liberty in a liberal democracy?

1. A committed judiciary
2. Centralization of powers
3. Elected government
4. Separation of powers

**Ans: 4**

# STATUTORY, REGULATORY AND VARIOUS QUASI-JUDICIAL BODIES

## 8. NEW LAW TO DEFINE POWER, FUNCTIONS OF CBI

### Context:

According to a Parliamentary Committee, existing law governing the Central Bureau of Investigation (CBI) has many limitations and there is a need to enact new legislation to define its status, functions, and powers.

### Background:

- The CBI was established in **1963** (**Santhanam Committee on Prevention of Corruption**) and is governed by the **Delhi Special Police Establishment (DSPE) Act, 1946**.
- According to the DSPE Act, **the consent of the State government is a prerequisite for any investigation by the CBI.**
- As of date, **9 States have withdrawn** the general consent.

### Issues faced by the CBI:

| Issue | Explanation |
|---|---|
| **A caged parrot** | For instance, to prosecute any MLA/state minister, the CBI needs sanction from the Speaker of the state Assembly (for MLAs)/ the Governor (for state ministers).<br>• Since all these sanctioning authorities have links to the ruling dispensation, Opposition parties feel they are unfairly targeted. |
| **Structural constraints** | Both the legal structure and the changes made in the Rules governing CBI have hindered the functioning of the CBI. |
| **Political tug-of-war** | Increasingly hostile relations between the Centre and the state governments (usually ruled by opposition parties). |
| **Inadequate manpower** | 1,709 posts are vacant against its sanctioned strength of 7,295 → impacting the **effectiveness and efficiency of the agency.** |
| **Opaqueness** | The details of the cases and the annual report CBI is also not accessible to the general public. |

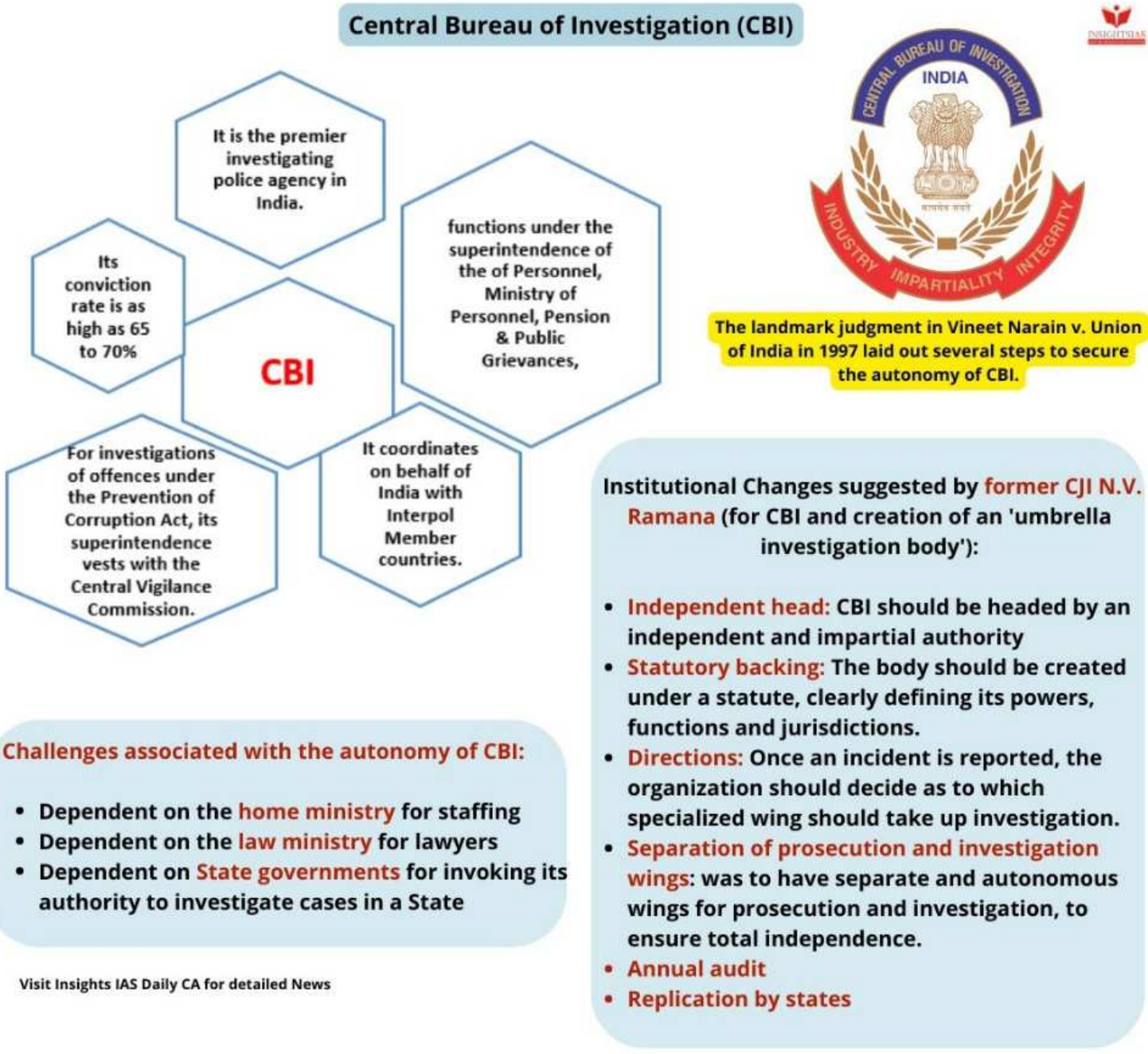
### Efforts to reform the institution:

- In the landmark **1997 Vineet Narain judgement**, the SC fixed the tenure of the CBI Director at **two years** to secure the autonomy of the CBI.
- The Central Vigilance Commission (CVC) - supervision powers over CBI - has been given **statutory** status (CVC Act, 2003).
- The Lokpal Act 2013, laid down that the CBI Director should be chosen, unanimously or by majority vote, by a search committee headed by the PM (LoP, CJI as other members), from a Home Ministry-drawn list.
- However, **these reforms have been progressively diluted** by various governments over the years.
    - **For example, the DSPE Act has been amended (2021) to give the government the power to ex-**

**tend the term of CBI director by one year - diluting autonomy.**

## Recommendations of the parliamentary committee:

- **A new law** (also recommended by the 2nd ARC) to define the status, functions, and powers of the CBI → safeguards to ensure **objectivity and impartiality**.
- **Fill up vacancies at the earliest. The CBI director should monitor** the progress in this regard on a quarterly basis.
- **Reduce dependence on deputations** and strive to recruit **permanent staff** in the ranks of inspector of police and DSP.
- **Details of cases should be available in the public domain** → empower the citizens → make the functioning of CBI more accountable, responsible, efficient, and transparent.




**Insta Links:** Freeing the caged parrot

# BILATERAL RELATIONS

## 9. INDIA-JAPAN RELATIONS

### Context:

Japan's Prime Minister recently visited India

### Major Initiatives announced during the visit:

- **Free and Open Indo-Pacific (FOIP): It is aimed at curbing China's growing assertiveness** in the Indo-Pacific region.
- **The key initiatives** of the strategy include **promoting respect for sovereignty and territorial integrity,** opposing unilateral changes by China through force, and improving cooperation to address global challenges.
  - **Japan will focus on Southeast Asia, South Asia (particularly Northeast India), and the Pacific Islands.**
  - **It will promote the Bay of Bengal-Northeast India industrial value chain concept**
  - **It will assist in developing maritime law enforcement capabilities of countries to free oceans from geopolitical risks.**
  - **Japan's concept of FOIP is complementary to India's concept of the Indo-Pacific Oceans Initiative (IPOI)**
  - **India and Japan will assume the presidencies of G20 and G7 this year respectively.**

### Other major dimensions of India-Japan Relations are:

| Dimensions of India-Japan Relations | Examples |
|---|---|
| **Shared values** | • Democracy, Freedom, and Rule of Law |
| **Defence and Security Cooperation** | • **India and Japan Vision 2025:** To work together for peace and prosperity in the Indo-Pacific region and the world.<br>• Relationship elevated to **Special Strategic and Global Partnership** (2014)<br>• **"2+2" Dialogue**<br>• **Acquisition and Cross-Servicing Agreement** with India<br>• **Inclusive and Rule-based international order** in Indo-pacific<br>• **FOIP (see description above)**<br>• **Military exercise:** Dharma Guardian (army), Veer Guardian (Air Force), MILAN, JIMEX (Navy) and Malabar respectively. |
| **Strengthening India's Act East Policy** | • Japan is supporting strategic connectivity **linking South Asia to Southeast Asia** through the synergy between the **"Act East" policy and "Partnership for Quality Infrastructure."** |
| **Economic Cooperation** | • Japanese help during **India's BOP crisis** in 1991.<br>• **Bilateral trade:** Over US $ 20 billion (2022)<br>• **Comprehensive and Economic Partnership Agreement** (CEPA) since 2011<br>• **Industries Competitiveness** Partnership<br>• Japan was the **4th largest investor** in India in FY2020. |
| **Culture** | • **Buddhism**<br>• **Healthcare:** Narrative of AHWIN (Japan's) for AYUSHMAN Bharat |

| | |
|---|---|
| **Investment and ODA** | • India has been the **largest recipient of the Japanese Official Development Assistance (ODA)** Loan for the past decades. E.g., Delhi Metro, Western Dedicated Freight Corridor (DFC) and High-Speed Railways in India |
| **Global Partnership** | • Both are members of **G4, Asia-Africa Growth Corridor**, Supply chain resilience initiatives, QUAD |
| **Space** | • **LUPEX Mission** (India's lunar lander and Japanese rover will explore the moon) |
| **Nuclear Cooperation** | • **India-Japan Nuclear Deal 2016** will help India **build the six nuclear reactors** in southern India |
| **Digital Infrastructure Cooperation** | • Cooperation in promoting joint projects for digital transformation in various fields like 5G, Open RAN, Telecom Network Security, submarine cable systems, and Quantum Communications. |
| **Challenges** | • **Climate change and WTO talks** ( Japan siding with developed countries); Japan's frosty relations with Russia (Kuril Island dispute) |
| **Conclusion** | Relations between two power can greatly support stability in the world. Also, Japan can help in India's rise e.g. India's quest to become **a global semiconductor Chip Manufacturing hub** |

**Insta Links:** 70 YEARS OF INDIA-JAPAN TIES

**Mains Links:**

**Q. The India-Japan relationship is facing challenges due to the changing global geopolitical scenario. Analyse the challenges and suggest measures to address them. (250 Words)**

**Prelims Links**

**Q. Consider the following countries: (UPSC 2018)**

1. Australia
2. Canada
3. China
4. India
5. Japan
6. USA

**Which of the above are among the 'free-trade partners' of ASEAN?**

(a) 1, 2, 4 and 5
(b) 3, 4, 5 and 6
(c) 1, 3, 4 and 5
(d) 2, 3, 4 and 6

**Ans: C**

# GOVERNMENT POLICIES AND INTERVENTIONS FOR DEVELOPMENT IN VARIOUS SECTORS AND ISSUES ARISING OUT OF THEIR DESIGN AND IMPLEMENTATION

## 10. ONLINE GAMING: A CHANGING SCENARIO ON THE CARDS

### What is Online gaming?

It refers to **video games/mobile games** that are played over the internet through various devices. E.g., multiplayer online battle arena (MOBA) games, first-person shooter (FPS) games, massively multiplayer online role-playing games (MMORPGs), and many others.

### Types of online gaming:

1. e-sports (well-organized electronic sports which include professional players),
2. Fantasy sports
3. Casual games: these can be either skill-based (mental skill) or chance based (based on a random activity like a roll of a dice) online games.

### Differences between 'games of skill' and 'games of chance':

| | Game of Skill | Game of Chance |
|---|---|---|
| **Definition** | A game where the outcome is primarily determined by the skill of the players | A game where the outcome is primarily determined by luck or chance |
| **Examples** | Chess, poker, sports | Slot machines, roulette, lottery |
| **Strategy** | Strategies and tactics can be used to improve one's chances of winning | No strategy can guarantee a win |
| **Probability of winning** | It depends on the player's skill level | Determined by random events |
| **Legal Status** | Generally legal in most countries including India | Regulated or prohibited in many countries. Mostly banned in India except, in a few states e.g., Casinos are allowed in Goa, Daman and Diu, and Sikkim. |

### Issues with online gaming

| Issues with Online Gaming | Description |
|---|---|
| **Addiction** | Online gaming addiction can lead to **physical and psychological harm**, as well as interfere with daily life activities.<br>**Gambling addiction:** Online gambling games can lead to **addiction and financial problems.** |
| **Cyberbullying** | Online gaming can involve **communication with other players through chat or voice features**, which can lead to cyberbullying and harassment. |
| **Security risks** | Online gaming platforms are at **risk of cyber-attacks and data breaches**, which can result in compromised personal and financial information. |

| | |
|---|---|
| **Inappropriate content** | It can **contain violent, sexual, or other inappropriate** content that is not suitable for all ages. |
| **Ethical Concerns** | It can **perpetuate negative stereotypes and biases, particularly towards marginalized groups**; In-game purchases can lead to overspending or **exploiting vulnerable individuals** |
| **Cheating and hacking** | It can be prone to cheating and hacking, which can ruin the gameplay experience for others. |
| **Physical and health issues** | Long periods of sitting and staring at a screen can cause physical health problems such as eyestrain, back pain, and carpal tunnel syndrome. |
| **Social isolation** | Excessive online gaming can lead to social isolation and a lack of face-to-face communication with others. |

**Ministry of Electronics and IT (MeitY)** has released the Draft Rules for Online Gaming (as an amendment to the **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021)**

| Provisions of the Draft Rules | Description |
|---|---|
| **Self-Regulatory Body** | • Online gaming companies **must register with a self-regulatory body**.<br>• The body must have a **board of directors with five members** from diverse fields, including online gaming, public policy, IT, psychology, and medicine. |
| **Due Diligence** | Online gaming companies **must undertake additional due diligence, including KYC of users, transparent withdrawal** and refund of money, and a fair distribution of winnings. |
| **Random Number Generation Certificate** | Gaming companies must secure a **Random Number Generation Certificate,** which is typically used by platforms that offer card games to ensure that game outputs are **statistically random and unpredictable.** |
| **Restrictions on Betting** | Online gaming companies **will not be allowed** to engage in betting on the outcome of games. |
| **Compliance** | Online gaming platforms **must appoint a compliance officer, a nodal officer, and a grievance officer.** |

## Other regulations:

- **State subject**: Online gaming so far has been a state subject, but state governments are finding it **extremely difficult to enforce certain rules like geo-blocking certain apps** or websites within the territory of their state.
- **Tamil Nadu Prohibition of Online Gambling and Regulation of Online Games Bill, 2022** prohibits all forms of online gambling and allows for the regulation of online games that are not considered gambling.
    - **The bill prohibits minors from participating in online games and prohibits the promotion of online gambling and gaming through advertising or other means.**
- **Karnataka government** had previously banned all forms of online gaming where the transfer of money is involved
- **GST:** A proposed 28% Goods and Services Tax that may soon be imposed on deposits
- **The Puducherry government** will ban online gaming soon

## Way forward:

**Clear and consistent regulations, responsible gaming measures, industry self-regulation, public awareness campaigns, and collaboration** between industry and government can all help to create a sustainable and responsible online gaming industry in India.

## Conclusion:

The online gaming industry in India can continue to grow and provide entertainment and employment opportunities while also protecting players and promoting responsible gaming practices.

**Insta Links:** Online gaming

**Mains Links:**

**Q. "Internet gaming has turned worse than drugs". Do you agree? Critically examine the statement in light of the announcement made by the World Health Organization (WHO) to include "gaming disorder" as a mental health condition. (250 words)**

**Q. How does gaming addiction, impact children? Do you think China's recent imposition of a three-hour limit on gaming, is a good way to tackle it? (150 words)**

# 11. GENDER EQUITY IN DIGITAL INDIA

## Context:

Addressing India's digital gender divide will enable the Indian economy to achieve more **inclusive growth** in the long term.

## Data related to India's digital gender divide:

- **National Family Health Survey (2019-21): One in three** women in India **(33%)** have ever used the internet, compared to more than half (57%) of men [Rural India - 49% vs 25%].

## Gendered barriers that need to be addressed:

| Issue | Explanation of the Issue | Solution |
|---|---|---|
| **Lack of access** | Low levels of infrastructure, coverage, and smartphone penetration → gender inequality → low access to digital devices and services. | **Bridging the access gap** (especially in rural areas) by:<br>• Enabling smartphone and internet access through wider connectivity and penetration in rural areas, |
| **Digital illiteracy** | Inequality in functional literacy → Overall 59% of women between 15-49 years have not completed 10 or more years of schooling → **often cannot make optimum use of smartphones**. | **Digital education** would help this large cohort leapfrog the traditional development gender divide. |
| **Cyber safety and security** | Women may be **more vulnerable to online harassment, cyberbullying and cyberstalking** → which in turn widens the digital divide. | **Raise Awareness, Develop Responsible Technology & a gender-responsive digital sensitisation** curriculum for our police and the judicial system |

### Areas that can play a catalytic role in bridging the gender digital divide:

- **Designing digital solutions by involving women to advance gender equity will enhance adoption.**
- **Digital literacy and capacity building to increase** employability → higher earning, and economic opportunities.
- **Responsible technology:** Protecting user privacy and data must be a top priority

### The Indian government's Initiatives in this direction:

- PM Gramin Digital Saksharta Abhiyan under the vision of Digital India.
- The National Digital Library for children and adolescents to ensure equitable access to quality education and improve digital literacy levels.
- **The 'Stay Safe Online' campaign** by MeitY, conceptualised as part of India's G20 presidency, will prioritize awareness creation.

### Way ahead:

India is home to the **largest number of women in the world** → opportunities for women to contribute, participate and innovate in this ever-expanding and dynamic digital ethos.

### Conclusion:

- With its position at the G20's helm and drive towards a **trillion-dollar-plus digital economy**, the country has its building blocks in place to be **at the forefront of the next digital revolution.**
- With the stage set for a **transformative** and gender-equal digital revolution , India must take advantage of the **mutually reinforcing forces of socioeconomic and digital empowerment.**

**Insta Links:** The importance of women-led digital solutions

## 12. 'PRESS MUST REMAIN FREE IF A COUNTRY IS TO REMAIN A DEMOCRACY': CJI CHANDRACHUD

### Context:

The article is taken from a recent speech of the Chief Justice of India at the 16th Ramnath Goenka Excellence in Journalism Awards

### India's Ranking in Freedom of Press:

- India ranked **150th among the 180 countries** in World Press Freedom Index 2022 published by Reporters Without Borders (RSF).

### Importance of Media:

| Importance | Explanation |
|---|---|
| **Spreading Information** | Media has the ability to **disseminate information rapidly and efficiently** to the masses, providing access to news and current events across the globe.<br><br>E.g: Coverage of the elections by news channels and newspapers |

| | |
|---|---|
| **Promoting Debate and Discussion** | It **raises important issues and encourages debate and discussion**, which are essential for a functioning democracy.<br><br>E.g.: Coverage of topics like **climate change and human rights** violations, #MeToo movement |
| **Accountability** | The media acts as a **watchdog by monitoring the actions** of those in power and holding them **accountable** for their actions. |
| **Importance for democracy** | It's the **fourth pillar of the State** and an integral component of democracy. |
| **Voice of the common man** | **Local or community-based journalism** has played an important role in encouraging **social cohesion and political activism**. |
| **Formation of Public Opinion** | The media has the ability to **shape public opinion by providing information** and analysis on important issues. |
| **Education and Awareness** | It plays a crucial role in **educating people on a variety of subjects,** from science and technology to health and wellness. |
| **Social media** | It has provided opportunities for **individuals to launch their own online media channels.** Online platforms have led to the **democratisation of the media**. |

## Challenges faced by Media:

| | Challenge | Example |
|---|---|---|
| **Economic** | **Decreasing revenue** and the decline of traditional business models | **Print media struggling** to stay afloat due to decreasing advertising revenue |
| **Political** | Censorship, government control, and repression | The **Chinese government's strict control** over the media in China |
| **Technological** | The rise of **fake news** and the erosion of trust in the media | The spread of **misinformation during the 2016 U.S.** Presidential elections |
| **Ethical** | **Paid news, Biased Media,** Maintaining objectivity, and conflicts of interest | **A journalist accepting a bribe** from a source in exchange for positive coverage |
| **Crimes against journalists** | India is also **one of the world's most dangerous countries** for media persons (World Freedom Index 2022) | E.g. murder of journalist and activist **Gauri Lankesh (2017),** Subhash Kumar Mahto (Bihar, 2022) |

## Provisions available for 'Freedom of Press':

- **Constitutional Provisions: Article 19(1)(a) of the Constitution** guarantees the right to freedom of speech and expression. However, this **right is not absolute and is subject to reasonable restrictions** under **Article 19(2).**
- **Supreme Court in Romesh Thappar v. State of Madras** (1950) observed that freedom of the press lay at the foundation of all democratic organisations.
- **World Press Freedom Day** (3rd May) by the UN
- **Windhoek Declaration (adopted by UNESCO)** aimed towards the '**development of a free, independent, and pluralistic press'**

## Ways to Ensure robust Media and Freedom of the Press:

| | Examples |
|---|---|
| **Protection of Journalists** | Especially in conflict areas, and providing legal assistance in case of attacks or threats to their lives. |

| | |
|---|---|
| **Media Literacy** | Educating the **general public about media literacy** and how to distinguish between fake news and credible news sources. |
| **Fact-Checking Mechanism** | For example, the **International Fact-Checking Network (IFCN)** certifies fact-checking organizations that follow a specific code of principles. |
| **Transparency** | Ensuring **transparency in media ownership and funding** sources to maintain editorial independence. |
| **Diversity and Inclusion** | **Promoting diversity and inclusion in newsroom culture** and ensuring that their news content reflects **diverse perspectives.** |
| **Legal Protection** | Providing legal protection to the media **against defamation suits and other legal actions that** may impede their work. |
| **Protection of Sources** | For example, the Whistle-blower Protection Act in the US protects the identity of whistle-blowers. |
| **Public Accountability** | For example, the **press councils of India and ombudsmen** |

## Conclusion:

**Free and robust media is essential for the functioning of a healthy democracy**. It is important for journalists and media institutions to maintain their **neutrality, fact-check news items, and ensure diversity** in their newsroom culture.

**Insta Link:**

- Challenges to Press
- Media raids and breaking the silence on press freedom

**Mains Links:**

**Q. India's poor ranking on Press Freedom Index reflects the growing threat to freedom of the press. Examine. (250 words)**

# 13. NATIONAL SECURITY ACT

## Context:

**National Security Act** has been invoked in the **case of self-styled Sikh preacher and on-the-run Waris Punjab De chief Amritpal Singh.**

## About National Security Act, 1980:

- NSA **"empowers the state to detain a person without a formal charge and without trial".**
- A person is taken into custody to **prevent them** from acting in any manner prejudicial to **"the security of the state" or for "maintenance of the public order".**
- It is an **administrative order passed either by the Divisional Commissioner or the District Magistrate (DM).**
- Even if a person is in **police custody, the District Magistrate can slap NSA against them**.
- Or, if a person has been **granted bail by a trial court, they can be immediately detained under the NSA**.
- If the person has been **acquitted by the court, the same person can be detained under the NSA.**
- The law t**akes away an individual's constitutional right to be produced before the magistrate within 24 hour**s.
- **The detained person also does not have the right to move a bail application before a criminal court.**
- An individual can be detained **without a charge for a maximum period of 12 months**.

## What are the grounds for detention?

- To **prevent a person from acting in any manner prejudicial to the defence of India,** relations of India with foreign powers or the security of India.
- To **prevent a person from acting in any manner prejudicial to the maintenance of supplies and services essential to the community.**
- Protection available under the Act:
- The Indian Constitution **allows both preventive detention and the right of protection against arrest and detention in certain cases,** enshrined under **Article 22** of the Constitution.
- However, **Article 22(3)** provides that **the rights available to an arrested person will not be applicable in case of preventive detention.**
- **Article 22(5)** provides **the only procedural safe-**

**guard where** all the **detained persons have the right to make an effective representation before an independent advisory board,** which consists of three members; and the board is chaired by a member who is, or has been, a judge of a high court.

**Insta Links:** National Security Act, 1980

**Mains Link:**

The scourge of terrorism is a grave challenge to national security. What solutions do you suggest to curb this growing menace? What are the major sources of terrorist funding? **UPSC 2017**

*Your Daily & Weekly Plan during SUPER OGP 2024*

| | |
|---|---|
| STUDY | A day before the class, we will give you the syllabus to study: chapters & sources. You must study and come to the class. |
| CLASSES | The next day, the teacher will conduct the class on that particular syllabus. |
| PRACTICE | After the class, there will be a prelims & mains test (5-10 MCQs + 1 Mains question) based on topics taught. This will be a home assignment. |
| DISCUSSION | Our teachers will discuss the answers in the class the next day. This will quell your doubts and help you gain conceptual clarity. |
| REVISION | After the class, students should discuss and revise the day's class for one hour in a group. This will be compulsory. |
| STUDY GROUPS | Groups will be formed based on common optional subjects. |
| STUDY | After group discussion, you will proceed to prepare for the next class and tests. |
| CURRENT AFFAIRS CLASSES | Will be conducted on a weekly basis every Saturday. |
| SECURE | Value-added material from our Mains Answer-Writing initiative: SECURE will be provided on Saturdays. You will write a minimum of 2 answers from our SECURE initiative daily. |
| WEEKLY FULL-LENGTH IRPM (INTEGRATED REVISION PRELIMS CUM MAINS) TESTS | The IRPM Full-length Tests will be conducted every week on Sundays. |
| WEEKLY ESSAY TESTS | Essay FLTs will be conducted on alternate Saturdays. |
| WEEKLY ETHICS TESTS | Ethics Tests will be conducted on alternate Saturdays. |
| CURRENT AFFAIRS TESTS | CA FLTs will be conducted after each subject is completed. |
| STUDY BREAKS | We will give nearly a week's break after each subject is completed. This will enable you to revise the subject fully. |

# GS3

## BANKING/FINANCIAL INCLUSION

## 1. INDIA'S DIGITAL PAYMENT REVOLUTION: AN INSPIRATION TO THE WORLD

### Context:

In January this year, about **eight billion (800 crores) transactions worth nearly $200 billion** (Rs. 2 lakh crores approximately) were carried out on the Unified Payment Interface **(UPI)**

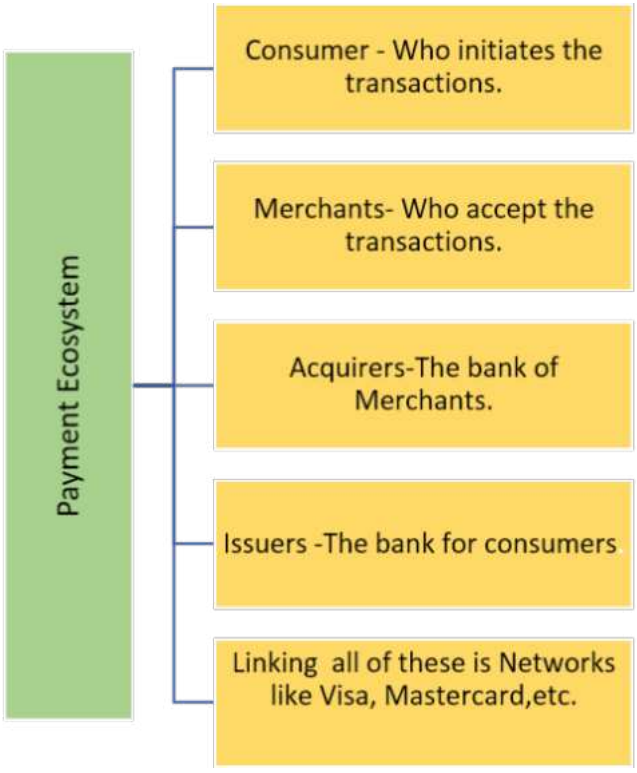
### What is Digital Payment System?

A digital payment (or an electronic payment), is the transfer of value from one payment account to another using a digital device such as a mobile phone, POS (Point of Sales) or computer.

### Modes of Digital Payments:

- Unified Payments Interface (UPI)
- Bharat Interface for Money (BHIM)
- UPI 123PAY
- UPI Lite
- Cards (including RuPay Debit Cards)
- Immediate Payment Services (IMPS)
- Aadhaar Enabled Payment System (AePS)

### Components of Digital Payment Ecosystem:




### Status of Digital payments in India:

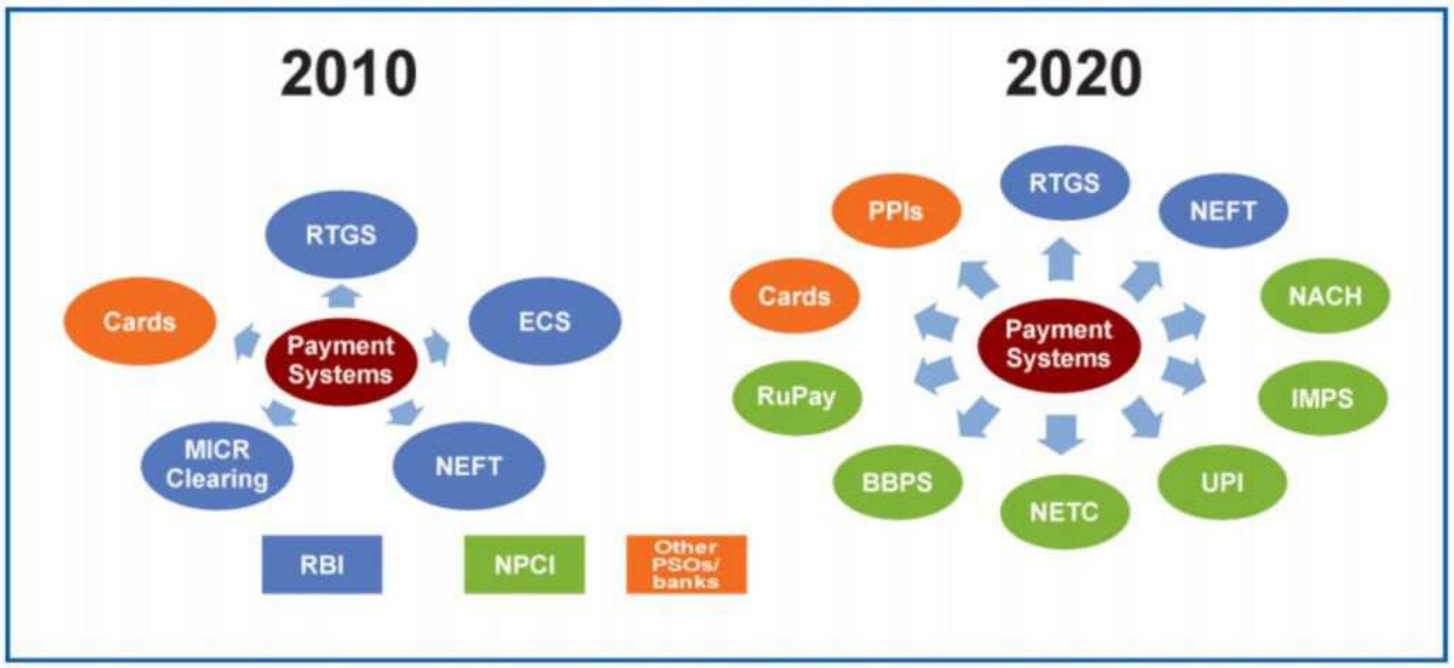
- **40% of all payments** done are digital
- **Nearly 50 per cent** of them are classified as **small or micropayments**
- **The value of instant digital transactions** in 2022 was **four times more** than the combined transactions in the United States, Britain, Germany, and France together.

### Tools used for Digital Payment ecosystem:

- JAM trinity
  - **Jan Dhan Accounts: As of 2022, over 46 crore bank accounts have been opened, with 56% belonging to women and 67% opened in rural and semi-urban areas**
  - **Aadhar: Today 99% of adults have a biometric identification number.**
  - **Mobile: The cost of data dropped by 95% since 2016.**
  - **JAM Trinity has catapulted verticals such as e-commerce, food delivery, and OTT content to take off in India.**
- Unified Payments Interface **(UPI)** is a public-private partnership (PPP) that the National Payments Corporation of India (NPCI) led with an interoperable platform to facilitates direct payments linked to a bank

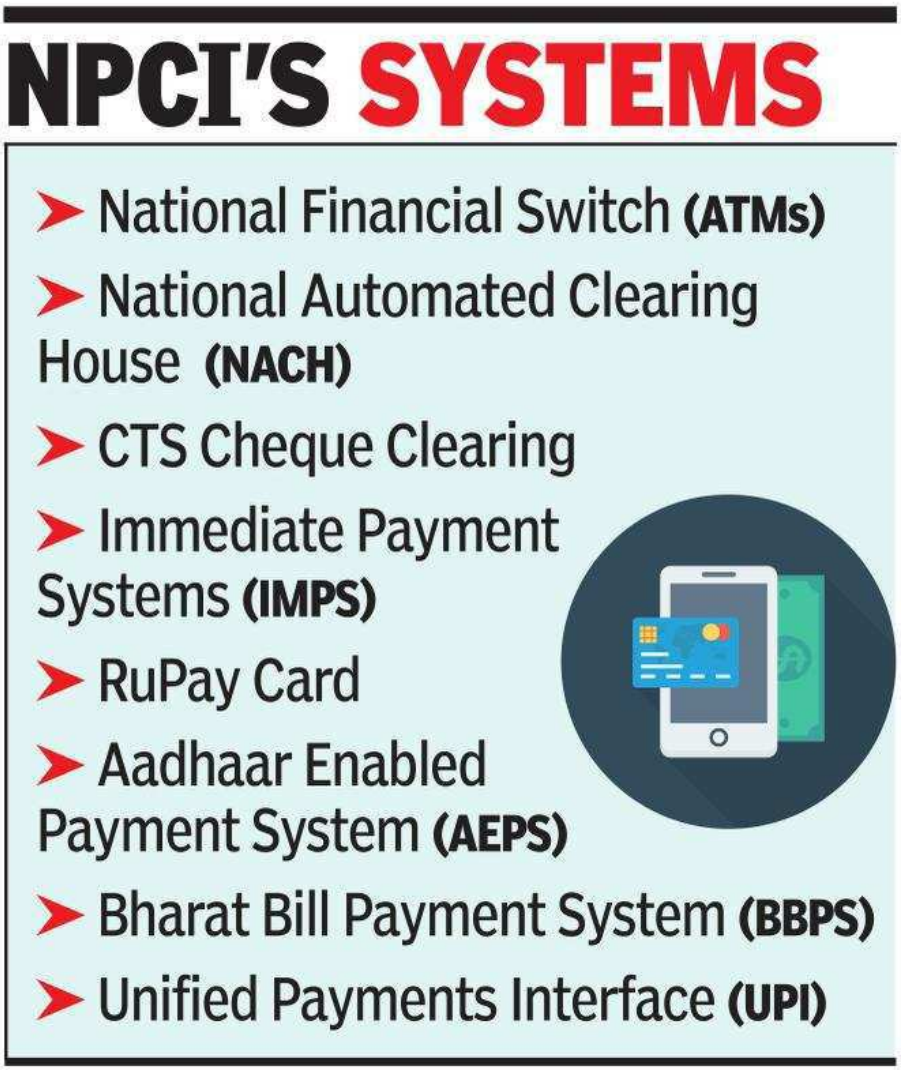
account.

- **An advanced version of Immediate Payment Service (IMPS), UPI manages multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.**




## Significance:

- **Made daily life** more convenient
- **Financial Inclusion:** Expanded banking services like credit and savings to millions more.
- **Last mile access**: Extended the reach of government programs and tax collection
- **Encouraged entrepreneurship** in innovation segment
- **The significant behavioural shift** from a cash-driven economy.



### Comparison of the digital evolution of America, China, and India:

| Country | Digital Evolution | Key Approach | Key Companies |
|---|---|---|---|
| **America** | Broad adoption of the internet and digital technologies across industries. | Ecosystem play, focusing on core assets and capabilities and continuously investing in them. | Amazon |
| **China** | Adoption of **mobile-first digital platforms l**ed by payments, resulting in the emergence of **super apps.** | A focus on core capabilities and the aggregation of multiple services around payments. | Alibaba, Tencent, WeChat, Alipay |
| **India** | Growth in internet access and smartphone penetration led by **public-private partnerships in telecoms.** | Ecosystem play, with a focus on developing moats by investing in adjacencies. | Reliance Jio, National Payments Corporation of India (NPCI), Aadhar |

### Acceptance across the world

- Indian digital payment systems are available in **Singapore, UAE, Oman, Saudi Arabia, Malaysia, France, and BENELUX markets – Belgium, the Netherlands and Luxembourg – and Switzerland**, among others.
- **India has signed MoUs with 13 countries** that want to adopt the UPI interface for digital payments
- **Singapore:** UPI-PayNow linkage

**About NPCI:**

The National Payments Corporation of India (NPCI, a not-for-profit company) is an initiative taken by the **Reserve Bank of India (RBI) and the Indian Bank's Association (IBA)** to operate retail payments and settlement systems in India. This organisation was founded in the year **2008 under the Payment and Settlement Systems Act, 2007.**

**NPCI International Private Ltd (NIPL):** NIPL is the subsidiary of NPCI to popularise domestic payment technologies such as UPI and RuPay abroad and co-create payment technologies with other countries.

**Insta Links:** The Unified Payments Interface (UPI)

**Mains Links:**

**Q. India's progress in payment systems will provide a useful backbone to make a state-of-the-art central bank digital currency (CBDC), but challenges remain. Discuss. (250 Words)**

**Prelims Links**

**Q. Which of the following is the most likely consequence of implementing the 'Unified Payments Interface (UPI)'?**

(a) Mobile wallets will not be necessary for online payments.

(b) Digital currency will totally replace physical currency in about two decades.

(c) FDI inflows will drastically increase.

(d) Direct transfer of subsidies to poor people will become very effective.

**Answer: A**

UPI allows direct payment from the bank account to the merchant account. So, the need for a wallet will no longer be required.

# ISSUES RELATED TO POVERTY/ HUNGER

## 2. GLOBAL MILLETS (SHREE ANNA) CONFERENCE

### Context:

At the inaugural edition of the **global conference on millets**, the PM of India spoke about how millets, considered to be "**high-fibre foods**", are effective for health.

### Background:

- Based on India's proposal, the year **2023** has been declared the **International Year of Millets** (IYM) by the UNGA.
- In order to make the IYM 2023 a **'people's**

**movement'** and position India as the **'**global hub for millets**'**, all stakeholders are being engaged to spread awareness about the benefits of millets (Shree Anna) for **the 3Cs**-

- **Cultivator,**
- **Consumer and**
- **Climate.**

- It has been organised by the Agricultural and Processed Food Products Export Development Authority (**APEDA**), Ministry of Commerce and Industry.

## PM's address at the Conference:

- As Shree Anna is linked with Gaon as well as Garib (Village and the poor), **it is becoming a medium of holistic development in India**.
- Shree Anna -
  - **A door to prosperity for the small farmers of the country.**
  - **The cornerstone of nutrition for crores of countrymen.**
  - **Felicitation of the Adivasi community.**
  - **Getting more crops for less water.**
  - **A big foundation for chemical-free farming and a huge help in fighting climate change.**

## Consistent efforts of the Indian government to turn Shree Anna into a global movement:

- **Millets were declared nutri-cereals in 2018** → making the farmers aware of its benefits, and generating interest in the market.
- Millets have been selected in 19 districts of the country under the '**One District, One Product**' scheme.
- The National Food Security Mission (NFSM) as **NFSM-Coarse Cereals** was implemented in 14 States.
- In 2021, the **PM POSHAN** was approved to include millets to enhance the nutritional outcome.
- India is planning to launch a global initiative **- Millet International Initiative for Research and Awareness** (**MIIRA**), to encourage the consumption and production of millets.

## Impact of these initiatives:

- **Consumption/month/person** from 3 to 14 kgs today.
- The sale of millet food products was **boosted by roughly 30%.**

**Insta Links:**
**Tasks for India's millet revolution**

**Mains Links:**
**Q. There is a growing divergence in the relationship between poverty and hunger in India. The shrinking of social expenditure by the government is forcing the poor to spend more on non-food essential items squeezing their food budget – Elucidate. (UPSC 2019)**

# ENVIRONMENT, CONSERVATION, ENVIRONMENTAL POLLUTION AND DEGRADATION

## 3. WATER WARNING: THE CASE OF 'VANISHING' RAINFALL

### Context:

According to a Global Commission on the Economics of Water report, **human activities are disrupting the rainfall the world depends on.**

### Background:

- According to 2021 data from UN-Water, about **2.3 billion people** (almost one in three) live in water-stressed countries and a third of those are facing critical pressures.
- According to the **UN FAO 2020 report**, **3.2 billion** living in agricultural areas face high to very high-water scarcity or shortages.
- **Behind all the SDGs** (Sustainable Development Goals), there is a volume of freshwater that powers the delivery of services.

### Findings of the report:

| Impact & Threats | Explanation |
|---|---|
| **Forest Losses** | Argentina's soybean and wheat fields are experiencing worsening drought as the Amazon shrinks.<br>• This is further aggravated by **land use change** and **climate change.** |
| **Huge economic, health and social stability threats** | • Poses **a risk to everything from food supplies to hydropower production**<br>• For example, severe water scarcity in the Horn of Africa has the potential to trigger **political instability, conflict, displacement, and migration.** |

### Recommendations - Rethinking water:

- A deeper understanding of how closely water supplies are linked to climate and nature protection.
- Looking at **freshwater as a global rather than just a local or regional issue**.

### Challenges:

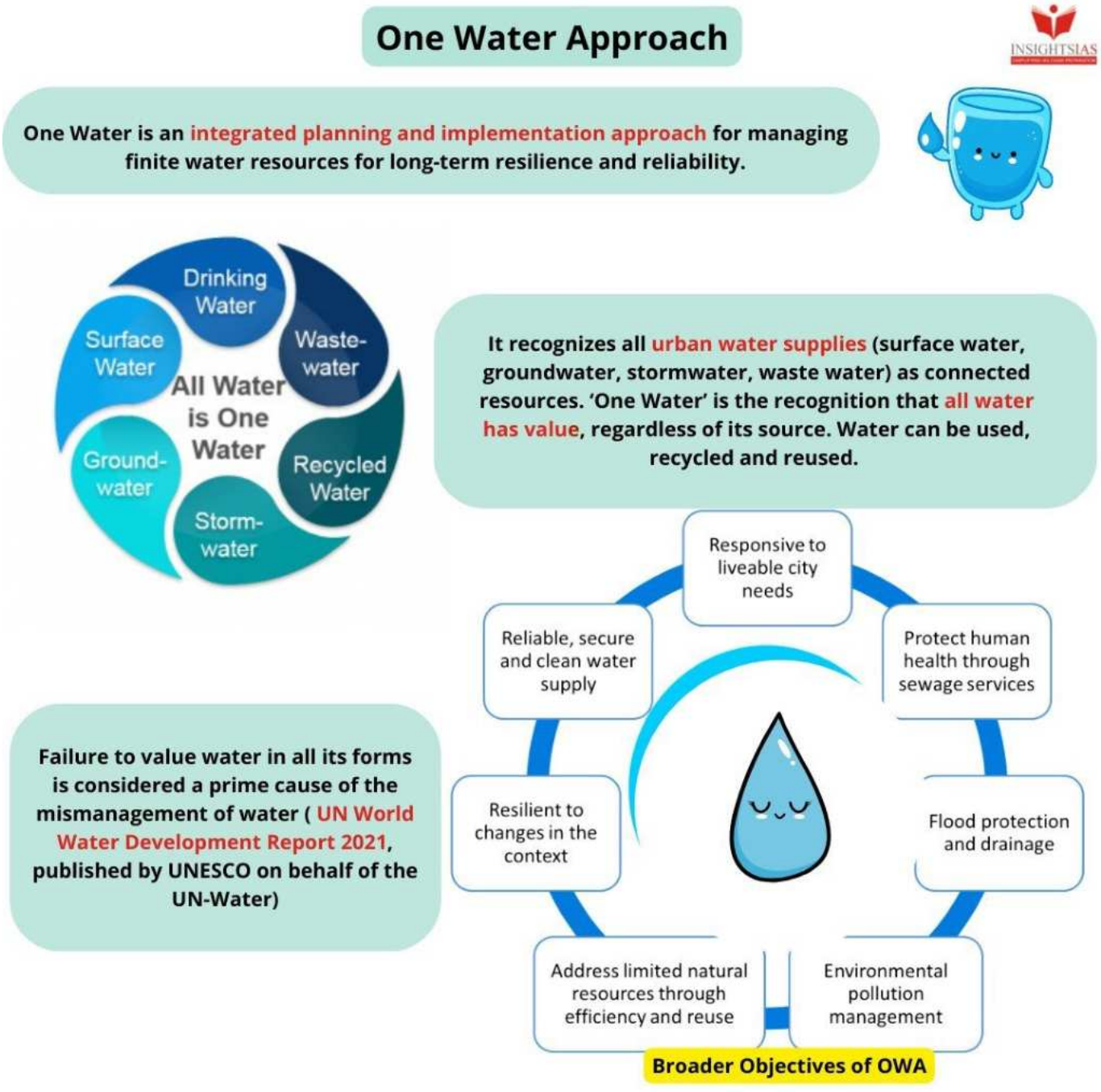
- A desire to capture and store more water is leading to **a surge in dam-building around the world,** which often results in losses of forests, land rights of local communities, etc.
- Increasing water storage in river dams can lead to **growing tensions with neighbours downstream**.
    - **For example, the India-Pakistan conflict over more dam-building on the Indus River system.**
- With agriculture responsible for more than 70% of global freshwater use each year, **trade in food is also trade in water.**

### Way ahead:

- Improving **water security** requires a shift towards -
    - **More precise and sparing irrigation systems,**
    - **Crops that require less water,**

- **Farming methods that stand up to drought and grow fewer thirsty crops in water-short places.**

- **In urban areas**, boosting freshwater storage, recycling more wastewater, and using less water in manufacturing will be key.
- Richer nations should help poor countries in their water conservation efforts (financially, tech transfer).
- **Just Water Partnerships**, modelled on existing Just Energy Transition Partnerships - designed to speed a global transition to clean energy, should also be considered.




## Conclusion:

The U.N. Water Conference can be a "**Paris moment**" [2015 Paris Agreement on Climate Change] for water. This will ensure a sustainable and globally equitable future - that's in every nation's interest.

**Insta Links:**

**Growing water crisis and One water Approach (OWA)**

# 4. COASTAL CRISIS IN ODISHA

## Context:

Data from the National Centre for Sustainable Coastal Management, shows that 74 villages in the state of Odisha are **severely affected by shoreline erosion—the highest in the country**.

- Almost **half of Odisha's coast—196 km of shoreline—has undergone erosion between 1990 and 2015.**
- A major reason for **this is the rising sea level**

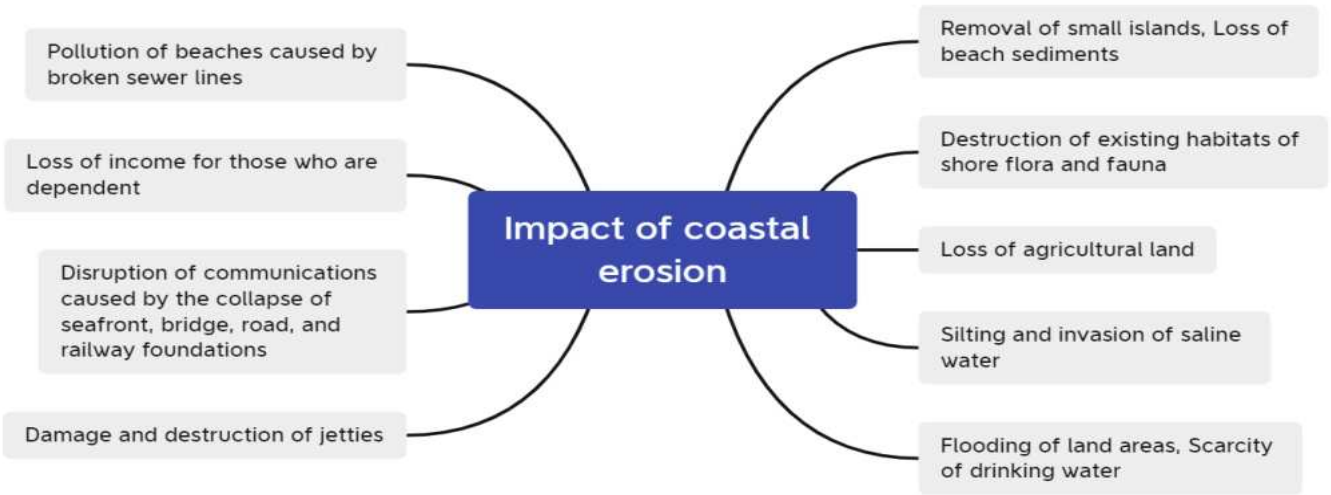
## About Coastal Erosion:

- Coastal erosion is the **temporary or permanent loss of land owing to the action of waves, currents, tides, wind-driven water, waterborne ice, or other effects of storms**.
- It can also be the **long-term removal of soil and rocks along the shoreline**.

**Reasons for Coastal Erosion:**

| | |
|---|---|
| **Natural reasons** | • **Wave energy**<br>• **Natural hazards**<br>• **El Niño** and effects of **climate change (e.g., sea level rise).** |
| **Anthropogenic reasons** | • **Mining activities** such as **sand and Coral mining.**<br>• **Fishing harbours and dams** were constructed in the catchment area of rivers and ports. |

## Impact of Coastal Erosion:




## Solution:

| Solution | Explanation |
|---|---|
| **Green belts and artificial reefs** | Helps in the mitigation of coastal erosion |

| | |
|---|---|
| **Coastal habitats** such as **Mangroves, Coral Reefs, and lagoons** | They are recognized as the best defence against sea storms and erosion, deflecting and absorbing much of the energy of sea storms. |
| **Using Geosynthetic tubes** | They are currently being used along the coast in Odisha |
| **Integrated Coastal Zone Management Plan (ICZM)** | **Prepared by the** Union environment ministry<br>• to be implemented on a **pilot basis in Odisha, along with two other states prone to shoreline erosion—Gujarat and West Bengal.** |

**Insta Link:** Coastal erosion and landforms thus formed

**Mains Link:**

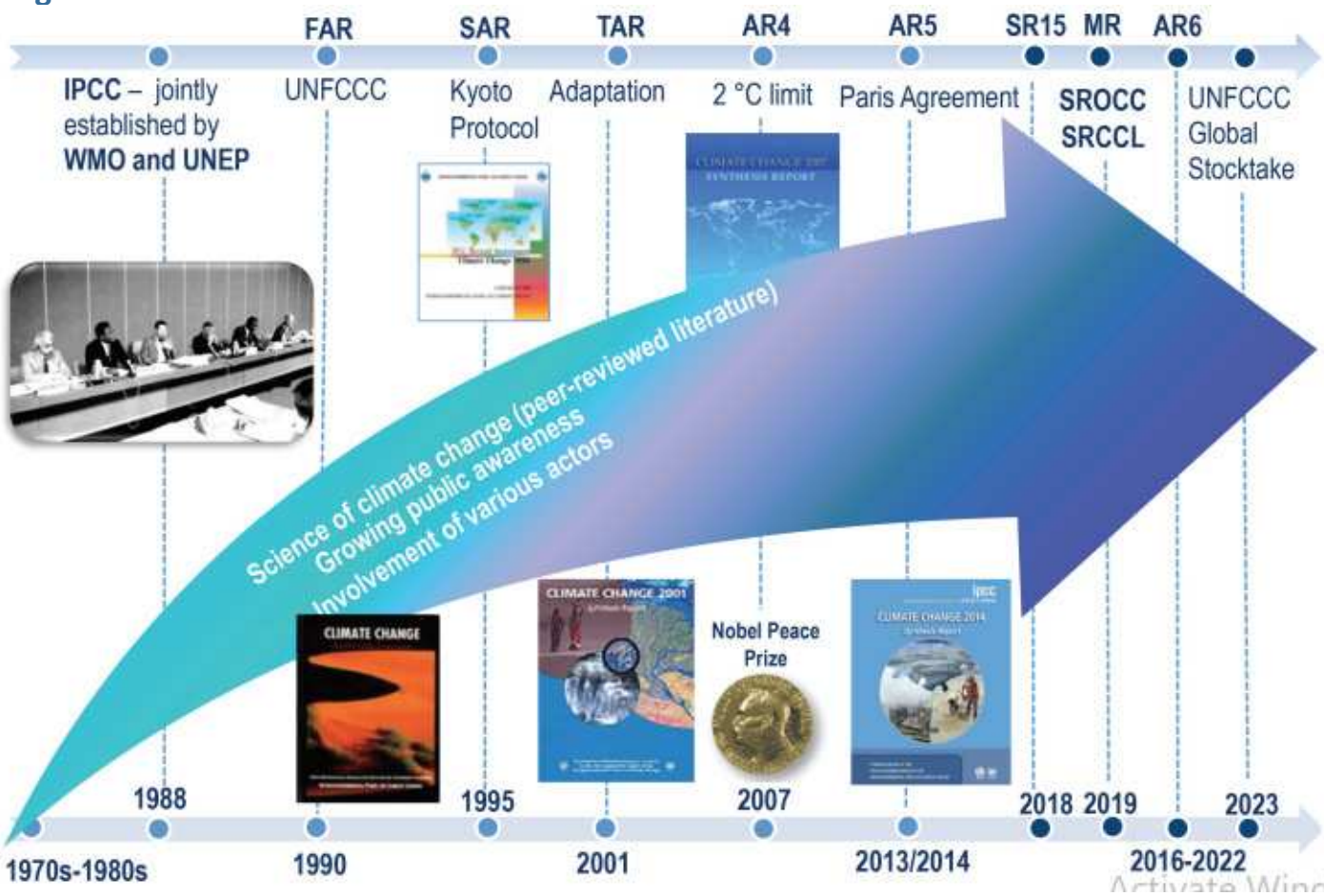
**Q. The extent and severity of the coastal erosion problem are worsening with global sea level rise. It has both ecological and economic costs and needs to be addressed urgently. Analyse. (250 words).**

## 5. SYNTHESIS REPORT OF IPCC AR6

### Context:

According to an IPCC report, climate change is a threat to **human well-being and planetary health** and a window of opportunity to secure a liveable and sustainable future for all is fast closing.

### Background:

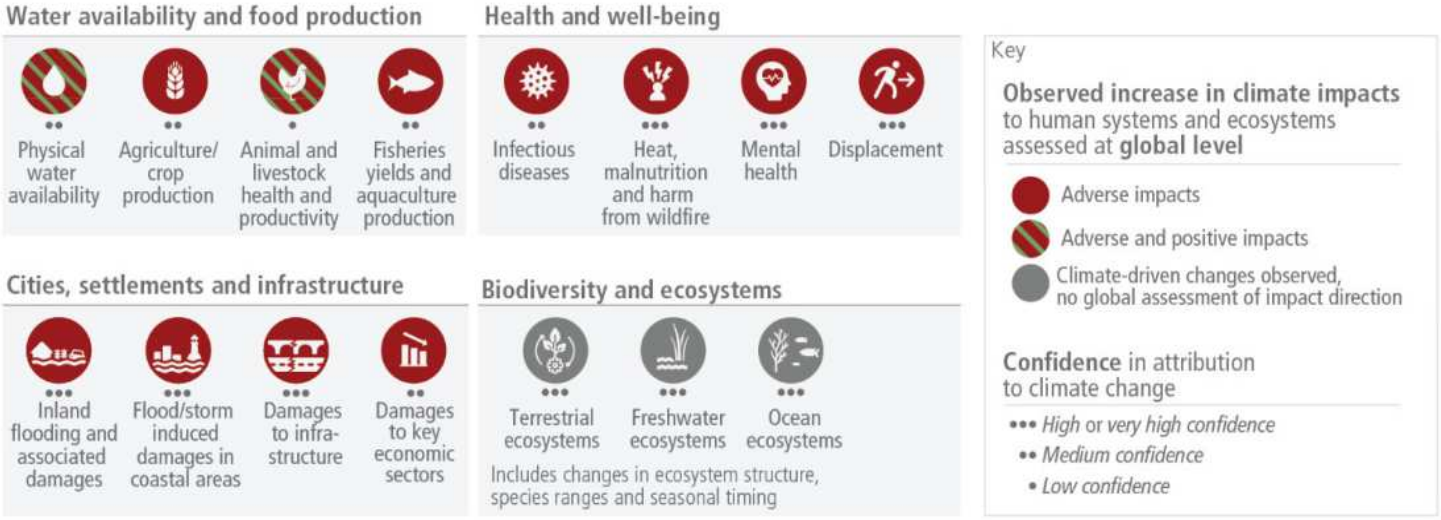


- Through its multiple assessment cycles beginning in 1990, the IPCC has analysed research by scientists on
  - **Global warming,**
  - **The role humans have had in exacerbating it,**
  - **The long-term climate impact from current and future emissions and what people can do about it.**
- The IPCC does not itself undertake scientific assessments by itself but **only evaluates the state of scientific evidence** on various aspects of climate change.
- The 6th Assessment Report (AR6) **assesses scientific, technical, and socio-economic information concerning climate change.**

## About the Synthesis Report:

This is the **final report** of the AR6, which integrates findings from six reports (3 working groups + 3 special reports) released by IPCC during the cycle which began in 2015.

## Highlights of the Synthesis report of the AR6:




| 6. key messages for policymakers: | |
|---|---|
| 1 | Excess emissions from human activities have raised **global temperature by 1.1°C** above 1850-1900. |
| 2 | **Current policy action will lead to further temperature rise**, and the impacts on humans and other forms of life will become more severe. |
| 3 | At current emissions levels, we will **deplete the remaining carbon budget** (of 500 GtCO2). |
| 4 | We need to **cut GHG emissions across all sectors urgently**, within this decade. |
| **5** | We have **all the solutions** we need to shift to low-carbon economic systems. These include -<br>1. Widespread electrification,<br>**2. Diversifying energy generation** to include more wind, solar, and small-scale hydropower,<br>**3. Deploying more battery-powered electric vehicles**, and<br>4. Conserving and restoring forests while also reducing tropical deforestation. |
| 6 | **Political commitment and equity** are key to enabling this shift - there is enough finance, it needs to be directed to climate action |

## Challenges:

| Challenges | Explanation |
|---|---|
| **Overshooting 1.5°C** (expected in the early 2030s) | **Will result in irreversible adverse impacts** on certain ecosystems with low resilience (polar, mountain, coastal ecosystems, etc). |
| **Adaptation gaps** | They exist and will continue to grow if no action is taken and the lower-income group will suffer the most.<br>• Though developed countries commit to jointly **mobilise $100 billion** in climate finance annually, current global financial flows for adaptation are **insufficient**. |
| **Adaptation Limits have been breached** | Some parts of the world (tropical, coastal, polar and mountain ecosystems) have already **reached their adaptation limits.**<br>This means adaptive actions cannot avoid negative impacts there. |
| **Maladaptation** | There is **increased evidence of maladaptation** (changes in natural/human systems that inadvertently increase vulnerability to climate stimuli) in various sectors and regions.<br>• **For example,** mangrove plantation in coastal Odisha has disturbed the local ecosystems, **affecting marginalised and vulnerable groups adversely.** |
| **Barriers to carbon capture and storage (CCS)** | There are multiple barriers (variable impacts, risks and co-benefits in deploying them) to implementing **carbon capture and storage (CCS)** - a climate change mitigation tool that removes CO2 from the atmosphere |

## Implications of the report for India:

Increased frequency and intensity of **extreme weather events** - could have dire consequences for **agriculture, the economy and public health.**

## Opportunity:

There is a 50-50 chance that by 2030, the global surface temperature in any individual year could exceed 1.5C.

## Recent efforts:

**The loss and damage (L&D)** finance facility, which came into prominence during the **COP27 (Sharm el-Sheikh, Egypt) to the UNFCCC**, aims to provide financial assistance to nations most vulnerable and impacted by the effects of climate change.

## Way ahead:

- Engaging public-private sector to mobilise sufficient finances.
- Citizens must be provided with **climate literacy** to drive political commitment, research, and urgency towards adaptation.
- Enabling conditions such as policy instruments, greater public support and technological innovation could **reduce barriers to CCS**.
- The policymakers must **prioritise investments in disaster risk reduction**, including early warning systems, evacuation plans, and infrastructure development to protect vulnerable populations.

## Conclusion:

- Certain future changes are unavoidable but could be limited by **deep, rapid and sustained global GHG emissions reduction** based on the principle of **c**limate justice.
- Therefore, mainstreaming **effective and equitable climate action** will not only reduce losses and damages,

but will also provide wider benefits.

**Insta Links: IPCC Report**

**Prelims Links:** (UPSC 2015)
Q. Which of the following statements regarding the 'Green Climate Fund' is/are correct?
1. It is intended to assist developing countries in adaptation and mitigation practices to counter climate change
2. It is founded under the aegis of UNEP, OECD, Asian Development Bank and World Bank

Select the correct answer using the code given below.
1. 1 only
2. 2 only
3. Both 1 and 2
4. Neither 1 nor 2

**Ans: 1**

## 6. PREPAID CARDS FOR POWER TO SAVE GROUNDWATER

### Context:
In order to prevent excessive exploitation of groundwater (GW), a Parliamentary Standing Committee report recommends **discouraging the use of electric pumps** by introducing measures such as **pre-paid cards**, etc.

### Highlights of the report - "Groundwater: A Valuable but Diminishing Resource":
- **Over-extraction of GW** for meeting irrigation needs is prevalent in **Punjab, Haryana, and Rajasthan, meeting 97%, 90%, and 86%** of their irrigation needs from GW extraction.
- Others such as **Karnataka, Tamil Nadu and UP** are also significant users of GW for irrigation.

### The main reason for such overexploitation of GW:
- **Water guzzlers** paddy and sugarcane crops which are heavily incentivised by way of highly subsidised pricing of water, etc.
- **S**tates like Punjab, Haryana, Telangana, and Tamil Nadu **offer completely free power**, while others collect token charges.

### Challenges:
The central government's **inability to persuade** states to reduce/stop subsidies for the power given in agriculture as -
- Water being a **state subject**
- Electricity is a **concurrent subject**, and
- State Electricity Regulatory Commissions determine the electricity tariff for retail supply to end consumers under the extant provisions of the **Electricity Act, 2003**.

### Recommendations:
- Devising **integrated measures** for adoption in agriculture.
- Introduction of **pre-paid cards for power supply, restricting it for a few hours in the day**, etc.
- A need for a shift in **focus from 'land productivity' to 'water productivity'** (production per cubic meter of water).

- A **policy to ensure judicious water use** to reduce its footprint in agriculture by engaging the Agriculture Ministry.
- The Jal Shakti Ministry should urge both the Power Ministry and the Agriculture Ministry along with state governments **to take measures on the suggested lines.**

### Steps taken by the Indian government:

| | |
|---|---|
| **Atal Bhujal Yojana** | It is a groundwater management scheme launched in 2019. |
| **Jal Shakti Abhiyan (JSA) (2019)** | It was launched in 256 water-stressed districts in the country to improve water availability including groundwater conditions in these areas. |
| **National Project on Aquifer Management (NAQUIM)** | It envisages the mapping of subsurface water bearing geological formations (aquifers) to help gather authentic data and enable informed decision-making. |

### Best practice:

- The Punjab govt. **introduced a scheme to refund money to the farmers** if they consume less electricity.
- **Deendayal Upadhyay Gram Jyoti Yojana** of the Ministry of Power has a **separate component of agriculture and non-agriculture feeders**, facilitating judicious rostering of supply to agriculture & non-agriculture consumers in rural areas.

**Insta Links:** UN Groundwater Summit 2022 to help raise awareness on aquifer protection, sustainable use

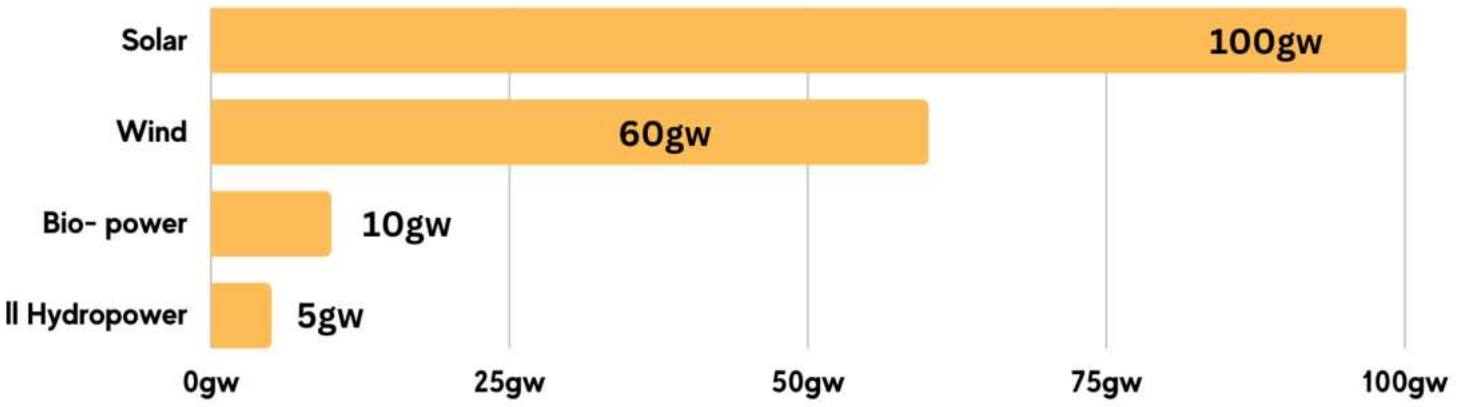
## 7. INDIA MISSES RENEWABLE ENERGY: PARLIAMENTARY PANEL

### Context:

A parliamentary panel has attributed the low installation of solar roof-top and wind energy projects as key reasons for the shortfall in achieving India's **renewable energy** (RE) **capacity target of 175 GW by 2022.**

### Background:

**India's ambitious target of installing 175GW of RE capacity by 2022 includes:**



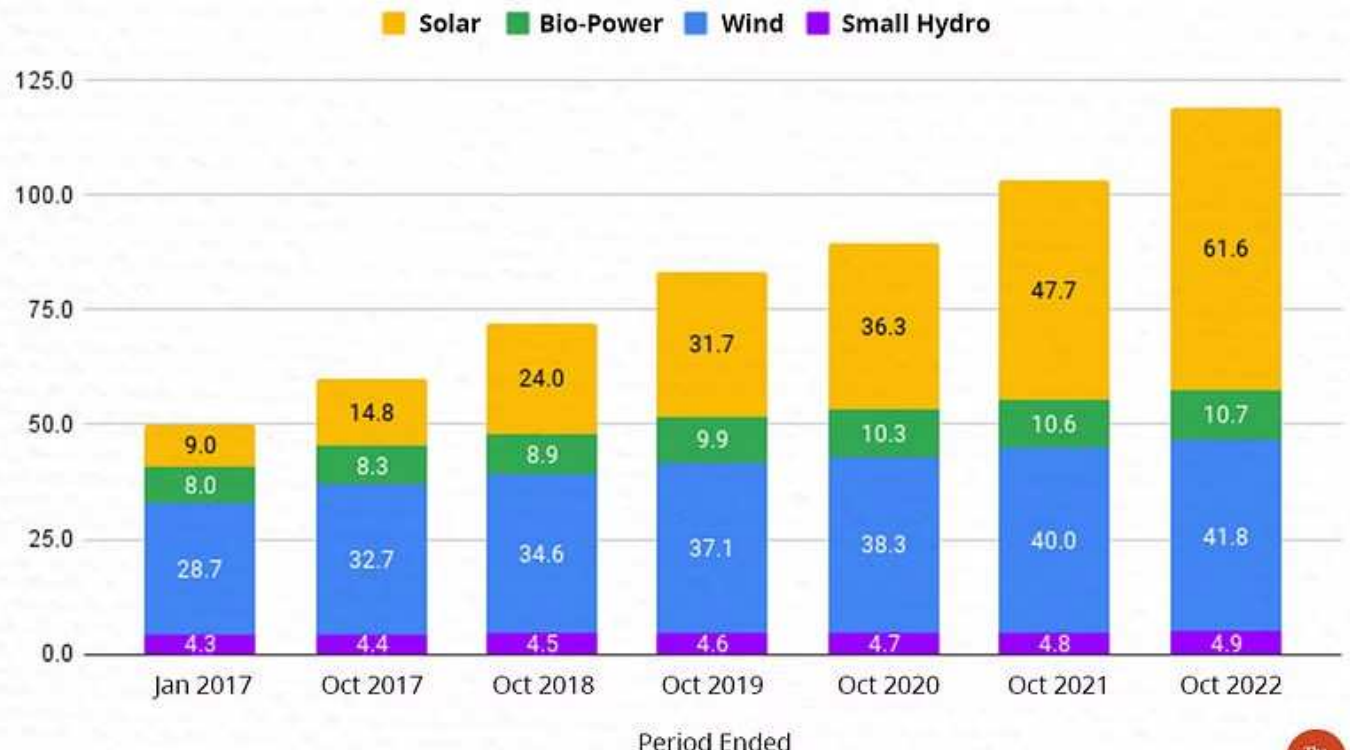

- While India has enhanced its promises to RE in the "**Long-Term Low-Carbon Development Plan**" presented at the **UNFCCC COP27**, it appears that the nation will fall short of one of its initial pledges in the RE sector.

# INDIA WILL MISS THE 175 GW RENEWABLE ENERGY TARGET BY 2022

Over the years, while the overall solar industry has seen strong growth, the rooftop solar segment is the main reason behind missed targets

## RENEWABLE ENERGY INSTALLED CAPACITY TARGETS VS ACHIEVEMENT (IN GW)

## CUMULATIVE RENEWABLE ENERGY CAPACITY OVER LAST 6 YEARS (IN GW)




**Source:** Central Electricity Authority

### Findings of the Parliamentary Standing Committee on Energy:

- A RE capacity of **120.90 GW** (69% of the overall target) **has been installed** in the country as of December 31, 2022.
- This is a commendable achievement, as the RE installed capacity has **increased by more than 236% since 2014**.
- Whatever shortfall has occurred in achieving the target is because of **the low installation of solar rooftops and wind energy projects.**
    - **Against 40 GW, only 7.40 GW of rooftop solar projects could be installed in the country.**
    - **Against 60 GW, the cumulative installed capacity of wind power is 41.93 GW.**

### Issues responsible for deficient performance under the solar rooftop programme:

- **Non-availability of information** at the grass root level,
- **Lack of awareness** about this scheme amongst the masses,
- The **apathy of discoms**, etc.

### Recommendations:

- Keeping in view India's commitment to increase its **non-fossil fuel-based energy capacity to 500 GW by 2030**, the Ministry of New and Renewable Energy (MNRE) must ramp up its pace for the timely achievement of targets.
- **A strict timeline** should be imposed for approvals/rejection of applications, installation of net-metre, an inspection of the system, etc., by the discoms.
- **Discoms may be incentivised** to allay their concerns about losing their high-paying customers as a result of the installation of solar rooftops.
- The MNRE should **increase its fund absorption capacity** and focus on exhaustive utilization of the budgetary allocation.
    - **In the Union Budget 2023-24, Rs 10,222 crore has been allocated to MNRE with an increase of 45% against the Revised Estimates of 2022.**

**Insta Links:**

**Solar energy is not the best option for India**

**Mains Links:**

**Q. Give an account of the current status and the targets to be achieved pertaining to renewable energy sources in the country. Discuss in brief the importance of the National Programme on Light Emitting Diodes (LEDs). (UPSC 2016)**

## 8. GUIDELINES TO ADDRESS HUMAN-WILDLIFE CONFLICT (HWC)

### Context:

Union Ministry for Environment, Forest and Climate Change released 14 guidelines to address Human-Wildlife Conflict (HWC)

### The objective of the guidelines:

- To facilitate a common understanding of effective and efficient mitigation of HWC among key stakeholders
- To facilitate the development of **site-specific HWC mitigation measures**

## The guidelines:

| 10 species-specific guidelines |
|---|
| Guidelines for Mitigating Human-Elephant, -Gaur, -Leopard, -Snake, -Crocodile, -Rhesus Macaque, -Wild Pig, -Bear, -Blue Bull and -Blackbuck Conflict |
| **4 guidelines on cross-cutting issues** |
| 1. **Guidelines for Cooperation between the Forest and Media sector in India**: Towards effective communication on Human-Wildlife Conflict Mitigation<br>2. **Occupational Health and Safety** in the Context of Human-Wildlife Conflict Mitigation<br>3. **Crowd Management** in Human-Wildlife Conflict-Related Situations<br>4. **Addressing Health Emergencies and Potential Health Risks** Arising Out of Human—Wildlife Conflict Situations: Taking a One Health Approach. |

**About the guidelines:**

The guidelines are developed under the **Indo-German cooperation project** on HWC Mitigation. The guidelines are **advisory** in nature. A review of these guidelines is planned to take place **every five years** from 2023 onwards.

## About Human-Wildlife Conflict:

| | Description |
|---|---|
| **Definition** | Struggles arising due to direct, recurring threats to human interests or needs posed by wildlife |
| **Causes** | Habitat loss, growth of animal population, changing cropping patterns, movement of animals to human-dominated landscapes, movement of humans to forests, habitat degradation, etc. |
| **Impacts** | Loss of life, injury to both animals and humans, damage to crops and agricultural land, rise in violence against animals |
| **Examples** | 222 elephants killed by electrocution between 2018-19 and 2020-21; 29 tigers killed by poaching between 2019 and 2021; 1,579 humans killed by elephants between 2019-20 and 2021-22 |
| **Initiatives** | Advisory for Management of Human-Wildlife Conflict; Empowering gram panchayats; Approach of coexistence between humans and wildlife; Involvement of local communities in conservation; Culture based conservation Model; providing insurance, augmenting fodder, taking proactive measures, providing instant relief |
| **Wildlife Institute of India Guidelines** | It suggests **modification in the designs of the linear infrastructures** by way of providing an **eco-friendly structure** that will ensure the safe movement of wildlife across these linear infrastructures. |
| **Case study** | **Cultural Model of Conservation**: **Maldhari Tribe in Junagadh** (Gujarat): The success of lion conservation in the Gir forest area is due to the peaceful coexistence of tribes with lions. |

**Insta Links:** Human-animal conflict

**Mains Links:**

**Q. Why is human-wildlife conflict on the rise? What solutions are there to help humans and wildlife coexist and how do they benefit all involved?**

**Prelims Links**

**Q. Consider the following statements in respect of Trade Related Analysis of Fauna and Flora in Commerce (TRAFFIC): (UPSC 2017)**

1. TRAFFIC is a bureau under United Nations Environment Programme (UNEP).
2. The mission of TRAFFIC is to ensure that trade in wild plants and animals is not a threat to the conservation of nature.

**Which of the above statements is/are correct?**

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

**Ans: B**

# 9. UN WORLD WATER DEVELOPMENT REPORT 2023

## Context:

**Recently,** **'United Nations World Water Development Report 2023: partnerships and cooperation for water'**, was released. The **UN 2023 Water Conference** held in New York.

## Major findings of the report:

| | |
|---|---|
| **Global:** | • Globally, two billion people do not have safe drinking water and 3.6 billion lack access to safely managed sanitation<br>• **The global urban population facing water scarcity** is projected to increase from **one-third (2016) to nearly half** of the global urban population in 2050, with India projected to be the most severely affected. |
| **India:** | • 80% of people living under water stress lived in Asia; in particular, northeast China, as well as India and Pakistan. |

## Recommendations:

- **Smart management and conservation** of the world's water resources means bringing together governments, businesses, scientists, civil society and communities - including indigenous communities - to design and deliver concrete solutions.
- **Water-energy-food nexus** is critical in a transboundary context E.g. transboundary water cooperation arrangement established by the **Mahakali Treaty (Pancheshwar Multipurpose Project)** between India and Nepal.
- Partnerships that focus on **knowledge co-creation instead of knowledge transfer**.
- Water resources management practices should incorporate traditional elements: E.g. **paar systems in western Rajasthan, India, and amunas** in Peru
- **Use of technology:** E.g., Google began a **flood forecasting initiative** in 2018, with the goal of preventing catastrophic damage

## Terms related to water:

| Terms used | Definition |
|---|---|
| **Water scarcity** | Lack of sufficient available water resources to meet water usage demands within a region |
| **Water stress** | The difficulty of obtaining fresh water sources during a period of time may lead to further depletion and deterioration of available water |
| **Water shortage/ deficits** | Shortages of water caused by climate change, pollution, increased human demand, and overuse of water |
| **Water crisis** | A situation where the available potable, unpolluted water within a region is less than that region's demand |

## Other steps to conserve Water:

- **Sustainable Development Goals (SDGs) Goal 6** includes a specific goal on water and sanitation (Goal 6)
- **UN-mandated Paris Agreement** recognizes the interlinkages between water and climate change.
- **Dublin Principles** water was established as an "**economic good"**

**About the Report:**

The WWDR is published by UNESCO on behalf of UN-Water and its production is coordinated by the UNESCO World Water Assessment Programme. It is an annual report released on Launched on World Water Day (22nd March) every year.

**About the UN 2023 Water Conference (New York from March 22-24, 2023)**

It will be the second UN Conference dedicated to water after the one held in **Mar del Plata**, Argentina, in 1977. UN has launched a global campaign called **'Be the Change'** to mark World Water Day 2023.

Jal Jeevan Mission **by** Ministry of **Jal Shakti (2019)**

- Aim: **Deliver safe and enough drinking water** to all rural Indian households by 2024 through individual household tap connections.
- **Focus:** Community-based approach to water, with comprehensive information, education, and communication as a fundamental component of the goal.

## Works Under Jal Jeevan Mission

| Case Study | Key Issues | Solution | Implementation |
|---|---|---|---|
| **Over-extraction of groundwater in Nuapada district in western Odisha** | High concentrations of natural fluoride cause fluorosis and kidney failure. | Switching source of drinking water from groundwater to surface water; formation of Village Water and Sanitation Committees (VWSCs) | Implementation of National Water Quality Sub-Mission; Larsen and Toubro managing water supply systems till 2025; VWSCs formed in all villages |
| **Groundwater depletion in Dharwad district, Karnataka** | Water scarcity due to overexploitation, population pressure, and discharge of effluents and agricultural chemicals; erratic rainfall and absence of perennial surface-water source | Reviving natural ponds for rainwater harvesting and subsurface recharge; formation of VWSCs | Revival of natural ponds identified in villages for JJM implementation in 2020; VWSCs looking after distribution network; periodic monitoring of supplied water quality in district laboratory |
| **Water scarcity in Junagadh district, Gujarat** | Dependence on streams and open wells; semi-arid climate | Combining surface water and groundwater sources for the conjunctive system; constructing borewells near water channels to recharge groundwater; block-level water treatment plant supplying treated water | Implementation by WASMO and GWSSB since 2002; VWSCs overseeing operation and maintenance of supply system; district-level laboratory monitoring water quality |

| | | | |
|---|---|---|---|
| **Inadequate and contaminated water supply in Ladana village, Jaipur district** | Relying on contaminated baori and seasonal streams; water scarcity during summers | Digging pond and open wells for water availability; constructing overhead tank for water storage; receiving water from Bisalpur dam | Digging of Ganga Sagar Talab and three open wells by Watershed and Soil Conservation Department in 2016; Public Health Engineering Department responsible for operation and maintenance; regular water quality testing |
| **Inaccessible springs in North district, Sikkim** | Difficulty in fetching water due to steep cliffs; dependence on springs | Installation of water collection structures and conveyance structures around identified springs; formation of VWSCs | Pilot implementation of Jal Jeevan Mission in 2019; 90% of households having functional tap connections; VWSCs looking after operation of installed pipelines and retrofitted works; technical support provided by Rural Development Department |

**Insta Links**

- Water warning: How 'vanishing' rainfall is threatening economic stability
- **Growing water crisis and One water Approach (OWA)**

**Mains Links:**

**Q. How and to what extent would micro-irrigation help in solving India's water crisis? (UPSC 2021)**

**Prelims links**

**Q. On the planet earth, most of the freshwater exists as ice caps and glaciers. Out of the remaining freshwater, the largest proportion (UPSC 2013)**

(a) is found in the atmosphere as moisture and clouds

(b) is found in freshwater lakes and rivers

(c) exists as groundwater

(d) exists as soil moisture

**Ans: C**

# 10.INDIA'S DISPUTED COMPENSATORY AFFORESTATION POLICY

## Context:

India's compensatory afforestation policy that allows forests in one part to be cut down and replaced with those elsewhere is contested on many grounds.

## Background:

- Afforestation is part of India's climate pledges - adding **a carbon sink of 2.5-3 GtCO2e through additional forest and tree cover by 2030**.
- According to the Forest (Conservation) Act 1980, the project proponent that wishes to divert the land must identify land elsewhere to afforest and pay for the afforestation exercise.
- Afforestation is also codified in the Compensatory Afforestation Fund Management and Planning Authority (CAMPA) - a body created on the SC's orders in 2002 and chaired by the Union Environment Minister.

- CAMPA is meant to **promote afforestation and regeneration activities** as a way of compensating for forest land diverted to non-forest uses (dam or mine).
- It was made a legal requirement through the **Compensatory Afforestation Fund (CAF) Act 2016.**

## Why is afforestation contested?

- According to the **Synthesis Report of the IPCC**, the **preservation of natural ecosystems** rather than restoring the destroyed ones is being recognised as an important means to mitigate climate change.
- According to the **CAG report (2013),** most of the money in the CAMPA fund had been **unspent**.
- CAMPA has also come under fire for **facilitating the destruction of natural ecosystems** → adversely impacting livelihood, biodiversity, hydrology, and the climate.
- **Planting non-native species** or artificial plantations would not compensate for the ecosystem loss. It is also hazardous to the existing ecosystem.
- **For example,** the Haryana govt is planning to develop the world's largest curated safari using CAMPA funds received from deforestation in Great Nicobar.

## Significance of the natural ecosystems:

Provides biodiversity, local livelihoods, hydrological services and sequesters carbon.

## Recommendations:

Renewable energy projects like **wind and solar plants** must be promoted to mitigate the adverse impacts of natural ecosystem diversion.

## Challenges for India:

- Many solar parks in India have **triggered conflicts with people living nearby**.
- Wind farms in the Western Ghats had **reduced the abundance and activity of predatory birds**, which consequently increased the density of lizards.

## Conclusion:

- **Climate actions**, such as technologies to combat climate change, renewable energy farms, etc. **should not come at the cost of natural ecosystems.**
- **Not degrading existing ecosystems in the first place** will do more to lower the impact of the climate crisis than restoring ecosystems that have been destroyed.

**Related news**

**Context:** CSE-DTE releases 2023 State of India's Environment report.

**Findings of the report:**

- The year 2022-2023 saw two huge trends in terms of the environment: **The reversal of gains for the energy transition and the overwhelming impact of climate change.**
- In 2022, India witnessed extreme weather events on 271 days out of 304 days, which claimed over 2,900 lives.
- **Over 30,000 water bodies** have been encroached on in the country.
- India is generating **150,000 tonnes of** municipal solid waste every day - more than half of which is either dumped in landfills or remains unattended.
- **Four years and 11 months** is the average duration of life lost to air pollution in India and rural India is losing more years.
- Environmental crimes continue unabated and courts need to decide on **245 cases every day** to clear the backlog.
- India's overall global rank in meeting the UN-mandated SDGs has slipped to **121/163 in 2022**.

**Insta Links:** The problems with Compensatory Afforestation in India

# ECONOMY/ENERGY

## 11.KIRIT PARIKH PANEL ON GAS PRICING

### Context:

The Petroleum and Natural Gas Ministry has accepted the main recommendations of the **Kirit Parikh committee on natural gas pricing**, and will be further recommended by them to the Cabinet.

### What is the Kirit Parikh committee?

The committee was **constituted in 2022** to review the existing pricing **formula for domestically produced natural gas** in India.

### The current method of gas pricing:

At present, the **government fixes the prices of gas** produced from the old fields of state-run ONGC and OIL (these both account for about **80% of the annual gas output** of 91 billion cubic metres in India).

### Need for revision of Gas Pricing:

| | |
|---|---|
| **To ensure a reliable pricing regime** | To ensure a **predictable pricing** for producers and protect consumers by moderating CNG and PNG price spikes. |
| **To raise domestic production** | India targets **15% of energy** coming from gas by 2030 |
| **Helps in improving the environment** | Dependence on coal and oil needs to be reduced |

| Major Recommendations of the Committee | Description |
|---|---|
| **Fixed Ceiling price (till 2027)** | • Implement a **fixed pricing band for APM (**Administrative Price Mechanism**) gas from old fields**<br>• The old fields account for **two-thirds of natural gas** produced in India<br>• Currently, **government controls the price** of Gas produced from old fields |
| **By 2027** | • Move to a **purely market-determined natural gas pricing system** by 2027 |
| **Linking the price** | • Link the domestic **gas price to 10% of the cost** of imported crude oil |
| **No-cut category (uninterrupted supply)** | • Some of the sectors have been kept in the **'no-cut' category** (meaning that supplies will remain uninterrupted in this category even in case of a decline in production)<br>• E.g., **The city gas and fertilizer sector** will continue to get top priority in the allocation of APM gas. |
| **Inclusion of gas in GST** | • Include gas in GST with compensation for five years |
| **Removal of caps on gas prices** | • Remove caps on gas prices **within three years**. |
| **Gradual exit from gas allocation business** | • Government should **gradually exit out of the gas allocation** business. |
| **No changes to the existing pricing formula for new fields and fields with difficult geology** | • **New and difficult fields enjoy pricing freedom** to compensate for the greater risk and cost involved in these projects, but they have a **pricing cap**.<br>• The report suggests that the upper cap should be removed from January 1, 2026.<br>• E.g., for fields in the Deep Sea or in high-temperature, high-pressure zones. |

## Impact of the move:

- **Good for domestic producers:** It will benefit domestic producers of natural gas in India, as they will now be able to receive a higher price for their products.
- **Will incentivize domestic production** and lead to an increase in domestic supply.
- **Will make the pricing of natural** gas more **transparent and efficient**
- **This will help raise the share of gas in India's energy** mix **to 15% by 2030** from around **6.4%** at present.

**About Administrative Price Mechanism (APM):**

**To prevent hoarding, maintain the prices of essential goods** (such as Gas) at reasonable levels, and ensure their easy availability, the government fixes the prices of certain commodities. This is known as the administered price mechanism.

**About natural gas:**

Natural gas, also **called methane gas or natural methane gas**, is a colourless highly flammable gaseous hydrocarbon consisting **primarily of methane and ethane**. It is a type of petroleum that commonly occurs in association with crude oil. It can be used as a **domestic and industrial fuel.**

**Insta Links:**

- Gas pricing freedom
- Natural Gas

**Mains Link:**

**Q. Will natural gas be the game-changer in India's energy future? Discuss. (150 Words)**

**Prelims Link:**

In India, in the overall Index of Industrial Production, the Indices of Eight Core Industries have a combined weight of 37.90%. Which of the following is among those Eight Core Industries? **(UPSC 2012)** Cement

1. Fertilizers
2. Natural Gas
3. Refinery products
4. Textiles

Select the correct answer using the codes given below
(a) 1 and 5 only
(b) 2, 3 and 4 only
(c) 1, 2, 3 and 4 only
(d) 1, 2, 3, 4 and 5

**Solution: C**

The index of eight core industries measures combined and individual performance of production in selected industries namely **coal, crude oil, natural gas, refinery products, fertilisers, steel, cement and electricity.**

# AGRICULTURE

## 12. INDIA'S SUGAR SHIPMENTS TO THE WORLD SURGING

### Context:

India has become **world No. 2** in sugar export, behind only Brazil.

### Data:

- India's sugar export (in 2016-17) was **0.46 lakh tonnes (lt),** which has now increased to **110 lt by 2021-22**.
- India is the **world's largest producer and consumer of sugar**
- **Importers of Indian Raw Sugar**: Indonesia, Bangladesh, and Saudi Arabia

### Types of Sugar:

| | |
|---|---|
| **Raw Brown Sugar** | Raw sugar is what mills produce after the **first crystallisation of juice** is obtained from the crushing of cane. This sugar is rough and brownish in colour.<br>• **Most of the world's sugar trade is in 'raws'** and they can be transported in bulk vessels and requires no bagging or containerisation.<br>• Till 2017-18, India hardly exported any raw sugar. |
| **Refined White sugar** | Raw sugar after being processed in refineries for the removal of impurities and de-colourisation. |

### Advantages of Indian raw sugar in the International Market:

| Advantage | Explanation |
|---|---|
| **Season advantage** | India's crushing is from October to April, whereas Brazilian mills operate from April to November. Hence, importers are utilising Indian raw sugar during Brazil's off-season. |
| **Freight cost savings** | India is much **closer to its major sugar importers** (compared to Brazil) and therefore less freight cost. |
| **Indian sugar is free of dextran**: | Dextran is a bacterial compound formed when sugarcane stays in the sun for too long after harvesting.<br>**Indian raw sugar has no dextran**, as it is produced from fresh cane crushed within 12-24 hours of harvesting (compared to 48 hours or more in Brazil) |
| **Higher Sucrose Content** | India's sugar has a **higher % of sucrose present** |

## Government Policies for higher Sugar Production:

| Govt. Policy | Explanation |
|---|---|
| **Pricing** | • **Fair and remunerative price (FRP):** The FRP is the minimum price that sugar mills have to pay to sugarcane farmers for the procurement of sugarcane.<br>• **State-Advised Price**: Although the Central government decides the FRP the state governments can also set a State Advised price that a sugar mill has to pay to the farmers. |
| **Encouraging Ethanol Production** | To be used in **Ethanol Blending with Petrol (EBP)** Programme |
| **Financial Assistance** | Scheme for Extending Financial Assistance to Sugar Undertakings (**SEFA-SU**) |
| **Biofuels** | **National Policy on Biofuels** 2018 |

## Concerns:

Lower stocks, lower production and concerns about domestic availability and food inflation have led the government to **cap India's exports** in the current sugar year. However, once the overseas markets are lost, they are not easy to regain.

## Conclusion:

**Rangarajan committee (2012)** has recommended the abolition of the quantitative controls on the export and import of sugar, these should be replaced by appropriate tariffs.

# Sugar Production in India

**India is the world's largest producer and consumer and 2nd largest exporter of Sugar**

## About Sugarcane

- **Temperature**: Between 21-27°C with hot and humid climate.
- **Rainfall**: Around 75-100 cm.
- **Soil Type:** Deep rich loamy soil.
- **Top Sugarcane Producing States:** Maharashtra>Uttar Pradesh > Karnataka
- **Distribution**: Sugar industry is broadly distributed over two major areas of production- Uttar Pradesh, Bihar, Haryana and Punjab in the north and Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh in the south.
- **South India has a tropical climate** which is suitable for higher sucrose content giving a higher yield per unit area as compared to north India.

**Major Sugar producers: India, Brazil, Thailand, China, and the United States**

To know more Visit Insights IAS Daily Current Affairs

**About Sugar Industry:**

- The sugar industry is the **second largest agro-based industry** in India after cotton.
- **Employment**: 50 million sugarcane farmers and around 5 lakh workers are directly employed in sugar mills.

**Insta Links:** Sugar Export Curbs

**Mains Links:**

**Q. Discuss the significance of the Minimum Selling Price (MSP) for sugar.**

**Prelims Links**

**Q According to India's National Policy on Biofuels, which of the following can be used as raw materials for the production of biofuels? (UPSC 2020)**

1. Cassava
2. Damaged wheat grains
3. Groundnut seeds
4. Horse gram
5. Rotten potatoes
6. Sugar beet

**Select the correct answer using the code given below:**

(a) 1, 2, 5 and 6 only
(b) 1, 3, 4 and 6 only
(c) 2, 3, 4 and 5 only
(d) 1, 2, 3, 4, 5 and 6

**Ans: A**

The National Policy on Biofuels, 2018, allows the production of ethanol from sugarcane juice, sugar-containing materials like sugar beet, and sweet sorghum, starch-containing materials like corn, cassava, damaged food grains like wheat, broken rice, rotten potatoes, unfit for human consumption.

**Q. With reference to the current trends in the cultivation of sugarcane in India, consider the following statements: (UPSC 2020)**

1. A substantial saving in seed material is made when 'bud chip settlings' are raised in a nurse and transplanted in the main field.
2. When direct planting of setts is done, the germination percentage is better with single-budded setts as compared to setts with many buds.
3. If bad weather conditions prevail when setts are directly planted, single-budded setts have better survival as compared to large setts.
4. Sugarcane can be cultivated using settlings prepared from tissue culture.

**Which of the statements given above is/are correct?**

(a) 1 and 2 only
(b) 3 only
(c) 1 and 4 only
(d) 2, 3 and 4 only

**Ans: C**

Bud Chip setting is used as an alternative to tissue culture, it reduces the mass and enables quick multiplication of seeds. So, substantial savings can be done in seed material. Large setts have better germination % and survival rates. Tissue culture is a technique in which fragments of plants are cultured and grown in a laboratory.

# SCIENCE & TECHNOLOGY

## 13. TECHNOLOGY AND INNOVATION REPORT 2023

### Context:

The **Technology and Innovation Report 2023 was recently released by** UNCTAD**.**

- **It highlights** the **opportunities that green innovation – goods and services with smaller carbon footprints** offer developing countries to spur **economic growth and enhance technological capacities.**

## Key Highlights from the report:

- The report analyses the **market size of 17 green and frontier technologies**, such as artificial **intelligence, the Internet of Things, and electric vehicles, and their potential to create jobs.**
- **Widening North-South Divide:** While countries in the EU reach a Research & Development expenditure of **3% of GDP, only a few developing countries reach 1% of GDP expenditure.**
- Most countries have **increased their climate-change-related, green official development assistance (ODA).**
- Within the UN system, **Global Environmental Facility (GEF) is the largest public sector funding source for transferring Environmentally Sound Technologies (ESTs).**

## India's ranking:

- India remains the **greatest overperformer ranking at 67 positions** better than expected, followed by **the Philippines (54 positions better) and Vietnam (44 better).**
- Key recommendations:
- UNCTAD calls on **their governments and business communities to invest in more complex and greener sectors, boost technical skills and scale up investments** in the technology infrastructure needed to grow green industries.

**Insta Links:** Science, Technology and Innovation (STI) policy

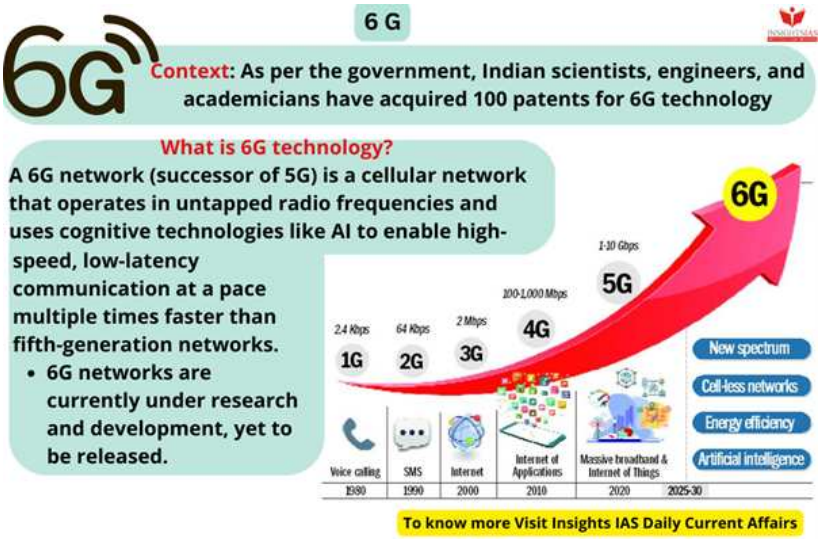
# 14. HIGH-SPEED INTERNET: HOW WILL INDIA DEVELOP A 6G NETWORK?

## Context:

The Prime Minister has unveiled a **vision document for the rollout of 6G communications technology in India by 2030 titled Bharat 6G.**

**The vision document** has been prepared by the **Technology Innovation Group on 6G (TIG-6G) constituted by the Department of Telecommunications (DoT).**

- 6G Vision is based on principles of **Affordability, Sustainability, and Ubiquity**.
- The Vision is fully aligned with the **national Vision of Atmanirbhar Bharat and will seek to empower every Indian to become Atmanirbhar (self-reliant) in their lives.**




| Parameter | 5G | 6G |
|---|---|---|
| Spectrum (Major Frequency Bands) | 24 GHz to 100 GHz | 95 GHz to 3 THz (Terahertz) (Can operate on higher frequency than 5G) |
| Latency (End to End Delay) | 5 milliseconds | 1 millisecond |
| Peak Data Rates | Up to 20 Gbps | Up to 1,000 Gbps |
| Significance | Accelerate adoption of cloud gaming, AR/VR technology, Internet of Things etc. | Support high-performance computing, edge computing, Technology Convergence etc. |

## What is India's 6G roadmap?

- The 6G project will be **implemented in two phases**, and the government has also appointed an apex council to oversee the project and **focus on issues such as standardisation, identification of the spectrum for 6G usage, create an ecosystem for devices and systems, and figure out finances for research and development etc.**

### What is India's immediate action plan?

- The **apex council will facilitate and finance research and development, design, and development of 6G technologies by Indian start-ups, companies, research bodies and universities**.
- A key focus of the council will be on new technologies such as **Terahertz communication, radio interfaces, tactile internet, artificial intelligence for connected intelligence, new encoding methods and waveforms chipsets for 6G devices.**
- How are other regions looking at the 6G rollout?
- **South Korea** has outlined a 6G research and development, **for attaining global leadership, developing key original technologies, making significant contributions to international standards and patents, and building a strong foundation for 6G research and industry.**
- **In Japan**, the Integrated Optical and Wireless Network (IOWN) Forum has published its **Vision 2030 white paper for 6G**,

**Insta Links:** 6G – facts for prelims

## 15. GOVT AMENDS EXPORT POLICY FOR BIOFUELS

### Context:

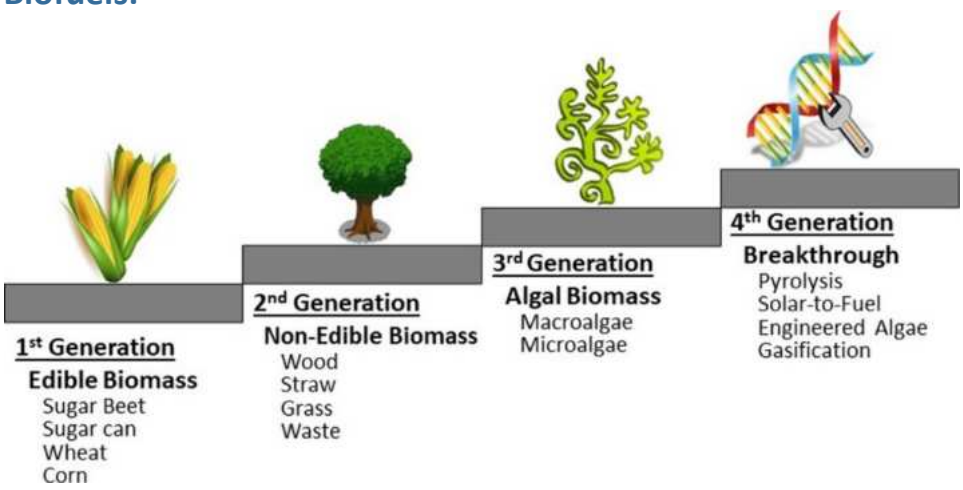
The **Directorate General of Foreign Trade (DGFT)** has amended a notification of 2018 - "to the **extent that export of** biofuel **from special economic zones/export-oriented units** are allowed for **fuel as well as non-fuel purpose** without any restriction **when produced using only imported feedstock".**

- A licence is **required for both exports and imports of biofuels**. Biofuels include **ethyl alcohol, petroleum oil and oils obtained from bituminous minerals, bio-diesel, and mixtures.**

### About Biofuels:

- Any hydrocarbon fuel that is **produced from an organic matter (living or once living material) in a short period of time (days, weeks, or even months) is considered a biofuel.**
- They may **be solid, liquid, or gaseous in nature.**
- These can be **used to replace or can be used in addition to diesel, petrol or other fossil fuels** for transport, stationary, portable, and other applications.
- Some of the **main reasons for shifting to biofuels are the rising prices of oil, the emission of greenhouse gases from fossil fuels** and the interest in obtaining fuel from agricultural crops for the benefit of farmers.

### Classification of Biofuels:



## Importance of Biofuels:

- Reduce **greenhouse gas emissions** and are a **renewable source of energy**.
- Helps double farmers' income.

## Government policies to promote Biofuels:

- National Policy on Biofuels, 2018.
- Pradhan Mantri JI-VAN (Jaiv Indhan- Vatavaran Anukool fasal awashesh Nivaran) Yojana, 2019
- GOBAR (Galvanizing Organic Bio-Agro Resources) DHAN scheme, 2018
- Repurpose Used Cooking Oil (RUCO)

**Insta Links:** Biofuels

**Prelims Link: (UPSC 2011)**
Q. Recently, "oil zapper" was in the news. What is it?
(a) It is an eco-friendly technology for the remediation of oily sludge and oil spills
(b) It is the latest technology developed for under-sea oil exploration
(c) It is a genetically engineered high biofuel-yielding maize variety
(d) It is the latest technology to control the accidentally caused flames from oil wells
**Solution: A**

# GS4

## 1. ETHICAL LESSONS FROM BHAGAT SINGH'S LIFE

**Shaheed Diwas** is observed on **23rd March every year** to pay tribute to the sacrifice of **Bhagat Singh, Sukhdev, and Rajguru** who were executed by the British government in **1931 for** mistakenly **assassinating a British police officer, John Saunders** (although their target was British police superintendent, **James Scott**—who was involved in the death of Lala Lajpat Rai).

- The day is also known as **Sarvodaya Day or Martyrs' Day**.
- It is different from the **Martyrs' Day observed on 30th January**, which commemorates the assassination of Mahatma Gandhi.

| Ethical Lesson | Examples from Bhagat Singh's Life |
|---|---|
| **Patriotism** | Bhagat Singh believed in the idea of **an independent, socialist India**, and was willing to sacrifice his life for the cause. |
| **Courage** | He and his associates carried out a **bombing of the Central Legislative Assembly in Delhi** to protest against the repressive British regime, and then courted arrest by shouting slogans. |
| **Selflessness** | Bhagat Singh **refused to accept the offer of a job** from a wealthy family in order to stay true to his revolutionary ideals. |
| **Justice and Fairness** | He went on a hunger strike in jail to **protest the inhumane treatment of prisoners**, and to draw attention to the cause of Indian independence. |
| **Integrity** | When he was **offered a deal by the British government** to save his life in exchange for renouncing his revolutionary ideals, he refused to accept it. |

# CONTENT FOR MAINS ENRICHMENT

| | |
|---|---|
| **1. 'HERSTART'** | A new platform launched by the government **to encourage and promote women entrepreneurs**.<br>**Features:**<br>• **herSTART Incubator for women headed startups**<br>• **herSTART Accelerator** for high-impact women-led startups.<br>• A monthly allowance of up to **₹20,000 for one year** for women-led start-ups. |
| **2. KASANOI ERAPPILA THITTAM** | The Tamil Nadu Kasanoi Erappila Thittam (TN-KET) initiative has been **implemented in over 2,500** public healthcare facilities in 30 districts.<br>**Approach:** It utilizes a differentiated TB care approach, assessing whether a patient needs ambulatory care or admission to a healthcare facility at the time of diagnosis.<br>**Impact:** This approach has helped reduce early TB deaths from over 600 in April 2022 to less than 350 in December 2022. |
| **3. SAHARA— WOMEN SELF-HELP GROUP (SHG)** | **Sahara, a women's self-help group (SHG)** in Amoda village,Chhattisgarh, has worked for nearly **20 years to fight leprosy stigma.**<br><br>**The SHG** has enabled women to earn a livelihood, increased their representation in local governance, **got a liquor distillery closed down**, spread awareness about their rights and invested in mushroom farming. |
| **4. "STORIES OF CHANGE"** | Atal Innovation Mission (AIM) has launched a series called **"Stories of Change**," which features 15 change-makers from the grassroots.<br><br>**Aim**: To inspire people to **become entrepreneurs and showcase** the potential of Indian villages for problem-solving capabilities.<br><br>**AIM** has established **15 Atal Community Innovation Centers in 9 states of India** and plans to establish 50 such centres soon to serve unserved areas. |
| **5. RIGHT TO HEALTH BILL (RTH): RAJASTHAN** | Provisions of the Bill:<br>1. M**andatory free-of-cost emergency treatment for every resident of the state at both government hospitals and private institutions.**<br>2. hospitals **provide treatment in emergency cases** without waiting for medico-legal formalities and give medicines and transport facilities **without charging money**.<br><br>**Significance**:<br>• Creates a legal obligation on states to ensure access to **timely, acceptable, and affordable health care** of appropriate quality<br>• **Right to life (Article 21)** included RTH (SC Bandhua Mukti Morcha v Union of India & Ors)<br>• **Rajasthan the first and only state in India** to legislate the right to health. |

| | |
|---|---|
| **6. STORY ON HAPPINESS** | **A sage named Narada** travels to find the happiest person in the world but fails to find one until he meets a poor farmer who is always content and happy despite his poverty.<br><br>**Narada** asked him to teach him how to be happy like him. The farmer then gave Narada a **small bag of rice** and told him to carry it on his back and walk around the village. Narada was confused but followed the farmer's instructions. But the more he walked, the **heavier the bag of rice became.** Narada soon realized that the bag was becoming a burden, and he was starting to feel tired and unhappy. He went back to the farmer and told him about his experience. The farmer smiled and said, "**Happiness is not about what you have or what you do. It's about how you carry your burdens**."<br><br>Narada understood the lesson and **realized that happiness is not something that can be found outside of oneself.** It comes from **within, from having faith, gratitude, and contentment, no matter** what one's circumstances may be. |

# FACTS FOR PRELIMS

# GS1

## INDIAN HERITAGE & CULTURE

### 1. ARTS OF THE IMPERIAL CHOLA DYNASTY

**Chola Dynasty**

**Context: A Grand Chola Museum will be set up in Thanjavur to highlight the contribution of the imperial Chola dynasty who ruled large parts of southern India, and to preserve artefacts and relics of that age, this was announced in the Tamil Nadu budget recently.**

**More about the context:**

- **A memorial would be established in Chennai to honour the legacy of Tamil martyrs Thiruvalargal Thalamuthu and Natarajan**
- **Also, Allocation of ₹5 crores was made to translate the works of B.R. Ambedkar into Tamil.**

| Category | Features |
|---|---|
| Rulers | Vijayalaya, Aditya I, Rajaraja Chola, Rajendra Chola, Kulothunga Chola |
| Reign | Later Cholas (9th century to 13th century). One of the longest-ruling dynasties in the southern regions of India |
| Predecessors | The reign of the Cholas began after defeating Pallavas |
| Successor | Succeeded by Pandyas in the early 13th century |
| Administration | Divided into mandalams, governed by separate governors, each mandalam further divided into nadus, each village acted as a self-governing unit |
| Art and Architecture | Patrons of art, poetry, literature, and drama, built grand temples in the Dravida style of temple architecture, produced exquisite bronze sculptures |
| Notable Works | Brihadeshwara temple, Rajarajeshwara temple, Gangaikonda Cholapuram temple |
| Sculpture | Sculpture of Nataraja in Tandava dance posture, Chola bronze images considered amongst the finest in the world |

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## 2. KHANDAGIRI, UDAYGIRI CAVES

### Context:

**The** Archaeological Survey of India (ASI) has warned **that** Khandagiri and Udaygiri caves are **eroding and the speed of deterioration has been rapid in the last 10 years**.

### About Khandagiri – Udaygiri Caves:

- Udayagiri and Khandagiri Caves have created **during the reign of Kalinga King Kharavela in the first and second centuries BC, near modern-day Bhubaneswar.**
- Between the 7th and 12th centuries, **Udayagiri, also known as Madhavapura Mahavihara, was a major Buddhist centre.**
- Udayagiri has 18 caves whereas Khandagiri has 15 caves. Each of these caves has various inscriptions **either in Brahmi script or Devanagari script.**
- **Famous Caves: Hathi Gumpha, Ananta Gumpha, Ganesha Gumpha, Jaya Vijaya Gumpha, Mancapuri Gumpha, Bagha/Vyaghra/Vyaghra Gumpha, and Sarpa Gumpha**.

## 3. SHARDA PEETH CORRIDOR

### Context:

Union Home Minister said the government would move forward to **open a corridor to the Sharda Peeth in Pakistan-occupied-Kashmir (PoK) on the lines of the** Kartarpur corridor**.**

### About Sharada Peeth:

- Sharada Peeth is a **ruined Hindu temple and ancient centre of learning located in the Neelum Valley of Pakistan-Occupied Kashmir.**
- It is situated in the valley of **Mount Harmukh, believed by Kashmiri Pandits to be the abode of Shiva.**
- It was probably commissioned by Lalitaditya Muktapida though no definitive evidence exists in favour.
- Al-**Biruni recorded the place for the first time, as a revered shrine housing a wooden image of Sharda**.

### Educational Centre:

- Between the **6th and 12th centuries CE**, it was among the **most prominent temple universities in the Indian subcontinent.**
- It played a key role in the **development and popularisation of the Sharada script in North India,** causing the **script to be named after it, and Kashmir to acquire the moniker "Sharada Desh", meaning "country of Sharada".**

## 4. 'VEDIC HERITAGE PORTAL'

### Context:

The government has launched **Vedic Heritage Portal and virtual museum Kala Vaibhav for** securing knowledge of India's ancient scriptures and manuscripts for the future through technology.

| Features | Description |
|---|---|
| **Organization** | Indira Gandhi National Centre for the Arts **(IGNCA; Est 1985; HQ: New Delhi)** created the Vedic Heritage Portal |
| **Ministry** | **Ministry of Culture** overlooks the IGNCA |
| **Objective** | To **secure knowledge from ancient scriptures and manuscripts** for future generations through technology |
| **Benefits** | • The younger generation can **carry forward the knowledge and tradition of Vedas and Upanishads;**<br>• The world can be more familiar with **India's rich history** and culture<br>• The Vedic Heritage Portal is a **one-stop solution** for common users and researchers **seeking information about Vedic heritage** in the form of oral and textual traditions, and published books/ manuscripts and implements. |
| **About the Virtual Museum** | **Kala Vaibhav**, based on **64 arts,** showcases India's architecture, painting, drama, and music |

# MODERN HISTORY

## 5. VAIKOM SATYAGRAHA

### Context:

Kerala Government will organise the **centenary** celebrations of the Vaikom Satyagraha

| | |
|---|---|
| **What is it?** | **Vaikom Satyagraha** (1924-25) was a movement in Travancore (modern-day Kerala) for temple entry of the depressed classes. It took place near the Shiva Temple at Vaikom, Kerala. |
| **Issue** | The protest was against the **caste-based discrimination** prevalent in Kerala and the rest of India, where lower-caste Hindus were not allowed to enter temples, and roads leading to temples were banned from them |
| **Leaders** | • K. Kelappan, T K Madhavan, Velayudha Menon, K Neelakantan Namboothiri, and T R Krishnaswami Iyer<br>• **Sree Narayana Guru** also extended the Satyagraha his support and cooperation<br>• **M. Gandhi:** On Gandhi's guidance, a march of 'upper caste' Hindus who supported the Vaikom Satyagraha was held |
| **Impact** | It led to the **Temple Entry Proclamation in 1936**. |

# AWARDS

## 6. KALANIDHI AWARD FOR 2023

**Renowned Carnatic vocalist and Padma Shri awardee Bombay Jayashri** has been selected for the Sangita Kalanidhi award for 2023 by the Music Academy.

**Kalanidhi award** is the title awarded yearly to a Carnatic musician by the Madras Music Academy.

## 7. ABEL PRIZE

Luis Caffarelli, a mathematician from Argentina, has been awarded the **2023 Abel Prize for his contributions to regularity theory for nonlinear partial differential equations, including free-boundary problems and the Monge-Ampère equation.**

### Ethical lessons we can learn from Luis Caffarelli's life:

- **Persistence and perseverance**: He faced many challenges and obstacles throughout his life, including poverty, illness, and a lack of recognition for his work.
- **Intellectual honesty**: He was known for his honesty and integrity in his work. He never claimed credit for the work of others and always acknowledged the contributions of his colleagues and predecessors.
- **Creativity and innovation**: He was a pioneer in the field of mathematics, and his work laid the foundation for many future developments in the field.

**About the Abel Prize**

It was first awarded in **2003 and recognizes pioneering achievements** in mathematics, named after Norwegian mathematician Niels Henrik Abel.

The prize includes a monetary award of roughly $720,000 and a glass plaque designed by **Norwegian artist Henrik Haugan.**

# MELA/FESTIVALS

## 8. MATUA DHARMA MAHA MELA

### Context:

The Prime Minister has urged people to visit **Matua Maha Mela in large numbers and paid tribute to Shri Shri Harichand Thakur Ji for showing the path of kindness and service.**

### About Matua Maha Mela:

- The Mela is being organised to **celebrate the 212th Birth Anniversary of Shri Shri Harichand Thakur ji.**
- It highlights the vibrant culture of the **Matua community.**
- The **Matua Community is a subset of lower-class AVARNA Hindus who belong to the Namasudra Scheduled Caste group** and are also referred to as "**Chandalas**,".

### Who is Harishchandra Thakur?

- He began a **social and religious movement in 1860** in Orakandi, now in Bangladesh, and this movement **eventually led to the creation of the Matua.**
- This **sect opposed caste oppression and later drew members from other communities, including Malis and Telis**, that was ostracised by the upper castes.
- His **devotees regard him as God and refer to him as Thakur**, a Vishnu or Krishna avatar.
- He passed away in **Bangladesh's Faridpur district.**
- His dedication towards **raising awareness, spreading education & improving the condition of women in society** is a bright beacon of hope for us to remain on the path of righteousness.

## 9. SAURASHTRA TAMIL SANGAMAM FESTIVAL TO BE HELD IN GUJARAT

### Context:

The Prime Minister highlighted the bond between **Gujarat and Tamil Nadu being celebrated under Saurash-**

**tra Tamil Sangamam**. The ST Sangamam celebrates '**Ek Bharat Shreshtha Bharat.'**

### Relation between Saurashtra and Tamil Nadu:

- Sangamam would showcase the **historic link between Somnath and Rameshwaram.**
- Tamil **gave shelter to thousands of Saurashtrians who migrated down south from Gujarat to the State** and have become part of the Tamil culture at the inauguration of the Saurashtra Tamil Sangamam.
- The famous playback singer T**.M. Soundararajan** belonged to the Saurashtra community.

## 10. INDIAN NEW YEAR

### Indian New Year

**Context: The President of India, Smt. Droupadi Murmu has conveyed her greetings to her fellow citizens on the eve of Chaitra Sukladi, Ugadi, Gudi Padwa, Cheti Chand, Navreh and Sajibu Cheiraoba.**

| Festival Name | Region Celebrated | Significance |
|---|---|---|
| Chaitra Sukladi | Northern regions of India—on the First day during the waxing phase (visible side of moon getting bigger) of the moon in the Chaitra month (first month of Hindu calendar) | Marks the beginning of the new year in the Vikram Samvat calendar based on the luni-solar system |
| Gudi Padwa and Ugadi | Deccan region including Karnataka, Andhra Pradesh and Maharashtra on First day of the Chaitra month | Festive food prepared with a mix of sweet and bitter (called bevu-bella); Gudi doll adorned with green or red brocade in Maharashtra; Mango leaf decorations called toranalu in Karnataka |
| Cheti Chand | Celebrated by Sindhis on First day of the Chaitra month | Commemorates the birth anniversary of Uderolal/Jhulelal, the patron saint of Sindhis |
| Navreh | Celebrated in Kashmir on First day of the Chaitra Navratri | Kashmiri pandits look at a bowl of rice which is considered as a symbol of riches and fertility |
| Sajibu Cheiraoba | Celebrated by Meiteis in Manipur on First day of Manipur lunar month Shajibu, which falls in the month of April | Joint family feast with traditional cuisines offered to local deities at the entrance gates of the houses |

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### Related News:

| | Global Celebration | Indian Celebration |
|---|---|---|
| **Navroz** | **Celebrated on 21st March, marks the Persian new year.** | **Celebrated in India in July-August (as per Shahenshahi Calendar)** |
| | **Celebrated by Parsis and Muslims worldwide.** | **Celebrated by Parsis in India** |
| | **Introduced in 1079 AD by Persian King Jalaluddin to generate revenue and collect taxes from people.** | **Known as Jamshed-i-Navroz after Persian King Jamshed who started the Shahenshahi Calendar.** |
| **Navroz is included in UNESCO Intangible Cultural Heritage List** | | |

**The equinoxes** are the only time when both the Northern and Southern Hemisphere experience roughly equal amounts of daytime and night time.

**Q. Consider the following pairs: (2018)**

**Tradition — State**

1. Chapchar Kut festival — Mizoram
2. Khongjom Parba ballad — Manipur
3. Thang-Ta dance — Sikkim

**Which of the pairs given above is/are correct?**

(a) 1 only
(b) 1 and 2 only
(c) 3 only
(d) 2 and 3 only

**Ans: B**

# GEOGRAPHY

## 11. INDIA'S GEO-HERITAGE SITES OF JHAMARKOTRA AND ZAWAR

### What is geo-heritage?

- Geodiversity is the v**ariety of rocks, fossils, minerals, and natural processes that shape landscapes** while **geo-heritage** refers to sites that offer insights into the evolution of the earth and can be used for **research, reference, and awareness.**
- The **Geological Survey of India** has recognised a **number of geo-heritage sites around the country.**

**Jhamarkotra**

- It is a stromatolite fossil park: and hosts stromatolites dating back 1.8 billion years, exhibiting a variety of textures and sizes.
- A **stromatolite is a layered sedimentary rock created by microorganisms**.
- Stromatolite fossils preserve records of **cyanobacteria, commonly known as blue-green algae – the earliest life on the planet.**
- **Jhamarkotra's fossils are phosphate-rich** because the trapped sediments were mainly phosphate minerals.

| Zawar | |
|---|---|
| | • The world's **oldest known zinc-smelting site** – of **archaeological and metallurgic importance**.<br>• The landscape around Zawar bears **numerous traces of zinc mining and smelting operations in ancient times**, including open **stopes, trenches, chambers, galleries, shafts, and open-pit mines.**<br>• The **people of Zawar extracted zinc using a distillation process that required the use of a retort and an external condenser.** |

## 12. ZEALANDIA

### Context:

Scientists have confirmed the existence of a continent called Zealandia, which is approximately **1.89 million square miles** in size and was once part of the ancient supercontinent called Gondwana.

### About Zealandia:

- It is a long, **narrow microcontinent** that is mostly submerged in the South Pacific Ocean.
- Zealandia started to separate from **Gondwana about 105 million years ago** and gradually sank beneath the waves, with over **94% of the landmass remaining underwater**.
- It is recognized as the **world's eighth continent**.
- The part of Zealandia which is above water forms the **foundation of New Zealand's north and south islands** as well as the island of **New Caledonia**.
- First recorded in **1642 by Dutch businessman and sailor Abel Tasman,** who was on a mission to find the "great Southern Continent," or Terra Australis.

# TRIBES IN NEWS

## 13. MAJOR TRIBES IN INDIA

**Source**: Tribal faces in India (by Ministry of Tribal Affairs)

| Tribe | Location | Occupation | Festivals | Special Features |
|---|---|---|---|---|
| **Bhil** | Chhattisgarh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Andhra Pradesh, Rajasthan | Farmers, agricultural labourers, Trained as Sculpture | Toranmal festival | Skilled archers, traditional medical specialists |
| **Kattunayakan tribe.** | Tamil Nadu and Kerala (Nilgiris and surrounding region). | Hunting and collecting forest produce | They worship animals, birds, trees, rocks, and snakes (nature worship) | One of the 75 Particularly Vulnerable Tribal Groups (PVTGs).<br>Recently, seen in the Oscar-winning documentary **Elephant Whisperers** |
| **Santhal tribes** | West Bengal, Bihar, Orissa, Jharkhand, and Assam | Cultivation of rice | Karam festival, Maghe, Baba Bonga, Sahrai | Droupadi Murmu from the Santhal community is the President of the country.<br>They Speak **Santhali** and have a Script called **Olchiki**. |
| **Tiwa Tribe** | Living in Assam and Meghalaya | Cultivation of the land | Sogra, Wan Shuwa, Yangli, Khel Chawa | Two groups: Hill Tiwas and Plains Tiwas |
| **Gond Tribe** | Madhya Pradesh, Chhattisgarh, and also in parts of Maharashtra, Andhra Pradesh, Orissa, UP | Mostly peasants and nature worshippers | Keslapur Jathra' and Madai festival | **Rajya Sabha recently cleared the bill to** move the Gond community from the Scheduled Castes list to the Scheduled Tribes list in four districts of Uttar Pradesh (UP). |
| **Munda** | Jharkhand, Chhattisgarh, Madhya Pradesh, Odisha, Tripura, West Bengal | Cultivators, hunters | Magha or Ba festival, Nupur dance form | A surname based on natural elements |
| **Baiga** | Chhattisgarh, Jharkhand, Bihar, Odisha, West Bengal, Madhya Pradesh, Uttar Pradesh | Dependent on minor forest produce | N/A | Semi-nomadic, tattooing is an integral part of the culture |
| **Kokna** | Gujarat, Maharashtra, Karnataka, Rajasthan, Dadra and Nagar Haveli | Craftsmen (masks, bamboo, wooden, brass, copper) | Bohada Festival | Celebrate the Bohada festival of masks |
| **Madia** | Chhattisgarh, Maharashtra, Madhya Pradesh, Odisha | Hunting-gathering | N/A | Skilled in bamboo, have ghotul (youth dormitory) |

# GS2

## GOVERNMENT INITIATIVES & POLICIES

### 1. 'JHARNIYOJAN' PORTAL

**Context:**
The Jharkhand government has launched a portal called 'Jharniyojan' to ensure **75% local quota** in private sector

**The portal requires:**

- All private establishments in the state must register themselves.
- Employers to adhere to the '**Jharkhand State Employment of Local Candidates in Private Sector Act, 2021'**
- The act reserves **75% of jobs in private sectors with salaries up to Rs 40,000 for "locals**" in the state.
- It applies to **all establishments which are in the private sector** and where 10 or more people are employed.

**Concerns:**

- **SC in Dr Pradeep Jain case (1984)** expressed an opinion that legislation for **"sons of the soil"** would be **unconstitutional**.
- **SC in Sunanda Reddy case (1995)** struck down a state government policy that gave 5% extra weightage to candidates who had studied with Telugu
- Violates fundamental right to **freedom of business under Article 19(1)(g)**

**Central or state government undertakings** will **not** be included in the Act.

### 2. CALL BEFORE U DIG APPLICATION

**Context:**
Prime Minister launched the **'Call Before u Dig' (CBuD) app**, to facilitate **coordination between excavation agencies and underground utility owners** to prevent damage to utilities due to digging.

**Need for the app:**

- An initiative of the **Department of Telecommunications, Ministry of Communications**, aims to **prevent damage to underlying assets like optical fibre cables that occurs because of uncoordinated digging and excavation**, leading to losses of about Rs 3,000 crore every year.
- It will save **potential business loss and minimise discomfort to the citizens due to reduced disruption in essential services like road, telecom, water, gas, and electricity.**

**How does the app work?**
The CBuD app will **connect excavators and asset owners through SMS/Email notifications and click-to-call so that there are planned excavations** in the country while ensuring the safety of underground assets.

# 3. ODISHA INTRODUCES BILL TO EASE LAND ACQUISITION

## Context:

The **Odisha government has proposed to amend** the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 to ease the land acquisition process for various industrial and infrastructure projects.

## More about the bill:

- The Odisha government **aims to do away with the mandatory provision of social impact assessment (SIA) study before the land acquisition, which, it says, is a time-consuming process.**
- The state government through the **'Make in Odisha' initiative intends to attract private investments in mega projects across sectors to fast-track the development process**. Providing hassle-free land to the **project proponents is one of the basic requirements for industrial and infrastructure development.**
- Projects like **affordable housing, industrial corridors set up by the state government, infrastructure projects, including highways and railways and industrial projects involving displacement of 100 families or less, or acquisition of private land of 500 acres or less will also be exempt from conducting mandatory SIA.**

Odisha will be the **fourth state to amend the legislation as Gujarat (2016), Maharashtra (2018) and Karnataka (2019) have already made the amendment and received the assent of the President of India.**

# 4. GUILLOTINE

## Context:

The ongoing stalemate in the Indian Parliament has led to the possibility of the government using '**guillotine' to fast-track the passage of the Finance Bill** without any discussion in the Lok Sabha.

| About Guillotine | Description |
|---|---|
| **Literal meaning** | Large, weighted blade raised to the top of a tall, erect frame and released to fall on the neck of a condemned person (execution by beheading) |
| **Origin** | Developed in **France** during the Enlightenment era |
| **Legislative Meaning** | To **bunch together and fast-track** the passage of financial business (a common procedural exercise in Lok Sabha during the Budget Session.) |
| **Procedure** | After debates on **Demands for Grants** →the **Business Advisory Committee** (BAC) draws up a schedule for discussions on the Demands for Grants→ Given the **limitation of time,** the House cannot take up the expenditure demands of all Ministries→ Usually on the **last day of discussion**, **Speaker** applies the "**guillotine**" and all outstanding demands for grants are put to vote at once |

# 5. CANALISATION

## Context:

The government has extended the tenure of Indian Potash Limited (IPL) as a canalising agency for the import of urea by a year until March 31, 2024.

| | Description |
|---|---|
| **Definition of Canalisation** | It refers to the **importing and exporting of certain commodities** through specified government agencies. |

| | |
|---|---|
| **Purpose** | The purpose of canalisation is **to stabilize prices, ensure the availability of supplies for domestic consumers**, control the flow of commodities, and improve bargaining power. |
| **Designated Agency** | It is done through **designated State Trading Enterprises (STEs) or entities** authorized by relevant departments.<br>E.g., **Indian Potash Limited (IPL), Rashtriya Chemicals Fertilizers (RCF) and National Fertilizers Limited (NFL)** are the canalising agency for the import of urea. |
| **Major Commodities** | The major canalised commodities include precious metals, arms and ammunition, and agricultural products like onions and fertilizers. |

# JUDICIARY

## 6. SPEEDY TRIAL OF LEGISLATORS

### Context:

SC has suggested a **State-specific approach (and not a "one-size-fits-all" approach)** to setting up special courts for the speedy trial of legislators.

### Data:

- Criminal cases against legislators: are **5097, with 400** of them concerning heinous offences.
- **Around a third of the criminal cases** against elected representatives in the Lok Sabha and state assemblies have been **pending for at least 5 years**
- **30% of criminal cases** against MPs, and MLAs are pending trial

### Background:

**In 2017, the Supreme Court ordered** that special courts be set up across the country **to fast-track the long-pending** trials of lawmakers.

- Following this, 12 special courts were set up across 11 States exclusively to try sitting MPs and MLAs.

### Other observaXtions by SC:

- The court is also considering a **plea for a lifetime ban on people convicted of offences** from contesting elections and becoming Members of Parliament and State Legislative Assemblies. However, the government had opposed it in 2020.
- **Currently, legislators face disqualification under the Representation of the People Act of 1951** for the period of the prison sentence and six years thereafter

## 7. RESERVATION TO THOSE CONVERTED TO SC

### Context:

The Kerala HC declared the election of a legislator (A Raja) as **null and void**, holding that as a **baptised Christian, he is ineligible to contest from a seat reserved for members of the SC**.

### Issue of the reservation to Christians/Muslims converted to SC:

- **The Constitution (Scheduled Caste) Order, 1950** challenged in the present case was based on historical data which established that "**no backwardness or oppression was ever faced by members of Christian or**

**Islamic Society**."

- **It allowed only Hindus to be classified as SCs and was later amended to include Sikhs in 1956, and Buddhists in 1990.**

- The Centre had established a commission, under former **CJI KG Balakrishnan,** to examine the grant of SC status to persons converted to religions other than in the Presidential Orders issued under **Article 341 of the Constitution**.
- Under Article 341 -
  - **The President may with respect to any State (after consultation with the Governor) or UT, may notify the SCs in relation to that State/UT.**
  - **The Parliament may by law include or exclude from the list of SCs specified in a notification issued.**

### Other recommendations:

| | |
|---|---|
| **The National Commission for Religious and Linguistic Minorities, headed by erstwhile CJI Ranganath Misra** | It recommended a complete delinking of religion from the classification of SCs in 2007.<br><br>However, Parliament rejected these recommendations on account of inadequate field data. |
| **Sachar Committee** | Constituted to examine the socio-economic conditions of Indian Muslims in 2006 observed that the situation of Dalit Muslims did not improve even after conversion.<br>The report placed Muslims below SCs and STs in backwardness. |

## 8. LILY THOMAS SC VERDICT

### Context:

A Surat court sentenced Congress leader (Rahul Gandhi) to two years in jail in a 2019 defamation case and also granted him bail and suspended his sentence for 30 days to allow him to appeal.

### Background:

- As per **Section 8(3) of the Representation of the People Act 1951**, conviction of a lawmaker for an offence with a two-year sentence or more leads to disqualification from the House.
- As per **Section 8(4)** of the RPA the disqualification takes effect only after **three months have elapsed from the date of conviction.**
  - **Within that period, the convicted lawmaker could have filed an appeal against the sentence before a higher court.**
- However, this provision was struck down as "**unconstitutional**" in the SC's landmark **2013** ruling in '**Lily Thomas v Union of India**'.

### Options available after conviction:

- Get the conviction stayed by a higher court.
- Approaching the President. As per **Article 103** of the Constitution, the disqualification case of an MP will be decided by the President in consultation with the Election Commission.

# 9. DEFAMATION

## Context:

Rahul Gandhi's disqualification comes a day after he was sentenced to two years in jail in a defamation case, triggering the process of his disqualification as an MP.

| About | Description |
|---|---|
| **Defamation** | **Any false and unprivileged statement** published or spoken with the intention to damage someone's reputation. |
| **Defamation in the Constitution** | **Article 19(2)** has imposed reasonable exemption to freedom of speech and expression granted under **Article 19(1)(a)**.<br>**Defamation** is one of the exceptions. |
| **Types of Defamation** | Defamation could be both a **criminal offence and a civil wrong**.<br>• Criminal defamation has been defined as an offence under **Indian Penal Code (IPC) (Sections 499 and 500)**<br>• Civil defamation is based on **tort law** (civil wrongs or injuries) |
| **Section 500 of the IPC** | It prescribes **defamation as a criminal offence** with a punishment of up to two years in prison or a fine. |
| **Disqualification of MPs and MLAs can be for three reasons** | 1. **Articles 102(1) and 191(1):** For holding an office of profit, being of unsound mind or insolvent, or not having valid citizenship<br>2. **10th Schedule:** Disqualification of the members on grounds of **defection**<br>3. **RPA 1951** provides for disqualification for conviction in criminal cases |
| **Disqualification in RPA, 1951** | **Section 8(3)** of the RPA mandates that an MP can be disqualified if convicted and sentenced to **not less than two years** of imprisonment (from the date of such conviction and shall continue to be disqualified for a further period of six years since his release)—i.e., I**mmediate Effect** (unless the conviction is stayed by a higher court)<br>(SC in Lily **Thomas vs. Union of India** case **and Lok Prahari vs. Union of India** (2018)) |

# REPORTS & COVENTIONS

# 10.THE VIENNA CONVENTION ON DIPLOMATIC RELATIONS (1961)

## Context:

Soon after the pro-Khalistan protestors took down the Indian flag at the High Commission in London, the Indian External Affairs Ministry reminded the UK Government about the Vienna Convention.

## What is the Vienna Convention on Diplomatic Relations (1961)?

- Entered into force on 1964, the Convention is **nearly universally ratified**, with Palau and South Sudan being the exceptions.
- It provides **a framework for the establishment/maintenance/termination** of diplomatic relations on a basis of consent between independent sovereign States.
- **It codifies the longstanding custom of diplomatic immunity**, in which diplomatic missions are granted privileges, enabling diplomats to function without fear of coercion or harassment by the host country.
- It affirms the concept of "**inviolability**" of a diplomatic mission, which has been one of the enduring cornerstones of international diplomacy.

**Article 22 of the Convention**: It deals with obligations with regard to the premises of the Mission - **the receiving/ host State is mandated to take all appropriate steps** to protect the premises of the mission against any intrusion or damage.

## WHAT THE VIENNA CONVENTION IS ABOUT

Here are the articles from Vienna Convention on Consular Relations 1963 that guarantee Immunity to consular officials and diplomats, and also exempt them from certain local laws.

**ARTICLE 40**
PROTECTION OF CONSULAR OFFICERS

The receiving State shall treat consular officers with due respect and shall take all appropriate steps to prevent any attack on their person, freedom or dignity.

**ARTICLE 41**
PERSONAL INVIOLABILITY OF CONSULAR OFFICERS

1. Consular officers shall not be liable to arrest or detention pending trial, except in the case of a grave crime and pursuant to a decision by the competent judicial authority.
2. Except in the case specified in paragraph 1 of this article, consular officers shall not be committed to prison or be liable to any other form of restriction on their personal freedom save in execution of a Judicial decision of final effect.
3. If criminal proceedings are instituted against a consular officer, he must appear before the competent authorities. Nevertheless, the proceedings shall be conducted with the respect due to him by reason of his official position...

**ARTICLE 43**
IMMUNITY FROM JURISDICTION

Consular officers and consular employees shall not be amenable to the jurisdiction of the Judicial or administrative authorities of the receiving State in respect of acts performed in the exercise of consular functions

**ARTICLE 47**
EXEMPTION FROM WORK PERMITS

1. Members of the consular post shall, with respect to services rendered for the sending State, be exempt from any obligations in regard to work permits imposed by the laws and regulations of the receiving State concerning the employment of foreign labor.
2. Members of the private staff of consular officer and of consular employees shall, if they do not carry on any other gainful occupation in the receiving State, be exempt from the obligations referred to in paragraph 1 of this article.

Source: The United Nations

# 11. WORLD HAPPINESS REPORT 2023

## Context:

For the **sixth year running, Finland was named the world's happiest country in an annual U.N.-sponsored index** that saw acts of **kindness grow in Ukraine despite the Russian invasion.**

- India was **ranked 126 of the 137 countries on the list**.

## Key Highlights of the report:

- **Northern Europe once again dominated the top spots** — with Denmark in second place followed by Iceland.
- While the same countries typically top the list each year, **Baltic countries are rising rapidly towards Western European levels.**
- War-scarred Afghanistan, which has occupied the bottom spot on the table since 2020, saw **its humanitari-**

**an crisis deepen since the Taliban government took power in 2021 following the US-led military pull-out.**

**About World Happiness Report:**

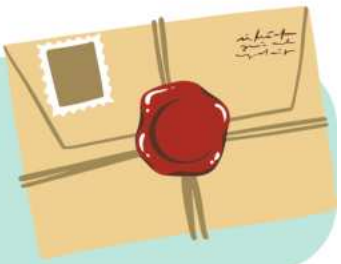
- First published in 2012, it is based on people's own assessment of their happiness, as well as economic and social data.
- The report considers six key factors: **social support, income, health, freedom, generosity, and absence of corruption.**
- It assigns a happiness score based on an **average of data over a three-year period**.

# GS3

## ECONOMY

### 1. LETTERS OF COMFORT

**Letters of Comfort (LoCs)**



**Context: Finance Ministry has asked central public sector undertakings (CPSUs) to issue letters of comfort (LoCs) on the basis of their own financial strength so that no liability devolves on the Government of India.**

**Last year (March 2022), the ministry prohibited state-run entities from issuing LoCs in a bid to further improve financial transparency**

**The ministry has now allowed LoC to ease firms to raise finances and allow further investment in differnt sectors.**

| Basis for Comparison | Letter of Comfort (LoC) | Letter of Guarantee (LoG) |
|---|---|---|
| Definition | A document that provides **assurance or support to a person** or entity that a financial obligation will be fulfilled | A document that provides a **legally binding commitment to fulfil a financial obligation** in case of default or non-performance by the borrower or the counterparty |
| Nature | **Non-binding** | **Binding** |
| Liability | **No direct liability** on the issuer | **Direct liability** on the issuer |
| Usage | Used to provide assurance or support to the recipient and to improve the **recipient's creditworthiness** | Used to **mitigate the risk of non-payment or non-performance** by the borrower or the counterparty and to provide financial security to the beneficiary |
| Issuer | Can be issued by a parent company, a government entity, or a financial institution to a subsidiary, a joint venture, or a borrower | **Usually issued by a bank or a financial institution** to a beneficiary |
| Examples | State-owned **NBFCs** issuing LoCs to banks for infrastructure projects | **A bank issuing a LoG** to a supplier on behalf of its customer to ensure timely payment for goods or services |

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## 2. AT1 BOND

### Context:

Recently, the Swiss government-brokered takeover of Credit Suisse by its larger rival UBS has wiped out the investment of bondholders and created fear for AT1 bondholders

| | |
|---|---|
| **What is a Bond?** | Bonds are a type of security instrument, issued by governments and corporations when they want to raise money. |
| **What is an AT1 bond?** | AT1 bonds – sometimes known as **contingent convertible bonds,** or **CoCos** – are a type of debt issued by a bank that can be converted into equity if its capital levels fall below requirements. |
| **Why AT1 Bond?** | • It was introduced after the global financial crisis of 2007-08. Banks were asked to operate using their own permanent capital as opposed to borrowed capital. This **permanent capital** is termed Tier 1 capital<br>• To shore up their Tier 1 capital, **banks were allowed to raise a special class of bonds known as AT1 bonds from investors**. |
| **Features of AT1 Bonds** | • AT1 bonds, like other bonds, **pay regular interest**.<br>• But they **do not have a maturity date**, as they are a permanent part of the bank's capital, akin to equity.<br>• They are the **riskiest bonds as the issuing** bank can skip premium and interest pay-out if it is falling short of capital |

## 3. STICKY INFLATION

### Context:

India's inflation rate has been above the 4% level in the last five years. (4% inflation is the target level under the **current monetary policy regime**)

**Table 1: India likely to miss the inflation target of 4% for five consecutive years**

| Year | Retail Inflation |
|---|---|
| 2019-20 | 4.8% |
| 2020-21 | 6.2% |
| 2021-22* | 5.5% |
| 2022-23* | 6.9% |
| 2023-24* | 5.1% |

**Source: IMF**
***Estimate**

### About Sticky Inflation:

| | Description |
|---|---|
| **Definition of Sticky Inflation** | It refers to a phenomenon where **prices do not adjust quickly to changes in supply and demand**, leading to **persistent inflation**. |
| **Causes** | Higher food and fuel prices; firms passed on higher input costs to consumers; twin shocks of the Covid pandemic and the Russia-Ukraine war |
| **Impact on consumers** | **Erodes purchasing power** of consumers, particularly those with low incomes |
| **Impact on businesses** | Central bank raises interest rates to keep inflation low. Higher interest rates make **borrowing more expensive** for businesses and impact investment and job creation |
| **Examples** | India, the US, and countries in the eurozone are facing sticky inflation currently |

## 4. INDO-PACIFIC ECONOMIC FRAMEWORK (IPEF)

### Context:

An Inter-Ministerial delegation from India participated in the **second** Indo-Pacific Economic Framework for Prosperity **(IPEF) negotiating round in Bali, Indonesia**.

| | |
|---|---|
| **About IPEF** | It is a **US-led initiative** that aims to **strengthen economic partnerships among participating countries** to enhance **resilience, sustainability, inclusiveness, economic growth, fairness, and competitiveness in the Indo-Pacific region.** |
| **Launched in & % of world's GDP represented** | **Launched in 2021** with a dozen initial partners who together **represent 40% of the world GDP.** |
| **Not an FTA** | The IPEF is not a **Free Trade Agreement (FTA)** but allows members to negotiate the parts they want. |
| **The negotiations will be along 4 main "pillars"** | • **Supply-chain resilience**<br>• **Clean energy, decarbonisation & infrastructure**<br>• **Taxation & anti-corruption**<br>• **Fair & resilient** trade. |

# SCIENCE & TECHNOLOGY

## 5. WORLD'S 1ST SAND BATTERY

### Context:

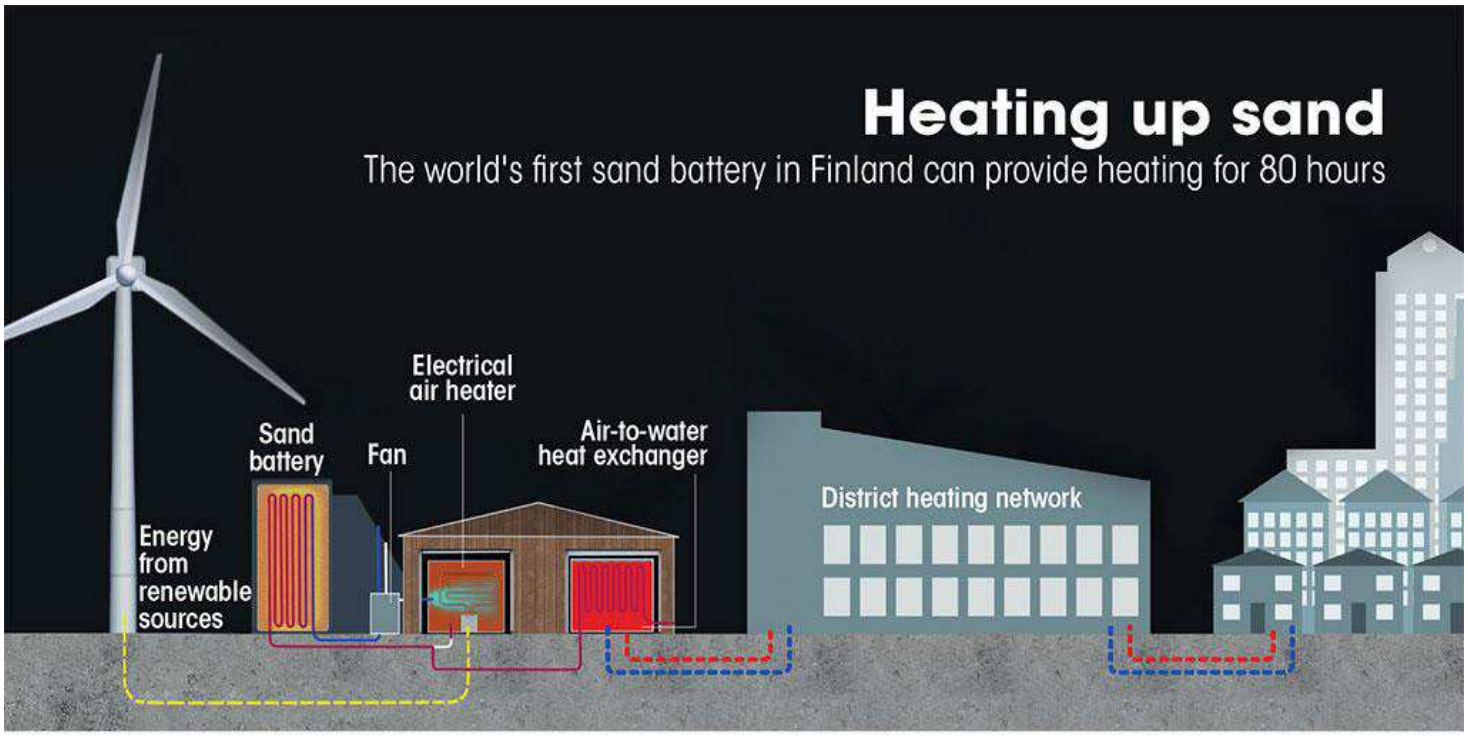
**Finland** has installed the world's first sand battery that can store heat from renewable energy sources for months.

### Why sand?

Sand can be heated up to **600 degrees Celsius**, and it has low heat conductivity, reducing energy loss.

### Capacity:

The installed battery can store **8 megawatt-hours of energy** and release heat at **0.1 M**W.




**HOW THE BATTERY GETS CHARGED**

Using renewable sources, air is heated to 600°C in the electrical air heater. The hot air is blown inside the sand battery through a pipe. The battery is considered charged when the sand at the core of the battery reaches 600°C.

**HOW THE BATTERY GETS DISCHARGED**

Using fans, air is pushed into the pipe inside the battery casing. Once the air reaches, 200-500°C, it is sent to the air-to-water heat exchanger, where it is used to boil water. The boiling water is sent to the district heating network which is used to keep buildings and public water systems warm and provide hot water for various industrial processes.

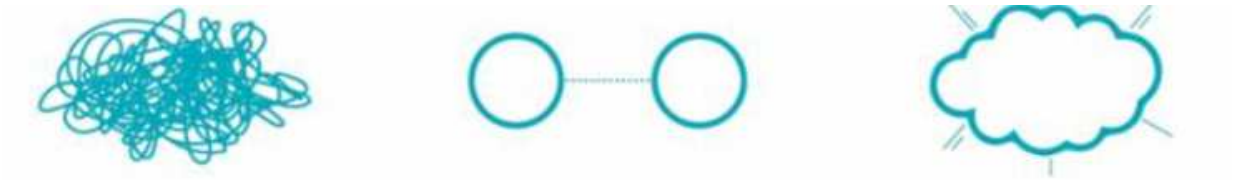
## 6. QUANTUM ERROR CORRECTION

### Context:

Google makes a breakthrough in quantum computing.

| | |
|---|---|
| **Current issues in Quantum Computing** | Currently, Quantum computers use qubits, to **encode information as 0's, 1's**, or both at the same time. However, qubits are very sensitive and even a stray light can cause calculation errors. |
| **Solution** | Quantum error correction protects information by encoding it across multiple physical qubits (instead of relying on individual physical qubits) to form a "logical qubit" |
| **Significance:** | It would go on to make quantum computing **more accurate.** |
| **Quantum Supremacy** | Four years ago, Google said it completed a test in 200 seconds for a task that would take conventional supercomputers thousands of years. |

### The principles behind quantum technology:



## SUPERPOSITION

Superposition describes a particle's ability to exist across many possible states at the same time. So the state of a particle is best described as a "superposition" of all those possible states.

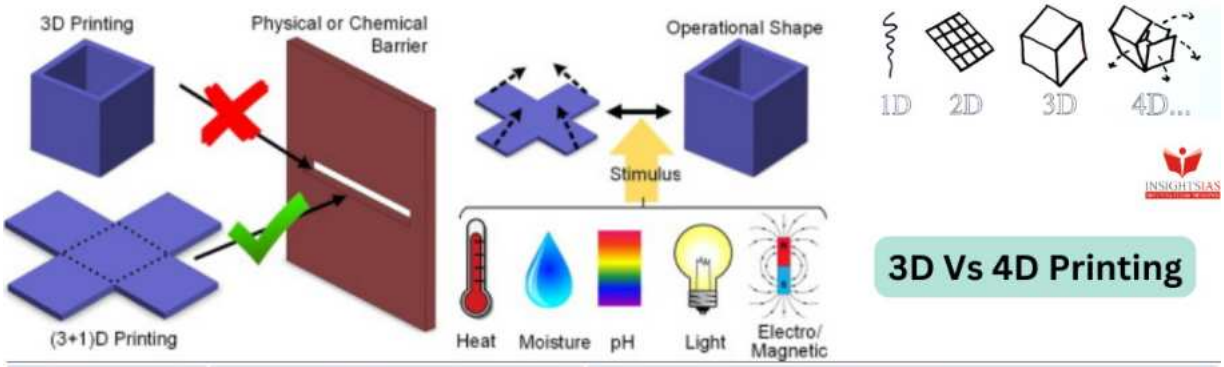
## ENTANGLEMENT

Quantum entanglement refers to a situation in which two or more particles are linked in such a way that it is impossible for them to be described independently even if separated by a large distance.

## OBSERVATION

Superposition and entanglement only exist as long as quantum particles are not observed or measured. "Observing" the quantum state yields information but results in the collapse of the system.

# 7. 3D VS 4D PRINTING




| Feature | 3D Printing | 4D Printing |
|---|---|---|
| **Definition** | A process of creating a physical object from a digital model by layering material in three dimensions. | A process of creating a physical object that can **change its shape or properties over time in response** to specific external stimuli. |
| **Design properties** | Design does not change | Colour, Shape, Function, etc change |
| **Material Used** | Metals and alloys; nanomaterials; Thermoplastics; Biomaterials and Gels | Shape-memory polymers; Smart materials; Programmable materials; Self-assembled materials etc. |
| **Functionality** | The resulting object is typically **static and cannot change its shape** or properties after it has been printed. | The resulting object can change its shape or properties after it has been printed, allowing for **new possibilities** in design and function. |
| **Applications** | Widely used in **prototyping**, manufacturing, and customization of products. | • **Construction**: To build structures which would build up themselves or repair themselves in case of weather damage<br>• **Medicine**: To create drugs that are tailored to an individual's biochemical makeup<br>• **Fashion**: Shoes could change their shape when you start running to provide you with better comfort |

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# 8. RADIATION LEVEL

## Context:

A study by scientists at the **Bhabha Atomic Research Centre (BARC)** has found that natural background radiation levels in parts of **Kerala are nearly three times higher than** previously assumed.

## Reasons for higher radiation level:

- The **presence of granite and basaltic, volcanic rock** has led to higher levels of radiation from **uranium** deposits in southern India.
- The higher radiation levels in Kollam, Kerala are attributed to **monazite sands** that are high in **thorium**

## Risk:

There is no elevated health risk, as the human body is accustomed to higher doses of radiation.

**About Radiation:**

Radiation results from the **disintegrating nucleus** of an unstable element. These can be from anywhere, including inside human bodies, constituents of matter, and natural sources such as rocks, sand, or mountains.

**International Atomic Energy Agency** (IAEA) **specifies public radiation exposure** should not exceed 1 millisievert every year (India's average is **0.8 millisievert/year**)

# 9. LACCASE ENZYME

## Context:

An **enzyme called laccase generated** by a group of **fungi** has been found capable of degrading a variety of **hazardous organic dye molecules** that are regularly drained into waterbodies after dying clothes in the textile industry.

## Significance:

- **Enzyme promiscuity**: **laccase shows e**nzyme promiscuity i.e., the capability of an enzyme to catalyse a reaction other than the reaction for which it has been specialized.
- This property can be used for **designing enzyme-coated cassettes** for treating heavily dye-polluted water through a natural solution to make the environment greener.

## 10. ONIONS TO BE IRRADIATED WITH GAMMA RAYS

**Context**: Government is planning to irradiate onions with Gamma rays before sending them into cold storage on a pilot basis.

**Irradiation is also called 'cold pasteurization' as it kills bacteria witout heat.**

**About Irradiation:**

| Terms | Description |
|---|---|
| Definition | The use of high-energy radiation from **x-rays, gamma rays, neutrons, protons**, and other sources to kill organisms or cancer cells.<br><br>**Food irradiation** is the process in which food and food packages are exposed to **ionizing radiations** to increase their shelf life while eliminating the microorganisms and other insects which could spoil the food |
| Benefits | Prevents sprouting and reduces post-harvest losses; Disrupts biological processes that lead to decay; Eliminates food-borne illnesses; Sterilizes food for long-term storage |
| Why Onion? | **Red Onion:** Kharif red onion is highly perishable and cannot be stored for over a month. **So, not suitable for Irradiation.**<br>**Rabi variety of Onion:** It accounts for 65% of the onion harvest and has a longer shelf life of about 5-7 months, would be **considered for irradiation.** |
| Why Irradiation? | To reduce **post-harvest losses (from almost 25% in India to 10-12%)** caused by the perishable nature of horticulture crops and sub-optimal storage infrastructure. |
| Irradiation Process | **Gamma rays** emitted from radioactive forms of **cobalt (Cobalt 60) or Caesium (Caesium 137)** are used to sterilize medical and dental products. X-rays are produced by reflecting a high-energy stream of electrons off a target substance into food. |

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## 11. ASIA'S LARGEST 4-METRE INTERNATIONAL LIQUID MIRROR TELESCOPE (LMT)

### Context:

Ministry of science and technology inaugurated Asia's largest 4-metre International Liquid Mirror Telescope at Devasthal in Uttarakhand

- **By**: Aryabhatt Research Institute of Observational Sciences (ARIES).

### What are LMTs?

LMTs are stationary telescopes that image a strip of sky. It can capture all possible celestial objects — from stars, galaxies, supernovae explosions, and asteroids to space debris

### Working of the telescope:

- ILMT employs a 4-metre-diameter rotating mirror made up of **a thin layer of liquid mercury** to collect and focus light. However, other liquids like low-melting alloys of gallium, are also used.
- **The telescope is designed to survey the strip of the sky** passing overhead each night.
- The data collected will be **analyzed using AI/Machine learning** to discover and discern variable and transient stellar sources.

**About ILMT**

- It is the **first liquid mirror telescope** designed exclusively for astronomical observations
- It has the **largest aperture telescope** available in India
- It is also the **first optical survey telescope** in India.

### Difference between Conventional Telescopes and LMTs

| Conventional Telescopes | Liquid Mirror Telescopes |
|---|---|
| **Steered to point towards the celestial source** of interest for observations | **Stationary telescopes that image a strip of the sky** which is at the zenith at a given point in the night |
| **Highly polished glass mirrors** are used, either single or a combination of curved ones | Mirrors made up of **reflective liquid, typically mercury**, which forms a paraboloid-shaped reflecting surface |
| Observes **specific stellar sources** for fixed hours | Captures the **sky's images on all nights**, between two successive twilights, for a set period, typically a few years |

## 12. 'CERAMIC RADOME' TECHNOLOGY

### Context:

Carborundum Universal Limited (CUMI), a private company has signed an agreement with DRDO for manufacturing ceramic radomes used in aerospace and missile systems.

| | |
|---|---|
| **What is a Ceramic?** | It is a non-metallic, inorganic solid material that is typically produced by heating natural clay or other minerals at high temperatures.<br>E.g., Pottery, Tiles |
| **Properties of Ceramics** | The majority of ceramics are excellent insulators and can withstand high temperatures. |
| **What are Radomes?** | Radomes are structures or enclosures designed to protect **antenna and associated electronics** from the surrounding environment and elements such as rain, UV light, etc. |
| **What are Ceramic Radomes?** | • Ceramic Radome Technology is a state-of-the-art technology for shielding Missiles across the world from getting overheated.<br>• Currently, ceramic radomes **have been developed indigenously** by Research Centre Imarat (RCI) which has developed India's missile arsenal. |

RCI is a DRDO laboratory for carrying out R&D in the technologies of control engineering, inertial navigation, imaging infrared seekers, radio frequency seekers and systems, onboard computers, and mission software.

## 13. CANDIDA AURIS

### Context:

An emerging fungus called *Candida auris* is spreading rapidly and geographically, according to a warning from the US Centres for Disease Control and Prevention (CDC).

### About Candida auris:

| Feature | Information |
|---|---|
| **Type of organism** | Yeast-type fungus |
| **Discovery** | First **discovered in 2009 in the ear canal** of a patient at the Tokyo Hospital (***auris*** is Latin for the ear).) |
| **Infections** | Can cause **bloodstream infections, respiratory infections, central nervous system** and organ infections, and skin infections |
| **Mortality rate** | Estimated to be between **30% to 53%** of patients affected by an invasive infection |
| **Drug resistance** | Resistant to the **most common types of antifungal drugs** and some strains are resistant to all medicines |
| **Spread** | Transmission is mainly through **contaminated surfaces in hospitals,** and can easily spread leading to outbreaks |
| **Risk factors** | Higher risk in hospital settings, nursing homes, and for patients in intensive care. Also, **those who have been on antibiotics for a long time have a higher risk** |
| **Difficulty in identification** | Identifying a C. auris infection is **quite difficult and it can easily be mistaken for other fungi, leading to the wrong treatment** |
| **C. auris is usually harmless** | Most of the time, **Candida yeasts live on our skin without causing problems**, but they can cause infections if we are unwell or they get into the wrong place, like the bloodstream or the lungs. |
| **Potential cause for rising infections** | **Rising temperatures linked to climate change** may have played a role in the rising number of infections |
| **Other superbug fungi on the WHO priority watchlist** | **Cryptococcus neoformans** (it lives in the environment (soil, decaying wood)), **Aspergillus fumigatus** (environmental mould) and **Candida albicans** (commonly found in human microbiota (mouth, throat, gut, vagina, and skin)) |

## 14. C-VEDA

### Context:

A recent study, under the **C-Veda project**, has evaluated and compared neurological development and generated brain-development charts across ages, similar to charts for physical growth.

| | |
|---|---|
| **C-Veda** | It is an **India-UK project** |
| **Funding** | Jointly funded by **ICMR** and UK's Newton Grant from Medical Research Council **(MRC)** |
| **Objective** | It aims to investigate if environmental and genetic risk factors in industrialised countries and emerging societies distinctly shape brain function and behaviour.<br><br>It has now **established the largest neurodevelopmental database in India**. |

# POLICIES

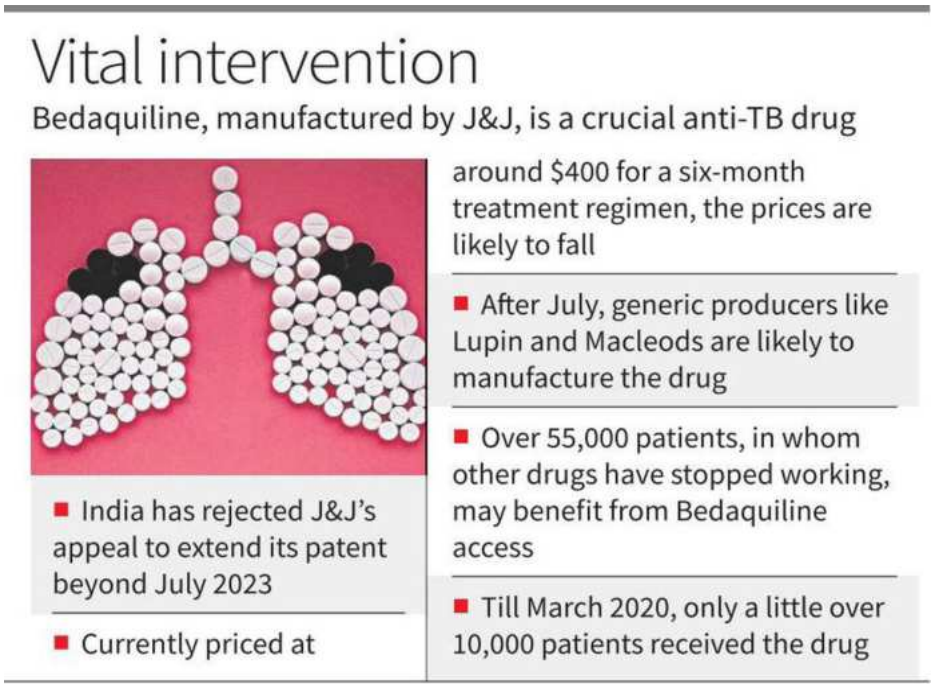
## 15. PATENT MONOPOLY/EVERGREENING

### Context:

India rejects Johnson & Johnson's attempt to extend monopoly on lifesaving TB drug - Bedaquiline.

### Background:

- **Bedaquiline** is a crucial drug in the treatment of **multi-drug resistant TB patients** for whom the first-line drug treatment (Isoniazid, Rifampicin, Pyrazinamide and Ethambutol) has stopped working.
- Over 55,000 patients benefited from access to Bedaquiline in India in 2019.
- When J&J filed for evergreening of its patent on fumarate salt (a formulation of Bedaquiline), its patent evergreening practice was challenged by two TB survivors in 2019.




### Why is Patent Monopoly/Evergreening?

- It is a practice of **modifying drugs** (without improving efficacy) in order to extend their patent life and profitability.
- Evergreening → establishes monopoly → undermines competition.
- **The Indian Patents Act, 1970** prohibits the mischievous practice of evergreening of patents → making the drugs **affordable** and promoting domestic **generic drug makers**.

### Indian Patent Office's order in the J&J case:

- The claimed invention is not patentable since it was obvious and **lacked an innovative step** mandated under Section 3(e) of the Patents Act.
- According to Patents Act Section 3(d), **derivatives of well-known compounds and salt forms are not patentable.**

## 16. BAN ON TRANSGENDER WOMEN FROM FEMALE EVENTS

World Athletics Council has voted to ban transgender women with **Differences in Sex Development (DSD)** who have undergone male puberty from competing in elite female competitions, effective from March 31.

- **DSD** means a person's sex development is different to most other people.

| About the News | Description |
|---|---|
| **Reason for the Ban** | • Emerging science has shown that **transgender women retain an advantage in strength, endurance, power, and lung capacity** – even after suppressing testosterone.<br>• To maintain **fairness** for female athletes above all other considerations.<br>• To "**protect the integrity and future** of the female category". |
| **Other Sports Bodies to Ban Transgender** | Rugby and swimming |
| **What is Testosterone?** | It is a hormone that is primarily produced in the testicles in males and in smaller amounts in the ovaries in females. It is responsible for the development of **male physical characteristics** such as increased muscle mass, bone density, and body hair. |
| **Normal level of Testosterone** | **Male**: 10 to 35 nanomoles per litre (nmol/L)<br>**Female**: **0.5 to 2.4** nmol/L. |
| **Level permitted by World Athletics** | All athletes with a **difference in sex development** would be **barred** from competing internationally in all events unless they reduced their **testosterone to 2.5 nanomoles per litre for a minimum of six months** |
| **About World Athletics** | It is **the international governing body (founded in 1912; HQ: Monaco)** for athletics, and it is responsible for setting rules and regulations, organizing international competitions, and promoting the sport worldwide. It has over 200 national member federations. |

# 17. UIDAI'S INITIATIVES FOR AADHAAR ECO-SYSTEM

## Context:

1670 Central and State social welfare (DBT) and good governance schemes have been notified for use of the Aadhaar.

## Biometrics-based de-duplication:

- Facial image + 10 fingerprints and two IRIS
- **Capability to detect attempted enrolment by using wrong fingers**, non-human fingers, gummy fingers, inverted IRIS images, the closing of eyes, etc.
- **Liveliness check of fingerprints:** Liveness detection detects a spoof attempt by determining whether the source of a biometric sample is a live human being or a fake representation.
- **Face authentication** with liveliness check

## Strengthening the Aadhaar Enrolment ecosystem

- **GPS fencing has been embedded in the Enrolment machines**: An operator is required to verify the credentials of the Enrolment machine regularly with the UIDAI data centre and only a limited number of enrolments are allowed per day per machine.
- **Quality check**: State governments have been roped in for a quality check of all new adult enrolments.

**Related news:**

**ABPS (Aadhar-based payment system) and NACH** (national automated clearing house) will continue to be used for MGNREGA payment of wages.

**About ABPS:**

It has been developed by the National Payments Corporation of India (NPCI). It enables payment to Aadhar-linked bank accounts in a transparent manner.

**About NACH:**

It is a web-based solution to facilitate interbank, high-volume, electronic transactions of repetitive and periodic nature. It is being used for MGNREGS payments when the beneficiary account is not linked with ABPS.

**About UIDAI:**

The UIDAI is a **statutory authority established under the provisions of the Aadhaar Act, 2016** by the Government of India. It was founded in 2009 (through executive order).

# AGRICULTURE

## 18. STATES TO GET REWARDS FOR ORGANIC FARMING

### Context:

The Central government has **designed a scheme for rewarding states that push organic farming in a measure to cut ballooning subsidies for chemical fertilizers**.

| Scheme: PM programme for restoration, awareness, nourishment, and melioration of mother earth (PM Pranam) | |
|---|---|
| **AIM** | It is designed to **check excessive and indiscriminate use of chemical fertilizers as part of the government's efforts to make farming more sustainable**. |
| **FEATURES** | • **No separate budget** and will be financed through the **"savings of existing fertiliser subsidy" under schemes run by the Department of Fertilizers.**<br>• **50% of subsidy saving**s will be passed on as **a grant to the state that saves the money.**<br>• **70% of the grant provided under the scheme can be used for asset creation related to the technological adoption of alternate fertilisers** and alternate fertiliser production units at the village, block, and district levels.<br>• The **remaining 30% of grant money can be used for rewarding and encouraging farmers, panchayats, farmer producer organisations and self-help groups** that are involved in the reduction of fertiliser use and awareness generation. |

### How much is the fertilizer subsidy burden of India?

- The government had **originally estimated only about ₹1 trillion for** making plant nutrients available to **farmers at affordable prices in FY23.**
- The **revised fertilizer subsidy estimate for this fiscal is around ₹2.25 trillion mainly owing to supply disruptions and price escalation in global markets following the Russia-Ukraine war.**

# 19. DIGICLAIM

## Context:

Union Ministry of Agriculture & Farmers Welfare has launched the National Crop Insurance Portal's digitized claim settlement module namely **DigiClaim** under the ambit of **Pradhan Mantri Fasal Bima Yojana (PMFBY)**

- Developed by the integration of the **National Crop Insurance Portal (NCIP) and the Public Finance Management System (PFMS)**

## Benefits:

- It will disburse claims electronically
- Make farmers **self-reliant** and **strong**.
- It will **reduce claim reversal and enable farmers to track their claim settlement** process in real-time through their mobile phones.
- Farmers' claims will be **processed directly to their respective bank accounts** in a transparent and accountable manner.

## Other technology being used in PFMS:

Weather Information and Network Data Systems (WINDS), Yield Estimation System based on Technology (YES-Tech), Collection of Real-Time Observations and Photographs of Crops (CROPIC), and Farmer Grievance Portal

## About PFMS:

| | Description |
|---|---|
| **About** | Launched in **2016** and is being administered by the Ministry of Agriculture and Farmers Welfare. |
| **Eligibility** | Farmers including **sharecroppers and tenant farmers** growing notified crops in the notified areas are eligible for coverage. |
| **Objectives** | • To provide **insurance coverage and financial support** to the farmers in the event of failure of **any of the notified crops** as a result of natural calamities, pests & diseases. To **stabilize the income** of farmers<br>• To encourage farmers to adopt **innovative and modern agricultural** practices<br>• To ensure **investment** in the agriculture sector. |
| **Premium** | • **Kharif crops (2%), 1.5% for all Rabi crops and 5% for commercial** and horticultural crops.<br>• Premium over and above these limits is shared by the Central and State Governments on a **50:50 basis**<br>• The scheme is **now optional for loanee farmers** (since 2020)<br>• Since February 2020, the central government has limited **its premium subsidy to 30%** for unirrigated areas and 25% for irrigated ones (previously no upper limit of subsidies) |
| **Scope** | PMFBY is currently the **largest crop insurance scheme** in the world in terms of farmer enrolments. |

# ENVIRONMENT, CLIMATE & CONSERVATION

## 20. THE GREEN LOSS

### Context:

According to a new report**, India has seen the highest rise in deforestation** in the last 30 years, **with a stark surge recorded between 2015 and 2020**.

### Key highlights & Leading Causes:

- **Cattle rearing (highest cause)** leading to a loss of 2,105,753 ha annually.
- This was followed by the **cultivation of oil seeds.**
- **Logging is the third highest factor** responsible for deforestation
- While **Brazil has reduced its deforestation by 2,559,100 ha from 2015 to 2020 and Indonesia by 1,876,000 ha** for the same period**, India's figures have only increased significantly.**

## 21. HASDEO FOREST: HOME TO LEMRU ELEPHANT RESERVE

### Context:

Tribal villagers near Hasdeo forest in the state of Chhattisgarh, India, have been protesting against the proposed **opening of a new coal mine** by the Adani Group.

### About Hasdeo forest:

The Hasdeo forest often called the "**lungs of Chhattisgarh**", is said to be the **largest contiguous stretch of dense forestland in central India**.

### About Lemru Elephant Reserve:

- **Location**: Korba district of Chhattisgarh.
- The state government notified the reserve (Conservation Reserve) in October 2020 under **Section 36A of the** Wild Life (Protection) Act, 1972 (WLPA).

In India, **elephant reserves and corridors have no legal sanctity under any law, including the** Wildlife Protection Act (WLPA)**, 1972**. The act mentions only national parks, wildlife sanctuaries, conservation, and community reserves (collectively called Protected Areas).

## 22. LOKTAK LAKE AND KEIBUL LAMJAO NATIONAL PARK

### Context:

Centre advises the state government to take steps for the protection of **Loktak Lake and Keibul Lamjao National Park.**

| About Loktak lake: |
|---|
| • Located in the state of **Manipur**, it is the **largest freshwater lake in Northeast India**.<br>• Known for its **floating circular swamps(phumdis)**<br>• The lake houses the **only floating national park in the world, the Keibul Lamjao National Park**, which is the last refuge of the **endangered brow-antlered deer or sangai, Manipur's state animal**.<br>• Loktak lake was initially **designated as a wetland of international importance under the Ramsar Convention in 1990.**<br>• Later it was also listed under **the Montreux Record in 1993.** |

# 23. CBAM OR CARBON TAX

## Context:

European Union is willing to collaborate with India in easing the administrative burden for businesses while enforcing its **Carbon Border Adjustment Mechanism (CBAM).**

| | |
|---|---|
| **What is CBAM or Carbon Tax?** | • It is a tax that imposes importers and non-EU manufacturers pay for the carbon emission linked to the goods they sell within EU limits.<br>• Under the political agreement, the CBAM will **enter into force in its transitional phase as of 1 October 2023** |
| **Importance** | • It seeks to **impose tariffs on imports** with a **high carbon footprint** entering the 27-member bloc.<br>• Encourage cleaner industrial production in non-EU countries |
| **Implication for India** | • Indian exports (India exports about **$2 billion** annually to the EU) could attract a **20-35% duty** on key Indian shipments, potentially clouding free trade talks between the two sides<br>• Against the principle of **Common but Differentiated Responsibilities and Respective Capabilities.** |
| **India's Response** | India is considering imposing **retaliatory tariffs on EU imports** in response to CBAM, which India said is **discriminatory towards developing nations.** |
| **Similar plans in the US** | **The Inflation Reduction Act** will allow the US to join with or mirror the EU's plan to impose a carbon fee on imports of high-emitting goods. |

## What is Carbon Leakage?

**Carbon leakage** refers to a situation where **efforts to reduce greenhouse gas emissions** in one country or region **are offset by increased emissions in another country** or region with less strict emissions regulations.

This occurs when **companies move their production or operations to countries with weaker environmental regulations** in order to avoid the costs associated with reducing emissions.

# 24. GREEN TUG TRANSITION PROGRAMME (GTTP)

## Context:

The Union Minister of Ports, Shipping & Waterways in India has announced the launch of the **Green Tug Transition Programme (GTTP).**

| | |
|---|---|
| **Aim** | Make India a **global hub for green shipbuilding by 2030** |
| **Features** | The programme will start with **Green Hybrid Tugs**, which will be powered by **green hybrid propulsion systems**, and will subsequently adopt **non-fossil fuel solutions** like Methanol, Ammonia, and Hydrogen. |
| **What is Green Shipping?** | • It refers to the use of environment-friendly resources and energy to transport people and goods by ship<br>• Green ship technology adopts procedures to decrease emissions, consume less energy, and be more efficient |
| **What are Tugs?** | • Tugs are special boats that assist other vessels into and out of port.<br>• The primary purpose of these boats is to help move larger ships by towing, pushing, and guiding. |

India's first **National Centre of Excellence in Green Port & Shipping (NCoEGPS**) was inaugurated recently in Gurugram, Haryana.

- Collaboration between the **Ministry of Ports, Shipping & Waterways, Government of India and the Energy and Resources Institute (TERI).**
- NCoEGPS acts as the **Nodal entity for the industry**.

# 25. DESALINATION—A VIABLE SOLUTION TO WATER SCARCITY

## Context:

While around **70% of Earth's surface is covered with water**, **less than 1% per cent is drinkable**. The desalination of our oceans into drinking water has emerged as the ultimate means to drought-proof regions suffering from water poverty.

| Aspects of Desalination | Description |
|---|---|
| **Definition** | A process of **removing salt and other minerals from seawater** or brackish water to make it potable for human consumption |
| **Techniques** | **Thermal distillation** or **reverse osmosis membrane** (uses the principle of osmosis to remove salt and other impurities, by transferring water through a series of semi-permeable membranes) |
| **Global Usage** | Over 20,000 desalination plants operating in over 170 countries, with the largest in Saudi Arabia, UAE, and Israel |
| **Examples** | **Minjur Desalination Plant in Chennai** (using reverse osmosis, largest water desalination plant in India). Also, the **Chennai-based National Institute of Ocean Technology (NIOT)** will set up a Desalination plant in **Lakshadweep** |
| **Environmental impact** | Desalination is **highly energy-intensive and can have significant greenhouse gas emissions,** and generate **toxic brine effluent (concentrated salt water)** that impacts marine ecosystems |

| | |
|---|---|
| **Sustainable solutions** | **Renewable energy** can be used to power desalination plants for a more sustainable solution |
| **Alternative to RO Desalination Technology** | **Low-temperature Thermal Desalination (LTTD)** – It works on the principle that water in the ocean 1,000 or 2,000 feet below is about 40 C to 80 C colder than surface water.<br>E.g., **100,000 litre-a-day plant** in **Kavaratti** (Lakshadweep islands) based on LTTD is operational |
| **Cost** | The cost of desalination has decreased from around $5 per cubic meter in the 2000s to 50 cents today |
| **Future outlook** | Desalination may become a **more important means of ensuring water security** in regions suffering from water scarcity and climate change impacts |

## 26. GREEN GOODS/PRODUCTS

### Context:

As per the United Nations Conference on Trade and Development (UNCTAD), the trade in manufactured goods has declined (1st Quarter of 2023), but **green goods trade continued** to increase.

| | Description |
|---|---|
| **Green Product** | A product that has a **minimal negative impact** on the environment throughout its entire life cycle, from production to disposal. |
| **Examples** | Renewable energy sources (**solar panels, wind turbines**), energy-efficient appliances, organic food, non-toxic cleaning products, and electric vehicles. |
| **Trend in Trade** | The global market for **green energy and hydrogen technologies** is projected to reach **$2.2 trillion by 2023**. Electric and hybrid vehicles, non-plastic packaging, and wind turbines show significant growth. |
| **Advantages** | Reduces negative environmental impact, promotes sustainability, encourages innovation in eco-friendly technology, helps preserve natural resources, and can provide a marketing advantage for businesses. |
| **Challenges** | Can be more **expensive** to produce, may **not always be as accessible or convenient as traditional products**, may require changes in **consumer behaviour** and attitudes towards sustainability, and there can be **difficulties in verifying** and regulating green claims. |
| **About UNCTAD** | It is an **intergovernmental organization (est. 1964; HQ: Geneva)** within the United Nations Secretariat that promotes the interests of developing countries in world trade. |

# SPACE

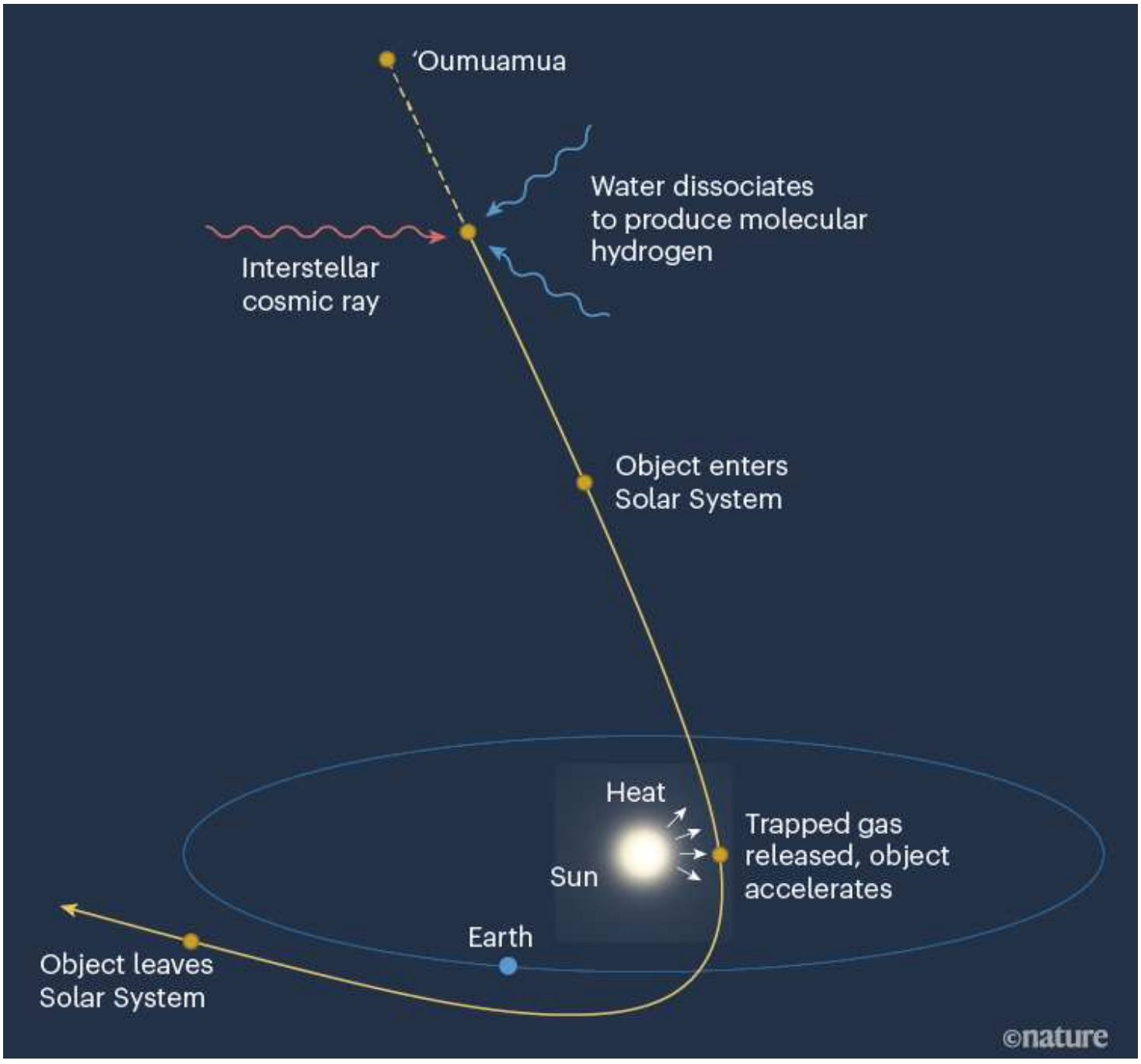
## 27. OUMUAMUA

### Context:

Astronomers have solved the mystery behind Oumuamua

| Feature | Description |
|---|---|
| **What is Oumuamua** | Oumuamua is a **comet**. It is the **first interstellar object** found visiting our solar system. |
| **Name** | 'Oumuamua' is Hawaiian for "**a messenger from afar arriving first**" |
| **Previous assumption** | Oumuamua may have been an **alien probe** (2018 study) due to its unexpected acceleration and **it lacks the tail of gas and dust characteristic of many comets.** |
| **The shape of the Comet** | Elongated, **cigar-like shape** between 100-400 meters long |

| | |
|---|---|
| **Reason for unexpected Acceleration** | The comet sped up slightly as it left the Solar System, due to the **release of trapped hydrogen** |
| **Composition** | Made up of hydrogen, carbon, and oxygen-rich ice |
| **Origin** | Possibly ejected from a **nearby star system** due to gravitational interactions |
| **Discovered** | First spotted in 2017, by a telescope in **Hawaii** |
| **Status** | No longer observable, as it has **left the Solar System** |




## 28. TERMINATOR ZONE

**Context:**

In a recent study, astronomers from the University of California explained the possibility of **extra-terrestrial life on far-off exoplanets** within a special region known as the "**terminator zone**"

### What is Terminator Zone?

- A terminator or twilight zone is a moving line that divides the daylit side and the dark night side of a planetary body.
- So, one side is always facing its star and one side that is always dark. It could exist in a "just right" temperature zone between too hot and too cold. Terminator zone planet can retain liquid water.

### Exoplanet:

An exoplanet or extrasolar planet is a planet outside the Solar System.

## DEFENCE

## 29. ANDROTH

### Context: '

Androth', the **second** of the **08 x Anti-Submarine Warfare Shallow Water Craft (SWC) Project**, being built by M/s GRSE (Kolkata) for the Indian Navy.

**First ship:** INS Arnala

### Features:

- **Androth** is also known as the **most silent ship**
- **Name:** INS Androth draws its name from the **largest and longest island Androth Island, in the Lakshadweep** archipelago (strategically important).
- **Primary role:** Conduct anti-submarine operations in coastal waters, low-intensity maritime operations and mine-laying operations.

**The Anti-Submarine Warfare Shallow Water Craft corvettes** are a class of anti-submarine warfare vessels currently being built for the **Indian Navy**, by Cochin Shipyard and Garden Reach Shipbuilders & Engineers.

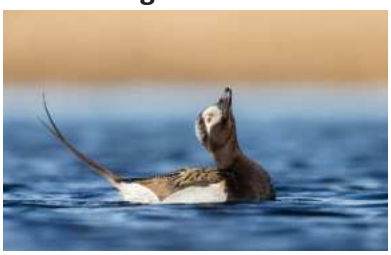
## SPECIES IN NEWS

## 30. LONG-TAILED AND SMEW DUCKS

### Context:

Long-tailed Ducks were seen in **Kashmir after 84 years** and were last seen at Hokersar.

- Smew Duck species spotted in Kashmir after 116 years.

| About Long-Tailed Ducks | |
|---|---|
|  | They are **slim, colourful sea ducks with long tails**. |

| | |
|---|---|
| **Habitat** | They occur around the **Arctic and Antarctic.**<br>Prefer to spend winter **near major bodies of water.** |
| **Diet** | **Marine invertebrates like crabs & molluscs.** |
| **IUCN Status** | **Vulnerable** |

### About Smew Duck:

| | |
|---|---|
| **About Smew Ducks**<br> | They are among the **most migratory birds, with arrivals at breeding grounds beginning in April.** |
| **Habitat** | **Inhabit freshwater lakes, reservoirs, flooded woods, ice-free rivers, sheltered bays, estuaries, lagoons, and tidal creeks.** |
| **Location** | **Found in both Eurasia and Europe**. They rarely **visit different parts of the Indian subcontinent.** |
| **IUCN Status** | **Least Concern** |

## 31. HORSESHOE CRABS

### Context:

Horseshoe crabs are disappearing from spawning grounds along Odisha's Chandipur and Balaramgadi coasts.

| | |
|---|---|
| **About Horseshoe crabs**<br> | • They are **marine and brackish water** arthropods of the family Limulidae<br>• Despite their name, they are **not true crabs or crustaceans**<br>• They are considered **living fossils** meaning they have existed nearly unchanged for at least 445 million years (even before dinosaurs existed) |
| **Habitat** | **Odisha** is their largest habitat in India |
| **Threats** | **Overharvesting** for use as food, bait, and biomedical testing |
| **Use** | Blood of Horseshoe crab is very important for the preparation of rapid diagnostic reagents (used in chemical reactions) |

| | |
|---|---|
| **Protection Status** | • **Schedule IV** of the Wildlife Protection Act 1972<br>• **IUCN Status**:<br>▪ **American horseshoe crab: Vulnerable**<br>▪ **Tri-spine horseshoe crab: Endangered.** |

# AWARD

## 32. WORLD SUMMIT ON THE INFORMATION SOCIETY (WSIS) AWARD 2023

### Context:

AuditOnline – Facilitating Online audits across Panchayati Raj Institutions – awarded the WSIS Prizes 2023 at the International Telecommunication Union (ITU), Geneva

### About Audit Online:

- It facilitates financial audit of accounts at all three levels of Panchayats, Urban Local Bodies (ULB) and Line departments by Auditors.
- **Developed by:** National Informatics Centre (NIC) as part of Panchayat Enterprise Suite under the ePanchayat Mission Mode Project.

### About WSIS:

WSIS is an **annual award** event coordinated by International Telecommunication Union to promote ICTs for achieving SDGs.

**About ITU**

The International Telecommunication Union (est. 1985, HQ: Geneva) is a specialized agency of the United Nations responsible for many matters related to information and communication technologies.

**What is an Audit?**

**An audit is the examination** of the financial report of an organisation - as presented in the annual report - by someone independent of that organisation.

**Audit Vs Accounting:**

**Accounting** indicates maintaining a company's financial statements. In contrast, **auditing** means checking whether the financial statements maintained by the company are accurate.

# MAPPING

## 1. IMPORTANT PLACES IN NEWS: INDIA AND THE WORLD

### Places in news - India

**Chenab Railway Bridge**

World's highest railway bridge spans the Chenab River at a height of 359 m (1,178 ft) above the river, which is 35 meters taller than Paris' Eiffel Tower. It is part of the Udhampur-Srinagar-Baramulla Railway Link (USBRL). It also contains the longest railway tunnel having an overall length of 12.75 km. Also, India's first cable-stayed rail bridge - Anji Khad Bridge - over Anji River (a tributary of Chenab) is nearing completion. Chenab River originates from the Lahaul valley of Himachal Pradesh and is a tributary of the Indus River

**Hasdeo forest and Lemru Elephant Reserve, Chhattisgarh**

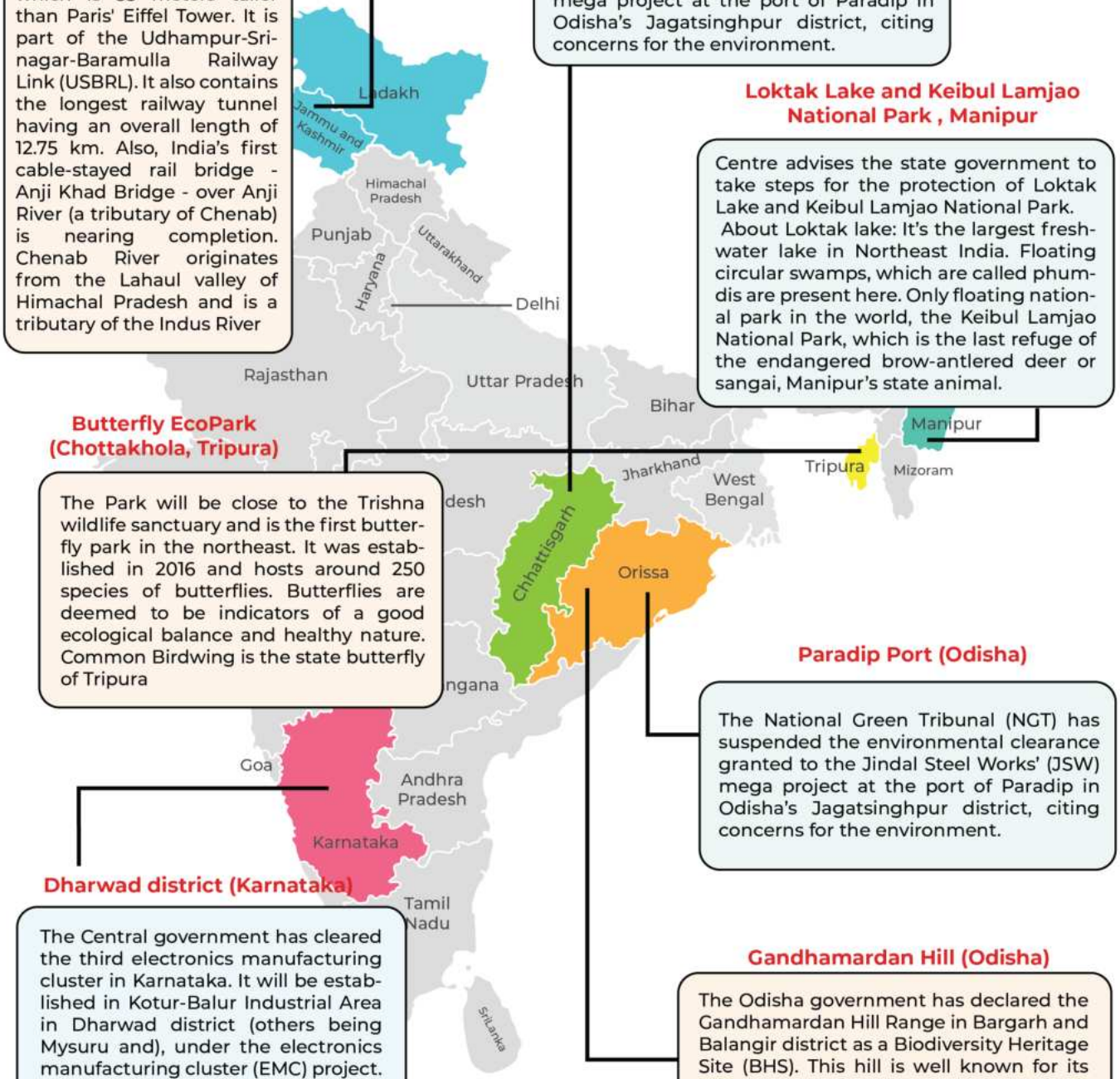
The National Green Tribunal (NGT) has suspended the environmental clearance granted to the Jindal Steel Works' (JSW) mega project at the port of Paradip in Odisha's Jagatsinghpur district, citing concerns for the environment.

**Loktak Lake and Keibul Lamjao National Park , Manipur**

Centre advises the state government to take steps for the protection of Loktak Lake and Keibul Lamjao National Park.
About Loktak lake: It's the largest freshwater lake in Northeast India. Floating circular swamps, which are called phumdis are present here. Only floating national park in the world, the Keibul Lamjao National Park, which is the last refuge of the endangered brow-antlered deer or sangai, Manipur's state animal.

**Butterfly EcoPark (Chottakhola, Tripura)**

The Park will be close to the Trishna wildlife sanctuary and is the first butterfly park in the northeast. It was established in 2016 and hosts around 250 species of butterflies. Butterflies are deemed to be indicators of a good ecological balance and healthy nature. Common Birdwing is the state butterfly of Tripura




**Paradip Port (Odisha)**

The National Green Tribunal (NGT) has suspended the environmental clearance granted to the Jindal Steel Works' (JSW) mega project at the port of Paradip in Odisha's Jagatsinghpur district, citing concerns for the environment.

**Dharwad district (Karnataka)**

The Central government has cleared the third electronics manufacturing cluster in Karnataka. It will be established in Kotur-Balur Industrial Area in Dharwad district (others being Mysuru and), under the electronics manufacturing cluster (EMC) project. EMC 2.0 scheme was introduced on April 1, 2020, to create infrastructure along with common testing facilities

**Gandhamardan Hill (Odisha)**

The Odisha government has declared the Gandhamardan Hill Range in Bargarh and Balangir district as a Biodiversity Heritage Site (BHS). This hill is well known for its medicinal plants and potential Bauxite reserve. The hill is linked to Hindu God Hanuman.

# Places in news - World

## Egypt

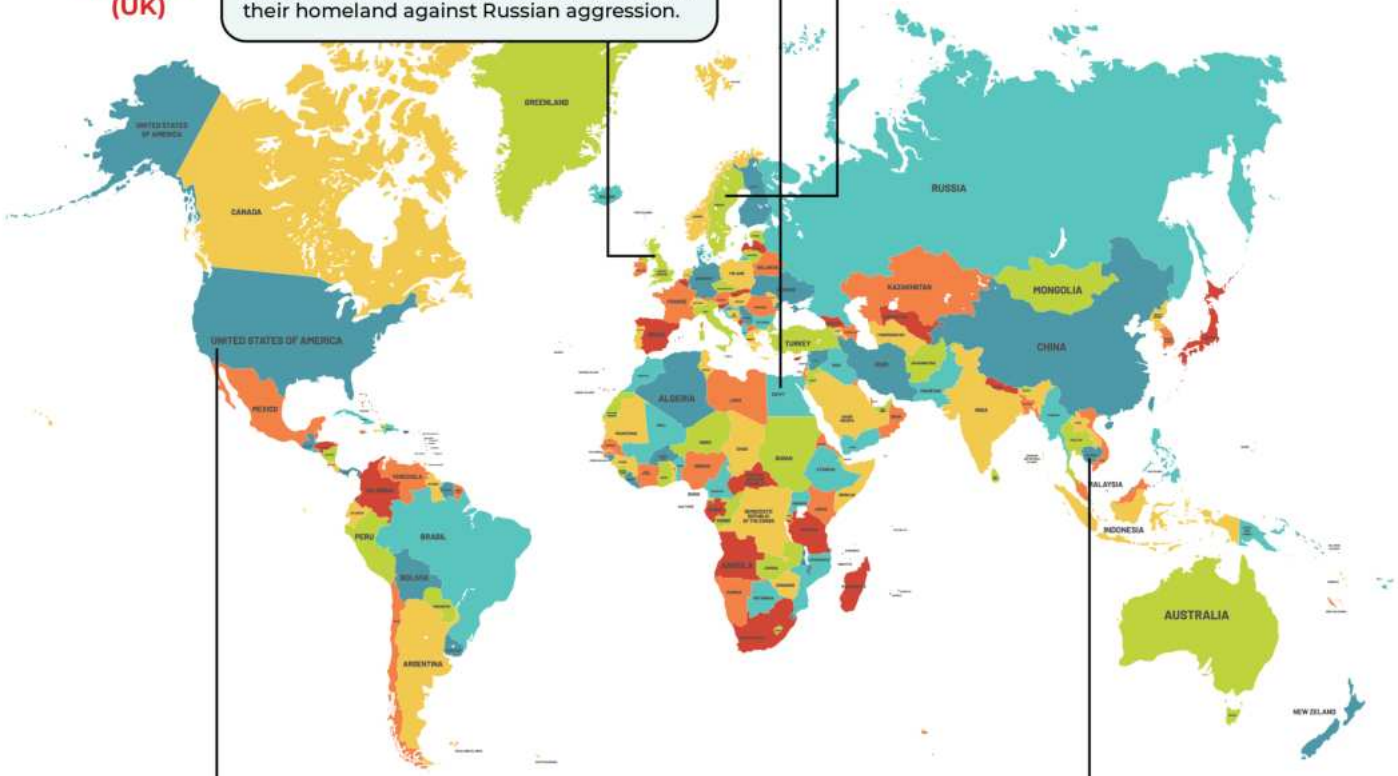
Egypt is planning to import rice from India through the rupee trade route. India is the world's largest rice-exporting country. Egypt, a country linking northeast Africa with the Middle East, dates to the time of the pharaohs. Suez Canal in Egypt connects the Mediterranean and Red seas. It has the Nile (the longest river in the world)

## Sweden

Sweden has approved a bill to allow it to join NATO after Turkey removed its objection. Sweden is a Scandinavian nation with thousands of coastal islands and inland lakes, along with vast boreal forests and glaciated mountains. It is bounded by the Baltic Sea and the Gulf of Bothnia.

## Operation Interflex (UK)

It is the UK-led military training programme for Ukrainian recruits, providing them with battlefield skills enabling them to defend their homeland against Russian aggression.




## Arizona (USA)

A sacred site in Arizona considered significant to the Hopi Native American Nation, has been awarded the 'Water and Heritage Shield' for its efforts to improve water management and protect the Sípàapu, a rocky dome made of lime-stone and a spring located on the Little Colorado river, a tributary of Colorado.
The Hopi are a Native American ethnic tribe group who primarily live on the Hopi Reservation in northeastern Arizona, United States.

## Cambodia

India is considering sending some tigers to Cambodia, where the big cat has gone extinct. Tigers are an umbrella species, which means when they are conserved, it also helps to conserve many other species. Cambodia is a Southeast Asian nation whose landscape spans low-lying plains, the Mekong Delta, mountains and the Gulf of Thailand coastline.

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Time table

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|---|---|
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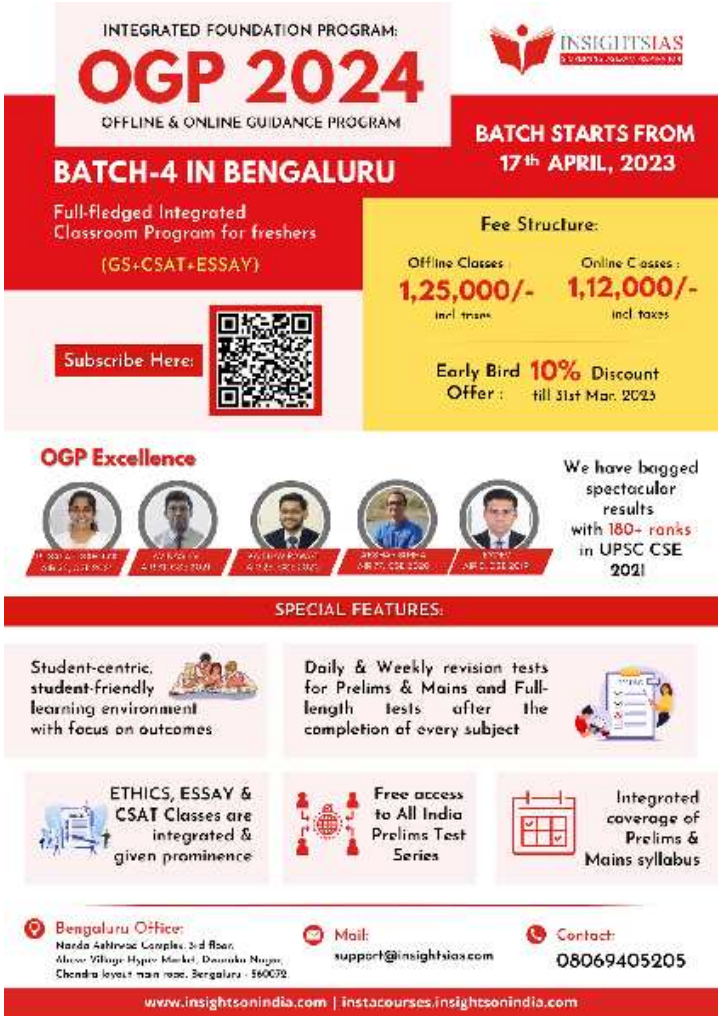
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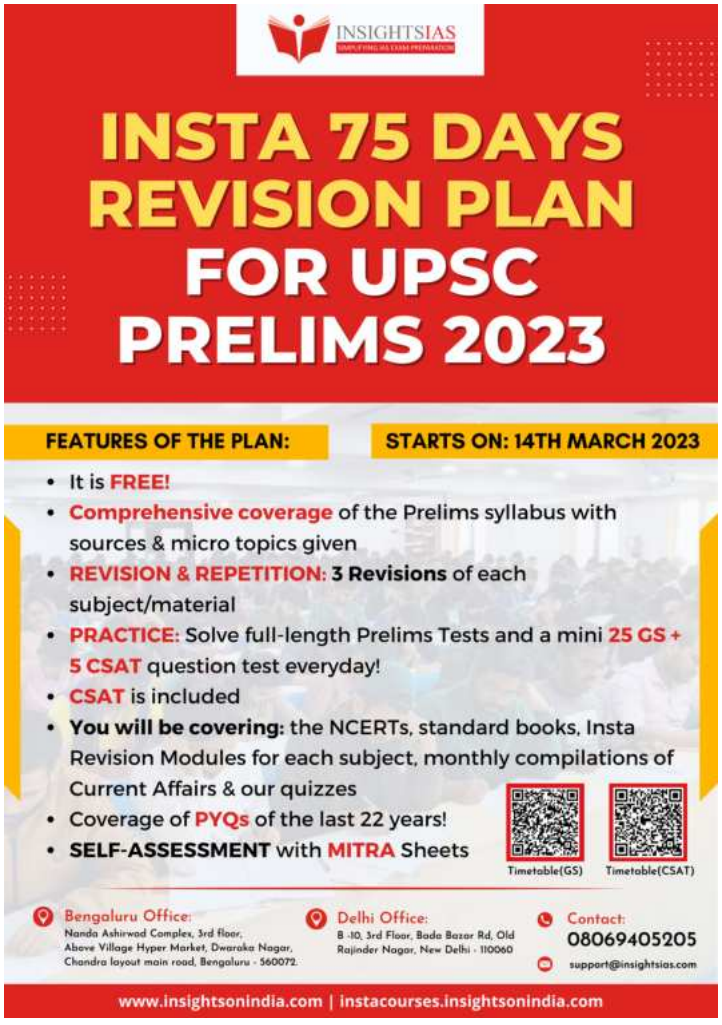
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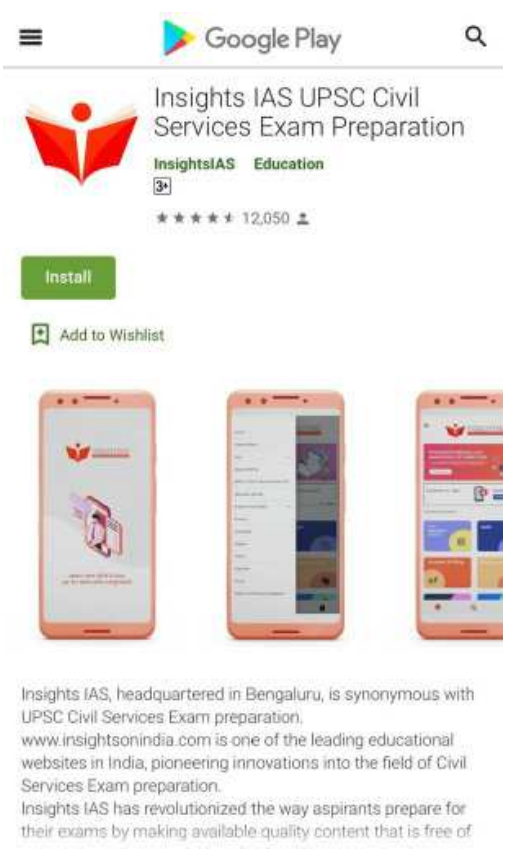


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