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# Current Affairs (CONSOLIDATION)

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# Polity and Governance

## Highlights

- DNA Profiling in the Justice System
- 5th Anniversary of Abrogation of Article 370
- Proposed Amendments in Waqf Act 1995
- Power of LG to Nominate MCD Aldermen
- Right to Be Forgotten
- Judicial Audit of Law
- Appointment of Governor

## DNA Profiling in the Justice System

### Why in News?

The June 2024 Madras High Court decision to overturn a **Protection of Children from Sexual Offences (POCSO) Act, 2012** conviction has reignited debate on the reliability of **Deoxyribonucleic acid (DNA) profiling** in legal cases.

- The court stressed the importance of not relying solely on DNA evidence for convictions, highlighting the need for corroborating evidence.

### What is DNA Profiling?

- **About:** DNA profiling, or **DNA fingerprinting**, identifies individuals by analysing unique regions of their DNA. While **human DNA is 99.9% identical**, the remaining 0.1% includes unique sequences called **Short Tandem Repeats (STRs)**, which are crucial for forensic investigations.
- **DNA as Genetic Code:** DNA is the genetic material found in the **nucleus of eukaryotic cells (animal and plant)** and the cytoplasm of prokaryotic cells (bacteria). It is structured as a **double helix**.
  - It is **organised into 23 pairs of chromosomes**, which are inherited equally from both parents, which encode genetic information in **sequences of four nucleotides called Adenine (A), Guanine (G), Thymine (T), and Cytosine (C)**.
  - DNA can be extracted from various biological materials such as blood, saliva, semen, and other body fluids. These samples are collected and analysed to generate a DNA profile.
    - DNA left behind during physical contact, **known as touch DNA**, is often in low quantities and not ideal for profiling due to potential contamination.

- **DNA profiling focuses on specific regions** called genetic markers, with **STRs** being the preferred markers due to their variability among individuals, **except monozygotic twins (identical twins)**.

### ➤ Process of DNA Profiling:

- **Isolation:** Extracting DNA from the collected biological samples.
- **Purification & Quantitation:** Ensuring the DNA is free from contaminants and determining its concentration.
- **Amplification:** Replicating selected genetic markers to generate enough DNA for analysis.
- **Visualization & Genotyping:** Identifying the specific sequences of the DNA markers.
- **Statistical Analysis & Interpretation:** Comparing the DNA profiles and calculating the probability of a match.
- Special Cases:
  - In cases involving degraded samples, **miniSTRs (smaller DNA fragments)** may be used as they are more likely to survive environmental stress. Additionally, **mitochondrial DNA (mtDNA)** is useful for tracing maternal lineage and is often employed when nuclear DNA is insufficient.

### How is DNA Profiling Used in Legal Proceedings?

- **Matching Process:** In forensic cases, DNA profiles from evidence are compared with known or reference samples. The results of this comparison can lead to three possible outcomes:
  - **Match:** The DNA profiles are indistinguishable, suggesting a common source.
  - **Exclusion:** The profiles differ, indicating different sources.

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- **Inconclusive:** The data does not provide a clear result.
- **Statistical Support:** Even if profiles match, **this does not conclusively prove identity**; instead, experts provide a “**random occurrence ratio**” indicating how often similar profiles may appear in the population.
- **Legal Interpretation:** The Madras High Court and the **Law Commission of India** have highlighted that a **DNA match does not conclusively prove identity**.
  - The “**random occurrence ratio**” indicates how frequently a particular DNA profile might appear in the population, which **may not be sufficient to establish guilt beyond a reasonable doubt**.

### **What are the Legal Provisions Regarding DNA Profiling in India?**

- **Legal Framework:**
  - **Indian Constitution: Article 20(3)** protects individuals from being forced to testify against themselves, ensuring **protection against self-incrimination**.
    - **Article 21** safeguards the right to life and personal liberty, prohibiting unauthorised interference.
  - **Code of Criminal Procedure, 1973 (CrPC):** Section 53 authorises DNA profiling of suspects at the investigation agency's request. **Section 53A specifically allows DNA profiling for rape suspects**.
    - The **Bharatiya Nagarik Suraksha Sanhita (BNSS) 2023** replaced the Code of Criminal Procedure (CrPC) of 1973.
  - **Indian Evidence Act, 1872:** Sections 45-51 pertains to the admissibility of expert testimony, including DNA evidence, in court.
- **Judicial Precedents:**
  - **Pattu Rajan v. State of T.N. 2019: Supreme Court** considered that the **probative value of DNA evidence varies depending on the facts and circumstances of the case**, and the weight accorded to other evidence on record, whether contrary or corroborative.
    - They emphasised that DNA evidence, though increasingly accurate and reliable, is not infallible, and the absence of such evidence should **not lead to an adverse inference against a party, especially in the presence of other cogent and reliable evidence**.

- **Sharda vs. Dharmpal, 2003:** The Supreme Court upheld the authority of marital courts to **mandate medical examinations including DNA profiling**, without violating Article 21.
- **Das @ Anu v. State of Kerala, 2022:** The Kerala High Court held that the right against self-incrimination under **Article 20(3) applies only to testimonial evidence**, and drawing DNA samples in a criminal case, **especially a sexual offence, does not violate this right**.
  - The court also noted that Section 53A of the CrPC empowers the police to send the accused to a medical practitioner for collecting samples.
- **Law Commission Recommendations:**
  - The **271<sup>st</sup> report (2017) by the Indian Law Commission** proposed comprehensive legislation for DNA profiling, leading to the **DNA Technology (Use and Application) Regulation Bill, 2019**. Urged for a unique regulatory framework to prevent misuse and restrict DNA profiling to legal uses only.

### **What are the Limitations of DNA Profiling?**

- **Environmental Stress and Sample Degradation:** DNA can be compromised by **environmental factors, leading to incomplete or degraded samples**.
  - Techniques like **miniSTRs and mtDNA analysis are used in these cases**, but they still come with limitations.
- **Complexity and Reliability:** DNA profiling is a complex process that requires precise techniques and conditions. Issues such as **contamination, improper handling, or delays in testing can affect the reliability of the results**.
- **Cost:** DNA analysis can be **expensive, limiting its accessibility in some cases**.
- **Legal Interpretation:** While DNA evidence is a powerful tool, it should not be viewed as infallible (always effective). Courts must consider DNA evidence alongside other corroborating or contradicting evidence to ensure a fair and just verdict.
  - The existing legal framework recognizes DNA evidence but lacks a **comprehensive regulatory structure**.
  - The **DNA Technology (Use and Application) Regulation Bill, 2019**, aims to address these gaps. The DNA Bill, introduced in **Parliament** multiple times, faced opposition on grounds of the accuracy of DNA technology, potential threats to individual privacy, and the possibility of abuse.

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## 5th Anniversary of Abrogation of Article 370

### Why in News?

Recently, the **fifth anniversary of the revocation of Article 370**, which granted special status to Jammu and Kashmir, was observed. On **5<sup>th</sup> August 2019**, the **Government of India revoked Article 370**.

### What was Article 370?

#### ➤ Article 370:

- Article 370 of the Indian constitution granted **special status to Jammu and Kashmir**.
- It was drafted by **N Gopalaswami Ayyangar**, a member of the **Constituent Assembly of India** and was added as a '**temporary provision**' in 1949.
- This article allowed Jammu and Kashmir to have its **constitution, flag, and autonomy** over most matters **except defence, foreign affairs, and communications**.
- The provision was based on the terms of the **Instrument of Accession**, which was signed by the **ruler of Jammu and Kashmir, Hari Singh**, in **1947** following an **invasion by Pakistan**.

#### ➤ Repeal of Article 370:

- **Presidential Order:** In the 2019 Presidential orders, **Parliament redefined** the "**constituent assembly of Jammu and Kashmir**" to mean the "**Legislative Assembly of Jammu and Kashmir**."
  - By invoking the **President's rule**, Parliament then assumed the powers of the Legislative Assembly to revoke Article 370.
- **Resolutions in Parliament:** On **5<sup>th</sup> and 6<sup>th</sup> August 2019**, concurrent resolutions were passed by both houses of **Parliament**, the **Lok Sabha** and the **Rajya Sabha**, respectively.
  - These resolutions revoked the **remaining provisions of Article 370** and replaced them with new provisions.
- **Jammu and Kashmir Reorganisation Act, 2019:** It was passed by Parliament in 2019 to bifurcate the state of Jammu and Kashmir into two **Union Territories of Jammu and Kashmir and Ladakh**.

#### ➤ **Supreme Court Judgment on Article 370:**

- The **Supreme Court** in December 2023, unanimously ruled to **uphold the Centre's abrogation of Article**

**370**, validating the two Presidential Orders which extended the applicability of the Indian Constitution to Jammu and Kashmir and rendered Article 370 inoperative.

### Jammu and Kashmir Reorganisation Act, 2019

- It **divided Jammu and Kashmir into 2 Union Territories** of Jammu and Kashmir and Ladakh.
- It repealed **Article 370**, which had granted Jammu and Kashmir a unique status.
- **Leh and Kargil** districts were included in the Union Territory of Ladakh, while the remaining areas became part of Jammu and Kashmir.
- **Five Lok Sabha seats** were retained by **Jammu and Kashmir**, and **one was transferred to Ladakh**.
- **Legislature:** The seats in the Legislative Assembly will be **reserved for tribal and scheduled caste** people to keep the proportion intact of their population in the Union Territory of Jammu and Kashmir.
  - The **Lt. Governors** can nominate **two women members** for the Assembly to represent women if women are not sufficiently represented to justify equality between men and women.
  - The **elected Legislative Assembly will be for 5 years**, and the Lt. The Governor will summon the Assembly once every six months.
  - The **Legislative Assembly has the right to pass a law** for any given part of the Union Territory of J&K related to any of the matters listed in the Indian Constitutions State's List **except for the "Police" and "Public Order."**
  - Any matter specified in the **Concurrent List will be applied to Indian Union Territories**. Furthermore, **Parliament** will have the decision-making power to create laws for Jammu Kashmir and its Union Territory.

### Supreme Court (SC) Judgement on Article 370

- A Constitution Bench had **upheld the abrogation of Article 370**, leading to the reorganisation of Jammu and Kashmir into two union territories and denuding it of its special privileges.
  - The SC observed that **Jammu and Kashmir did not possess sovereignty**, as **Article 370** and the J&K Constitution indicated **no need for a merger agreement to surrender its sovereignty**.

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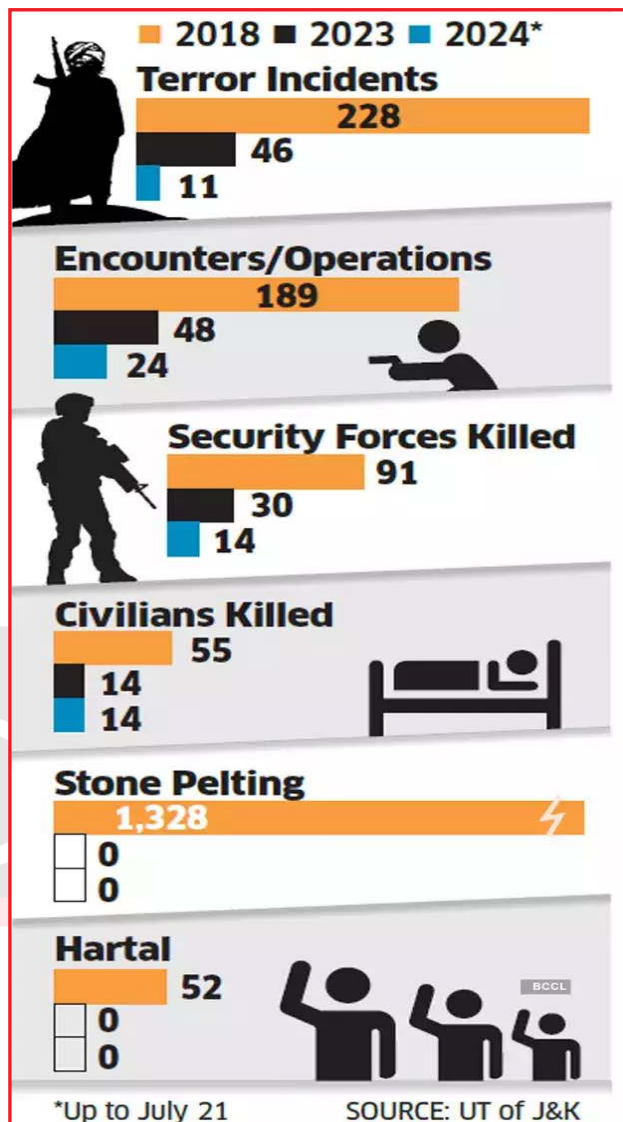
- The SC emphasised that Article 370 was intended as a **temporary provision**, as it was **placed in Part XXI of the Constitution**. The **Instrument of Accession** clarified that **Article 1**, stating “India that is Bharat shall be a Union of States,” fully applied to J&K.
- The SC agreed that the **President can make irreversible changes**, including dissolving the State Assembly, but these powers are **subject to judicial and constitutional scrutiny**.
- The Court held that the **Constitution of J&K is inoperative** because the **Indian Constitution now fully applies to Jammu and Kashmir**.

### Why was There a Need to Abrogate Article 370?

- **Integration and Development:** The revocation of Article 370 enabled **better access to resources**, infrastructure development, and **economic opportunities**, aiding the region's integration with the rest of India.
- **National Security:** Improved control and stricter security measures by the Indian government **enhanced national security and counter-terrorism efforts** in the region.
- **Ending Discrimination:** Equal rights and opportunities were ensured for **women, Dalits, and other marginalised groups** under Indian laws, promoting social justice.
- **Legal Uniformity:** The abrogation aimed to **eliminate legal confusion and disparities** by applying uniform laws across India, ensuring equal rights for all citizens.
- **Demographic Changes:** Encouraging outside investment was seen as a means to stabilise the region **economically and socially**, though **concerns about demographic shifts and property rights were noted**.
- **Political Stability:** The move aimed to **foster a stable political environment**, re-establish democratic processes, and improve local governance.

### What has been the Impact of the Abrogation of Article 370?

- **Uniformity in Laws:**
  - **Changes in Domicile Laws:** In April 2020, the Centre introduced the **domicile clause for J&K**, redefining residence and recruitment rules. This made any individual who has resided in J&K for 15 years or has studied for 7 years and appeared in class 10th/12th examination in J&K, eligible for a domicile certificate, **replacing the previously issued Permanent Resident Certificates**.



- **Changes in Land Laws:** The government amended 14 land laws in the former state of J&K, repealing 12 of them, including the Jammu and Kashmir Alienation of Land Act, 1938, and the Big Landed Estates Abolition Act, 1950, which had protected land holdings for permanent residents **alienating the non-permanent residents**.
  - Recently, the **Jammu and Kashmir (J&K) government granted proprietary rights to West Pakistan Refugees (WPRs)** and individuals displaced during the **1965 India-Pakistan war**.
- **Bharatiya Nyaya Sanhita (BNS) (formerly called IPC) Comes into Force:** With the revocation of J&K's special status, all central laws became applicable, and the **erstwhile state's constitution became defunct**.

Note:

- The **Ranbir Penal Code** was replaced with the **IPC (now BNS)**, and the prosecution wing was separated from the executive police in J&K.
- **State Investigation Agency (SIA) was Found:** In November 2021, the J&K administration established the **State Investigation Agency (SIA)** as a specialised agency to **coordinate with the National Investigation Agency (NIA)** and other central agencies for the speedy and effective investigation and prosecution of terrorism-related cases.
- **Decline in Violence:** Since the abrogation of Article 370, there has been a **significant decline in terror activities**, local militancy recruitment, and terrorist killings in J&K, with stone pelting, separatist strikes, and violent protests almost vanishing in the last five years.
- **Electoral Participation:** J&K recorded its **highest voter turnout** in a 2024 Lok Sabha poll in 35 years, with the **Kashmir Valley seeing a 30-point increase from 2019**. The 2024 Parliamentary polls were the **first major election in the Union Territory** after Article 370's abrogation.
- **Tourism in Jammu and Kashmir:** The region saw an unprecedented surge in tourism, attracting **over 21.1 million visitors in 2023**, boosting the local economy. There has been a **tourism boom post-Covid-19** and after the abrogation of Article 370, which is expected to increase further.
- **Trade and Investments:** Since the abrogation of Article 370 in 2019, J&K attracted Rs **5,656 crore** in investments across various sectors.
  - The **New Central Sector Scheme for Industrial Development**, launched in February 2021, spurred 310 investments in 2020-21, 175 in 2021-22, and 1,074 in 2022-23.
  - Lt Governor reported **Rs 66,000 crore** in **private investment proposals** within two years.
- **Enhanced Infrastructure:** The government has also invested heavily in infrastructure development in Jammu and Kashmir. This includes projects **such as the construction of new roads, bridges, tunnels, and power lines**.
  - These improvements have made it easier for people to travel and do business within the region.

### ***What new Challenges have Emerged in J&K and Ladakh after the Abrogation of Article 370?***

- **Political Instability and Governance Issues:** Detention of over **500 political leaders and communication blackouts** created a governance vacuum and increased local alienation.
- **Security Concerns and Militancy:** A **resurgence in militant activities** led to more recruitment and heightened security challenges, resulting in increased encounters and civilian casualties.
  - Example: **Recent terrorist attack on an Indian Army and pilgrims convoy** in Jammu.
  - The new trend in militancy in Jammu and Kashmir shows a shift towards **local militants, increased use of modern technology**, and **weakened local intelligence due to troop redeployments to Eastern Ladakh**.
- **Socio-Economic Disruption:** Prolonged lockdowns due to frequent curfews caused economic contraction, especially in **tourism, with over 80% decline in 2020**, leading to higher unemployment and youth discontent.
- **Human Rights Violations:** There has been observed a large number of cases of detentions, excessive force by security, and restricted freedom of expression, fueling local resentment.
- **Administrative Challenges in Ladakh:** The bifurcation created administrative issues in Ladakh, with inadequate infrastructure and governance. The **Ladakh Autonomous Hill Development Council** is demanding inclusion under the **Sixth Schedule** and full statehood to gain greater autonomy in development and **control over natural resources**.
- **Cultural and Identity Concerns:** Fears of **cultural dilution and demographic changes** due to the influx of outsiders, with **regional parties voicing concerns** over land and job security for locals.

### **Proposed Amendments in Waqf Act 1995**

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

Parliament is set to introduce the Waqf (Amendment) Bill, 2024, to amend the **Waqf Act, 1995**, with the **goal of enhancing accountability and transparency** in the functioning of Waqf boards.

Note:

- It seeks to remove certain provisions of the **Waqf act, 1995** to **reduce** the Waqf Boards' **unchecked power**, which currently lets them declare any property as Waqf without necessary checks.

### **What are the Key Amendments in Waqf Act (Amendment Bill), 2024?**

- **Transparency:** The Bill outlines around 40 amendments to the current Waqf Act, including that Waqf Boards **will be required to undergo mandatory verification for all property claims**, ensuring transparency
- **Gender Diversity:** Sections 9 and 14 of the Waqf Act, 1995 will be amended to modify the **composition** and functioning of the **Waqf Board**, including the addition of **women representatives**.
- **Revised Verification Procedures:** New verification procedures will be introduced for Waqf properties to address disputes and prevent misuse, with **district magistrates** potentially **overseeing** these properties.
- **Limited Power:** The amendments respond to concerns about the Waqf Boards' unchecked powers, which have led to **extensive land** being claimed as **Waqf**, causing disputes and misuse claims.
  - For example, in September 2022, the **Tamil Nadu Waqf Board** claimed the entire **Thiruchendurai village**, which is predominantly Hindu.

### **Why Amendment to the Waqf Act, 1995 have been Criticised?**

- **Reduced Powers:** It **limits** the **authority** of Waqf Boards, affecting their ability to manage Waqf properties.
- **Minority Rights Concerns:** Critics worry it might **harm** the interests of **Muslim communities** that use these properties for religious and charitable purposes.
- **Increased Government Control:** The involvement of district magistrates and more oversight could lead to excessive **bureaucratic interference**.
- **Hampers Freedom of Religion:** The involvement of district magistrates and other government officials in overseeing Waqf properties may be viewed as an encroachment on **religious autonomy**.
- **Potential Disputes:** New verification processes like involvement of district magistrates might create more **disputes** and **complications**.

### **What is Waqf Act, 1955?**

- **Background:** The Waqf act was first passed by Parliament in **1954**.

- It was later repealed, and a new **Waqf Act** was passed in **1995**, which gave more powers to Waqf Boards.
- In **2013**, the Act was further amended to grant the Waqf Board **extensive powers** to designate property as '**Waqf Property**.'
- **Waqf:** It is the permanent dedication of **movable** or **immovable properties** for **religious, pious** or **charitable** purposes as recognised by Muslim law.
  - It implies the **endowment of property**, whether movable or immovable, tangible or intangible, to **God** by a Muslim, under the premise that the **transfer** will benefit the **needy**.
  - The **proceeds** from a Waqf typically fund **educational institutions**, **graveyards**, **mosques** and **shelter homes**.
  - Waqfs in India are **regulated** by the **Waqf act, 1995**.
- **Management of Waqf:**
  - A **survey commissioner** lists all properties declared as Waqf by conducting **local investigations**, summoning witnesses, and requisitioning public documents.
  - The Waqf is managed by a **mutawali**, who acts as a **supervisor**.
  - Unlike trusts established under the **Indian Trusts Act, 1882**, which can serve broader purposes and be dissolved by the board, Waqfs are specifically for **religious** and **charitable uses** and are intended to be **perpetual**.
  - Waqfs can be either **public**, serving charitable ends, or **private**, benefiting the property owner's **direct descendants**.
  - To create a Waqf, one must be of **sound mind** and hold **valid ownership** of the property. Interestingly, the creator of a Waqf, known as the **Waqif**, does not have to be a Muslim, as long as they profess belief in Islamic principles.
- **Waqf Board:**
  - A Waqf board is a **legal entity** capable of **acquiring**, **holding** and **transferring** property. **It can sue and be sued in court**.
  - It **administers** Waqf properties, **recovers** lost properties and **sanctions** the transfer of immovable Waqf properties through sale, gift, mortgage, exchange, or lease, with at least two-thirds of the board members voting in favour of the transaction.

Note:



- The **Central Waqf Council (CWC)**, established in **1964**, oversees and advises state level Waqf Boards across India.
- **Waqf Properties:** The Waqf board is said to be the **third-largest landholder** in India after the Railways and the Defence department.
- Currently, there are 8,72,292 registered Waqf properties spread across 8 lakh acres. These properties generate Rs 200 crore in revenue.
- Once a property is **designated** as a **Waqf**, it becomes **non-transferable** and is **detained perpetually** as a charitable act toward God, essentially transferring ownership to God.

## Power of LG to Nominate MCD Aldermen

### Why in News?

The Supreme Court (SC) ruled that the **Lieutenant Governor (LG)** of Delhi can **nominate "aldermen"** to the Municipal Corporation of Delhi (MCD) without needing advice from the Delhi Government's Council of Ministers.

### What did the Supreme Court Rule on the Nomination of MCD Aldermen?

- The SC ruled that **Section 3** of the **Delhi Municipal Corporation Act, 1957 (DMC Act)** gives the Delhi LG the **"explicit" power** to nominate aldermen without any requirement to consult the Council of Ministers.
- The Supreme Court referred to the **five-judge bench** decision in **Government of NCT of Delhi v. Union of India, 2023**, to arrive at its decision.
  - In 2023, the apex court held that **Parliament** would have the power to legislate over subjects in the **State List** as well, when it comes to the **NCT of Delhi**.
  - In this case, it would involve enacting laws regarding **'local government,'** which falls under the **State List** and pertains to the **DMC Act, 1957**.

### What were the Issues in the Nomination of Aldermen?

- **Constitutional Provision:** **Article 239AA** of the Indian Constitution mandates that the Council of Ministers and the Chief Minister should **"aid and advise"** the L-G on matters within the **Legislative Assembly's power, except when the L-G must act in discretion as per the law**.

- The Delhi Legislative Assembly has the power to make laws on most subjects except for **'Public order,' 'Police,' and 'Land.'**
- **Aldermen Nomination:** On 3<sup>rd</sup> January 2023, the Delhi LG nominated **10 aldermen** under **Section 3 of the DMC Act, 1957**.
- **Legal Challenge:** The Delhi government challenged the nominations in the Supreme Court.
  - The Delhi government referenced the Supreme Court decision in **Government of NCT of Delhi Vs. Union of India, 2018** which held that the LG must follow the aid and advice of the Council of Ministers for matters under the **State and Concurrent lists**.
- **L-G's Argument:** The Delhi LG contended that the **DMC Act, 1957** specifically grants him the **power to nominate aldermen** without requiring the Council of Ministers' advice.

### What is the Position of Aldermen in MCD?

- **About:** Alderman refers to a **member of a city council or municipal body**.
  - It originally referred to **elders** of a **clan or tribe** and soon it became a term for **king's viceroys**. Later, it denoted a more specific title **"chief magistrate of a county,"** having both civic and military duties.
  - Aldermen are **expected to have special knowledge** or experience in municipal administration who are meant to assist the house in taking decisions of public importance.
- **Role of Aldermen:** Under the Delhi Municipal Corporation (DMC) Act, 1957 Delhi is divided into **12 zones**, each with a **'Wards Committee'** comprising elected representatives and **nominated aldermen**.
- **Nomination:** The Delhi LG can nominate **10 aldermen** who are at least **25 years old** and have **experience** in municipal administration.
- **Voting Rights:** Aldermen **do not vote** in MCD meetings but are crucial in **Wards Committees**, where they can **vote and stand** for election to the MCD Standing Committee.
- **Standing Committee:** This committee, which includes aldermen, manages the MCD's functions and is essential for decisions like contracts over Rs. 5 crore, budget revisions, and appointing officers.
  - Without aldermen, the **Standing Committee** cannot be formed, halting key MCD functions.

Note:



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### What is the Governance Model of Delhi?

- The **69th Amendment Act, 1991** inserted **Article 239AA**, which renamed the **Union Territory of Delhi** to **National Capital Territory (NCT)** to be administered by a **LG** who works on **aid and advice** of the **Council of Ministers**.
  - The **'aid and advice'** rule applies only to matters where the Delhi Assembly has authority, covering subjects in the **State and Concurrent Lists**. It does **not** apply to **public order, police and land**.
- Also, Article 239AA, empowers the **LG** to refer a **difference of opinion** on **'any matter'** with the Council of Ministers to the President.
- **Judiciary's Opinion on the Governance Model of Delhi:** In the **Government of NCT of Delhi Vs. Union of India, 2018**, the Constitutional bench of the Supreme Court gave the following judgements.
  - **Purposive Construction:** The court invoked the rule of **purposive construction** to say that the objectives behind the **69th Amendment Act, 1991** shall guide the interpretation of **Article 239AA**.
    - It means that Article 239AA incorporates principles of **federalism** and **democracy**, giving Delhi a **unique status** compared to other Union Territories.
  - **LG to Act on Aid and Advice:** The Court declared that the **LG** is **bound** by the **"aid and advice"** of the **Council of Ministers**, noting that the Delhi Assembly also has the power to make laws over all subjects that figure in the Concurrent List, and all, except three excluded subjects (Public order, Police and Land) in the State List.
    - The LG ought to act on the "aid and advice" of the Council of Ministers, **except** when he **refers** a matter to the **President** for a final decision.
  - **Any Matter is Not Every Matter:** The Supreme Court ruled that the LG can only **refer** a matter to the President in **exceptional cases**, **not** for **every disagreement** with the Council of Ministers.
  - **LG as Facilitator:** LG shall act as a **facilitator** rather than acting as an **adversary** to the elected Council of Ministers.
  - **New Delhi Cannot be Given Statehood:** At the same time, the Court ruled that the National Capital Territory of Delhi **cannot** be granted the status of a **State** under the constitutional scheme.

### Right to Be Forgotten

#### Why in News?

Recently, the **Supreme Court of India** has agreed to hear a case that could redefine the **"right to be forgotten" in India**, where no statutory framework currently exists.

- This right, also known in **European privacy law** as the **"right to erasure,"** pertains to an individual's ability to remove their digital footprint from public view when it violates their privacy.
- The outcome is expected to significantly influence how this right is understood and implemented in the country.

#### What is the Right to Be Forgotten?

- **Definition:** The right to be forgotten allows **individuals to request the removal of their personal data from digital platforms** when it is outdated, irrelevant, or harmful to their privacy.
- **European Context:** Established by the **Luxembourg-based Court of Justice of the European Union (CJEU)** in 2014, the right to be forgotten was highlighted in the **"Google Spain case"** that required Google to remove 'inadequate, irrelevant, or no longer relevant' data upon request.
  - The court ruled that search engines must address requests to remove information that is no longer relevant or excessive in light of time elapsed.
  - In the EU, the right to be forgotten is enshrined in **Article 17 of the General Data Protection Regulation (GDPR)**, which emphasises informational self-determination and the right to control personal data.
- **Other Nations:** Countries like **Canada, the United Kingdom, Argentina, and Japan** have adopted similar laws. In 2023, a Canadian court upheld the right to demand search blocks on personal data.
- **California:** The 2015 Online Eraser law allows minors to remove their posted information. The **2023 DELETE Act** extends this right to adults, allowing them to **delete personal information collected by data brokers**.

#### How is the Right to Be Forgotten Interpreted in India?

- **Current Status:** India does not have a specific statutory framework for the right to be forgotten. However, the concept has been referenced in the **context of privacy and digital rights**.

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- **Judicial Recognition:** The 2017 ruling in *Justice K.S. Puttaswamy v. Union of India* recognised the **right to privacy as a fundamental right** under the Constitution, which implicitly includes the right to be forgotten.
  - In the Puttaswamy case, the Court **acknowledged the right to be forgotten but clarified that it should not be absolute**. It outlined scenarios where this right may not apply, such as for **public interest, public health, archiving, research, or legal claims**.
  - Stated that the recognition of such a right would only mean that an individual should be able to remove their personal data **when it is no longer relevant or serves no legitimate interest**.
- **Digital Personal Data Protection Act, 2023:** This Act recognizes the right to “erasure” but the application of these laws to court records and publicly available data remains unclear, with conflicting interpretations in the courts.
- **Information Technology Rules, 2021:** Obligates intermediaries to remove or disable access to content violating privacy within 24 hours of a complaint.

### ***What are the Judicial Precedents Related to the Right to Be Forgotten?***

- ***Rajagopal vs. State of Tamil Nadu Case, 1994:*** This landmark case discussed the “**right to be let alone**” but distinguished it from the publication of public records, such as court decisions, which remain a legitimate subject for **public comment**.
- ***Dharamraj Bhanushankar Dave vs. State of Gujarat, 2017:*** The Gujarat High Court denied a request to remove details of an acquittal from public records, emphasising that court orders should remain accessible.
- **Orissa HC (2020):** The Orissa High Court, dealing with a criminal case involving “revenge porn,” emphasised the need for extensive debate on the right to be forgotten.
  - The Court noted that the implementation of this **right presents complex issues requiring clear legal boundaries and redressal mechanisms**.
- **Delhi HC (2021):** Extended the right to be forgotten in a criminal case, allowing the removal of details from search results to protect the petitioner’s social life and career prospects.
- **Supreme Court Order (July 2022):** The Supreme Court directed its registry to create a mechanism for removing the personal details of a couple involved in

a contentious marital dispute from search engines. This expanded the interpretation of the right to be forgotten.

- **Kerala High Court (December 2023):** Ruled that the **right to be forgotten cannot be applied to ongoing court proceedings**, citing concerns about open justice and public interest.
  - The court suggested that **legislative clarity is needed** but acknowledged that the right could be considered depending on specific case details and time elapsed.
- **Himachal Pradesh High Court (July 2024):** Directed the redaction of names of both the accused and the victim in a rape case, highlighting that once acquitted, an individual should not continue to carry the stigma of the accusations.

### ***What Challenges arise from Inconsistent Judicial Approaches?***

- **Lack of Uniformity:** The varied rulings by different High Courts create confusion about the application of the right to be forgotten, leading to **inconsistent enforcement and potential legal uncertainty**.
- **Balancing Privacy and Public Interest:** Courts struggle to balance individual privacy rights with the principle of open justice and public access to information, making it difficult to establish clear guidelines.
- **Impact on Public Records:** The distinction between personal privacy and public records, as discussed in ***Rajagopal vs. State of Tamil Nadu, 1994***, poses challenges.
  - Courts must navigate how to protect personal privacy without undermining the accessibility and legitimacy of public court records.
- **Need for Legislative Clarity:** The **absence of a comprehensive legal framework contributes to the inconsistent application of the right**, highlighting the need for legislative intervention to define clear standards and procedures.
- **Potential for Overreach:** Courts’ differing approaches may prompt concerns about **overreach and the integrity of digital records**.
  - There is a risk that private entities might face undue pressure to remove content, potentially affecting the accuracy and completeness of online information.

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- **Balancing Rights:** Courts need to balance the Right to Be Forgotten with freedom of speech and expression. Additionally, there is a need for **clear guidelines** to resolve conflicts between Right to Be Forgotten and the **Right to Information Act, 2005**.
- **Other Challenges:** Enforcing the Right to Be Forgotten across digital platforms and jurisdictions is challenging due to compliance issues and technical constraints like **data replication**.
  - Ensuring compliance from search engines, websites, and other intermediaries requires robust legal and technical mechanisms. Complete removal of information from the internet can be technically difficult.
  - **Restriction to Journalism:** It could restrict journalists from disclosing certain people's histories and past activities which could hinder journalists' ability to impart information and ideas freely through media, affecting the democratic role of journalism.

### **Why 'Right to Be Forgotten' Should Be Adopted?**

- **Control Over Personal Information:** Individuals should have the right to control their **personal information and identity in the digital age**.
  - Governments and private entities can significantly interfere with privacy by tracking and recording online activities.
  - Many instances of personal information, such as intimate photos or private details, are **shared online without consent**.
    - The 'Right to Be Forgotten' addresses this issue by allowing individuals to remove such content from public access.
- **Mitigating Digital Damage:** The presence of **outdated or incorrect information** can have **long-lasting negative effects on an individual's life**, including their personal relationships and professional opportunities. This right helps mitigate such harms by allowing for the removal of outdated or irrelevant data.
  - Individuals should not be **continually penalised for their past**, especially when they have moved on or changed. The right ensures they are not unjustly judged based on outdated information.
- **Right to Privacy:** There is no right to access private information that is unlawfully made public.
  - Right to Be Forgotten ensures that individuals are **not compelled to live with the repercussions of unlawfully disclosed personal information**.

## **Judicial Audit of Law**

### **Why in News?**

Recently, the **Supreme Court of India** recently upheld the **judiciary's authority to direct the government** to conduct a **"performance audit"** of its statutory laws.

- This ruling emerged from an appeal regarding an **Act for slum area development** in Maharashtra, highlighting **concerns over the law's effectiveness in improving conditions** for its intended beneficiaries.

### **What is the Supreme Court's Ruling?**

- The Supreme Court directed the Bombay High Court to **conduct a performance audit of the Maharashtra Slum Areas (Improvement, Clearance and Redevelopment) Act, 1971**, due to a significant backlog of over 1,600 pending cases related to the Act.
- The Court highlighted that while the **Act aims to provide housing and dignity to marginalised individuals**, its implementation has led to **extensive litigation**, undermining its objectives.
- The Court emphasised that the **judiciary has both the power and duty to ensure laws are effective**. The Court noted that if a law fails to benefit its intended recipients, a performance audit is warranted.
- Additionally, the Court stressed the importance of **"institutional memory"** in evaluating legislation's long-term impact.

### **What are the Implications of this Judgement?**

- **Judicial Activism:** It marks a shift towards **proactive judicial involvement in governance**, wherein the judiciary can **act as a facilitator of justice**, stepping in when bureaucratic delays hinder the enforcement of statutory provisions.
  - This could set a **precedent for similar audits of other welfare laws and schemes**.
- **Performance Audit:** The performance audit aims to **evaluate the effectiveness of the Act and identify systemic issues** contributing to litigation.
  - This could lead to **necessary reforms in the law**, enhancing its efficacy in achieving its intended goals.
  - The **fear of a performance audit of the law** may compel legislatures to **scrutinise laws more thoroughly before and during their promulgation** to eliminate any inconsistencies and shortcomings.

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- **Legislature and Executive Accountability:** The ruling reinforces the **constitutional duty of the legislature and executive to frame, monitor and assess the impact of legislation**. This may lead to increased accountability and responsiveness from government authorities in implementing welfare laws.
- **Focus on Marginalised Communities:** The Court's emphasis on the **law's intent to benefit marginalised groups** underscores the need for policies that genuinely address their needs. This could stimulate **further legal and policy initiatives aimed at protecting vulnerable populations**.
  - The Supreme Court's observations on the Act could lead to major reforms, creating a better framework for slum redevelopment and improving living conditions for affected communities.

#### What are the Previous Rulings of the Supreme Court Related Judicial Activism?

- **Anun Dhawan & Ors. vs. Union of India, 2024:**
  - In this, activists filed a **Public Interest Litigation (PIL)** advocating for the establishment of **community kitchens** to address hunger and malnutrition. The petition highlighted alarming child mortality rates due to these issues and argued that the situation violates **fundamental rights**, including the right to food and life.
  - **Supreme Court Judgment:** In this, the **Supreme Court declined to direct states to implement a specific scheme** for community kitchens to combat hunger and malnutrition.
    - The court emphasised the **limited scope of judicial review concerning government policy matters**, stating that it cannot mandate states to adopt a particular policy simply because an alternative might be considered better.
    - Instead, it acknowledged the existing frameworks under the **National Food Security Act (NFSA)** and left it to states and union territories to explore alternative welfare schemes as they saw fit.
- **Vishaka vs. State of Rajasthan, 1997:**
  - The case is a landmark judgment in India that established crucial guidelines to prevent **sexual harassment in the workplace**.

- In this, the **Supreme Court** laid down comprehensive guidelines named **Vishakha guidelines**, outlining definitions, employer obligations, complaint mechanisms, and the need for training.
- This ruling led to the enactment of the **Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013**, significantly enhancing workplace safety for women.

#### What are the Reasons for the Legislature's Enactment of Ineffective Laws?

- **Complexity of Issues:** India's diverse population and interconnected social, economic, and environmental problems make it difficult to draft universally effective laws.
- **Lack of Research and Data:** Many laws are created without sufficient empirical evidence or thorough impact assessments, leading to ineffective solutions.
  - **Example:** Lack of scrutiny by the **Joint Parliamentary Committee (JPC)** on **three farm laws** passed in Parliament led to limited opportunities for detailed scrutiny and public input.
- **Political Pressures:** Partisan politics and **short-term electoral pressures** can overshadow public interest, resulting in poorly designed legislation.
- **Bureaucratic Challenges:** Resistance to change and limited resources within the bureaucracy can hinder the implementation and enforcement of new laws.
- **Inadequate Stakeholder Consultation:** Limited engagement with **civil society** and marginalised groups can lead to laws that fail to address real needs.
  - **For Example,** the **Forest Rights Act (FRA) of 2006** aims to protect the rights of indigenous and tribal communities over forest land and resources. However, its implementation has struggled due to **inadequate consultation with the local communities**, hindering the effective recognition of their rights.
- **Overlapping Jurisdictions:** Conflicting laws and jurisdictional disputes can create confusion and inefficiencies in enforcement.
  - For Example, **Land acquisition laws** at both the central and state levels can create **conflicts regarding land use and compensation practices**.
- **Drafting Quality:** Ambiguous language and technical complexity in laws can result in misinterpretation and limited public understanding.

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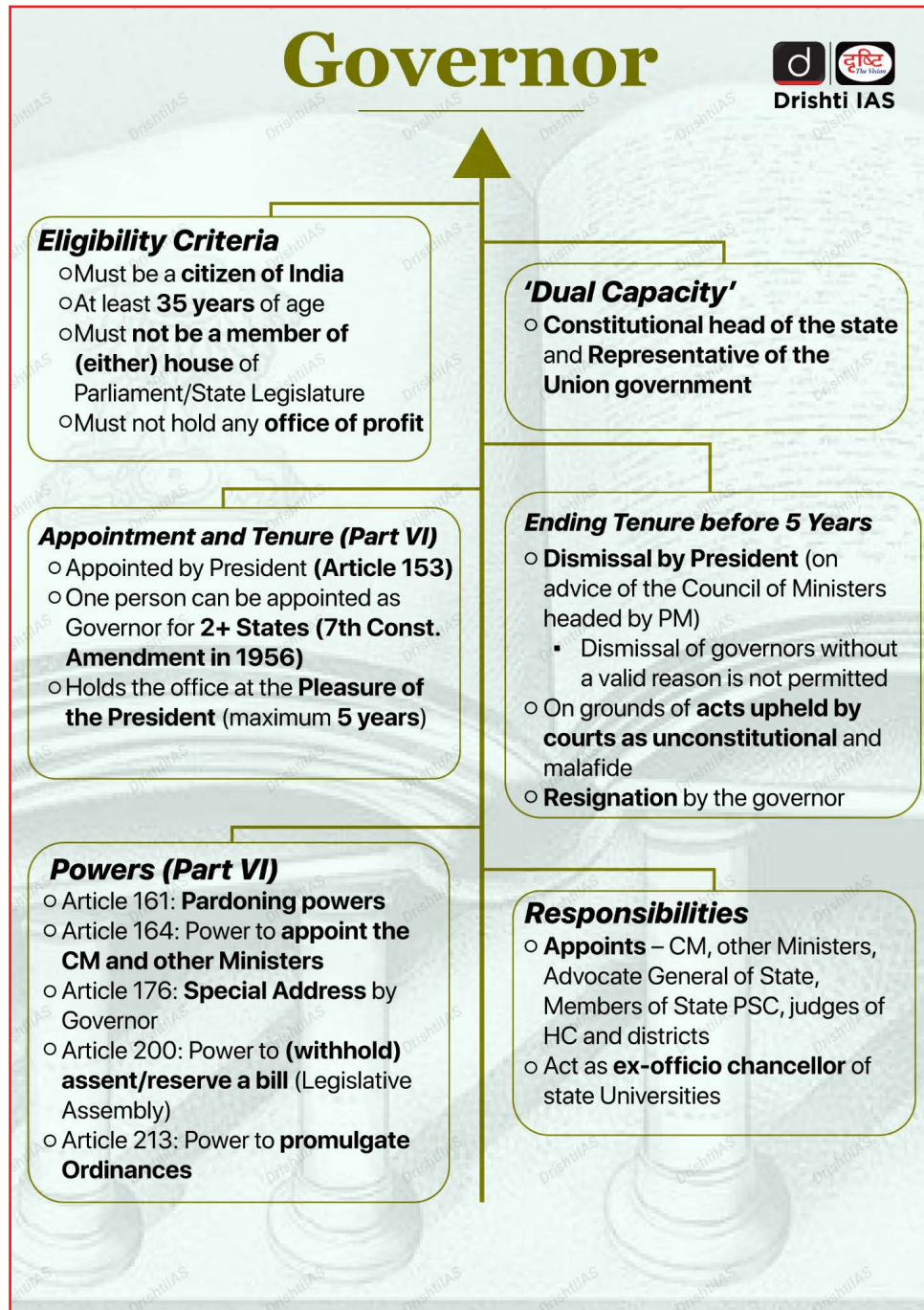


- **For Example:** The **POCSO Act** strictly criminalises the possession and storage of child pornography to protect children from sexual abuse. In contrast, the **IPC** only addresses the creation and distribution of obscene materials, leaving a gap regarding the possession and storage of child pornography.

## Appointment of Governor

### Why in News?

Recently, the President has appointed six new **Governors** and reshuffled three others.



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## What is the Appointment Process for the Governor?

### ➤ About:

- The governor is the **chief executive head** of the state.
- The office of the Governor is adapted from the **Canadian model**.
- **As per Convention, he** should not belong to the state where he is appointed so that he is free from local politics.
  - Also, the president is required to **consult the chief minister** of the state concerned to ensure the smooth functioning of the constitutional machinery of the state.
- The governor is **neither directly elected** by the people **nor indirectly elected** by a specially constituted electoral college as is the case with the president.
  - He is **appointed by the president** by warrant under his hand and seal.
  - He **holds office at the pleasure of the President** and may be removed by the President at any time.

### ➤ In *Surya Narain v Union of India Case, 1982*, the Supreme Court held that the pleasure of the President is not justifiable.

- He is a nominee of the Central government.
  - However, the **Supreme Court** in *Hargovind Pant Vs. Raghukul Tilak Case* held that the office of governor of a state is not an employment under the Central government.
  - It is an **independent constitutional office**.

### ➤ Conditions of the Governor's Office:

- He is entitled without payment of rent to the use of his official residence (the Raj Bhavan).
- He is entitled to such emoluments, **allowances, and privileges** as may be determined by Parliament.
- When the same person is appointed as the governor of two or more states, the emoluments and allowances payable to him are **shared by the states** in such proportion as **determined by the president**.

- His emoluments and allowances **cannot be diminished** during his term of office.

### ➤ Privileges:

- Under **Article 361**, he enjoys **personal immunity** from legal liability for his official acts.
- During his term of office, he is immune from any **criminal proceedings**, even in respect of his personal acts.
- He cannot be arrested or imprisoned.
  - However, after **giving two months' notice**, civil proceedings can be instituted against him during his term of office in respect of his personal acts.

### ➤ Oath:

- Before entering his office, the governor has to **make and subscribe** to an oath or affirmation.
- In his oath, the governor swears
  - to faithfully execute the office
  - to **preserve, protect, and defend** the Constitution and the law
  - to devote himself to the **service and well-being** of the people of the state.
- The oath of office to the governor is **administered by the chief justice of the concerned state high court** and in his absence, the senior-most judge of that court available.

### Constitutional Provisions Related to the Governor

- **Article 153:** There shall be a Governor for each state.
  - A single person can be appointed as the Governor for two or more states (recommended by the **Sarkaria Commission**).
  - The Governor is appointed by the President and is a nominee of the Central Government.
- **Articles 157 and 158:** Specify the **eligibility requirements** for the post of Governor.
- **Article 163:** There is a **Council of Ministers with the Chief Minister** at the head to aid and advise the Governor in the exercise of his functions, except in some conditions where discretion is allowed.

Read more: [Governor, The Governor's Role: Challenges and Reform Proposals](#), [Governors in the Limelight: Calls for Reform in India](#), [Governor's Role in State Legislature](#)



Note:

# Economic Scenario

## Highlights

- CSR Expenditure 2023
- RBI Highlights Deposit Challenges and Tightens HFC Liquidity Norms
- Chinese Technicians for Indian Manufacturing
- Decline in Work Demand Under MGNREGS
- Rising Costs for Senior Citizens Under Ayushman Bharat
- RBI's 50th Monetary Policy Committee Meeting
- NARCL Aims to Acquire Rs 2 Trillion Stressed Assets by FY26
- GST on Health and Life Insurance in India
- Government Push for Infrastructure Projects
- World Development Report 2024
- Sovereign Gold Bond Scheme
- Commercial Cultivation of HT Basmati Rice
- India to Import Tur Dal from Mozambique
- NITI Aayog Report on Seaweed Value Chain Development

## CSR Expenditure 2023

### Why in News?

Recently, government data revealed that education received the highest share of **corporate social responsibility (CSR)** expenditure in FY23, with Rs 10,085 crore allocated, **this ignited debate about uneven spending of CSR in a few sectors and regions.**

### What are the Recent Developments in CSR Expenditure?

#### ➤ Overview:

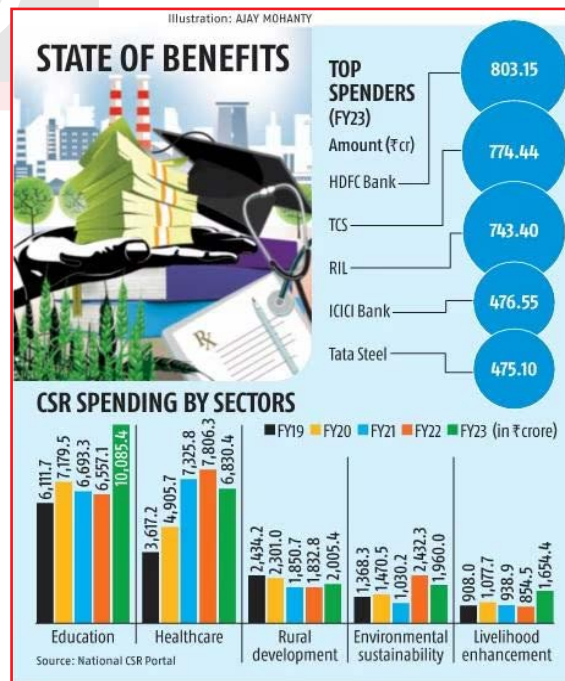
- Total CSR expenditure increased from **Rs 26,579.78 crore in FY22 to Rs 29,986.92 crore in FY23**. The number of CSR projects rose from 44,425 to 51,966.
- Companies outside the public sector contributed 84% of the total CSR spend.

#### ➤ Sector Wise Expenditure:

- Education accounted for one-third of the CSR spend in FY23.
- CSR spending on vocational skills rose slightly to Rs1,164 crore in FY23 from Rs 1,033 crore the previous year.
- **Technology incubators got the lowest amount, with only Rs 1 crore in FY23 compared to Rs 8.6 crore in the previous year**
- Health, rural development, **environmental sustainability, and livelihood enhancement also received significant CSR funds.**
- CSR spending on **animal welfare** surged from Rs 17 crore in FY15 to over Rs 315 crore in FY23.

- CSR expenditure under the **Prime Minister Relief Fund** dropped to Rs 815.85 crore in FY23, down from Rs 1,698 crore in FY21 and Rs 1,215 crore in FY22.

- **Contribution to disaster management fell the most (77%),** followed by that on slum development (75%).

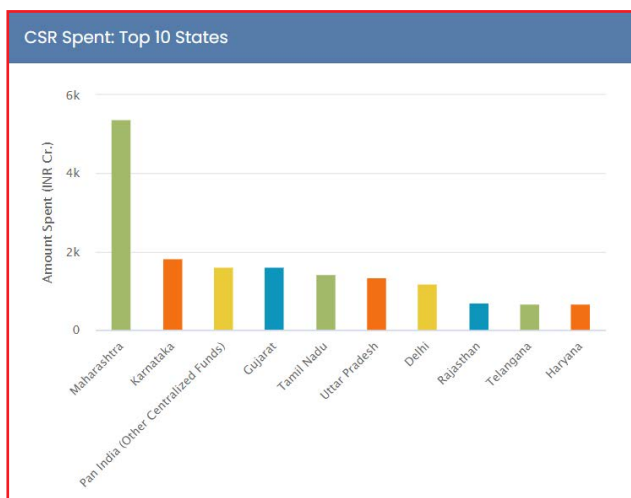


#### ➤ Region Wise Expenditure:

- **Maharashtra, Karnataka, Gujarat received the most CSR spends** while North East states, Lakshadweep and Leh and Ladakh received the least CSR spendings.

Note:





### What is CSR?

#### ➤ About:

- **Corporate Social Responsibility (CSR)** in general can be referred to as a corporate initiative to assess and take responsibility for the company's effects on the environment and impact on social welfare.
- It is a self-regulating business model that helps a company to be socially accountable. By practising corporate social responsibility, companies can be conscious of the impact they are having on economic, social, and environmental factors.
- India is the first country to mandate CSR spending under clause 135 of the **Companies Act, 2013**, with a framework for identifying potential CSR activities.
  - Unlike India, most countries have voluntary CSR frameworks. Norway and Sweden, which have moved to mandatory CSR provisions, began with voluntary models.

#### ➤ Applicability:

- CSR provisions apply to companies meeting any of the following criteria in the preceding financial year.
  - Net worth over Rs. 500 crore
  - Turnover over Rs. 1000 crore
  - Net profit over Rs. 5 crore.
- Such companies must spend at least 2% of their average net profits from the last three financial years on CSR activities, or if newly incorporated, based on the average net profits from preceding financial years.

#### ➤ Types of Corporate Social Initiatives:

- **Corporate Philanthropy:** Donations to charity via a corporate foundation.

- **Community Volunteering:** Company-organised volunteer activities.
- **Socially-responsible Business practices:** Producing ethical products.
- **Cause Promotions and Activism:** Company-funded advocacy campaigns.
- **Cause-based Marketing:** Donations to charity based on sales.
- **Corporate Social Marketing:** Company-funded behaviour-change campaigns

#### ➤ Eligible Sectors:

- CSR activities encompass a range of initiatives, including eradicating hunger and poverty, promoting education and gender equality, combating diseases like **HIV/AIDS**, ensuring environmental **sustainability**, and contributing to **government relief funds** (Like **PM CARES** and **PM Relief Fund**) for socio-economic development and the welfare of disadvantaged groups.

### What are the Issues Pertaining to CSR Compliance?

- **Geographical Disparity in CSR Spending:** Spending is concentrated in industrial states like Maharashtra (5375cr.), Gujarat, Karnataka, and Tamil Nadu, while North Eastern states (Mizoram 6.9 cr) and Lakshadweep, Leh and Ladakh receive comparatively less funding, reflecting a regional imbalance.
- **CSR Allocation Trends:** MCA data reveals that nearly 75% of CSR funds are concentrated in three sectors: education, health (including **sanitation and water**), and rural poverty.
  - Sectors related to Livelihood enhancement (Rs 1,654 cr) have very less spending.
- **PSU vs Non-PSU Spending:** Non-PSUs contribute 84% of total CSR spending, while PSUs account for the remaining 16%, highlighting a significant difference in CSR expenditure between the two sectors.
- **Strategic Misalignment in CSR:** Many companies have merged sustainability with business strategies, prioritising profit margins over genuine social impact, thus undermining the true purpose of CSR.
- **Finding Right Partners:** Despite growing awareness about the significance of CSR compliance, the challenges remain in identifying the right partners as well as in selecting projects that are long-term impactful, scalable, and are self-sustaining.

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- **Issues of Transparency:** There is an expression by the companies that there exists lack of **transparency on the part of the local implementing agencies** as they do not make adequate efforts to disclose information on their programs, audit issues, impact assessment and utilisation of funds.

### ***What are the Ways to Enhance the Effectiveness of CSR Expenditure?***

- **Enhancing CSR Engagement and Oversight:** Aligning CSR with local government programs like the **ADP (Aspirational Districts Programme)** can boost community participation and engagement, while the **government should ensure effective CSR implementation, and leverage AI for better oversight.**
  - NGOs can work along with companies in remote and rural areas to ensure successful implementation of CSR activities.
- **Address Sectoral and Geographical Disparity:** Need to Invest in **higher education and high impact technological and environment friendly projects** that focus on skill development and livelihood enhancement.
  - Develop CSR programs for underserved regions, offer incentives for spending in less-funded areas or make a mandatory provision to address regional disparity in spending, and collaborate with local **NGOs.**
- **PSU vs Non-PSU Spending Disparity:** Encourage **PSUs** to increase contributions, implement benchmarking, and **promote joint CSR initiatives between PSUs and non-PSUs.**
- **Company Roles and Governance:** Conduct regular reviews, set clear objectives, and update governance roles. Establish new SOPs for fund utilisation, impact assessments, and detailed checklists.

## **RBI Highlights Deposit Challenges and Tightens HFC Liquidity Norms**

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

Recently, the **Reserve Bank of India (RBI)** Governor has urged banks to develop innovative product offerings to boost deposit growth.

- This comes in response to a **slower deposit growth rate compared to the surge in credit demand**, which poses potential risks to the banking sector's liquidity.

- In another development, the RBI has **tightened liquidity norms for housing finance companies (HFCs)**, aligning them with regulations for **non-banking financial companies (NBFCs)**, to strengthen the financial stability of these institutions.

### ***What are the Concerns Regarding Deposit Growth?***

- **Lending vs. Deposit Growth:** The credit-deposit ratio has reached its highest in 20 years, with **bank deposits growing at 11.1% year-on-year compared to credit growth of 17.4%.**
  - The growth of bank deposits has not kept pace with the **surge in loan demand**, creating a widening gap between credit and deposit growth.
- **Reliance on Short-Term Deposits:** Banks are increasingly using **short-term deposits** and other liability instruments to meet credit demand, potentially leading to structural liquidity challenges.
- **Shift to Alternative Investments:** Households are moving their savings from bank deposits to **mutual funds, stocks, insurance, and pension funds.** This shift, along with declining **net financial assets (from 11.5% of GDP in 2020-21 to 5.1% in 2022-23)** and surging **inflation**, contributes to slower deposit growth.
  - The strong **performance of the Indian stock markets** has led investors to **favour equities over traditional bank deposits.** This shift has contributed to the slower growth in deposits, as evidenced by the doubling of the **mutual fund industry's assets under management (AUM)** from Rs 24.79 lakh crore in April 2019 to Rs 57.26 lakh crore in April 2024.
- **Regulatory Requirements:** A portion of mobilised deposits is tied up in regulatory requirements like the **Cash Reserve Ratio (CRR)** and **Statutory Liquidity Ratio (SLR)**, leaving banks with fewer lendable funds and increasing competition for deposits.
  - The growing mismatch between deposit and credit growth could threaten the **banking system's stability if not addressed with proactive measures.**
- **Increased Competition:** Banks face competition **not only from each other but also from high-return equity-linked products.** Investors are increasingly shifting to equity markets due to strong performance and rising financial literacy.

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- **Impact on Liquidity Risk Management:** Banks have attempted to bridge the credit-deposit gap by relying more on **Certificates of Deposit (CDs)**. However, this increases their sensitivity to interest rate movements and complicates liquidity risk management, making the system more vulnerable to market fluctuations.
- **Need for Prudent Liquidity Management:** Proactive liquidity management is essential. The RBI is reviewing the **Liquidity Coverage Ratio (LCR) framework** to address these emerging challenges, with plans for public consultations to refine the approach.

### ***What Strategies Can Banks Use to Increase Deposit Growth?***

- **Focus on Core Business:** The Finance Minister of India emphasised that banks should concentrate on their primary functions of **deposit mobilisation and lending**, stressing that these activities are the “**bread and butter**” of banking.
  - Expanding **branch networks, especially in underserved or rural areas**, can help banks tap into new customer segments, increasing overall deposit inflows.
- **Innovative Deposit Mobilisation:** Banks were encouraged to be aggressive in deposit mobilisation by offering **attractive and innovative products**, leveraging the **liberty given by the RBI to manage interest rates**.
  - The Finance Minister urged banks to **avoid relying heavily on bulk deposits and instead focus on small savers**, which are critical for sustainable banking operations.
- **Flexible Products:** Banks can consider reducing the **lock-in period for tax-saving fixed deposits from five years to three years**, making them more competitive with alternative investment options like mutual funds and **equity-linked savings schemes (ELSS)**.
- **Incentives and Promotions:** Offer attractive interest rates, bonuses, or cash incentives for new deposits to attract customers.
  - Offering **higher interest rates on savings accounts and fixed deposits can attract more deposits**, especially from **risk-averse customers who prefer stable returns over potentially higher, but uncertain, returns from equities**.
- **Technology:** Banks can use **data analytics** to offer **personalised savings and deposit products**, making it easier for customers to manage and grow their savings.

- Mobile banking apps with user-friendly interfaces and financial planning tools can encourage more deposits.
- **Customer Engagement:** Strengthening customer relationships through targeted **marketing campaigns, and loyalty programs** can encourage existing customers to increase their deposits and attract new customers.
  - Conducting **financial literacy programs** that educate customers about the importance of savings and the safety of bank deposits can help in increasing deposit growth.

### ***What are the RBI's New Liquidity Norms for HFCs?***

- **New Liquidity Requirements:** HFCs that raise public deposits will now need to maintain higher **liquid assets** to ensure financial stability.
  - The liquid asset requirement has been **increased from 13% to 15% in stages**: HFCs must raise liquid assets to 14% by 1<sup>st</sup> January 2025. This percentage must be further increased to 15% by July 2025.
  - HFCs will now be required to **obtain a minimum investment-grade credit rating at least once a year** to continue accepting public deposits.
    - If an **HFC's credit rating falls below the required grade**, it will not be permitted to renew existing deposits or accept new ones until the rating improves.
    - This measure ensures that **only financially sound HFCs can accept public deposits, reducing the risk to depositors**.
  - The maximum tenure for public deposits at **HFCs has been reduced from ten years to five years**.
    - Existing deposits with maturities beyond five years will be allowed to mature according to their original terms, **but new deposits cannot exceed the five-year limit**.
    - This reduction in tenure helps mitigate long-term liquidity risks.
  - The RBI has **lowered the ceiling on the quantum of public deposits that an HFC can hold**, from three times to 1.5 times its net owned funds (NoF). HFCs holding deposits above this new limit will not be allowed to accept new deposits or renew existing ones until they comply with the revised ceiling.
    - This measure aims to **prevent over-leveraging by HFCs**, ensuring they maintain a healthy balance between their liabilities and assets.

Note:



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- **Alignment with NBFC Regulations:** Previously, HFCs operated under more relaxed prudential norms compared to NBFCs, particularly in terms of deposit acceptance.
  - The RBI's new guidelines aim to eliminate these discrepancies, **treating HFCs similarly to deposit-taking NBFCs**. This alignment addresses the uniform regulatory concerns associated with deposit acceptance across **all NBFC categories**.

#### Housing Finance Companies

- HFCs are specialised entities established under the **Companies Act 1956**, initially regulated by the **National Housing Bank (NHB)**. However, in 2019, the regulatory authority over HFCs was transferred to the RBI.
- These companies were created to address the **rising demand for housing loans across various income groups**. Over time, HFCs have grown to become a major source of home loans, often surpassing traditional banks in loan disbursement volumes due to their more flexible lending practices.

## Chinese Technicians for Indian Manufacturing

### Why in News?

Recently, a portal to facilitate the approval of short-term business visas for Chinese technicians has begun functioning.

- It is essential for operationalising production units and boosting output in sectors under the government's flagship **Production Linked Incentive (PLI) scheme**.

### Why does India Need Chinese Technicians?

- **Delay in Operationalisation of Machines:** Domestic manufacturing firms have been raising concerns about **delays in obtaining visas for Chinese technicians** essential for tasks such as machine **installation, repair and training** of Indian workers.
  - Chinese technicians are sought after by Indian manufacturers as they are **more affordable than technicians from other Western** or even Southeast Asian countries.
- **Delay in Fulfilling Global Orders:** Escalating tensions with China have reportedly **cost** Indian electronics manufacturers **USD 15 billion** in production losses and **100,000 jobs** since 2020.

- The **electronics manufacturing industry** highlighted that India has also missed out on a **USD 10 billion export opportunity** and suffered a **USD 2 billion loss** in value addition.

- **Achievement of Atmanirbhar Bharat:** Ensuring the availability of necessary expertise will help **domestic manufacturing** units enhance production capabilities, **reduce dependence** on imports, and maintain **competitiveness** in the global market.
- **Delay in Commencement of Production:** The slow visa approval process has led to delays in the **start of production across multiple industries**.
  - In sectors like **textiles and leather**, where there is significant potential, machinery **has remained unused for months** because Chinese vendors demand that only their personnel activate it.

### Why was India Hesitant to Grant Visas to Chinese Technicians?

- The border standoff after the **Galwan clash** in 2020 led to several government measures aimed at **limiting Chinese influence on the Indian economy**.
  - In **2019**, Chinese nationals received **2,00,000 visas**, but in **2023**, the number of visas to Chinese personnel was down to **2000**.
- The government also amended the **FDI policy under Press Note 3 (PN3)**, 2020 bringing **investments from land-bordering countries under the government route**.
  - India approved **only a quarter of the total 435 FDI applications from China up to June 2023** since the modification in **Press Note 3**.
- A **security-driven mindset** has emerged among Indian policymakers. In 2024, even the meagre 1000 visas for Chinese electronics professionals are stuck in a "pipeline", undergoing "intensive screening".

### How can India Utilise China's Expertise for its Advantage?

- **Increase Chinese FDI Inflow:** The **Economic Survey 2023-24** advocated attracting investments from Chinese companies to boost exports.
  - Currently, **China** stands at the **20<sup>th</sup>** position with only a **0.43% share** or **USD 2.45 billion** in total FDI equity inflow reported in India from April 2000 to December 2021.
- **China Plus One Strategy:** The Economic Survey 2023-24 noted that countries such as Mexico, Vietnam,

Note:



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Taiwan, and South Korea are benefiting from the **China-plus-one strategy** pursued by Western firms.

- India can greatly benefit from the **China Plus One strategy** due to its **large domestic market, competitive labour costs** and **supportive government policies**.
- **Integration with Global Market:** China is the **world's second-largest economy**, a manufacturing giant and a significant scientific and technological player.
  - To boost Indian manufacturing, it is essential for India to integrate itself into the **global supply chain**, like China.

### ***What is the Issue Associated with the Indian Industrial Workers?***

- **Low Productivity:** Chinese professionals are **"highly productive."** According to Indian industry leaders, Chinese can help produce **150 items** with the same resources with which **Indians produce 100**.
- **Skill Gap:** There exists **"a significant skill gap"** between Chinese and Indian factory supervisors and workers.
  - Indian businesses have **acquired machines from China but struggle to use them effectively without assistance from Chinese technicians**, as the local workforce lacks the necessary skills to operate them.
- **Poor Industrial Training Programs:** Industrial organisations **fail to provide on-job training to their workers focused on helping employees** acquire knowledge to meet current industrial skill demand.
- **Irrelevant Curriculum:** Educational and **skill programs often do not align with current industry needs**, leading to a gap between what students learn and what employers require.
  - Without vastly upgraded **domestic education**, job-rich prosperity will remain a cruel mirage.

### ***How can India Improve the Skill Development in the Industrial Sector?***

- **Foreign Knowledge as a Catalyst:** East Asian development story shows that **foreign knowledge is crucial for economic growth**. In the 1980s, Korean businesses bought foreign machines to dismantle and reverse engineer them.
- **Continuous Training:** Providing continuous training within an organisation gives current employees an opportunity to **develop their skills and abilities**. It helps in adoption of new technologies and methods more streamlined.

- **Partner with Colleges:** Reaching out to college students by opportunities for **internships** and **apprenticeships** give them an idea of relevant skills in demand.
- **Industrial Visit:** It allows workers to understand the procedures, processes, work environment, and management practices in other industries, as well as to learn about the latest technologies.
- **Educational Foundation:** China began its explosive growth in the early 1980s. The quality of primary education in China established during the Communist era prepared the country for **rapid development**.
  - Under **National Education Policy, 2020**, India should provide a **robust educational foundation** to its children.
- **World Class Levels of Learning:** Since 2018, Chinese school students have bettered the world's best in the **Programme for International Student Assessment (PISA)** conducted by the **Organisation for Economic Co-operation and Development (OECD)**.
  - India should upgrade its education system to ensure children achieve world-class learning standards.

#### **Production Linked Incentive Scheme (PLI)**

- The **PLI scheme** was conceived to **scale up domestic manufacturing capability**, accompanied by higher **import substitution** and employment generation.
- **Launched in March 2020**, the scheme initially **targeted three industries**:
  - Mobile and allied Component Manufacturing
  - Electrical Component Manufacturing and
  - Medical Devices.
- **Later, it was extended to 14 sectors.**
  - In the PLI scheme, Domestic and Foreign companies receive **financial rewards** for manufacturing in India, based on a percentage of their **revenue** over up to **five years**.
- **Targeted Sectors:** The 14 sectors are mobile manufacturing, manufacturing of medical devices, automobiles and auto components, pharmaceuticals, drugs, specialty steel, telecom & networking products, electronic products, white goods (ACs and LEDs), food products, textile products, solar PV modules, advanced chemistry cell (ACC) battery, and drones and drone components.
- **Incentives Under the Scheme:**
  - The incentives given, are calculated on the basis of **incremental sales**.

Note:



- In some sectors such as **advanced chemistry cell batteries**, textile products and the drone industry, the incentive to be given will be calculated on the basis of **sales, performance and local value addition** done over the period of five years.

## Decline in Work Demand Under MGNREGS

### Why in News?

According to the **Ministry of Rural Development**, work demand under the **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)** fell sharply in July 2024.

### What Does a Decline in Demand for Work under the MGNREGS Indicate?

- **Current State of Demand for Work:** Approximately **22.80 million individuals** sought work under the scheme in July, reflecting a **21.6% decline** from the same period in 2023.
  - These individuals represented **18.90 million households**, a decrease of **19.5%** year-over-year and **28.4%** compared to June 2024.
  - On a **month-to-month basis**, the number of people seeking work dropped by **33.4%** in July 2024.
  - In July 2024, fewer individuals submitted work demands in key states like **Tamil Nadu, Andhra Pradesh, Karnataka and Telangana**.
- **Reasons For Decline in Demand Work:**
  - **Strong Economic Activity:**
    - Work demand under MGNREGS usually drops when better-paying **employment** opportunities are available due to strong economic growth, **possibly reflecting robust economic activity**.
- The **economy grew** at a higher-than-anticipated pace of **8.2%** in the last Fiscal Year (FY) 2023-24.
- The **International Monetary Fund (IMF)** predicts India will be the fastest-growing major economy, with growth rates of **7%** in **FY 2024-25** and **6.5%** in **2025-26**, both exceeding the **global average**.
  - **Impact of Monsoon:**
    - The **monsoon** typically causes large-scale **migration** of rural workers to villages for crop sowing, reducing the demand for unskilled jobs under the MGNREGS.

- In 2024, abundant seasonal showers in July **reduced the 11% rainfall deficit** seen in June.

### What is Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)?

#### About:

- MGNREGS is one of the largest **work guarantee programmes** in the world launched in **2005** by the **Ministry of Rural Development**.
- It guarantees **100 days of employment** each financial year for **adult members** of **rural households** willing to perform **unskilled manual work** at the statutory minimum wage.

#### Implementation Agency:

- The **Ministry of Rural Development** monitors the entire **implementation** of this scheme in association with state governments.

#### Major Features:

- The cornerstone of MGNREGA's design is its **legal guarantee**, ensuring that any rural adult can **request work** and must **receive** it within **15 days**.
  - If this commitment is not met, an **"unemployment allowance"** must be provided.
- It requires that **priority** shall be given to **women** in such a way that at least **one-third** of the beneficiaries shall be **women** who have registered and requested for work.
- **Section 17** of the **Mahatma Gandhi NREGA, 2005** mandates the **Gram Sabha** to conduct **social audits** of works undertaken under the scheme.

#### Objective:

- It was introduced with an aim of improving the **purchasing power** of the rural people, primarily **semi or unskilled work** to people living **below poverty line** in rural India.
- It attempts to bridge the **gap** between the **rich** and **poor** in the country.

#### Current Status:

- **Budget Allocation:** For the financial year **2023-24**, the government allocated approximately **Rs 73,000 crore** to MGNREGA, reflecting an increase from previous years to meet the rising demand for employment.
- **Employment Generation:** In the FY 2022-23, MGNREGA provided over **300 crore person-days of work**, with approximately 11 crore households participating in the scheme.

Note:



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- **Wage Payments:** The Centre has notified a **3-10% increase** in the wage rates for MGNREGA workers for the FY 2024-25.
  - The average wage for **2024-25 is Rs 289** as against Rs 261 for FY 2023-24.
- **Project Focus:** The scheme has increasingly focused on sustainable development projects, such as **water conservation, afforestation, and rural infrastructure** enhancement. Over **60%** of the works undertaken are related to **natural resource management**.

### ***What are the Challenges with the Implementation of the MGNREGS?***

- **Concerns Over Minimum Wage Determination:** A panel from the Ministry of Rural Development has raised concerns that the **minimum wage** under MGNREGS is based on the **Consumer Price Index for Agricultural Labourers**, which does not reflect the different types of work performed by MGNREGS workers.
  - They **recommend using the Consumer Price Index-Rural instead**, as it is more current and accounts for higher expenses on education and healthcare.
- **Poor Planning & Administrative Skill:** Panchayats, except in some states like Karnataka and West Bengal, lack experience in planning large-scale programs. The **Comptroller and Auditor General (CAG)** highlighted inadequate administrative capacity among village panchayat members.
- **Lack of Adequate Manpower:** Insufficient administrative and technical staff at Block and Grama Panchayat levels affects planning, monitoring, and transparency.
- **Difficulty in Funding the Scheme:** The budget for MGNREGS has increased significantly, raising concerns about **sustainability** and funding sources.
  - The **declining tax-GDP ratio** poses challenges for financing the program.
- **Discrimination:** While MGNREGA promotes equal pay, instances of discrimination against women and marginalised groups persist. Some states show high enrollment of women, while others exhibit low participation due to systemic biases.
- **Corruption & Irregularities:** High levels of **corruption** result in minimal funds reaching intended beneficiaries. Issues like **fake job cards** for non-existent workers lead to significant financial losses.

## **Rising Costs for Senior Citizens Under Ayushman Bharat**

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

Recently, the **Union Ministry of Health and Family Welfare** released data highlighting significant trends in the **Ayushman Bharat Health Insurance Scheme (PM-JAY)**. This information underscores the **increasing financial burden of providing healthcare to the elderly**, particularly those **aged 70 years and above**.

### ***What are the Key Takeaways Regarding Ayushman Bharat?***

- **Significant Elderly Admissions:** The data reveals that out of nearly 6.2 crore approved hospital admissions until January 2024, **57.5 lakh were senior citizens aged 70 years and above**. Government expenditure on treatments under the scheme totaled Rs 79,200 crore over the past six years, with **approximately Rs 9,900(14%) crore allocated specifically for treating individuals aged 70 and over**.
  - Elderly patients often require more **intensive and costly treatments** due to chronic conditions and **multiple comorbidities**, complicates treatment, increasing the likelihood of costly intensive care unit (ICU) care and extended hospital stays.
- **State Variability:** The proportion of elderly admissions varied widely among states, with **Maharashtra (20.49%) and Kerala (18.75%) having the highest rates**, while **Tamil Nadu (3.12%) had the lowest**.
  - Despite lower admission rates in Tamil Nadu, the cost of treatment per elderly patient remains high.
  - Only four states/UT — **Goa, Ladakh, Lakshadweep, and Jharkhand** showed a **higher proportion of hospital admissions for older individuals compared to the total money spent on them**.
- **Concerns:**
  - According to the **Longitudinal Ageing Study in India (LASI)**, India's population over the age of **60 years is estimated to increase from 8.6% in 2011 to 19.5% by 2050**, with the absolute number **tripling from 103 million in 2011 to 319 million in 2050**.
  - The government's plan to expand Ayushman Bharat aims to include **all individuals over 70 years, regardless of economic status**. This expansion could **add nearly 4 crore new beneficiaries to the programme**.

Note:

- The current allocation of Rs 7,300 crore for the scheme, with only a Rs 100 crore increase from the previous budget, **raises concerns about the adequacy of funding for such an expansion.**
- As healthcare costs for the elderly continue to rise, the scheme's **sustainability and its ability to provide comprehensive coverage** to all senior citizens will be a critical area of focus for policymakers.
- Health-seeking behaviour is more prevalent among older, relatively affluent individuals, leading to a higher likelihood of **policy utilisation and increased costs.**
- Experts warn that the cost of covering this demographic is likely to be higher than **covering the poorest 40% across all age groups.**

### What are the Key Highlights About Ayushman Bharat Scheme?

- **About:** Ayushman Bharat, launched as a flagship scheme of the Government of India, is a significant step towards achieving **Universal Health Coverage (UHC)**. Recommended by the **National Health Policy of 2017**, this scheme aims to meet the **Sustainable Development Goals (SDGs)**, particularly the commitment to "leave no one behind."
- **Key Components:** Ayushman Bharat is structured around two interrelated components that work together to provide a seamless flow of care:
  - **Health and Wellness Centres (HWCs):** Announced in 2018, the creation of 1,50,000 HWCs aims to transform existing **Sub Centres and Primary Health Centres**, delivering Comprehensive Primary Health Care including maternal and child health, non-communicable diseases, and free essential drugs and diagnostic services.
  - **Pradhan Mantri Jan Arogya Yojana (PM-JAY):** It is the **world's largest health assurance scheme**, providing Rs. 5 lakh coverage per family per year for secondary and tertiary care hospitalisation, targeting **over 12 crore poor and vulnerable families**, covering approximately 55 crore beneficiaries, based on the **Socio-Economic Caste Census 2011 (SECC 2011)**.
    - PM-JAY subsumed the **Rashtriya Swasthya Bima Yojana (RSBY)** and the **Senior Citizen Health Insurance Scheme (SCHIS)**, expanding its reach and impact.

- **Implementation:** The **Ayushman Bharat National Health Protection Mission Agency (AB-NHPMA)** manages the scheme at the national level.
  - States and UTs are advised to implement the scheme through a dedicated State Health Agency (SHA), which can operate through an insurance company, a trust/society, or an integrated model.
- **Impact:** The scheme is expected to significantly reduce **Out-of-Pocket Expenditure for healthcare by covering nearly 40% of the population**, including secondary and tertiary hospitalizations.
  - With coverage up to Rs. 5 lakh per family, the scheme ensures access to quality healthcare, leading to improved health outcomes.

#### Other Health Related Initiatives for the Elderly in India

- **Seniorcare Aging Growth Engine Initiative**
- **Rashtriya Vayoshri Yojana**
- **SACRED Portal for Elderly**
- **Elder Line: Toll-Free Number for Elderly**

## RBI's 50th Monetary Policy Committee Meeting

### Why in News?

The **Reserve Bank of India's 50<sup>th</sup> Monetary Policy Committee (MPC)** meeting has brought notable updates on interest rates and economic policies.

- This meeting highlights **eight years of the flexible inflation targeting (FIT) framework** and introduces measures to manage **inflation** and boost economic efficiency.

### What are the Key Highlights of the 50th MPC Meeting?

- **Rate Decisions of the MPC:**
  - The MPC decided to keep the **policy repo rate unchanged at 6.50%**. This decision reflects the committee's current approach to managing **inflation** and **supporting economic growth**.
  - **Standing Deposit Facility (SDF) Rate** remains at 6.25%, aligning with the unchanged repo rate.
  - **Marginal Standing Facility (MSF) Rate** and **Bank Rate** both rates are set at 6.75%. These rates are used to manage liquidity and borrowing costs within the economy.

Note:



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- The MPC's primary objective is to withdraw accommodation to gradually **align inflation with the target of 4.0%**. Despite the strong economic growth, the committee emphasizes the **need to control inflation to ensure price stability** while supporting economic expansion.
- **Assessment of Growth:**
  - **Global Economic Conditions:** MPC stated that the global economy is **showing steady but uneven growth**. Manufacturing sectors are experiencing a slowdown, while service industries continue to perform well.
    - Major economies are witnessing a **gradual reduction in inflation rates**, although services prices remain sticky.
  - Different countries are adopting varied monetary policies, with **some central banks cutting rates while others tighten their policies**.
    - **Challenges:** Key global challenges include demographic shifts, **climate change**, **geopolitical tensions**, rising public debt, and advancements in technology such as **artificial intelligence**. These factors contribute to uncertainties in the medium-term global growth outlook.
  - **Domestic Economic Conditions:** MPC highlighted India's economic activity **remains resilient with a positive outlook** driven by steady monsoon progress, higher **kharif** sowing, and improved reservoir levels.
    - Manufacturing and services sectors are robust, with the **Index of Industrial Production (IIP)** showing accelerated growth.
    - Household consumption is supported by **rising rural demand and steady urban discretionary spending**.
- **Inflation Trends and Implications:**
  - **Headline Inflation** increased to 5.1% in June 2024, largely due to **higher food prices**. **Core inflation (excludes food and fuel price)** moderated, with fuel prices in deflation.
    - Food prices have a significant impact on overall inflation, given their **substantial weight (around 46%) in the Consumer Price Index (CPI) basket**. High food prices, particularly for vegetables, have driven up headline inflation.
- **Future Outlook:** While **food inflation is expected to remain high** in the short term, there may be some relief due to favourable base effects and improved monsoon conditions.
- **Financial Market Conditions**
  - MPC noted that the **global financial markets have experienced volatility** due to concerns about economic slowdowns, geopolitical tensions, and changes in carry trade dynamics.
    - Despite this, India's financial markets are stable, supported by strong **macroeconomic fundamentals**.
- **Additional Measures Announced:**
  - Digital Lending Apps Repository:
    - The RBI will establish a public repository of **digital lending apps (DLAs)** used by **regulated entities (REs) like banks**. This measure aims to help consumers identify **unauthorised lending apps** and ensure more transparency in the digital lending ecosystem.
  - This development follows the RBI's September 2022 guidelines on digital lending, prompted by a report from an **RBI Working Group** revealing that approximately **600 of 1,100 lending apps available to Indian Android users are illegal**.
    - **Unregulated digital lending has led to exploitation of consumers through predatory practices**, highlighting the urgent need for stringent regulations and consumer protections in this rapidly evolving sector.
    - The RBI asked REs to ensure **Lending Service Providers (LSPs)** and DLAs comply with guidelines. They must disclose interest rates upfront, inform borrowers of product details, and capture borrowers' economic profiles to promote responsible lending.
  - UPI Transaction Limit:
    - The transaction limit for tax payments through **Unified Payments Interface (UPI)** will be **raised from Rs 1 lakh to Rs 5 lakh**. This adjustment is designed to facilitate easier and more efficient tax payments for consumers.

Note:



- This change addresses the **high value and frequency of direct and indirect tax payments**, aiming to streamline and facilitate these transactions.
  - The RBI also plans to introduce '**Delegated Payments**' via UPI, allowing a **secondary user (such as a spouse)** to make payments using the primary user's bank account.
- Primary UPI users will be able to set specific payment limits for secondary users on their accounts.
- This feature is expected to expand the reach of digital payments and cater to UPI's growing user base of 424 million individuals.
  - Continuous Cheque Clearing:
    - RBI has proposed continuous **clearing of cheques** with '**on-realisation-settlement**' Cheque Truncation System, instead of the current clearing cycle of two working days to speed up payments and enhance efficiency.
- This system aims to **clear cheques within hours on the day of presentation**, improving efficiency, reducing settlement risk, and enhancing customer experience.

#### Flexible Inflation Targeting Framework

- Introduced in February 2015, FIT aims to **control inflation with a target of 4% ( $\pm 2\%$ )** while **allowing temporary deviations to support economic growth**.
- This framework, established through an **agreement between the RBI and the Finance Ministry (GoI)**, aims to manage inflation while accommodating growth. The framework builds on recommendations from the **Urjit Patel Committee Report (UPCR)**.
- FIT aims to stabilise inflation expectations, which can **enhance macroeconomic stability and foster growth**.
- The **RBI Act, 1934** was amended in 2016 to **provide statutory basis for a monetary policy framework**, the amendment provides for the **inflation target to be set by the Government, in consultation with the RBI, once every five years**.
- The framework is designed to **make monetary policy more transparent and predictable**, which can strengthen coordination between the RBI and the government.

## Monetary Policy Committee



### Monetary Policy

- It is formed and managed by **Reserve Bank of India** to control a nation's overall money supply and achieve economic growth
- It is **different from Fiscal Policy** which is managed by the **Ministry of Finance** that measures the spending and taxation in Indian Economy

### Monetary Policy Committee (MPC):

- **Ex-officio Chairperson:** RBI Governor
- **Objective:** To determine the policy rate required to achieve the inflation target (  $4\pm 2\%$ , Urjit Patel Committee)
- **Legal Framework:** Under Section 452B of the amended RBI Act, 1934, the Central Government is empowered to constitute a six-member Monetary Policy Committee (MPC)
  - The MPC is required to meet at least four times in a year. Each member of the MPC has one vote, and in the event of an equality of votes, the Governor has a second or casting vote.
- **Monetary Policy Report:** RBI once in every six months, releases Monetary Policy Report to explain the sources of inflation and the forecast of inflation for 6-18 months ahead



## NARCL Aims to Acquire Rs 2 Trillion Stressed Assets by FY26

### Why in News?

The **National Asset Reconstruction Company Ltd (NARCL)**, the government-backed **bad bank**, has set an ambitious target to **acquire Rs 2 trillion in stressed assets by FY26**.

- This follows its significant achievement of **acquiring Rs 1 trillion worth of distressed assets in FY24**, demonstrating a proactive approach to address the issue of **non-performing assets (NPAs)** in the Indian banking system.

Note:

### What is a Bad Bank?

- **About:** Bad banks are asset reconstruction companies that buy, manage, and recover bad loans and manage **NPAs** from **commercial banks** to liquidate the transferred assets.
  - It provides a safety net for banks, allowing them to offload bad loans and focus on healthier lending activities.
- **Evolution:** The concept of bad banks emerged in the 1980s with institutions like Grant Street National Bank, which acquired bad assets from Mellon Bank.
  - The concept gained prominence during the **2008 financial crisis**. Countries like **Sweden, Germany, and France** have implemented similar models to manage bad assets.
  - **India's first bad bank, NARCL, was established in 2021** to manage bad assets in public sector banks. Although the concept was proposed in an **Economic Survey 2016**.
    - This move aligns with the global trend of using bad banks to stabilize financial systems burdened by **distressed loans**.
- **Advantages:** Bad banks **centralize the management of NPAs**, which can streamline efforts and increase efficiency in asset resolution.
  - By transferring NPAs to a bad bank, **originating banks can free up capital** currently held as provisions against these assets. This can potentially lead to an **increase in lending to more creditworthy customers**.
  - Government backing of bad banks can **enhance confidence in the originating banks**, thereby improving their overall capital buffers and financial stability.
- **Disadvantages:** Transferring bad assets to a government-backed entity can merely shift the burden within the public sector, **potentially leading to taxpayer liabilities for any losses incurred**.
  - **Government bailouts might discourage banks from exercising caution in their lending practices**, potentially leading to a repeat of the same issues in the future.
- **Current Challenges for Bad Banks:**
  - **Price Discovery:** Bad banks often face difficulties in pricing bad loans and determining future liabilities.

- **Finding Buyers:** Selling portfolios of distressed assets can be challenging, especially **without established market mechanisms or precedents**.
- Weak economic conditions can further depress asset values and reduce the pool of potential buyers.

### What is NARCL?

- **About:** Designed as a "bad bank," NARCL aims to cleanse the financial system of distressed loans, thereby stabilizing banks and fostering a healthier economic environment.
  - **NARCL was announced in the Union Budget 2021-22** to handle large loans of over Rs 500 crore. Initial delays occurred due to the **Reserve Bank of India's** dissatisfaction with the proposed structure, leading to a revised plan.
    - Under the new structure **NARCL acquires and aggregates bad loan accounts from banks**. **India Debt Resolution Co. Ltd (IDRCL)** handles the **resolution process**, operating under an exclusive arrangement with NARCL.
- **Role of NARCL:** Purchase bad loans from commercial banks. Manage these distressed assets.
  - Sell them in the market through bidding methods like **Swiss Challenge** to recover funds and liquidate the transferred assets.
- **Funding and Ownership:** NARCL's acquisition strategy involves paying **15% of the agreed loan value in cash and the remaining 85% in government-backed security receipts**.
  - **State-owned banks hold a 51% stake in NARCL**, with the remaining stake owned by private banks.
- **Challenges Facing by NARCL:**
  - **Dual Structure Issues:** The duality of NARCL and IDRCL has led to **operational inefficiencies**. NARCL retains decision-making authority, but IDRCL handles resolution, creating a complex and costly structure.
  - **Pricing Discrepancies:** Significant differences in pricing expectations between NARCL and banks have deterred transactions, **as banks find NARCL's offers inadequate**.
  - **High Operational Costs:** The need for both NARCL and IDRCL has resulted in higher operational costs, **which are exacerbated by NARCL's reliance on external consultants** and a slower due diligence process.

Note:

- **Potential Solutions for NARCL's Challenges:**
  - **Combining IDRCCL and NARCL could streamline operations**, reduce costs, and enhance efficiency by eliminating duplicative functions.
  - Implementing **performance-linked incentives** could attract skilled professionals and improve the effectiveness of asset resolution.
  - Investor-friendly policies to facilitate domestic and foreign investor participation in asset resolution.
  - Foster a **secondary market for distressed assets** to improve liquidity and price discovery.

#### Swiss Challenge Method

- The Swiss challenge method is a **public procurement process that allows private companies to bid on government contracts**. The method is used for projects such as roads, ports, and railways, or for services provided to the government.
- The RBI allowed banks to use Swiss Challenge technique for the selling of NPA accounts in September 2016 it involves:
  - **Initial Offer:** A buyer submits an offer to purchase an NPA account.
  - **Invitation for Counter-Bids:** If the initial offer is in cash and exceeds the bank's minimum threshold, the bank invites counter-bids.
  - **Preference Order:**
    - **Asset Reconstruction Companies (ARCs):** ARCs with the largest stakes in the bank are given priority.
    - **First Bidder:** If no ARCs participate, the initial bidder is preferred.
    - **Highest Bidder:** During the counter-bid process, the highest bid is selected.

## GST on Health and Life Insurance in India

### Why in News?

Recently, the debate surrounding the **Goods and Services Tax (GST)** on health and life insurance has gained momentum, particularly following protests led by opposition leaders demanding the **withdrawal of the 18% GST on insurance premiums**.

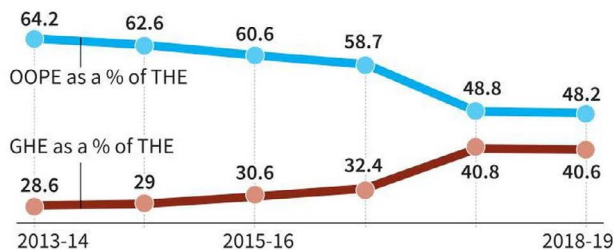
- The rising cost of premiums, exacerbated by this tax, has made insurance increasingly unaffordable for many citizens, prompting discussions in Parliament and among industry stakeholders.

### What is the Current State of Health Expenditure in India?

- **Higher Medical Inflation:**
  - India's healthcare expenditure has been under scrutiny, with **medical inflation** estimated at around **14%** towards the end of 2023.
- **Higher Out-of-Pocket Expenditure (OOPE):**
  - **Out-of-Pocket Expenditure (OOPE)** is still around **39.4% of Total Health Expenditure (THE)** in **2021-22** as per **National Health Accounts (NHA)** data.
  - Although this has dropped significantly from **62.6% in 2014-15** to **39.4% in 2021-22**.
  - In states such as Uttar Pradesh, the OOPE were as high as **71.3%**.
- **Marginal Increase in Government Health Expenditure (GHE):**
  - The share of **Government Health Expenditure (GHE)** in **Total Health Expenditure (THE)** has risen from **28.6% in 2013-14** to just **40.6% in FY19**.
  - **GHE as a percentage of GDP** increased **63%** between **2014-15** to **2021-22**, rising from **1.13% of GDP in 2014-15** to **1.84% by 2021-22**.

### Health spending

The chart shows government health expenditure (GHE) and out-of-pocket expenditure (OOPE) as a share of total health expenditure (THE). OOPE still remains high



- **Share of Health Expenditure in GDP:** In the year 2019-20, India's Total Health Expenditure (THE) was estimated at Rs. 6,55,822 crores, which represents **3.27% of the GDP** and amounts to Rs. 4,863 per capita.
  - In comparison, countries like the **US spend about 18% of their GDP on healthcare**, while countries such as **Germany and France** spend around **11-12%**.

Note:



### Why is there Need to Reduce GST on Health and Life Insurance Premiums?

- **Insurance a Basic Necessity:** Insurance is a basic necessity as it provides financial protection against unexpected events, safeguarding family's financial interests and thus it should not be subjected to high taxes.
- **Affordability:** The 18% GST on insurance premiums significantly increases the cost for policyholders. With health insurance premiums having risen by up to 50% in some cases, many individuals are finding it increasingly difficult to maintain their policies.
- **Global Comparison:** The GST on insurance in India is among the highest in the world. Countries like Singapore and Hong Kong do not impose such taxes on insurance, making their insurance products more attractive and affordable.
- **Impact on Insurance Penetration:** The high GST rate contributes to low insurance penetration in India, which was **only 4% in 2022-23, lower than the global average of around 7%**.
  - Lowering the GST could encourage more people to purchase insurance, aligning with the goal of **"Insurance for All by 2047."**
- **Economic Growth:** Taxing insurance premiums can restrict the growth of the insurance sector, which is vital for economic stability and individual financial security.

### What can be the Downsides of Removing GST on Life and Health Insurance?

- **Revenue Loss for Governments:** GST from life and health insurance (@ 18%) generates significant revenue for federal and state governments. Removing it could lead to budget deficits, affecting funding for public health initiatives and services.
- **Increased Burden on Other Taxpayers:** To compensate for the lost revenue, governments may need to increase other taxes, placing a heavier burden on taxpayers.
- **Potential for Increased Prices:** While removing GST may seem to lower costs for consumers, healthcare providers might increase prices to maintain revenue levels, negating the intended benefits.

### India's Insurance and Pension Sector: A Growth Opportunity

- **Global Comparison and Opportunity for Growth:**
  - India's insurance and pension sectors lag behind global counterparts. While these sectors **contribute 19% and 5% to India's GDP, respectively**, developed economies like the **US (52% and 122%) and the UK (112% and 80%)** showcase significantly higher penetration.
    - This gap presents a substantial opportunity for growth in India's insurance and pension markets.
- **Industry Performance:**
  - The General Insurance sector collected Rs 1,09,000 crore in health premiums alone during FY 2023-24.
  - The Life Insurance industry mobilised Rs 3,77,960 crore in premiums in FY 2024, with LIC contributing the majority at Rs 2,22,522 crore.

### Health insurance

Class of business	No. of policies (in lakh)		No. of lives (in lakh)		Gross premium (in ₹ crore)	
	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22
Government sponsored	0.001	0.001	3,429	3,065	4,290	6,076
Group	9.1	7	1,187	1,623	28,108	36,891
Individual	228.3	219.3	531	516	25,840	30,085
Total	237.4	226.3	5,147	5,204	58,238	73,052

Source: Standing Committee Report

## Government Push for Infrastructure Projects

### Why in News?

Recently, the **Cabinet Committee on Economic Affairs**, led by the Prime Minister has approved **eight National High Speed Corridor projects** under the Public-Private Partnership (PPP) Model.

- These projects are expected to create approximately **4.42 crore mandays of direct and indirect employment**.

Note:



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**What are the Approved Eight National High Speed Corridor Projects?**

Corridor Projects	Investment Models
<ul style="list-style-type: none"> <li>➤ Agra-Gwalior high-speed corridor</li> <li>➤ Tharad-Deesa-Mehsana-Ahmedabad corridor</li> <li>➤ Guwahati Ring Road</li> <li>➤ Nashik Phata-Khed corridor</li> </ul>	Build-Operate-Transfer (BOT)
<ul style="list-style-type: none"> <li>➤ Kharagpur-Moregram corridor</li> <li>➤ Ayodhya Ring Road</li> <li>➤ Raipur-Ranchi corridor</li> </ul>	Hybrid Annuity Model (HAM)
<ul style="list-style-type: none"> <li>➤ Kanpur Ring Road</li> </ul>	Engineering, Procurement, and Construction (EPC) Model

**What are the Various Types of PPP Models?**

- **Public-Private Partnership (PPP) Model:** PPP is an arrangement between government and private sector for the provision of public assets and/or public services. PPP allow large-scale government projects, such as roads, bridges, or hospitals, to be completed with private funding.

- **Models of PPP:**

Model	Description
<b>Build-Operate-Transfer (BOT)</b>	<ul style="list-style-type: none"> <li>➤ A private partner designs, builds, operates (during the contracted period), and transfers the facility back to the public sector. The private sector finances, constructs, and maintains the project, while collecting revenue from users. <b>National highway projects by NHAI are a major example of the BOT model.</b></li> </ul>
<b>Build-Own-Operate (BOO)</b>	<ul style="list-style-type: none"> <li>➤ In this model, ownership of the newly built facility rests with the private party. <b>On mutually agreed terms and conditions</b>, the public sector partner agrees to 'purchase' the goods and services produced by the project.</li> </ul>
<b>Build-Own-Operate-Transfer (BOOT)</b>	<ul style="list-style-type: none"> <li>➤ In this variant of BOT, after the negotiated period of time, the project is transferred to the government or to the private operator. The BOOT model is <b>used for the development of highways and ports.</b></li> </ul>
<b>Build-Operate-Lease-Transfer (BOLT)</b>	<ul style="list-style-type: none"> <li>➤ In this approach, the government gives a concession to a private entity to build a facility (and possibly design it as well), own the facility, lease the facility to the public sector, and then at the end of the lease period transfer the ownership of the facility to the government.</li> </ul>
<b>Design Build Finance Operate (DBFO)</b>	<ul style="list-style-type: none"> <li>➤ In this model, the <b>entire responsibility</b> for the design, construction, finance, and operation of the project for the period of concession <b>lies with the private party.</b></li> </ul>
<b>Lease Develop Operate (LDO)</b>	<ul style="list-style-type: none"> <li>➤ Either the government or the public sector entity retains ownership of the newly created infrastructure facility and receives payments in terms of a lease agreement with the private promoter. It is <b>mostly followed in the development of airport facilities.</b></li> </ul>
<b>Hybrid Annuity Model (HAM)</b>	<ul style="list-style-type: none"> <li>➤ It is a mix of EPC and BOT-Annuity models. As per the design, the <b>government will contribute 40% of the project cost in the first five years</b> through annual payments (annuity). The remaining payment will be made on the basis of the assets created and the performance of the developer.</li> </ul>
<b>Engineering, Procurement, and Construction (EPC) Model</b>	<ul style="list-style-type: none"> <li>➤ Under this model, the government covers all costs, including the procurement of materials and construction. <b>Private sector involvement is limited</b> to providing engineering expertise. A key challenge of this model is the high financial burden on the government.</li> </ul>

Note:



### What is the Government's Road Map for Infrastructure Development?

- **Focus on Public-Private Partnerships (PPP):** Government has emphasised on project development through **PPP** investment models.
  - This model allows private players to assume investment risks and manage the construction and maintenance of highways.
- **Amendments to Concession Agreements:** Government has amended the **Model Concession Agreement** to make it **more attractive for private investors**, introducing liberal compensation, extended concession periods, and termination payments.
  - The earlier **concession agreement** system featured **fixed compensation, short concession periods, low termination payments, and strict regulatory oversight**, making it less appealing to private investors.
- **Introduction of Construction Support:** A new 'construction support' mechanism will enable the **National Highways Authority of India (NHAI)** to pay up to 40% of the total project cost in ten instalments based on physical progress, enhancing financial viability for private developers.
  - Earlier, NHAI only provided equity support, which led to **cash flow challenges** as developers had to rely heavily on their own funds before project completion.
- **Economic Impact of High Speed Corridor Projects:** The projects aim to boost regional economies, particularly in states like West Bengal and the North East, by improving connectivity and reducing transportation costs.
- **Progress in Highway Construction in India:**
  - The **length of National Highways** has increased from 0.91 lakh km in 2013-14 to **1.46 lakh km** in 2024.
  - The average annual construction of National Highways has increased by about **2.4 times** from about 4,000 km in 2004-14 to about **9,600 km in 2014-24**.
  - The total **capital investment in National Highways** including private investment has **increased by 6 times** from Rs. 50,000 Crore in 2013-14 to about Rs. 3.1 Lakh Crore in 2023-24.
  - The government has adopted a **corridor-based highway infrastructure development approach** with a focus on consistent standards, user convenience, and logistics efficiency.

### Related Infrastructure Development Schemes

- **PM Gati Shakti Scheme:** It aims to ensure integrated planning and implementation of infrastructure projects with focus on expediting works on the ground, saving costs and creating jobs.
- **Bharatmala scheme:** It is a flagship highway development programme launched under the Ministry of Road Transport and Highways.
  - The first phase of Bharatmala, **announced in 2017** and initially set to be completed by 2022, has now had its **deadline extended to 2027-28**.
  - It focuses on enhanced effectiveness of already built infrastructure, multi-modal integration, bridging infrastructure gaps for seamless movement and integrating **National and Economic Corridors**.
- **National Infrastructure Pipeline (NIP):** It is a group of social and economic infrastructure projects to provide world-class infrastructure across the country and improve the quality of life for all citizens.
- **Sagarmala Project:** It was approved in 2015, aims to develop port infrastructure along India's 7,516-km coastline through modernisation, mechanisation and computerisation.
- **Ude Desh Ka Aam Nagrik (UDAN):** This scheme was with the aim to improve air connectivity to remote and regional areas of India, enable common people to access affordable air travel and create employment in the aviation sector.

### What are the Challenges to Infrastructure Development in India?

- **Physical Infrastructure:** The construction of physical infrastructure in India faces significant challenges including **land acquisition**, which often involves complicated resettlement and compensation issues.
  - Additionally, **funding such large-scale projects is difficult** due to **limited government resources** and **private investment hindered** by economic and regulatory obstacles.
  - Furthermore, there is a **lack of technology and expertise** required for executing complex infrastructure developments.
- **Political and Regulatory Risk:** It encompasses various approvals required across the project cycle, community opposition, changes to regulations, and breach of contract terms.

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- In India, **denial of government payments** against contractual agreements is perceived as likely to influence future investment decisions.
- **Geographical Challenges:** India's diverse topography, including mountains, rivers, and coastal regions, presents unique engineering challenges. Additionally, extreme weather conditions, such as **cyclones** and **floods**, can disrupt projects and increase costs.
- **Corruption and Inefficiency:** **Bureaucratic red tape**, **corruption**, and lack of transparency often lead to project delays, cost escalation, and suboptimal quality of projects.
- **Policy Inconsistencies:** Conflicting policies and regulations often create an uncertain environment for investors and developers, discouraging private participation.
- **Digital Divide:** India faces challenges in developing its digital infrastructure due to a significant digital divide, particularly in rural areas with limited access to technology and the internet.
  - The rise in technology usage also raises concerns regarding **cybersecurity** and **privacy**, necessitating robust regulations and infrastructure.
  - Additionally, the **absence of standardisation and coordination** among various stakeholders in the digital infrastructure sector can impede user experience and stifle growth and innovation.

### ***What Steps can be Taken for Infrastructure Development in India?***

- **Investment in Social Infrastructure:**
  - Investing in social infrastructure such as education, public health, and sanitation can enhance workforce productivity, reduce mortality and malnutrition, improve social mobility, and elevate quality of life.
    - These investments support a stronger, more inclusive economy and holistic development.
- **Increased Public-Private Partnerships (PPPs):**
  - The government can partner with the private sector to finance, design, construct, and operate infrastructure projects.
- **Improved Project Planning and Implementation:**
  - The government can streamline project planning and implementation processes to ensure that projects are completed on time and within budget.

- **Implementation of Innovative Financing Solutions:**
  - The government can explore innovative financing solutions, such as **infrastructure bonds**, to mobilise additional funds for infrastructure development.
- **Encouraging Foreign Direct Investment (FDI):**
  - The government can ease regulations and create a favorable environment for **Foreign Direct Investment (FDI)** in infrastructure development.
- **Building Human Capital:**
  - To advance infrastructure development, the government should focus on building human capital through investments in job training and apprenticeships, ensuring access to quality education, supporting infrastructure research and innovation, and fostering public-private partnerships. Key schemes to support these initiatives include **Skill India**, the **National Skill Development Corporation (NSDC)**, and the **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**.
- **Effective Regulation:**
  - The government can establish and enforce effective regulations to ensure the quality and safety of infrastructure projects.
    - Regulations can establish standards for material quality and workmanship. They can **also mandate safety requirements**, including fire safety, evacuation plans, and accessibility standards, to ensure the safety of both the public and workers involved in the project.
    - Additionally, **independent inspections and testing can help identify and address any issues** before the infrastructure is put into use.

## **World Development Report 2024**

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

A recent **World Bank** report titled "**World Development Report 2024: The Middle Income Trap**" has highlighted significant challenges faced by over 100 countries, including India, in achieving high-income status in the coming decades.

### ***What are the Key Highlights of the World Development Report 2024?***

- **Middle Income Trap:**
  - India is among 100 countries, including China, at

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risk of falling into the “**middle income trap**,” where countries struggle to transition from **middle-income to high-income status**.

- India is at a crucial juncture, benefiting from favorable demographics and advancements in **digitalization**, but faces a tougher external environment compared to the past.
- **India's aim to become a developed nation by 2047** requires a comprehensive approach that enhances overall economic performance, rather than focusing on isolated sectors.
- The report notes that only **34 middle-income economies have transitioned to high-income status since 1990**, often due to special circumstances like **European Union** integration or **oil reserves**.
- Middle-income countries face challenges in **sustaining economic growth due to diminishing returns** on physical capital.
  - While low-income countries benefit from building physical capital and improving basic education like India in the 1980s, where capital deepening was crucial, middle-income countries encounter **diminishing returns as they invest further**.
  - Simply increasing **saving and investment rates to meet growth targets isn't sufficient**; these countries also need to address factors beyond physical capital.
- Despite having relatively high capital endowments, **middle-income economies struggle with productivity issues**, highlighting that physical capital alone isn't the main barrier to further growth.
  - The World Bank criticizes many middle-income countries for using outdated economic strategies focused mainly on expanding investment.
- **Global Economic Impact:**
  - Middle-income countries are home to six billion people, **representing 75% of the global population, and generate over 40% of global Gross Domestic Product (GDP)**.
    - The success or failure of these countries in achieving high-income status will significantly impact global economic prosperity.
- **Per Capita Income Disparity:**
  - India is identified as the fastest growing major economy, but it would take **75 years for its per capita income to reach a quarter of the US** income levels if current trends continue.

- China would take over 10 years, Indonesia nearly 70 years, and India 75 years to reach a quarter of US income per capita.

#### ➤ **Challenges and Risks:**

- Middle-income countries face significant obstacles, including **ageing populations, rising debt, geopolitical and trade frictions, and environmental concerns**.
- These countries are at risk of not achieving reasonably prosperous societies by the middle of the century if they continue with current trends.

#### ➤ **Strategic Recommendations:**

- **3i Strategy:** Report recommended a three-phase approach for countries to reach high-income status:
  - **1i Phase:** Focus on investment for low-income countries.
  - **2i Phase:** Investment and infusion of foreign technologies for lower-middle-income countries.
  - **3i Phase:** Investment, infusion, and innovation for upper-middle-income countries.
- The report highlighted **South Korea** as an example, starting with a per capita income of USD 1,200 in 1960, South Korea reached **USD 33,000 by 2023 by sequentially adopting the 3i strategy**.

#### ➤ **Policy Recommendations:**

- India's aim to become a developed nation requires a comprehensive approach that enhances overall economic performance, rather than **focusing on isolated sectors**.
- Focus on horizontal policies rather than vertical debates (e.g., manufacturing vs. services).
- Emphasize **improving education and skills** to enable better absorption of technology and innovation.
- Strengthen connections between **universities and industries to enhance knowledge transfer**.
- India shows potential in technology preparedness, with a good track record in digitalization. However, there is a need for greater dynamism in firms to **absorb and utilize these technologies effectively**.
- The report highlights the prevalence of **microenterprises in India**, suggesting that barriers exist for **productive firms to grow due to policies favoring smaller firms**.

#### **What is the Middle Income Trap?**

- The middle-income trap refers to a **situation where a country, after reaching a middle-income status, struggles to transition to high-income status**.

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- This typically happens when **economic growth slows down after an initial period of rapid progress**, and the country remains stuck at a middle-income level without advancing further to high-income levels.
- According to the World Bank, the Middle Income Trap refers to the economic stagnation that countries encounter when their GDP per capita reaches about 10% of the United States level, or around USD 8,000 currently.
- Low-income countries often experience rapid growth when transitioning to middle-income levels due to factors such as low wages, cheap labor, and basic technology catch-up.
  - At the middle-income stage, countries **may face stagnation due to exhaustion of initial growth drivers**, institutional weaknesses, income inequality, and lack of innovation.
- **Current Status:** By the end of 2023, 108 countries were classified as middle-income, with GDP per capita between USD 1,136 and USD 13,845.
  - These countries house 75% of the global population and generate over 40% of global GDP, contributing to more than 60% of carbon emissions.
  - Until 2006, the **World Bank categorised India as a low-income nation**. In 2007, India **transitioned to the lower-middle income group** and has remained in that classification since then.
    - Economists view that India's growth has been sluggish at lower-middle-income levels, with per capita income stuck between USD 1,000 and USD 3,800. Emphasized that India's growth has been driven primarily by the top 100 million people and warned that this model might not be sustainable.
- **Balancing Growth and Inflation:** Higher interest rates, aimed at controlling **inflation**, can temper demand and impact economic growth. India needs to manage monetary policy effectively to balance growth with inflationary pressures.
  - Strategic fiscal management is crucial to support growth without exacerbating inflation.
- **Income Per Capita:** India's **per-capita income** is significantly below the upper-middle-income threshold of USD 4,256. Achieving high-income status will require substantial growth in per-capita income over the coming years.
  - Although India is projected to approach the **USD 7 trillion economy milestone by FY31**, it must sustain a 6.7% average annual growth rate to reach this target and transition to an upper-middle-income status.
- **Labor Force Participation:** Despite improvements in employment indicators, concerns remain about the **quality of jobs, real wage growth, and the low participation of women in the labor force**.
  - These issues affect the overall economic productivity and inclusivity of growth.
  - The **Economic Survey 2023-24** notes that India needs to generate an average of nearly **78.5 lakh non-farm jobs annually until 2030** to cater to the rising workforce.
- **Economic Diversification:** While **mining, manufacturing, construction, and services are key growth drivers**, India must ensure continued diversification to avoid over-reliance on any single sector.
  - India aims for the manufacturing sector to contribute beyond 20% of GDP by FY31. Sustaining this growth will depend on **increasing global competitiveness, enhancing value chains, and supporting green transitions**.
- **Environmental and Climate Resilience:** India's aspiration to achieve high-income status by 2047 **must align with its goal of net-zero emissions by 2070**.
  - Balancing economic growth with climate resilience is a complex challenge, requiring significant investments in **green technologies and sustainable practices**.
  - The country must ensure that its growth path is resilient to climate impacts while delivering broad-based benefits to its population.

### ***What Challenges Must India Overcome to Improve the Income Status?***

- **Income Inequality:** India continues to grapple with high levels of consumption inequality, with a **Gini index of around 35 over the past two decades**. This inequality limits broad-based economic growth and hinders inclusive development.
  - Although India made significant strides in reducing extreme poverty between 2011 and 2019, the **pace of poverty reduction has slowed**, especially post the Covid-19 pandemic. This indicates ongoing struggles to address deep-seated economic disparities.

Note:



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### **What are the Factors Supporting India's Improvement in Income Status?**

- **Global Offshoring:** Increased outsourcing of services such as software development, customer service, and business process outsourcing to India.
  - Acceptance of work-from-home and work-from-India models, potentially **doubling employment in outsourced jobs to over 11 million by 2030** as global spending on outsourcing is expected to grow from USD 180 billion annually to around USD 500 billion by 2030.
- **Digitalization:** India's Aadhaar program and IndiaStack (Digital Public Infrastructure) are driving a digital transformation, enabling greater financial inclusion and credit access.
  - **India's credit-to-GDP ratio could rise from 57% to 100% in the next decade**, and consumer spending is expected to more than double from **USD 2 trillion to USD 4.9 trillion, with the greatest gains in non-grocery retail.**
- **Energy Transition:** Significant investment in renewables such as biogas, ethanol, Green hydrogen, wind, solar, and hydroelectric power.
  - Daily energy consumption is expected to increase by 60%, **reducing reliance on imported energy and improving living conditions.**
  - The energy transition creates new demand for **electric solutions, driving investment growth and a virtuous cycle of investment, jobs, and income.**
- **Manufacturing Sector:** Corporate tax cuts, investment incentives, and infrastructure spending are driving capital investments.
  - **Manufacturing's share of GDP** is projected to increase from 15.6% to 21% by 2031, potentially doubling India's export market share.
  - India continues to open its economy to global investors **by raising Foreign Direct Investment limits**, removing regulatory barriers, developing infrastructure and improving the business environment.
  - India's 14 **Production Linked Incentive Scheme** have the potential to significantly boost production, employment, increase manufacturing activities, and contribute to economic growth over the next five years, thereby having the potential to change the manufacturing ecosystem in the country.
- **Services Sector:** **Services sector** is expected to grow at 6.9% between fiscals 2025 and 2031. Services will continue to be the dominant driver of India's growth.
- **Economic Size:** Potential doubling of GDP from USD 3.5 trillion to over USD 7 trillion by 2031.
  - **Bombay Stock Exchange** expected to grow at 11% annually, reaching a market capitalization of USD 10 trillion by 2030.
  - Projections indicate that **India will become the world's third-largest economy by 2031.**
  - According to the **International Monetary Fund (IMF)**, India's current GDP per capita is around USD 2,850, placing it in the lower-middle-income category. However, CRISIL's report projects India's GDP per capita to reach USD 4,500 by 2031.
- **Consumption and Income Distribution:**
  - Rising income levels can lead to a significant increase in overall consumption.
  - Increased per capita income and economic growth will boost domestic consumption.
  - Consumer Spending is expected to more than double from USD 2 trillion in 2022 to USD 4.9 trillion by the end of the decade, with notable gains in non-grocery retail, leisure, and household goods.

### **What Strategies Should India Adopt to Avoid the Middle-Income Trap?**

- **Address Income Inequality:** Implement policies to ensure a more **equitable distribution of wealth.** This could include progressive taxation, increased social spending, and targeted subsidies for the lower-income segments.
  - **Strengthen social safety nets** and support systems to reduce the disparity between different income groups and regions.
- **Enhance Economic Diversification:** Focus on diversifying the economy beyond traditional sectors. Invest in **emerging industries such as technology, renewable energy, and advanced manufacturing.**
  - Encourage development in **economically lagging regions** to prevent **over-reliance on certain areas** and spread economic benefits more evenly.
- **Increase Productivity and Innovation:** Foster innovation through investments in research and development, and support tech-driven industries to enhance productivity.
  - Focus on improving education and skills to meet the demands of a modern economy. Emphasize vocational training and higher education.

Note:

- **Support Local Manufacturing and Production:** Encourage local manufacturing through policies such as the PLI schemes. This can help make essential goods more **affordable and competitive**.
  - Tap into local skills and resources by promoting manufacturing in states with potential but lower costs. This approach can also address regional disparities and unemployment.
- **Foster Inclusive Growth:** Ensure that the production and distribution of essential goods like food, **healthcare**, and education are prioritized, making them affordable for all segments of the population.
  - Implement policies that create job opportunities and improve living standards across different regions and communities.
- **Strengthen Economic Institutions and Governance:** Improve the efficiency and **transparency of economic institutions to reduce corruption** and ensure that resources are used effectively.
  - Undertake structural reforms to streamline regulations, ease the business environment, and attract investment.
- **Focus on Sustainable Development:** Align economic growth strategies with **environmental sustainability goals**. Invest in green technologies and ensure that development does not compromise environmental health.
  - Develop strategies to **mitigate the impacts of climate change and build resilience in vulnerable sectors**.
- **Promote Financial Inclusion:** Enhance financial inclusion by improving access to credit and financial services for small businesses and individuals in underserved areas.
  - Leverage digital platforms to increase financial inclusion and improve the efficiency of financial transactions.

#### World Bank

- The World Bank, created in 1944 was established at the **United Nations Monetary and Financial Conference in Bretton Woods**, New Hampshire in 1944 as the **International Bank for Reconstruction and Development (IBRD)**, along with the International Monetary Fund (IMF).
- The IBRD later became the World Bank. The World Bank Group is a global partnership of **five institutions working for sustainable solutions to reduce poverty and build shared prosperity in developing countries**.

- The World Bank is one of the **United Nations'** specialized agencies and has **189 member countries, including India**.
- **Five Development Institutions of World Bank:** International Bank for Reconstruction and Development (IBRD), International Development Association (IDA), International Finance Corporation (IFC), Multilateral Guarantee Agency (MIGA), International, and Centre for the Settlement of Investment Disputes (ICSID).
  - **India is not a member of ICSID** but has been accessing funds from the World Bank (mainly through IBRD and IDA) for various development projects. **India is one of the founding members of IBRD, IDA and IFC.**
- **Major Reports:** **Ease of Doing Business (Stopped publishing)**, **Human Capital Index**, **World Development Report**, and **Global Economic Prospect (GEP) Report**.

## Sovereign Gold Bond Scheme

### Why in News?

Recently, the **Union Government** in the **Budget 2024-25** announced a reduction of the **import duty on gold from 15% to 6%**.

- Also, the government intends to finalise its decision on the future of the **Sovereign Gold Bonds (SGB)**.

#### The Status of the Gold Industry in India

- **Gold Reserves in India:**
  - As per **National Mineral Inventory**, total reserves/resources of gold ore in India estimated at 501.83 million tonnes as of 2015.
  - Largest resources of gold ore are located in **Bihar (44%), followed by Rajasthan (25%), Karnataka (21%), West Bengal (3%), Andhra Pradesh (3%), Jharkhand (2%)**.
    - **Karnataka commands around 80% of the nation's total gold output.** The **Kolar Gold Fields (KGF)** in the Kolar district is one of the world's oldest and deepest gold mines.
- **India Gold Import:**
  - **India is the world's second-largest gold consumer.** India's gold imports increased by **30% in 2023-24**, reaching **USD 45.54 billion**.

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- However, there was a significant decline of **53.56%** in gold imports observed in March 2024.

### What is the Sovereign Gold Bond Scheme?

#### ➤ Launch:

- The **SGB scheme** was introduced in **November 2015** with the aim of **decreasing the demand for physical gold** and redirecting a portion of domestic savings, which would otherwise be used to buy gold, into financial savings.

#### ➤ Issuance:

- The **Gold Bonds** are issued as **Government of India Stock** under the **Government Securities (GS) Act, 2006**.
- These bonds are issued by the **Reserve Bank of India (RBI)** on behalf of the Government of India.
- They are available for purchase through **Scheduled Commercial banks** (except **Small Finance Banks, Payment Banks** and **Regional Rural Banks**), **Stock Holding Corporation of India Limited**, **Clearing Corporation of India Limited**, designated post offices and **National Stock Exchange of India Limited and Bombay Stock Exchange Limited**, either directly or through agents.

#### ➤ Eligibility:

- The bonds are available for purchase by resident **individuals, Hindu Undivided Families (HUFs), trusts, universities, and charitable institutions**.

#### ➤ Features:

- **Issue Price:** The price of gold bonds is linked to the **price of gold of 999 purity (24 carats)** as published by the **India Bullion and Jewellers Association (IBJA)**, Mumbai.
- **Investment Limit:** Gold bonds can be bought in multiples of one unit (1 gram), up to specific limits for different investors.
  - **Retail (individual) investors and Hindu Undivided Family (HUF)** have a maximum limit of **4 kilograms (4,000 units)** per financial year, while trusts and similar entities have a limit of **20 kilograms** per financial year. The **minimum investment permitted is 1 gram of gold**.
- **Term:** Gold bonds have a maturity period of **eight years**, with the option to exit the investment after the first **five years**.

- **Interest Rate:** The scheme offers a fixed annual interest rate of **2.5%**, payable semi-annually. The interest earned on Gold Bonds is taxable according to the **Income Tax Act, 1961**.

#### ➤ Benefit:

- **SGBs** can be used as collateral for loans.
- **Capital gains tax on redemption of SGB** for individuals has been exempted.
  - **Redemption refers to the issuer repurchasing a bond** at or before maturity.
  - Capital gain is the profit earned when the selling price of an asset, such as stocks, bonds, or real estate, exceeds its purchase price.

#### ➤ Disadvantages of Investing in SGB:

- This is a long-term investment, unlike physical gold, which can be sold immediately.
- Although SGBs are listed on exchanges, the trading volumes are relatively low, **making it challenging to exit before maturity**.

### Green Bonds

- **Green bonds** are issued by **companies, countries and multilateral organisations** to exclusively fund projects that have positive environmental or climate benefits and provide investors with fixed income payments.
- The government plans to issue **sovereign green bonds** worth approximately Rs 20,000 crore in the financial year 2024-25.

## Commercial Cultivation of HT Basmati Rice

### Why in News?

Recently, the Indian government for the first time allowed the commercial cultivation of two **non-transgenic varieties of herbicide-tolerant (HT) basmati rice**: **Pusa Basmati 1979** and **Pusa Basmati 1985**.

- It has been developed by the **Indian Council of Agricultural Research (ICAR)** to promote sustainable paddy cultivation practices that conserve water and reduce carbon emissions.

Note:



**Note:**

- **Transgenic** refers to a **Genetically Modified Organism (GMO)** or cell whose genome has been altered by the **introduction of one or more foreign DNA sequences or genes** from another species by artificial means.
  - GMO is an organism that contains a genetically modified genome.
  - All transgenic organisms are GMOs.
- **Non-Transgenic does not** involve inserting any foreign DNA.

### What are the Key Features of the New Varieties of Rice?

- These new varieties contain a **mutated AcetoLactate Synthase (ALS) gene** making it possible for farmers to spray **Imazethapyr (a herbicide)** to control weeds.
  - **Mutated ALS gene prevents** the ALS enzymes from having binding sites for **Imazethapyr**, ensuring that amino acid synthesis remains unaffected.
  - The ALS gene in rice **encodes an enzyme responsible for synthesising amino acids** essential for the crop's growth and development.
    - While, in normal rice plants, the **herbicide binds to the ALS enzymes**, inhibiting amino acid production.
- **Imazethapyr** effectively targets a variety of broadleaf, grassy, and sedge weeds but **cannot distinguish between the crop and invasive plants.**

- As a result, these **plants can tolerate the herbicide, which kills only the weeds.**
- Since no foreign genes are involved in the process, **herbicide tolerance is achieved through mutation breeding**, making these plants non-**Genetically Modified Organisms** (non-GMOs).
- **Significance:** These HT rice varieties offer several benefits such as eliminating the need for nursery preparation, puddling, transplanting, and field flooding, reducing methane emissions, a major greenhouse gas by supporting **Direct Seeding of Rice (DSR).**

#### Concerns Regarding the Use of HT Variety of Rice

- There is a **risk of developing "super weeds"** that become resistant to herbicides through repeated use, making them harder to control.
- There are worries about potential **herbicide residue accumulation** in food products, despite developers' assurances that the grain is residue-free.
- While India permits certain herbicides like imazethapyr, the European Union bans them, which could **impact international trade and safety standards.**
- Questions arise about the **long-term sustainability of HT crops**, as increased herbicide use over time might lead to ecological concerns.

#### Paddy Transplantation vs Direct Seeding of Rice (DSR)

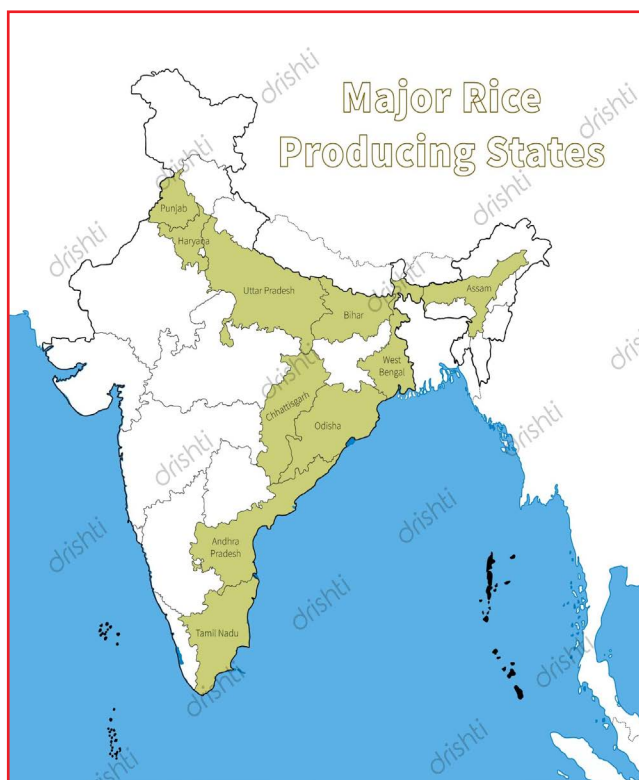
Paddy Transplantation	DSR
➤ The field where the seedlings are transplanted has to be "puddled" or tilled in standing water.	➤ The pre-germinated seeds are directly drilled into the field by a tractor- powered machine.
➤ For the first three weeks or so after transplanting, the plants are irrigated almost daily to maintain a water depth of 4-5 cm.	➤ There is no nursery preparation or transplantation involved in this method.
➤ Farmers continue giving water every 2-3 days even for the next four-five weeks when the crop is in tillering (stem development) stage.	➤ Farmers have to only level their land and give one pre-sowing irrigation.
➤ Paddy transplantation is both labour- and water-intensive.	➤ It is water and labour efficient and reduces methane emissions due to a shorter flooding period and comparatively decreased soil disturbance.

Note:



### Rice

- It is a kharif crop that requires high temperature (**above 25°C**) and **high humidity** with **annual rainfall above 100 cm**.
- In southern states and West Bengal, the climatic conditions allow the cultivation of two or three crops of rice in an agricultural year.
  - In West Bengal farmers grow three crops of rice called '**aus**', '**aman**' and '**boro**'.
- About **one-fourth** of the total cropped area in India is under rice cultivation.
  - **Leading producer states: West Bengal, Uttar Pradesh, and Punjab.**
  - **High Yielding States: Punjab, Tamil Nadu, Haryana,** Andhra Pradesh, Telangana, West Bengal and Kerala.
- India is the **second-largest producer** of rice after China.
- **Basmati rice** is India's top agricultural-export produce. In 2022-23, India exported **4.56 million tonnes** of this valued at USD 4.78 billion.
  - **Basmati's distinctive fragrance** is attributed to **2-acetyl-1-pyrroline (2-AP)**, an organic compound produced during maturation that gives this rice grain its nutty and fragrant aroma.



## India to Import Tur Dal from Mozambique

### Why in News?

Recently, India has restarted the import of **Tur dal (Pigeon pea)** from Mozambique after it was disrupted by an "anti-India" group.

### What is the Current State of Pulses Import in India?

- India imported **4.65 million metric tons** of **pulses** in the fiscal year 2023-24 (up from 2.53 million tons in 2022-23), the highest since 2018-19.
  - In value terms, imports of pulses **jumped 93%** to USD 3.75 billion.
- In 2023-24, India imported 7.71 lakh tons of Tur/Pigeon pea, with 2.64 lakh tons (one-third) from **Mozambique**. **Malawi** is also a major supplier of tur to India.
  - **Mozambique** has an MoU with India to supply **2 lakh tons of Tur/Pigeon peas until 2025-26**, providing assured market access. Similarly, an **MoU with Malawi** ensures an **annual supply of 0.50 lakh tons to India**.
- **Red lentil** imports, particularly from **Canada**, doubled to 1.2 million tons.
- **Yellow peas** are imported from **Russia and Turkey**.
- The South Asian nations including India, usually import pulses from **Canada, Myanmar, Australia, Mozambique, and Tanzania**.

### What is the Status of Pulse Production in India?

- India is the **largest producer** (25% of global production), **consumer** (27% of world consumption) and **importer (14%)** of pulses in the world.
- Pulses account for around **20% of the area under food grains** and contribute around **7-10% of the total food grain production** in the country.

Note:

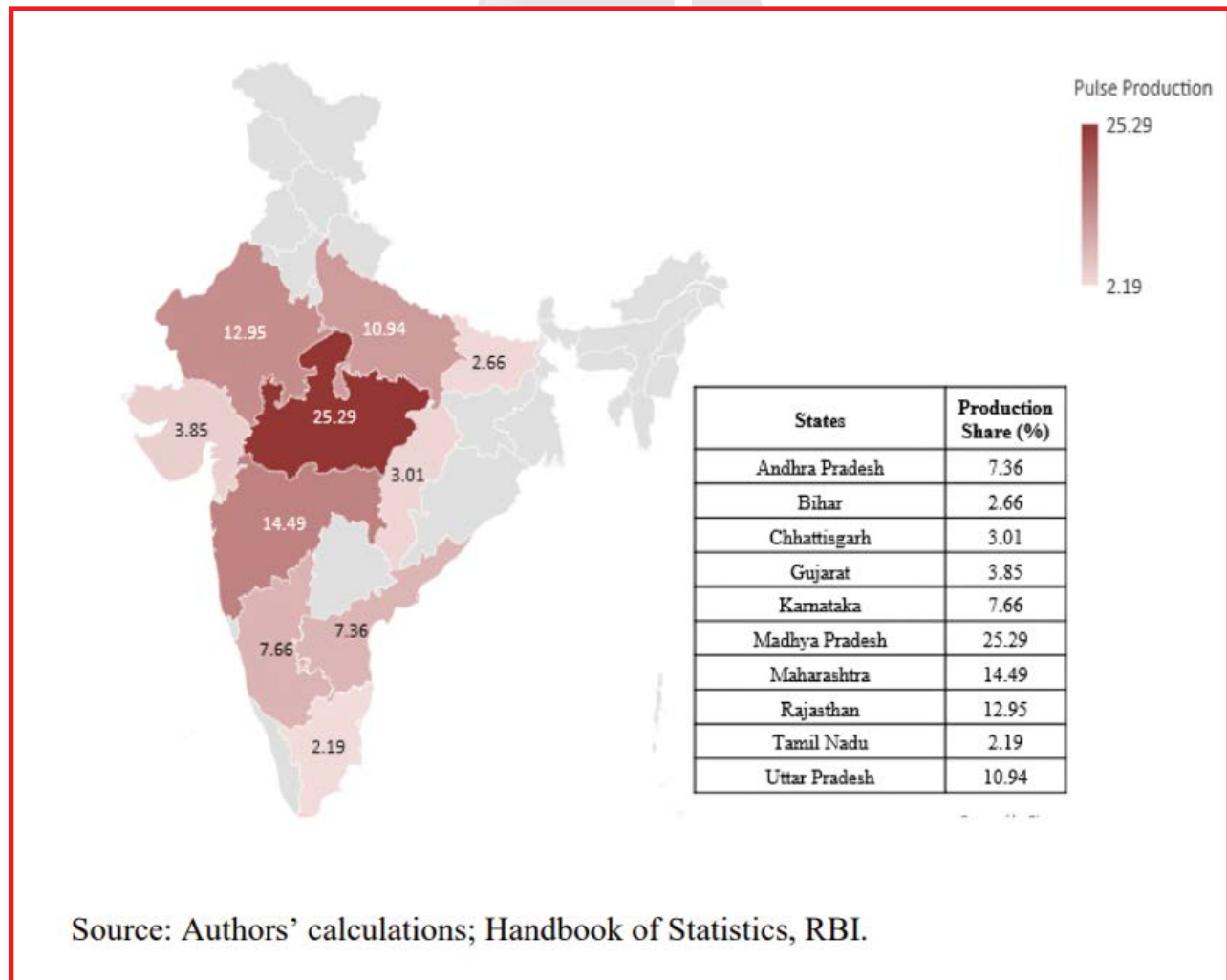


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- **Gram** is the most dominant pulse having a share of **around 40%** in the total production followed by **Tur/Arhar** at **15 to 20%** and **Urad/Black Matpe and Moong** at around **8-10 %** each.
- Though pulses are grown in both Kharif and Rabi seasons, **Rabi pulses** contribute more than **60%** of the total production.
- The top 5 pulses-producing states are **Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and Karnataka**.

### **What are Key Facts About Tur dal (Pigeon Pea)?**

- It is a vital **legume crop** and **protein source** in India.
- It thrives in **tropical and semi-arid regions**.
- **Climatic Requirements:**
  - **Rainfall:** Needs **600-650 mm annually**, with moist conditions early on and dry conditions during flowering and pod development.
  - **Temperature:** Grows best at **26°C to 30°C** in the rainy season and 17°C to 22°C post-rainy season.
  - **Soil:** Prefers **sandy loam or loam**, though it can adapt to various soil types.
- It is sensitive to **low radiation** during pod development, leading to poor pod formation if flowering occurs in monsoon or cloudy conditions.
- **Key diseases** include **Wilt, Sterility Mosaic Disease, Phytophthora Blight, Alternaria Blight, and Powdery Mildew**.
- **Top Producer States (2019):** Karnataka, Maharashtra, UP



Note:

### Government Initiatives to Boost Pulses Production in India

- **Policy Support:** The policy prescription for ensuring reasonable prices to the farmers largely centres around procuring the pulses by providing **Minimum Support Prices (MSP)** to the farmers through **National Agricultural Cooperative Marketing Federation of India (NAFED)** and more recently through **Small Farmers Agri Consortium (SFAC)**.
- **National Food Security Mission (NFSM)-Pulses.**
- **ICAR's Role in Research and Variety Development**
- **Pradhan Mantri Annadata Aay Sanrakshana Abhiyan (PM-AASHA) Scheme**

## NITI Aayog Report on Seaweed Value Chain Development

### Why in News?

Recently, **NITI Aayog** has laid down a comprehensive roadmap to promote **seaweed** cultivation in India in its report published titled **"Strategy for the development of Seaweed Value Chain"**.

- This includes steps for research, investment, training, infrastructure development, and market promotion to increase seaweed production, which can benefit the environment, economy, and local communities.

### What are Seaweeds?

#### ➤ About Seaweeds:

- They are the **primitive, marine non-flowering algae** without root, stem and leaves and play a major role in marine ecosystems.
- Large seaweeds form dense underwater forests known as kelp forests, which act as underwater nurseries for fish, snails and sea urchins.
- Some species of seaweeds are ***Gelidiella acerosa*, *Gracilaria edulis*, *Gracilaria crassa*, *Gracilaria verrucosa*, *Sargassum spp.* and *Turbinaria spp.***
- It is classified into **green (Chlorophyta), brown (Phaeophyta), and red (Rhodophyta)** groups.

#### ➤ Production Scenario:

##### ○ Global:

- **Global Seaweed production (cultivation+ collection)** amounted to around **35.8 million tonnes** in 2019, of which wild collection remained at 1.1 million tonnes.
- Eastern and Southeastern Asia regions dominated the cultivation landscape with 97.4% of global production, while Americas and Europe primarily depend on wild collection. **Indonesia is a major producer of seaweed.**

- Globally, the species ***Kappaphycus alvarezii*** and ***Eucheuma denticulatum*** account for 27.8% of total seaweed production through farming.

- The seaweed industry is projected to grow at a CAGR of 2.3% from 2022 to 2030.

##### ○ India:

- India harvests approximately **33,345 tonnes** (wet weight) of seaweeds annually from natural beds, primarily in **Tamil Nadu**, involving 5,000 families.
- India's **annual seaweed revenue**, around Rs 200 crores, contributes **less than 1% of global production**.
- The government aims to increase the allied sector's share of gross value added in agriculture to **9% in 2024-25** from 7.28% in 2018-19.

#### ➤ Import and Export:

- In 2021, the global seaweed market stood at **USD 9.9 billion**.
- Major trading countries included **China, Indonesia, the Philippines**, the Republic of Korea, and Malaysia.
- **Korea leads in seaweed exports with over 30% market share**, while **China** holds a similar share in **seaweed-based hydrocolloids** (thickening and gelling agents derived from various types of seaweed).

#### ➤ Major Seaweed Beds in India:

- Abundant seaweed resources are found along the Tamil Nadu and Gujarat coasts, as well as around Lakshadweep and the Andaman & Nicobar Islands.
- Notable seaweed beds exist around Mumbai, Ratnagiri, Goa, Karwar, Varkala, Vizhinjam, and Pulicat in Tamil Nadu, Andhra Pradesh, and Chilka in Orissa.

#### ➤ Related Government Initiatives:

- **Seaweed Mission:** This initiative, launched in 2021, aims to commercialise seaweed farming

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and processing for value addition. It also aims to increase cultivation along India's 7,500-kilometre coastline.

- **Pradhan Mantri Matsya Sampada Yojana (PMMSY):** The government is also promoting seaweed cultivation in the country through this initiative.
- **Commercialisation of Seaweed Products:** The Indian Council of Agricultural Research (ICAR)- **Central Marine Fisheries Research Institute (CMFRI)** has successfully commercialised two seaweed-based nutraceutical products, Cadalmin<sup>TM</sup> Immunalgin extract (Cadalmin<sup>TM</sup> IMe) and Cadalmin<sup>TM</sup> Antihypercholesterolemic extract (Cadalmin<sup>TM</sup> ACe).
  - These products, developed with eco-friendly 'green' technology, aim to boost anti-viral immunity and combat high cholesterol or dyslipidemia (imbalance of cholesterol).
- Multi-Purpose Seaweed Park in Tamil Nadu.

### ***What are the Uses and Benefits of Seaweeds?***

- **For Nutrition:** Seaweed is a source of calcium, phosphorus, sodium, and potassium, along with **vitamins A, B1, B12, C, D, E, niacin, folic acid, pantothenic acid, and riboflavin**. They also contain essential **amino acids** crucial for metabolism and overall health.
- **Medicinal Purposes:** Seaweeds contain anti-inflammatory and antimicrobial agents, with medicinal effects. Certain seaweeds have **cancer-fighting** properties, potentially effective against **malignant tumours and leukaemia**.
- **Manufacturing Uses:** They are used as binding agents (emulsifiers) in products like **toothpaste and fruit jelly** and as **softeners (emollients)** in organic cosmetics and skincare products.
- **Commercial Value:** Commercially, seaweeds are valued for bioactive metabolites, manure, fodder, and cell wall polysaccharides like agar, algin, and carrageenan.
  - They are used in the food, pharmaceutical, cosmetic, and mining industries and as raw materials for extracting marine chemicals.
- **Agricultural Benefits:** It also serves as crop biostimulants to enhance agricultural productivity, and animal feed additives.
  - Seaweed cultivation enhances marine production, boosts fish farmers' incomes, and diversifies coastal

livelihoods. Under optimal conditions, one hectare (400 bamboo rafts) can generate up to **Rs 13,28,000 per year**, with a family of two managing 45 rafts, creating valuable income opportunities.

- **Bioindicator:** Seaweeds absorb excess nutrients from agricultural, industrial, aquaculture, and household waste, preventing algal blooms and balancing the marine ecosystem.
- **Environmental Benefits:** Seaweeds help reduce carbon footprints. Mariculture seaweed's estimated carbon sequestration rates amount to **57.64 metric tonnes of CO<sub>2</sub> per hectare per year**, while **pond-cultured seaweeds** sequester **12.38 metric tonnes of CO<sub>2</sub> per hectare**.

### ***What are the NITI Aayog's Recommendations for Promoting Seaweed Production in India?***

- **Amendment in the Allocation of Business Rules, 1961:** Currently, seaweed is classified as "fish" under the Maritime Zones of India Act, 1981, and its global production is tracked by the FAO. Assign seaweed value chain development to the Department of Fisheries for better management.
- **Exports and Certification of Seaweed and its Products:** Transfer seaweed exports and certification oversight to MPEDA under the Ministry of Commerce & Industry, with **National Cooperative Development Corporation (NCDC)** handling sales through FPOs and SHGs.
  - Implement international certification harmonisation, with MPEDA establishing protocols and an independent body managing certification.
- **Priority Sector Lending:** The RBI should consider adding seaweed-related credit to the list of priority sector lending (PSL) for banks, given its role in addressing climate change.
- **Comprehensive risk Cover through Insurance:** To address risks from weather events in seaweed farming, a comprehensive insurance scheme should be developed. This scheme should include crop insurance, life insurance for farmers, and coverage for capital infrastructure.
- **Financial Support:** The **PM-KISAN** and **PMFBY** schemes should be expanded to include seaweed farmers, with the Ministry of Agriculture & Farmers Welfare (MoA&FW) formulating the necessary guidelines for financial and input support

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- Also incorporating them into the **Kisan Credit Card (KCC)** scheme and **promoting joint liability groups (JLGs)** to facilitate group financing should be promoted.
- **Investment and Ease of Doing Business:**
  - Increase investments in coastal seaweed sectors by encouraging both **public and private investments**, leveraging reforms and initiatives like Stand-up India and Startup India.
  - Develop a **dynamic data portal with geo-tagged sites** for seaweed cultivation to support **cluster development** and access for various stakeholders.
  - Include seaweed and its products in **e-NAM** and **state agriculture mandis**, and explore PPPs for sales interventions.
  - Scale up the **Seaweed Farmer Service Platform (SFSP)** for data-based decision-making.
  - Establish **seed banks** across maritime states and UTs for immediate availability of quality seed material after monsoon.
  - Create **Logistics and Processing Centers** at cluster levels for primary processing, including warehouses, transport, and packaging facilities.
- **Skill Development:** Offer certificate and diploma courses on seaweed cultivation, harvesting, and post-harvest management through agriculture and fisheries universities, MPEDA-RGCA, and ICAR institutes.



Note:

# International Relations

## Highlights

- India's EAM Visit to Maldives
- Bangladesh's Political Upheaval and Its Impact on India
- India-Vietnam Enhance Comprehensive Strategic Partnership
- India's Engagement at ASEAN Meet
- Chinese Bridge on Pangong Lake
- IPEF Elects India as Vice-Chair of Supply Chain Council

## India's EAM Visit to Maldives

### Why in News?

India's External Affairs Minister (EAM) S. Jaishankar concluded a crucial visit to the **Maldives**.

- He asserted that the Maldives remains an important partner of India in maintaining peace, stability and prosperity in the **Indian Ocean region**.

### What are the Key Outcomes of the Visit?

- **Water and Sewerage Network:** Mr Jaishankar and the Maldivian Foreign Minister jointly inaugurated India's **Line of Credit (LoC)** assisted project of water and sewerage network in 28 islands of Maldives.
- **Capacity Building:** A memorandum of Understanding on the capacity building of additional **1,000 Maldivian civil servants** in India was signed.
- **Launch of UPI:** Both countries agreed to the introduction of **UPI** in Maldives.
- **Community Development Projects:** Six **High Impact Community Development Projects (HICDPs)** under grant assistance by India in the areas of mental health, special education, speech therapy and street lighting were jointly inaugurated.
- **'Ek Ped Maa ke Naam' Initiative:** Indian EAM planted a sapling at the Lonuziyaaraiy Park as part of Prime Minister Modi's **'Ek Ped Maa ke Naam' initiative** and President Muizzu's **5 Million Tree Project**.
- **Greater Male Connectivity Project:** EAM visited the India-assisted **Greater Male Connectivity Project (GMCP)** site and announced India's commitment to the progress of this flagship development project.
  - It will connect Male with the adjoining islands of **Villingili, Gulhifalhu and Thilafushi**.
- **Addu Reclamation and Shore Protection Project:** EAM inaugurated the **Addu Reclamation and Shore Protection Project** and Addu Detour Link Bridge Project.

### What is the Significance of EAM's Visit to Maldives?

- **Reaffirmation of Strategic Partnership:** The visit signifies a **"significant milestone"** in India-Maldives relations, especially with President Mohamed Muizzu, seen as **pro-China**.
  - It reaffirms India's **commitment** to strengthening its strategic partnership with the Maldives despite **issues** like the Maldives' cancellation of the **hydrology agreement**.
  - It signals a **thaw** in bilateral relations after initial strains due to Muizzu's call for **Indian military withdrawal** and his perceived ties to China.
- **Easing of Bilateral Tensions:** The visit has eased bilateral tensions, especially after Maldivian President's **India-Out campaign** and derogatory remarks made by Maldivian ministers about Indian interest.
- **Economic and Social Ties:** Despite the political and military disagreements, economic and social ties between the two nations **remain strong**, with India being a **major source of tourists** to the Maldives.
  - This visit could further bolster these ties, ensuring continued cooperation in areas like trade, tourism, and cultural exchange.
- **Regional Stability:** As the Maldives faces economic challenges and potential debt crises like Sri Lanka, India's support can provide regional stability. This positions India as a reliable partner during **economic distress**, essential for maintaining stability in the region.
- **Infrastructure and Development Projects:** The handover of water supply and sewerage facilities on 28 islands in the Maldives, funded by India, demonstrates India's ongoing support for the country's development.
  - These projects enhance the local economy and highlight India's role in the **Maldives' prosperity**, marking key milestones in their bilateral relationship.

Note:

- **Diplomatic Signalling:** The visit signals the strength of India-Maldives relations, highlighting a **mutual commitment** to cooperation despite leadership changes and challenges. It reflects a shared vision for the future between the two nations.

#### Training 1000 Maldivian Civil Service Officers

- India and Maldives renewed the **MoU** for the capacity building of **1000 Maldives civil services** officers during the period **2024-2029**.
  - An MoU was **signed** on **8<sup>th</sup> June 2019**, between the **National Centre of Good Governance (NCGG, India)** and the **Maldives Civil Service Commission** for training 1,000 Maldivian civil servants.
- The program focused on capacity building in field administration, including training for the **Anti-Corruption Commission (ACC)** and Information Commission Office of Maldives (ICOM).
- Trainees included Permanent Secretaries, Secretary Generals, and high-level delegates from the Maldives.
- The renewed partnership aims to further enhance the capabilities of Maldivian civil servants in public policy, governance, and field administration.
- The **National Centre of Good Governance (NCGG)**, under the Ministry of External Affairs, has conducted **capacity-building programs for civil servants** from multiple countries including Bangladesh, Tanzania, Gambia, Maldives, Sri Lanka, and Cambodia.
  - NCGG is dedicated to fostering knowledge exchange and collaboration on public policy and governance globally.

#### How are Both India and Maldives Significant to Each Other?

- **Maldives' Significance for India:**
  - **Strategic Location:** Located south of India, the Maldives holds immense **strategic importance** in the Indian Ocean, acting as a **gateway to the Arabian Sea** and beyond.
    - This allows India to monitor maritime traffic and enhance regional security.
  - **Cultural Link:** India and Maldives share a deep cultural and historical connection dating back centuries. Until the first half of the 12th century, **Buddhism** was the principal religion in the Maldivian islands.

- There is an inscription of **Vajrayana Buddhism**, that had existed in the Maldives in ancient times.

- **Regional Stability:** A stable and **prosperous Maldives aligns with India's "Neighbourhood First" policy**, promoting peace and security in the Indian Ocean region.

#### ➤ India's Significance for Maldives:

- **Essential Supplies:** India is a crucial **supplier of everyday essentials**, including rice, spices, fruits, vegetables, and medicines. India also aids in building Maldivian infrastructure by providing **materials like cement and rock boulders**.
- **Education:** India serves as the primary **education provider for Maldivian students** who pursue higher education in Indian institutions, including **scholarships** for deserving students.
- **Disaster Assistance:** India has been a consistent source of aid during crises, such as **tsunamis** and **drinking water shortages**.
  - The provision of essential items and support during the **Covid-19 pandemic** showcases **India's role as a reliable partner**.
- **Security Provider:** India has a history of providing security assistance, intervening during a coup attempt in **1988 through Operation Cactus** and conducting joint naval exercises for the protection of the Maldives.
  - Joint Exercises include **"Ekuverin", "Dosti" and "Ekatha"**.
- **India's Dominance in Maldives Tourism:** Indian tourists have become the leading source market for the Maldives since the **Covid-19 pandemic**.
  - In 2023, they accounted for a significant 11.2% of total tourist arrivals, amounting to **18.42 lakh visitors**.

#### What are the Major Challenges Related to India-Maldives Relations?

- **India-Out Campaign:** The campaign portrayed **India's presence in the Maldives as overbearing**, which created a perception of India interfering in **Maldivian sovereignty**.
  - India was forced to withdraw Indian military personnel manning three **aviation platforms** gifted by India to the Maldives.

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- **Tourism Strain:** The Maldives tourism sector has come under scrutiny following a diplomatic dispute over **undiplomatic comments** about the Indian leaders and Indian territory (**Lakshadweep islands**).
  - This has sparked a “**boycott Maldives**” trend on social media due to public outrage.
- **China’s Rising Influence in Maldives:** Chinese is becoming increasingly visible in the Maldives. The Maldives’ proximity to key **shipping lanes** and India makes it strategically important for China, **potentially fueling its interest in deeper engagement**.
  - It has caused unease in India and could lead to a regional geopolitical contest.

## Bangladesh’s Political Upheaval and Its Impact on India

### Why in News?

The resignation of Sheikh Hasina as Prime Minister of Bangladesh marks a significant turning point in South Asian geopolitics. As she fled the country amid protests and sought refuge in India, the **stability of Bangladesh and its relationship with India have come into question**.

- This upheaval could have far-reaching consequences not only for the region but also for **India’s national security**.

### What is the Current Situation in Bangladesh?

- **Protests and Unrest:** Bangladesh has been engulfed in protests **over job quota issues fueled by authoritarian policies and suppression of opposition**, leading to significant unrest, the largest seen since Sheikh Hasina’s tenure began in 2008.
- **Economic Challenges:** Sheikh Hasina’s departure raises concerns about the country’s economic recovery from the **Covid-19 pandemic**, which has already been strained by **rising inflation and currency depreciation**.
- **Political Landscape:** The Bangladesh Army is set to form an interim government, emphasising the fluidity of the situation. The potential return of **radical Islamist forces could threaten Bangladesh’s secular governance**.
- **Disruption in Export Flow:** **Bangladesh’s textile sector**, which significantly contributes to its export revenue, is facing major disruptions. The ongoing unrest has led to a breakdown in supply chains, affecting the movement of consignments and production schedules.

- Bangladesh is a major player in the global clothing industry, **accounting for 7.9% of global trade in clothing**. The country’s **USD 45 billion garment sector**, which employs **over four million workers**, **represents more than 85% of its merchandise exports**.
  - The country has a significant market share in the **European Union**, the UK and the US, with a 10% share in the US market.
- International buyers are reassessing their supply sources due to the uncertainty in Bangladesh. **This could result in a shift of orders to alternative markets, including India**.
- India stands to gain substantially if it captures a **portion of the displaced orders from Bangladesh**. Industry experts estimate that **India could see an additional USD 300-400 million** in monthly business if **10-11% of Bangladesh’s textile exports are redirected to Indian hubs such as Tiruppur**.

### How does the Political Instability in Bangladesh Affect India?

- **Loss of a Trusted Ally:** India has lost a key partner in Sheikh Hasina, who has been instrumental in **countering terrorism and strengthening bilateral relations**.
  - Hasina’s leadership enabled India to work closely with Bangladesh on security matters, a relationship now in jeopardy as political dynamics shift.
    - India-Bangladesh bilateral trade reached USD 13 billion in FY 2023–24, making **Bangladesh India’s largest trade partner in the subcontinent**. Duty-free access was provided on most tariff lines under the **South Asian Free Trade Area (SAFTA)** agreement under Hasina’s administration.
  - India’s support for her administration has now become a liability as her unpopularity and **controversial governance might impact India’s regional standing**.
- **Western Scrutiny and Potential Backlash:** India’s backing of Hasina has created friction with Western allies, specifically the US who have criticised her undemocratic practices. Balancing international relations while supporting a **now-unpopular leader poses challenges for India**.
  - With Hasina’s unpopularity growing, India may face backlash from **Bangladeshi citizens who view India as an ally of the ousted leader**. The situation could strain **India-Bangladesh relations**.

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### Significance of Bangladesh for India

- The country acts as an important corridor for trade and transportation, linking India's Northeast with the rest of the country and facilitating access to international markets.
- A stable and friendly Bangladesh is essential for regional security. Cooperation on **counter-terrorism**, **border security**, and other security matters is crucial for maintaining peace in South Asia.
- **Bangladesh is India's biggest trade partner in South Asia** and India is the second largest trade partner of Bangladesh in Asia.
  - The economic relationship supports **India's goals under its foreign trade policy** and contributes to its aim of becoming a **USD 5 trillion economy**.
- Active collaboration between India and Bangladesh is crucial for the success of regional forums like **BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation)** and **SAARC (South Asian Association for Regional Cooperation)**.

### What Challenges Lie Ahead for India in Engaging with a New Regime?

- **Uncertain Political Environment:** The nature of the new government, whether it is led by opposition parties or the military will significantly impact India's strategic interests.
  - A new administration that is less friendly to India could **re-energize anti-India militant groups**, adding pressure to an already tense **security situation along the borders**.
  - The Hindu minority may face increased risks if **Islamist extremism** rises. India must navigate citizenship promises for Hindu refugees carefully to avoid regional tensions.
- **Regional Geopolitics:** The political instability in Bangladesh could provide an opportunity for **China to expand its influence in the region**.
  - India must be vigilant as Beijing might offer lucrative deals to the new regime, similar to how it has leveraged regime changes in **Sri Lanka and the Maldives**.
  - India will need to engage in strategic partnerships to ensure that **extremist elements do not gain a foothold** and that Bangladesh's economic stability is supported.

- The turmoil in Bangladesh comes at a time when India faces challenges on multiple fronts, including tensions with Pakistan, **instability in Myanmar**, **strained relations with Nepal**, **Taliban's seizure of power in Afghanistan**, and the **Maldives' recent diplomatic tussle with India**.
- **Impact on Indian Investments:** Indian businesses and investments in Bangladesh might face uncertainties due to the political upheaval. **Disruptions in trade and payment delays** could impact the profitability and stability of these investments.
  - The unrest will influence Indian-owned textile manufacturing units in Bangladesh. Around **25% of textile units in Bangladesh are owned by Indian companies**. There is a likelihood that these units may shift their operations back to India due to the current instability.
  - As discussions around a **potential free trade agreement (FTA)** began in October 2023, hopes soared that it could boost Bangladesh's exports to India by up to 297% and India's exports by 172%.
    - However, the political instability raises doubts about the future of these negotiations and could disrupt existing trade flows.
- **Infrastructure and Connectivity Concerns:** Infrastructure and connectivity have been vital in strengthening Indo-Bangladesh relations. **India has provided USD 8 billion in credit since 2016 for road, rail, and port projects**, including the **Akhaura-Agartala rail link** and the **Khulna-Mongla Port rail line**.
  - However, current unrest threatens these crucial connections, potentially **disrupting trade and access to India's Northeast region**, and jeopardising earlier agreements.
- **Balancing Act:** India must strike a **balance between supporting democratic forces and managing relationships with regional powers**.
  - The **challenge will be to avoid getting entangled in internal disputes** while maintaining a robust diplomatic presence in Bangladesh.

### How Should India Approach Its Foreign Policy Moving Forward?

- **Building New Alliances:** India is maintaining a cautious approach, closely monitoring the situation in Bangladesh while adopting a **"wait-and-watch"** strategy. This involves assessing the developments and their potential impacts on regional stability.

Note:

- Further, India should engage with various political factions in Bangladesh, to foster a more inclusive relationship. India must develop a flexible strategy that accommodates the evolving political landscape in Bangladesh.
- Engaging with a broader spectrum of Bangladeshi society will be crucial to counteract any negative perceptions of India. **India needs to move beyond the 1971 liberation narrative.**
- **Enhancing Security Measures:** India should bolster its security measures along the border and in areas with significant Bangladeshi expatriate populations to address potential spillover effects and maintain stability.
- **Digital Connectivity Corridor:** Developing a digital connectivity corridor can enhance trade, technological exchange, and e-commerce.
  - Evaluate the feasibility of an FTA with Bangladesh in light of the new political climate.
- **Geopolitical Manoeuvring:** India must anticipate that Pakistan and China will seek to exploit the situation in Bangladesh to their advantage.
  - Collaborating with international partners, including the US, UK, and European nations, will be key to mitigating these risks.
  - India should work with Gulf partners like the UAE and Saudi Arabia to support **Bangladesh's economic stabilisation and counter extremist influences**. This cooperation can help maintain regional stability and prevent Bangladesh from drifting away from its traditional allies.

## India-Vietnam Enhance Comprehensive Strategic Partnership

### Why in News?

India and Vietnam have unveiled a new plan aimed at **bolstering their bilateral 'comprehensive strategic partnership'** over the next five years.

- This initiative was discussed during a bilateral meeting between the Indian Prime Minister and Vietnamese Prime Minister Pham Minh Chinh in New Delhi.
- The agreement signifies a deepening of ties between the two nations, with a focus on various sectors including trade, digital payments, and defence.

### What are the Key Highlights of the Bilateral Meeting?

- **New Plan of Action:** India and Vietnam agreed on a new plan of action for their **comprehensive strategic partnership** established in 2016, which will be implemented **over the next five years (2024-2028)**.
  - Objectives of the plan include strengthening **bilateral trade and economic cooperation**. Enhancing collaboration in technology and development, and fostering partnerships in defence and security.
- **Digital Payment Connectivity:** The PM of India announced that the central banks of both countries reached an agreement to establish **digital payment connectivity**, enhancing financial transactions between the two nations.
  - Like India, Vietnam is also embracing digital payments, including developing **cross-border payment connectivity** for retail transactions with other **ASEAN countries**.
- **Credit Line Extension:** India will extend a **USD 300 million credit line** to Vietnam to support its military security and development projects.
  - The inauguration of an **Army Software Park in Nayachang, funded by an Indian grant**, and increased cooperation on terrorism and cyber security were highlighted.
- **MoUs Signed:** Six Memorandums of Understanding (MoUs) were signed, covering various areas including Agricultural Research, Customs capacity building, Law and justice, Radio & television, and Traditional medicines.
- **Trade and Economic Goals:** Vietnam proposed raising annual bilateral trade to USD 20 billion from the current USD 14.8 billion.
  - The two countries agreed to expedite the review of the **ASEAN-India Trade in Goods Agreement to enhance trade**.
  - Vietnam welcomed Indian investments in **IT, manufacturing, textiles, semiconductors, and renewable energy**.
- **Strategic Alignment:** Both countries committed to strengthening cooperation in the **Indo-Pacific region**, focusing on maintaining **freedom of navigation and overflight in the South China Sea**.
  - They emphasised the peaceful settlement of disputes based on international law, particularly the **United Nations Convention on the Law of the Sea (UNCLOS) of 1982**.

Note:



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- **Economic Diplomacy Dialogue:** A new economic diplomacy dialogue will be established at the deputy foreign minister level to address trade and investment issues.

#### Key Facts About Vietnam

- **Capital:** Hanoi, **Official Language:** Vietnamese.
- **Major Mountain Range:** Annam Cordillera.
- **Major Rivers:** Mekong River (south) and Red River (north), which form fertile deltas that support the majority of the population and agriculture.
- **Notable Wildlife:** Giant catfish, Indochinese tigers, Saola antelopes, and Sumatran rhinos.
  - **Deforestation has reduced forest cover to about 19%;** government replanting efforts are underway to restore woodlands.
- **Government Structure:** Socialist state governed by the **Communist Party of Vietnam**; a president serves as head of state, while a **prime minister runs the government**.
- **Economy:** Main exports include **crude oil, seafood, rice, shoes, wooden products, machinery, electronics, coffee, and clothing**.



#### How has been the India-Vietnam Relations?

- **Historical Ties and Diplomatic Relations:** India and Vietnam enjoy a Comprehensive Strategic Partnership.
  - **Mahatma Gandhi and President Ho Chi Minh exchanged messages** during their independence struggles.
  - **India established diplomatic relations with Vietnam in 1972.** Relations were elevated to a Comprehensive Strategic Partnership in 2016.
  - The development of India-Vietnam relations are currently guided by a “**Joint Vision for Peace, Prosperity and People**” adopted in 2020.
- In 2022, the two countries celebrated the **50<sup>th</sup> anniversary of the establishment of diplomatic relations** and both countries are working together actively to further strengthen their multi-dimensional cooperation.
- **Institutional Mechanisms:**
  - The 18<sup>th</sup> **Joint Commission Meeting (JCM)** on Economic, Trade, Scientific, and Technological Cooperation was held on 16<sup>th</sup> October 2023 in Hanoi.
    - Previous JCM meetings, Foreign Office Consultations, and Strategic Dialogues at Secretary-level help review bilateral cooperation.
- **Trade, Economic, and Development Cooperation:**
  - **Trade Statistics:** India-Vietnam trade from April 2023 to March 2024 was USD 14.82 billion.
    - **India's exports to Vietnam were USD 5.47 billion, and imports were USD 9.35 billion.**
    - **The ASEAN-India Trade in Goods Agreement** concluded in 2009 provides a **preferential trade regime between India and Vietnam** and that Agreement is currently under review.
  - **Key Exports and Imports:**
    - **India exports engineering goods,** agricultural products, chemicals, pharmaceuticals, electronic goods, minerals, textiles, and plastics to Vietnam.
    - **Imports from Vietnam include computer and electronic goods,** mobile phones, machinery, steel, chemicals, footwear, garments, and wooden products.
  - **Investments:** Indian investments in Vietnam are around **USD 2 billion, including energy,** mineral processing, agro-processing, IT, auto components, pharmaceuticals, hospitality, and infrastructure sectors.
    - Vietnam's investments in India are about USD 28.55 million, primarily in consumer goods, electronics, construction, IT, and pharmaceuticals.
- **Development Partnership:** Under the **Mekong-Ganga Cooperation framework**, India has completed about **45 Quick Impact Projects in over 35 provinces of VietNam**, with another 10 projects at the implementation stage.
  - **Mekong-Ganga Cooperation (MGC)** established in 2000, includes six member countries: **Cambodia, Lao PDR, Myanmar, Thailand, VietNam, and India.**
  - The cooperation focuses on key sectors: **tourism, culture, education, information technology, telecommunications, and transport.**

Note:



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- India has supported the conservation and restoration of the **UNESCO World Heritage site** of 'My Son' in Quang Nam Province, Central Vietnam.
  - The **Archaeological Survey of India** completed the conservation and restoration of A, H and K group of temples at the My Son complex site in 2022.
- **Defence Cooperation:** India and Vietnam have a strong defence and security cooperation, with a 2009 MoU on Defence Cooperation and a **2015 Joint Vision on Defence Cooperation providing the framework**.
  - In 2022, the two countries signed a new "**Joint Vision Statement on India-Vietnam Defence Partnership towards 2030**" and a "**Memorandum of Understanding on Mutual Logistics Support**".
  - In 2023, Vietnam was **gifted an indigenously built missile corvette INS Kirpan**.
  - Bilateral military-to-military cooperation includes staff talks, exercises, training, visits, and exchanges.
    - **VINBAX-2023 Military Exercise**.
    - In February 2024, a Vietnamese navy ship participated in the **MILAN international maritime exercise** in India.
- **Cultural Exchanges:** MoUs between Indian and Vietnamese institutions promote academic and cultural exchanges.
  - Conferences and summits like the **Northeast India Festival** in Ho Chi Minh City foster bilateral cultural ties.
  - **Buddhist links between Vietnam and India** represent ancient civilisational connections. Vietnamese Buddhist scholars and pilgrims regularly travel to India, including to the **Vietnamese Buddhist pagoda in Bodhgaya**.
  - **Yoga is immensely popular across Vietnam**, with hundreds of yoga clubs and numerous Indian yoga teachers offering their services.
  - The **Swami Vivekananda Indian Cultural Centre in Hanoi** promotes further understanding of India and fosters closer links between the two countries through various cultural programs and activities.

## India's Engagement at ASEAN Meet

### Why in News?

Recently, India's External Affairs Minister's (EAM)

visit to Vientiane, Laos, for the **Association of Southeast Asian Nations (ASEAN)** meetings has garnered significant attention. This visit has provided a platform for high-level dialogues with several global leaders, aiming to strengthen bilateral relations.

### What are the Key Highlights of the ASEAN Meet?

- **ASEAN in India's Foreign Policy:** EAM emphasised ASEAN as the cornerstone of **India's Act East Policy** and **Indo-Pacific vision**.
  - 2024 marks 10 years since **India's Act East Policy** was announced at the 9<sup>th</sup> **East Asia Summit** in 2014.
  - The policy aims to enhance commerce, connectivity, strategic, and cultural relations with the Asia-Pacific region.
    - India views the ASEAN partnership as crucial for its political, economic, and security cooperation.
  - Highlighted India's vision for the **Indo-Pacific in promoting a free, open, inclusive, and peaceful region** based on a rules-based international order.
- **Focus Areas:** Discussions involved expanding people-to-people linkages and bilateral cooperation.
  - The visit aims to solidify partnerships and advance mutual interests in the region.

### What is the Association of Southeast Asian Nations (ASEAN) ?

- **About:** The ASEAN is a regional intergovernmental organization founded on 8<sup>th</sup> August 1967, in **Bangkok, Thailand**.
  - Creation was formalised through the **ASEAN Declaration**
  - Initially signed by Indonesia, Malaysia, the Philippines, Singapore, and Thailand.
    - ASEAN was expanded to include Brunei Darussalam (1984), Vietnam (1995), Laos PDR and Myanmar (1997), and Cambodia (1999).
  - The region has one of the largest economies in the world; believed to have the 4th-largest economy in the world by 2050.
  - The bloc's biggest success in recent years has been promoting economic integration among members. It also helped negotiate the **Regional Comprehensive Economic Partnership**, the world's largest free trade agreement.
- **ASEAN Charter (2008):** Provided ASEAN with a **legal status and institutional framework**. It codified norms, rules, and values, enhancing accountability and compliance.

Note:



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- **ASEAN Summit:** The highest policy-making body, comprising the Heads of State or Government of ASEAN member states, **meets twice annually**.
  - The first summit was held in Bali, Indonesia, in 1976.
- **India-ASEAN Relations:**
  - India began formal engagement with ASEAN in 1992 as a “Sectoral Dialogue Partner” and subsequently as a “Dialogue Partner” in 1995.
    - Partnership elevated to a **Strategic Partnership in 2012** and a **Comprehensive Strategic Partnership in 2022**.



# ASEAN

Association of Southeast Asian Nations



**8 Dialogue Partners of ASEAN**

**Founded:** By signing ASEAN Declaration (Bangkok Declaration) (1967)

**Founding Members:** Indonesia, Malaysia, Philippines, Singapore and Thailand

**Secretariat:** Indonesia, Jakarta

**Chairmanship:** Rotates annually

**ASEAN Summit Meetings:** Occur biannually

**ASEAN Economy:**

- Combined GDP: ~ USD 3.66 trillion (2022)
- Total Exports: USD 1.73 trillion (8.24% of global exports in 2021)
- Major Export Item: Monolithic Integrated Circuit, Palm Oil, Data Processing Equipment

**ADMM+Meeting:** Platform for ASEAN and its 8 Dialogue Partners (India, Australia, US, Japan, S. Korea, China, Russia and New Zealand)

- First Convened in: Hanoi, Vietnam (2010)



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Note:

### Indo-Pacific Region

- The Indo-Pacific region is a vast geographic area encompassing the Indian and **western/central Pacific Oceans**, home to diverse cultures and ecosystems.
- It has geopolitical importance, with major powers like China, India, Japan, and the US, and accounts for **more than half the world's population, and it accounts for 60% of global GDP as well as 2/3<sup>rd</sup> of global economic growth**.
  - However, it faces security challenges like territorial disputes, piracy, terrorism, and nuclear proliferation, as well as environmental concerns.
  - China's rapid growth has contributed to the region's increasing global significance.
- **Indian vision for Indo-Pacific:** India advocates a **"free, open and inclusive Indo-Pacific"** and calls for peaceful resolution of disputes while respecting sovereignty and territorial integrity of all nations.



## Chinese Bridge on Pangong Lake

### Why in News?

China has completed and **operationalised a bridge** connecting the **north and south banks** of the **Pangong Tso lake** in Eastern Ladakh.

- It allows China's **People's Liberation Army (PLA)** to significantly **reduce** the **time** needed to mobilise its troops and tanks.

### What is the Pangong Lake Dispute?

- **About the Lake:**
  - Pangong Tso is a **long, narrow, deep, endorheic lake** at over 14,000 ft in Ladakh in trans-Himalays.

Note:



- India and China have around one-third and two-thirds of Pangong Tso Lake respectively.
    - The eastern end of Pangong Tso lies in Tibet.
  - It is a tectonic lake formed when India came out of Gondwanaland and pressed against Asia to create a Himalayan mountain range while occupying the space that originally was the Tethys Ocean.
- **Disputed “Fingers” Area:**
- The northern bank of the lake has spurs known as “fingers.”
  - India claims the LAC runs through Finger 8 but controls up to Finger 4, while China claims the LAC is at Finger 2.
- Recent tensions have led to Chinese forces blocking Indian soldiers from moving beyond Finger 2.
- **Strategic Significance:**
- It lies in the **Chushul** approach path, a potential route for Chinese offensives.
    - In the 1962 war, China launched its main offensive in this area, and Indian forces fought heroically at **Rezang La**.
  - China has built **motorable roads** along its banks of the lake and has a large-scale model of the area at its **Huangyangtan base**.



### What are Indian Concerns Regarding the Bridge on Pangong Lake?

- It will give Chinese troops and tanks **faster access** to the lake's **southern banks**, including **Rezang La**, where Indian forces outmanoeuvred them in 2020.
- The **Indian Army** captured **key heights** on the southern bank of Pangong Tso lake in 2020. The new Chinese bridge was built in response to this.
- It will reportedly strengthen the **PLA's Moldo Garrison** on the Pangong lake's southern bank.
- It will also enable the PLA to rapidly **reinforce** the Moldo Garrison by deploying **motorized brigades** based in Rutog base.



Note:



### India and China Border Dispute

- The **India-China border (3,488-kilometre)** is not clearly defined in some areas, and there is no mutually agreed **Line of Actual Control (LAC)** in certain stretches. The LAC was established after the **1962 Indo-China war**.
- The **India-China border is divided into three sectors**:
  - **Western Sector**: Ladakh
  - **Middle Sector**: Himachal Pradesh and Uttarakhand
  - **Eastern Sector**: Arunachal Pradesh and Sikkim
- The main areas of dispute are **Aksai Chin**, located in the western sector, and Arunachal Pradesh, in the eastern sector.
  - **Aksai Chin** is administered by China as part of **Xinjiang**, but **India claims it as part of Ladakh**.
  - China claims the entire state of Arunachal Pradesh, calling it "**South Tibet**," while India is an integral part of its territory.



### Other Chinese Military Infrastructure Along LAC

- **Connectivity**: Construction of road from **north of Samzungling to the Galwan Valley**,
- **Underground Bunkers**: Construction of **new underground bunkers, camps, shelters**, artillery positions, **radar sites**, and **ammunition dumps** along the LAC.
- **Air Combat**: Deployment of **additional fighters, bombers, reconnaissance aircraft**, and **drones** to counter high-altitude combat challenges.
- **Border Villages**: Construction of **new dual-use 'Xiaokang' border villages**.
- **Rear Area Infrastructure**: Strengthening of military and transport infrastructure in **buffer zones on both banks of Pangong Tso**.

### How India Responded with Military Infrastructure Along LAC?

- **Road Construction**: Nearly **6,000 km of roads** constructed in border areas in the past five years, with 2,100 km along the northern borders. E.g., **Darbuk-Shyok-Daulat Beg Oldie (DSDBO) road**.
- **Tunnels**: All-weather connectivity projects in Ladakh e.g., **Zojila and Z-Morh tunnels** and Arunachal Pradesh e.g., **Sela tunnel** and **Nechiphu bridge** are advancing.
- **Troop Habitat**: Rs 1,300 crore spent in the last three years on infrastructure and habitat in Ladakh, including green solutions like **Sheela shelters and fuel cells**.
- **Air Power Infrastructure**: Increasing availability of heavy lift and logistics helicopters for resupplying materials e.g., deployment of **C17 Globemaster** and **C-130J Super Hercules**.

## IPEF Elects India as Vice-Chair of Supply Chain Council

### Why in News?

Recently, India has been elected as **Vice-Chair of the Supply Chain Council** which is one of the three bodies set up by the 14-member **Indo-Pacific Economic Framework (IPEF)** bloc.

### What is the Supply Chain Council?

- **About**:
  - India and 13 other **Indo-Pacific Economic Framework (IPEF)** partners have established three supply chain bodies under the landmark Indo-Pacific Economic Framework for Prosperity (IPEF) Agreement relating to **Supply Chain Resilience**.
    - **Supply Chain Council**: To pursue targeted, action-oriented work to **strengthen the supply chains** for those sectors and goods most critical to national security, public health, and economic well-being.
    - **Crisis Response Network**: To provide a **forum for a collective emergency response** to exigent or imminent disruptions.
    - **Labour Rights Advisory Board**: Brings together **workers, employers, and governments** at the same table to strengthen labour rights and workforce development across regional supply chains.

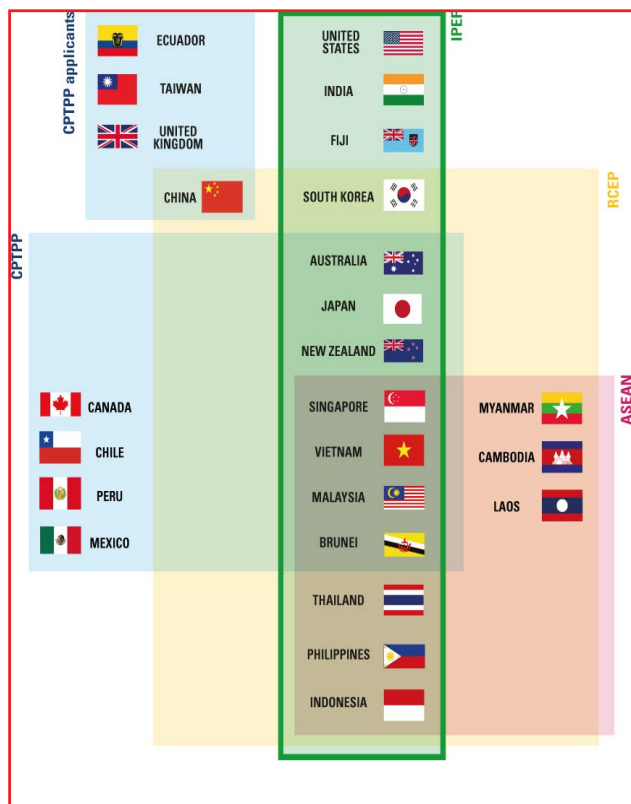
Note:



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### ➤ Recent Appointments:

- During the meetings, each of the three supply chain bodies elected a Chair and Vice Chair, who will **serve for a term of two years**. The elected chairs and vice chairs are:
  - **Supply Chain Council:** USA (Chair) and India (Vice Chair)
  - **Crisis Response Network:** Republic of Korea (Chair) and Japan (Vice Chair)
  - **Labour Rights Advisory Board:** USA (Chair) and Fiji (Vice Chair)



### ➤ Significance:

- The inaugural virtual meetings of the Supply Chain Council (SCC), Crisis Response Network (CRN), and Labor Rights Advisory Board (LRAB) marked a **major step forward for cooperation** among partner countries for strengthening supply chain resilience in the region.

- The Supply Chain Council **adopted Terms of Reference** and discussed initial work priorities, to be further explored **at its first in-person meeting** to be held in Washington in September 2024 on the margins of the **Supply Chain Summit**.
- The Crisis Response Network **discussed near and longer-term priorities, including conducting a tabletop exercise**, and planned its first in-person meeting to be held alongside the Supply Chain Summit.
- The **Labor Rights Advisory Board discussed priorities for strengthening labour rights across IPEF supply chains**. The convening not only will advance the work of the Labor Rights Advisory Board but also focus on the labour provisions in the **IPEF Clean Economy Agreement** and Fair Economy Agreement.

### What is IPEF?

#### ➤ About:

- IPEF was launched in May 2022 at Tokyo, Japan, comprising 14 countries. The IPEF seeks to strengthen economic engagement and cooperation among partner countries with the goal of advancing growth, economic stability and prosperity in the region.
- The IPEF is built on **4 main pillars**:
  - **Fair and Resilient Trade:** Aims to promote economic growth, peace, and prosperity in the region.
  - **Supply Chain Resilience:** Seeks to make supply chains more resilient, robust, and well-integrated.
  - **Clean Economy (renewable energy and reduction of carbon emissions):** Aims to advance cooperation on **clean energy** and climate-friendly technologies.
  - **Fair Economy (tax and anti-corruption policies):** Focuses on implementing effective **anti-corruption** and tax measures.
- India has **joined Pillars II to IV of IPEF** while it has an **observer status in Pillar I**.

Note:

# Social Issues

## Highlights

- Women and Men in India 2023
- International Day of Indigenous Peoples
- Buddhadeb Bhattacharjee and Communism
- Gender Eligibility Row at Paris Olympics 2024
- NOTTO Annual Report 2023-24
- Porja, Bagata, and Konda Dora Tribes
- SC Allows for Sub-Classification of SCs and STs

## Women and Men in India 2023

### Why in News?

The Ministry of Statistics and Programme Implementation has released the 25<sup>th</sup> edition of a report titled **Women and Men in India 2023**.

- It offers a comprehensive overview of **gender dynamics** in India, covering data on **population, education, health, economic participation**, and decision-making involvement.
- It presents data disaggregated by **gender, urban-rural divide, and geographical region** to understand existing disparities in society.

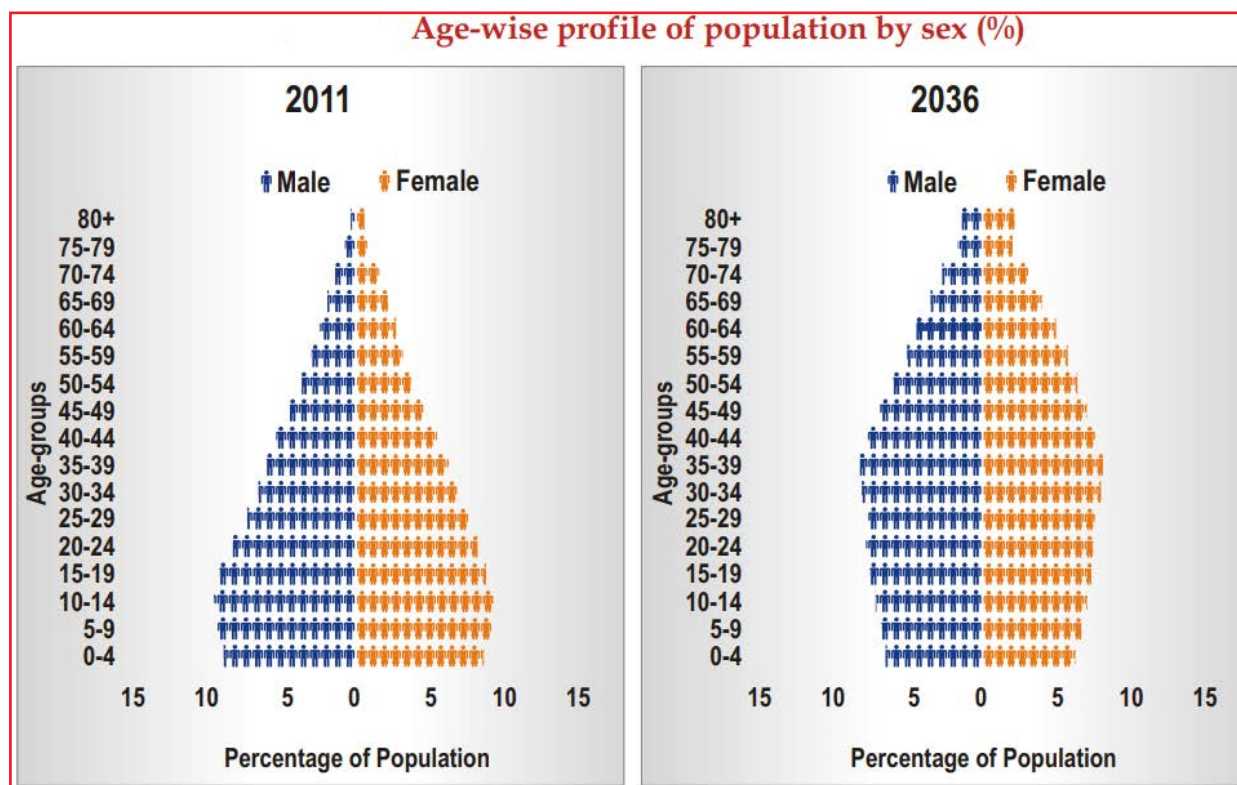
### What are Key Highlights of the 2023 Report?

- **Population:** By 2036, the **population** of India is expected to reach **152.2 Crores**.
- **Improvement in sex ratio:** **Sex ratio** in India is expected to improve to **952 women per 1000 men by 2036** from 943 in 2011.
  - **Female percentage** is expected to constitute **48.8% in 2036** compared to 48.5% in 2011. **India's population in 2036 is expected to be more feminine.**
- **Age Demography:** The **proportion** of individuals **under 15 years** is projected to **decrease** from 2011 to 2036, likely **due to declining fertility**.
  - The proportion of the population **aged 60 years and above** is anticipated to **substantially increase**.
- **Age Specific Fertility Rate (ASFR):** From 2016 to 2020, ASFR in the **age group of 20-24 and 25-29** has reduced from **135.4 and 166.0 to 113.6 and 139.6** respectively.
  - The ASFR for the **ages 35-39** for the above period has increased from **32.7 to 35.6** which shows that **after settling in life, women are thinking of expanding their family**.

- ASFR is defined as the **number of live births** in a **specific age group** of women **per thousand female** populations of that age group.
  - **Adolescent Fertility Rate was 33.9** for the illiterate population whereas **11.0** for the literate in 2020.
- **Maternal Mortality Ratio (MMR):** India has successfully achieved the major milestone of bringing down its MMR (97 per lakh live births in 2018-20). (**SDG target - Reduce MMR to 70 by 2030**).
  - **MMR** is defined as the number of **maternal deaths** during a given time period **per 100,000 live births** during a year.
- **Infant Mortality Rate (IMR):** Both Male IMR and Female IMR were equal at the level of 28 infants per 1000 live births in 2020.
  - **IMR** is the probability of a child born in a specific year or period dying before reaching the age of one year.
- **Under Five Mortality Rate:** It has decreased from **43 in 2015 to 32 in 2020**. The **under five mortality rate** gap between boys and girls has also reduced.
- **Labour Force Participation Rate (LFPR):** Male LFPR has gone from **75.8 to 78.5** during **2017-18 to 2022-23** and female LFPR has gone from **23.3 to 37** during the same period.
  - **LFPR** is defined as the section of the working population in the **age group of 16-64** in the economy currently employed or seeking employment.
- **Participation in Election:** The **2014 Lok Sabha elections** marked a significant change, with **women's participation increasing to 65.6%**, and further rising to **67.2%** in the **2019 Lok Sabha elections**.
- **Women Entrepreneurship:** The Department for Promotion of Industry and Internal Trade (DPIIT) has recognized a total of **1,17,254 start-ups** between **2016 and 2023**.

Note:

- Among these, 55,816 start-ups are led by **women**, constituting 47.6% of the total recognized start-ups.



#### Note:

- **Currently, Indian age pyramids exhibit a triangular shape.** As per data of MoSPI, by 2036, the pyramid is projected to transition to a bell shape, tapering towards the top.
  - A **population pyramid** is a graphical representation of the distribution of people by sex and age group.
- **Triangular Shaped Pyramids:** They have a **wide base** and are typical of **less developed countries**. These have larger populations in lower age groups due to high birth rates. E.g., **Bangladesh, Nigeria etc.**
- **Bell Shaped Tapered Towards the Top:** It shows **birth and death rates are almost equal** leading to a near constant population. E.g., **Australia.**

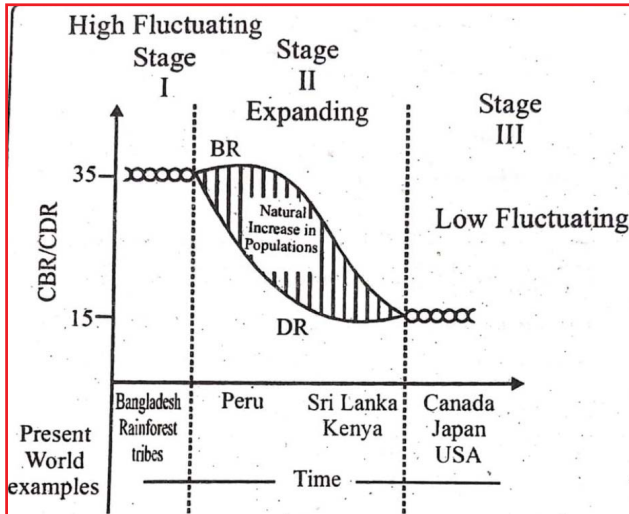
#### What is the Demographic Transition Model?

- The **Demographic Transition Model (Population Cycle)** shows changes in population growth rates and the effect on population.
  - It was developed by the American demographer **Warren Thompson in 1929.**
- This can be divided into four stages:
  - **Stage 1:** The first stage has **high fertility and high mortality** because people reproduce more to compensate for the deaths due to **epidemics and variable food supply**.
    - The population growth is slow and most of the people are engaged in **agriculture** where large families are an asset.
    - Life expectancy is low, people are **mostly illiterate** and have low levels of technology.
    - Two hundred years ago all the countries of the world were in this stage.
  - **Stage 2:** **Fertility** remains **high** in the beginning of the second stage but it declines with time. This is accompanied by a reduced mortality rate.

Note:



- Improvements in **sanitation and health conditions** lead to decline in mortality. Because of this gap the net addition to population is high.
- **Stage 3** : Both **fertility and mortality decline** considerably. The population is either stable or grows slowly.
  - The population becomes **urbanised, literate and has high technical knowhow** and deliberately controls the family size.
  - This shows that human beings are extremely flexible and are able to adjust their fertility.



### What are the Challenges Associated with India's Demographic Profile?

- **Son Meta Preference:** India has been facing a **skewed sex ratio** at birth for many years, which has been a cause for concern.
  - **Sons are expected to continue the family name and support parents financially**, while **daughters** are viewed as a **liability** due to dowry costs and leaving the family after marriage.
- **Ageing Population:** While India has the highest number of young people, ageing is **rapidly progressing**. The current **elderly population** of 153 million (aged 60 and above) is **expected to reach a staggering 347 million by 2050**.
- **Disparity in Health Outcomes:** In the northeastern states, **Assam** has the **highest infant mortality rate**, followed by Meghalaya and Arunachal Pradesh.
  - There is still a **wide disparity** in health outcomes for children between rural and urban India.
- **Barrier to Women's LFPR:** Deep rooted **patriarchal norms and traditional gender roles** often limit women's access to education and employment opportunities.
  - Societal expectations may prioritise **women's roles as caregivers and homemakers**, discouraging their active participation in the labour force.

- **Absence of Informed Choice in Elections:** Lack of education among the masses to make **informed choices** while voting. Voters also get swayed on the basis of their **caste and religious identity**.
- **Informal Women Entrepreneurship:** Women led enterprises are primarily **rural, small-scale, and informal**. They operate mostly from home-based setups which includes **textiles, garments, handicrafts, food processing** etc.
  - They lack formal funding and social security benefits.

### What are Initiatives Related to Overall Demographic Development in India?

- [Beti Bachao Beti Padhao Scheme](#)
- [Rashtriya Uchhatar Shiksha Abhiyan \(RUSA\)](#)
- [Aayushman Bharat Yojana](#)
- [Digital Health Mission](#)
- [Mission Indradhanush \(MI\)](#)
- [Stand-Up India Scheme](#)

## International Day of Indigenous Peoples

### Why in News?

Recently, **International Day of Indigenous Peoples** was observed on **9<sup>th</sup> August** to promote advocacy for Indigenous rights.

- In another development, the **Indian Institute of Science (IISc), Bengaluru** has been entrusted to train tribal students under **Semiconductor Fabrication & Characterization Training for tribal students** as part of **Tribal Research Information, Education, Communication and Events (TRI-ECE)**.

### What is International Day of Indigenous Peoples?

- **About:** Observed annually on **9<sup>th</sup> August**, following the **UN General Assembly's** recognition of this day in December 1994.

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- The day recognizes the first meeting of the United Nations Working Group on Indigenous Populations in Geneva in 1982.
- **Theme for 2024: "Protecting the Rights of Indigenous Peoples in Voluntary Isolation and Initial Contact."**
- Key Facts Related to Indigenous Peoples Globally:
  - Around **200 groups** of Indigenous Peoples currently live in **voluntary isolation** in Bolivia, Brazil, Colombia, Ecuador, India etc.
  - There are an estimated **476 million Indigenous Peoples** in the world living across **90 countries**.
    - They make up less than **6% of the world's population** but account for at least **15% of the poorest**.
  - They speak an overwhelming majority of the world's estimated **7,000 languages** and represent **5,000 different cultures**.

### **What are Key Facts Related to Tribals in India?**

- **About:**
  - In India, the term '**Adivasi**' is used as an **umbrella term to define a host of ethnic and tribal people** that are considered as the **aboriginal population** of India.
  - According to the **2011 census**, these ancestral groups make up approximately **8.6% of India's general population**, which adds up to around 104 million people.
- **Essential Characteristics:** According to **Lokur Committee (1965)**, the essential characteristics of the tribes are:
  - Indication of Primitive Traits
  - Distinctive Culture
  - Shyness of Contact with the Community at Large
  - Geographical Isolation
  - Backwardness
- **Scheduled Tribes (STs)** in India refer to the various **indigenous communities** or tribes that are recognized by the government for **special protection and assistance**.
- **Basic Safeguards Provided by the Indian Constitution for STs:**
  - **Educational & Cultural Safeguards:**
    - **Article 15(4):** Special provisions for the advancement of other backward classes (it includes STs)

- **Article 29:** Protection of Interests of Minorities (it includes STs)
- **Article 46:** The State shall promote, with **special care, the educational and economic interests of the weaker sections of the people**, and in particular, of the **Scheduled Castes, and the Scheduled Tribes**, and shall protect them from social injustice and all forms of exploitation.
- **Article 350:** Right to conserve distinct language, script or culture.
- **Political Safeguards:**
  - **Article 330:** Reservation of seats for STs in Lok Sabha,
  - **Article 332:** Reservation of seats for STs in State Legislatures
  - **Article 243:** Reservation of seats in Panchayats.
- **Administrative Safeguard:** **Article 275** provides for the grant of **special funds** by the Union Government to the State Government for promoting the welfare of Scheduled Tribes and providing them with a better administration.

### **Particularly Vulnerable Tribal Groups (PVTGs)**

- PVTGs are **more vulnerable** among the tribal groups.
- In **1973**, the **Dhebar Commission** created Primitive Tribal Groups (PTGs) as a **separate category**, who are less developed among the tribal groups. In 2006, the Government of India renamed the PTGs as **PVTGs**.
- In this context, in 1975, the **Government of India initiated to identify the most vulnerable tribal groups** as a separate category called PVTGs and declared 52 such groups, while in 1993 an additional 23 groups were added to the category, making it a total of 75 PVTGs out of 705 Scheduled Tribes.
- **PVTGs have some basic characteristics** - they are mostly homogenous, with a small population, relatively physically isolated, absence of written language, relatively simple technology and a slower rate of change etc.
- Among the **75 listed PVTGs** the highest number are found in **Odisha**.

### **What is Semiconductor Fabrication & Characterization Training for Students from Tribal Community Project?**

- **About:** The project seeks to provide **specialised training** to tribal students to foster advanced **technological skills**.

Note:

- **Objective:** It aims to deliver **2100 NSQF-certified level 6.0 & 6.5 training** in semiconductor technology to tribal students over three years.
  - **National Skills Qualifications Framework (NSQF)** Level 6.0 typically corresponds to a **Bachelor's degree** or equivalent and **NSQF Level 6.5** often represents a **specialised skill set or advanced diploma** beyond a Bachelor's degree.
- **Training Structure:** Basic training in **semiconductor technology** will be provided to **1,500 tribal students**, with 600 selected for advanced training. Eligible applicants must have a degree in an **engineering subject**.

#### Government Initiatives For Scheduled Tribes

- **PM Janjati Adivasi Nyaya Maha Abhiyan (PM JANMAN)**
- **PM PVTG Mission**
- **TRIFED**
- **Digital Transformation of Tribal Schools**
- **Pradhan Mantri Van Dhan Yojana**
- **Eklavya Model Residential Schools**

## Buddhadeb Bhattacharjee and Communism

### Why in News?

Former West Bengal **Chief Minister** and veteran **communist** leader Buddhadeb Bhattacharjee (1944-2024) recently passed away in Kolkata.

- He was **CM** of West Bengal from 2000 to 2011 and his regime was marked by a push for **industrialisation** despite his association with communism.

### Who was Buddhadeb Bhattacharjee?

- **About:**
  - He became the CM of West Bengal, succeeding Jyoti Basu. He led the **Communist Party of India (Marxist)** to power in two consecutive terms in 2001 and 2006.
  - He served as CM until 2011 when Trinamool Congress ended the Left Front's 34-year rule.
- **Regime and Policies:**
  - During his tenure, the Left Front government adopted a **relatively open policy towards business** despite following communism.

- He was behind the **idea of setting up a Tata Nano plant** in Singur and planning a **special economic zone** in Nandigram. However, the plan was **abandoned after protests by local political parties** on the issue of land acquisition.
- During his regime, West Bengal saw investments in sectors of **IT and IT-enabled services**.
- **Awards:** In 2022, the central government announced the **Padma Bhushan award** to him but **he refused to accept it because Marxists** are generally **reluctant** to accept awards for **public service**.
- **Death:** He had been suffering from **chronic obstructive pulmonary disease** and his body was donated to **NRS Medical College and Hospital**, Kolkata for medical research.

### What is Communism?

- **About:**
  - Communism is a **political and economic ideology** associated with **Karl Marx**. It advocates for a **classless society** where all property and wealth are **collectively owned**.
  - Marx popularised these ideas in his 1848 work, **"The Communist Manifesto"**.
  - Marx argued that **capitalism** leads to **inequality and exploitation**, benefiting a wealthy few at the expense of the **working class (proletariat)**.
- **Objective:**
  - Marx envisioned a world where **labour was voluntary, and wealth was shared equally** among all citizens.
  - Marx proposed that **government control** of the economy would eliminate **class distinctions**.
  - Prominent examples of communism were the **Soviet Union** and **China**. The Soviet Union collapsed in 1991 but **China** has drastically **revised** its economy to include some **capitalism**.
- **Communist Economic System:**
  - The goal of communism was to establish a system where **class distinctions** were **eliminated** and the means of production were owned by the masses.
  - It is characterised by a **command economy** where property is owned by the State, and production levels and prices of goods are determined by the state.
    - **Individuals cannot own private assets** like shares or real estate.

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- Its main goal is to **abolish capitalism** (an economic system ruled by private ownership).
  - Marx abhorred capitalism **because the proletariat was exploited and unfairly represented in politics.**

### ***What is the History and Impact of Communism in India?***

- **Formation:** The **Communist Party of India (CPI)** was formed on 17<sup>th</sup> October 1920, in **Tashkent**, with contributions from Indian revolutionaries like **MN Roy**.
  - In **December 1925**, an open conference in **Kanpur** led to the establishment of the CPI with headquarters in **Bombay**.
- **Role in Freedom Struggle:**
  - Communist ideas influenced the Congress, pushing it towards a **stronger stance** against British rule, a departure from the mild resistance.
  - The British reacted by making arrests and launching conspiracy cases, most notably the **Meerut Conspiracy Case (1929-1933)**.
  - The communists organised relief efforts during the **Bengal Famine** of 1943.
  - **Mass Struggles:** Post **World War II** years saw a surge in working-class struggles and peasant mobilisations, including the **Royal Indian Navy mutiny 1946**.
  - **Tebhaga Movement:** A significant peasant agitation in Bengal demanding better **sharecropping rights**, showcasing Hindu-Muslim unity.
  - **Telangana Movement (1946-1951):** They fought against feudal exploitation and autocratic rule, leading to **land redistribution**.
- **Post Independence (1947):**
  - In the **first Lok Sabha (1952-57)**, the **single largest party** in the opposition was the Communist Party of India (CPI).
  - In **1957**, the CPI won the state elections in **Kerala**. Kerala was the **first State** in Independent India to **democratically elect** a communist government.
  - **Split in the Communism Movement:** Some members of the **CPI believed that the communists** should cooperate with the left-leaning group within the **Congress party** who opposed both **imperialism and feudalism**.
    - It led to the Communist Party of India **splitting** into two in **1964**.

- The faction that **opposed** the path of cooperating with the Congress formed the **Communist Party of India (Marxist), or CPI (M)**, the other faction retained the name **Communist Party of India (CPI)**.

- In **1969**, believing in the need for **armed struggle** like Mao Zedong, another group of communists formed the **Communist Party of India (Marxist-Leninist) or CPI (ML)**.

### ***What is Maoism?***

- **About:**
  - **Maoism** is a form of communism developed by **Mao Tse Tung of China**.
  - It is a doctrine to **capture state power** through a combination of **armed insurgency, mass mobilisation and strategic alliances**.
  - The Maoists also use **propaganda and disinformation** against State institutions as other components of their insurgency doctrine.
    - Mao called this process, the **"Protracted People's War"**, where the emphasis is on the **"military line"** to capture power.
- **Central Theme:**
  - The central theme of Maoist ideology is the use of **violence and armed insurrection** as a means to capture State power.
    - **'Bearing of arms is non-negotiable'** as per the Maoist insurgency doctrine.
  - The Maoist ideology glorifies violence and the **People's Liberation Guerrilla Army (PLGA)** cadres are trained specifically in the **worst forms of violence** to evoke **terror** among the population under their domination.
- **Maoists' Influence in India:**
  - The largest and the most violent Maoist formation in India is the **Communist Party of India (Maoist)**.
  - The **Communist Party of India (Maoist)** was formed in **2004**, through the merger of the **Communist Party of India (Marxist-Leninist) People's War (People's War Group)**, and the **Maoist Communist Centre of India (MCCI)**.
  - The **CPI (Maoist)** and all its **front organisation** formations have been included in the list of banned terrorist organisations under the **Unlawful Activities (Prevention) Act, 1967**.

Note:



- The Front Organisations are the **off-shoots** of the parent Maoist party, which professes a **separate existence** to escape legal liability.

### What is the Difference Between Marxism and Maoism?

- **Focus of Revolution:** Both focus on a **proletariat revolution** that would change society.
  - **Marxism** focuses on the **urban workers** while **Maoism** focuses on the peasant or farming population.
- **View on Industrialization:** Marxism believes in an **economically strong state** that is industrialised.
  - Maoism has a **broader economic view** giving necessary importance to agriculture as well.
- **Driving Force of Social Change:** Marxism says that social change is driven by the economy.
  - However, Maoism puts emphasis on the '**malleability of human nature**.' Maoism talks about how human nature can be changed by using only **willpower**.
- **Influence of Economy on Society:** Marxism believed that **everything that happens in a society is linked to the economy**.
  - Maoism believed everything that happens in a society is a result of **human will**.

## Gender Eligibility Row at Paris Olympics 2024

### Why in News?

The recent boxing match at the **Paris Olympics 2024** between Algeria's Imane Khelif and Italy's Angela Carini has ignited a significant controversy, particularly concerning gender and eligibility in women's sports.

### Why did Imane Khelif's Win Spark a Controversy?

- **Background of the Controversy:** Khelif's quick victory led to a wave of criticism, with many accusing her of being a "**biological man (due to disorders of sex development)**" despite official confirmation of her gender identity as female. Critics accused Khelif of having an "unfair advantage".
- **International Boxing Association's Stance:** In 2023, Khelif and another boxer, Lin Yu-ting, were barred from competing in the **International Boxing Association's (IBA) World Championship** in New Delhi due to a "gender eligibility" test.

- The details of this test remain confidential. However, both athletes are competing at the Paris Olympics due to the IBA's derecognition by the **International Olympic Committee (IOC)** in 2023.
- The IOC's current eligibility criteria are based solely on the **gender stated in an athlete's passport**, which Khelif's identifies as female.
- **IOC's Response:** The IOC defended its decision, stating that all boxers in the Olympics had met the competition's eligibility criteria.
  - **The IOC criticised the IBA's decision** as "arbitrary" and expressed dismay at the abuse directed at Khelif and Lin Yu-ting, emphasizing that misleading information was being spread.

### International Olympic Committee

- The IOC is a non-governmental international organisation based in **Lausanne, Switzerland** that came into existence in 1894. The IOC aims to ensure the regular holding of the Olympic Games and foster **Olympism and the Olympic movement**.
  - **Olympism is a philosophy that blends sport, culture, education, and international cooperation**, emphasizing the joy of effort, the educational value of good examples, social responsibility, and **respect for universal ethical principles**.
  - The goal of the Olympic Movement is to contribute to building a peaceful and better world by educating youth through sports practised in accordance with Olympism and its values.
    - The three main constituents of the Olympic Movement are the **IOC**, the **International Sports Federations ("IFs")** and the **National Olympic Committees ("NOCs")**.
- The IOC decides the rules and regulations of the Olympic Games and when and where the next Olympics event will be held.
- The IOC is a permanent organisation that **elects its own members**, with each member speaking **French or English and being a citizen of or residing in a country with a National Olympic Committee**.
  - The IOC is the final authority on all questions concerning the Olympic games and the Olympic movement.

### Why is Gender Eligibility a Contentious Issue in Women's Sports?

- **Sex and Athletic Performance:** Traditionally, sports are divided **based on sex due to physiological differences**,

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with men typically having advantages in muscle mass, strength, and endurance.

- The **SRY gene on the Y chromosome** plays a significant role in testosterone production, which has been linked to these athletic advantages.
- Studies, such as a **2017 paper in *Endocrine Reviews***, suggest that **testosterone levels are a major factor in athletic performance** differences between sexes.
- **Disorders of Sex Development (DSDs)**: Some individuals with female reproductive organs may have **XY chromosomes** due to conditions like **Swyer syndrome**, one of many “Disorders of Sex Development”, or DSDs, complicating the discussion on gender eligibility.
- There is debate on whether such athletes should be excluded from women’s sports to ensure fairness, given their **potential for higher testosterone levels and related advantages**.

#### Note:

- A sex chromosome is a type of chromosome involved in **sex determination**. Humans have 23 pairs of chromosomes of which 22 are identical in men and women; one, the sex chromosome, is different.
- **Females have two X chromosomes (XX) while males have one X and one Y (XY).**

### What are Disorders of Sexual Development (DSDs)?

- **Definition**: DSDs encompass a spectrum of conditions where **individuals may have physical characteristics of both sexes** or atypical development of sexual characteristics. These differences **can be evident at birth, during puberty, or later in life**.
- **Examples**:
  - Individuals with **XY chromosomes but genitals that appear female**.
  - Individuals with **XX chromosomes** but genitals that **appear male**.
  - Individuals with **both ovarian and testicular tissue**.
  - Typical sex organs but with an abnormal chromosomal arrangement that affects growth and development.
- **Types of DSDs**:
  - **Androgen Insensitivity Syndrome (AIS)**: A genetic condition where an individual with XY chromosomes is **resistant to male hormones (androgens)**, resulting in the **development of female physical traits** despite having male genetic makeup.

- **Klinefelter Syndrome**: A chromosomal condition in males characterised by the presence of an extra X chromosome (XXY), leading to symptoms such as reduced testosterone levels, infertility, and physical and developmental differences.
- **Turner Syndrome**: A chromosomal disorder in females caused by the complete or partial absence of one X chromosome, resulting in short stature, infertility, and various physical and developmental abnormalities.

### How do Sports Federations Address Gender Eligibility?

- **IOC’s Approach**: Since 2021, the IOC has allowed **international sports federations to develop their own eligibility rules** based on an “evidence-based approach” that **balances fairness, inclusion, and non-discrimination**.
  - **Previously, testosterone levels were a primary determinant for eligibility**, but recent policies emphasise gender as stated in official documents.
- **Specific Regulations by Federations**: World Athletics, for example, still uses **testosterone levels as a criterion for athletes** with DSDs, requiring them to maintain levels below 2.5 nmol/L for at least 24 months.
  - Other sports bodies, like **Fédération internationale de natation (FINA)**, the International Cycling Union, and the International Rugby Union have instituted **varying bans on trans women athletes** based on testosterone levels, though the need for such bans across sports has been questioned given the different skill sets required.
- **Open Category Debate**: Some have proposed an “open category” for trans athletes to address these concerns.
  - However, the practicality of such a category is debated due to the limited number of elite-level trans athletes and the challenges of establishing fair competition standards.

## NOTTO Annual Report 2023-24

The **National Organ and Tissue Transplant Organisation (NOTTO)** released its annual report for the year 2023-24 on **Indian Organ Donation Day (IODD)** on August 3, 2024.

Note:

- According to NOTTO, in 2023, India **reached a significant milestone by surpassing 1,000 deceased organ donors in a single year** for the first time, breaking the record set in 2022.

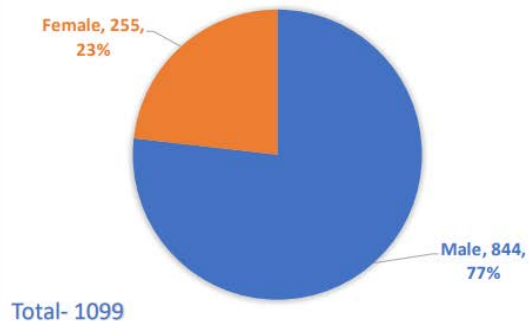
#### Indian Organ Donation Day (IODD)

- It is **observed annually on 3rd August since 2010** to augment awareness about brain stem death and organ donation, dispel myths and misconceptions associated with organ donation and motivate and encourage the citizens of the country to donate organs and tissues after death.
- In 2024, “Angdaan Jan Jagrukta Abhiyaan” was launched for various awareness activities.
  - Under the Abhiyaan, the **month of July was observed as the Organ Donation Month**.
- A person after his death can give new life to up to 8 people by donating vital organs namely Kidney, Liver, Lung, Heart, Pancreas and Intestine and improve quality life of many more by donating tissues like cornea, skin, bone and heart valve etc.

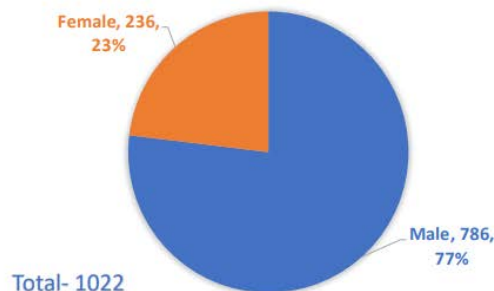
#### What are Key Highlights of the Report?

Finding	Details
<b>Gender Distribution of Donors</b>	<ul style="list-style-type: none"> <li>➤ 63% of living donors were women.</li> <li>➤ 77% of deceased donors were men.</li> </ul>
<b>Transplants by Region</b>	<ul style="list-style-type: none"> <li>➤ <b>Delhi-NCR:</b> Nearly 78% of foreign national transplants.</li> <li>➤ <b>Delhi:</b> 4,426 transplants total, with foreign nationals accounting for over 32%.</li> <li>➤ <b>Rajasthan:</b> 116 transplants to foreign nationals.</li> <li>➤ <b>West Bengal:</b> 88 transplants to foreign nationals.</li> </ul>
<b>Gender Distribution of Donors</b>	<ul style="list-style-type: none"> <li>➤ 63% of living donors were women.</li> <li>➤ 77% of deceased donors were men.</li> </ul>
<b>Deceased Donor Milestone</b>	<ul style="list-style-type: none"> <li>➤ More than 1,000 deceased organ donors in a single year for the first time.</li> <li>➤ Deceased-donor transplants increased from 837 in 2013 to 2,935 in 2023.</li> </ul>
<b>Transplants with Organs from Unrelated Deceased Donors</b>	<ul style="list-style-type: none"> <li>➤ Nine transplants to foreigners with organs from unrelated deceased donors.</li> <li>➤ Locations: Three in Tamil Nadu, two each in Delhi, Maharashtra, and Gujarat.</li> </ul>
<b>Foreigners' Allocation Rule</b>	<ul style="list-style-type: none"> <li>➤ Organs from deceased donors are allocated to foreigners only when no matching Indian patients are available.</li> </ul>
<b>Organ Donation Rate</b>	<ul style="list-style-type: none"> <li>➤ Less than 1 per million population.</li> </ul>

**ACTUAL DECEASED DONOR - GENDER DISTRIBUTION**



**UTILISED DECEASED DONOR - GENDER DISTRIBUTION**



Note:

**Note:** Presently, India ranks **third** in the world in terms of **organ transplantation** and **second** in terms of **corneal transplantation**.

### **What is the Regulatory Framework Related to Organ Transplantation in India?**

#### ➤ **Transplantation of Human Organs and Tissues Act, 1994 (THOTA):**

- Organ donation and transplantation in India are **regulated** under the **THOTA** (amended in 2011) having the following provisions:
  - A **transplant** can come from organs donated by **deceased individuals** or from a **living donor** who is known to the recipient.
  - **Altruistic donations** from **distant relatives**, in-laws, or long-time friends are permitted, but they undergo extra checks to ensure **no financial exchange** has occurred.
  - **Unrelated donors** must provide documents and photos to show a **long-term connection** or friendship with the recipient.
  - **Offering** or paying for organs, arranging or advertising such deals, seeking organ suppliers, or helping to make false documents can result in up to **10 years in jail** and a **fine** of up to **Rs 1 crore**.
  - **Brain stem death** is legally recognised as **death** under **THOTA** since 1994.
- The **Transplantation of Human Organs and Tissues Rules 2014** were notified for **promoting** organ donation from deceased donors.

#### ➤ **National Organ and Tissue Transplant Organisation (NOTTO):**

- **NOTTO**, an **apex organisation** at the national level, was established to provide a national system for **organ procurement** and **distribution**.

#### ➤ **National Organ Transplantation Guidelines:**

- **Removed Age Cap:** The upper **age limit has been removed** as people are now living longer.
  - Earlier, according to the NOTTO guidelines, an end-stage organ failure patient **above 65 years of age was prohibited** from registering to receive the organ.
- **No Domicile Requirement:** The **domicile requirement** to register as an organ recipient in a particular state has been **removed** under a '**One Nation, One Policy**' move.

- Now a needy patient can register to receive an organ in any state of his or her choice and will also be able to get the surgery done there.

- **No Fees for Registration:** The Centre has instructed states to discontinue the registration fee that was previously charged for this purpose.

#### ➤ **Organ Transport Policy:**

- Recently, the Union government has finalised a **uniform policy** to speed up the process of **transporting a live organ** between hospitals or cities.
  - It was created by **Niti Aayog** with input from several ministries like civil aviation, railways, transport and highways etc.

### **What are the Ethical Concerns Related to Organ Donation and Transplantation?**

#### ➤ **Living Persons:**

- **Violates the Traditional Rule of Medicine:** **Kidney donors** are **vulnerable** to **urinary** and **chest infections**, which violates the first traditional rule of medicine, **primum non nocere (above all, do no harm)**. One person becomes a patient to benefit another person who is already a patient.
- **Donation is Prone to Trafficking:** Organ donation is susceptible to **trafficking** when there is **illegal** and **unethical activity** involved in the acquisition, transportation, or transplantation of organs. In its 1991 document, the World Health Organisation (WHO) expressed worry about the increase in **illegal trade** of human organs, especially from **living donors** who are **not related** to the **recipients**.
- **Emotional Coercion:** The relationship between the donor and recipient influences the donor's motivation for organ donation. Living related donors are **genetically related** to the recipient and often feel **obligated** due to family ties and emotional bonds. Ethical concerns include the potential for **undue influence**, **emotional pressure** and **coercion**.

#### ➤ **Deceased Person:**

- **Consent and Autonomy:** It is important to determine whether the person had expressed their **consent** or **refusal** for organ donation while they were alive. If the person's wishes are unknown, it can be **ethically challenging** to make decisions on their behalf.
- **Allocation and Fairness:** Ethical concerns can emerge when there are **disparities** in access to transplantation based on factors such as **wealth**, **social status** or **geographical location**.

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- **Transparency and Public Trust:** The ethical concerns related to disclosure of information, the handling of organ procurement and transplantation procedures, and the management of **organ donation registries** are important considerations.

### **What are the Challenges in Organ Transplantation?**

- **Donor Organ Supply:** In India, the **demand** for organ donations **far exceeds** the available **supply**. An estimated around **1.8 lakh persons** suffer from **renal failure** every year, however the number of renal transplants done is around 6000 only. The organ **donation rate** is still less than **1 per million**. The need is for **65 organs per one million population**.
- **Peri-Transplant Donor Tissue Damage:** Aging and diseases reduce donor organ quality, leading to **Ischemia-Reperfusion Injury (IRI)**. Many organs are **discarded** due to **inferior quality**, impacting transplant success rates.
- **Outdated Preservation Techniques:** Many hospitals still rely on **traditional static cold storage methods**, which may not be as effective as newer technologies. Not all transplant centres in India have access to **advanced preservation technologies** like hypothermic or normothermic machine perfusion.
- **Chronic Rejection in Organ Transplantation:** Long-term survival rates for transplanted organs have not significantly improved over the past 20 years. Current **anti-rejection therapies** have remained **unchanged**, with only modest improvements in survival rates.
- **Lack of awareness:** There is a lack of awareness among people about the importance of organ donation and transplantation. E.g., lack of Awareness of concept of **Brain Stem Death** among stakeholders

#### **What are the WHO's Important Guiding Principles Related to Organ Donation?**

- **Guiding Principle 1:** Cells, tissues, and organs can be removed from deceased persons for transplantation if **legal consent** is obtained and there is **no** evidence of the **deceased's objection**.
- **Guiding Principle 2:** Physicians determining that a potential donor has died should not be **directly involved** in cell, tissue or organ removal from the donor or subsequent transplantation procedures; nor should they be responsible for the care of any intended recipient of such cells, tissues and organs.

- **Guiding Principle 3:** Deceased donations should **maximise therapeutic potential**, while living adult donors should comply with domestic regulations. Typically, living donors should have a **genetic, legal or emotional connection** to their recipients.
- **Guiding Principle 4:** **No** organs should be taken from **living minors** for transplantation, except for limited exceptions allowed by national law. Special measures must be implemented to **safeguard minors**, and whenever possible, their consent should be obtained before donation.
  - The same principles apply to legally incompetent individuals (who are not able to testify or stand trial).
- **Guiding Principle 5:** Donations of cells, tissues, and organs must be **voluntary** and **without monetary compensation**. The sale or purchase of these items for transplantation should be prohibited.

## **Porja, Bagata, and Konda Dora Tribes**

### **Why in News?**

The plight of **tribal communities** in Andhra Pradesh, who played a crucial role in constructing the **Lower Sileru Hydro-Electric Project (LSP)**, has recently gained attention.

- Despite their crucial contributions in the 1970s, villages nearby Visakhapatnam settled by the **Porja, Bagata, and Konda Dora tribes** continue to face severe shortages of electricity and clean water.

### **What are the Key Facts About the Porja, Bagata, and Konda Dora tribes?**

- **Porja Tribe:**
  - The **Porja tribe** (sub-groups: **Bondo Porja, Khond Porja and Parangi Porja**), residing in the Visakhapatnam area of Andhra Pradesh, has a population of approximately **16,479 (Census, 1991)**.
    - The Porjas migrated from Odisha around 300 years ago in search of cultivable land. **Historically, they were employed as palanquin bearers and for other menial tasks.**
    - The term "Porja" is derived from Oriya words meaning "**son of a king**," reflecting their **historical employment by the Jeypore rulers**.

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- They inhabit the hilly terrains and **practice shifting cultivation, known locally as Podu.**
  - The Porjas practice a **patriarchal system with patrilineal descent.** Property inheritance and succession to hereditary offices follow this system, with the eldest son receiving an extra share.
  - Their social practices include **cross-cousin marriages**, a formal bride price system, and **acceptance of pre and post-marital relations. Tattooing is an integral part** of their socio-religious culture.
  - The Porjas **endogamous sub-groups**, each with unique customs, languages, and food habits. Most Porjas in Visakhapatnam belong to the **Parangi Porja group.**
- **Bagata Tribe:** The Bagata are an aboriginal tribe of India, primarily living in the states of Andhra Pradesh and Odisha. They are also known as **Bagatha, Bagat, Bagodi, Bogad, or Bhakta.**
- Marriage pattern revealed that they strictly follow **lineage exogamy (marrying outside one's clan, or kinship).** Marriage is by **negotiation and elopement. Divorce and remarriage are permitted.**
  - The staple food of Bagatha used to be **millets** of different varieties which are replaced by rice now.
  - Bagathas believe in supernaturalism, magic, witchcraft, evil eye, sorcery, luck, ghosts, shapeless phantoms, etc. They worship nature in the **form of totems and clans.**
  - Traditional tribal headman solves intra-family and intra-tribal disputes, village headman resolves inter-tribal issues, dishonouring or violation of traditional customs, etc.
- **Konda Dora Tribe:** They are a **Scheduled Tribe of Odisha**, inhabit the Konda Kamberu ranges of the Eastern Ghats, spanning south Odisha and Andhra Pradesh.
- The name 'Kondadora' translates to 'Lords of the Hill,' derived from 'Konda' (hill) and 'Dora' (lord). Also known as 'Konda Kapu,' 'Oja,' 'Pandava Raju,' and 'Pandava Dora,' they consider themselves descendants of the mythological Pandavas.
  - Their original language, Kubi/Konda, has largely been replaced by Telugu mixed with Odia.
    - Konda Dora settlements are **typically homogeneous** and they live in separate wards in multi-ethnic villages to maintain social distance and ethnic identity.

- In their society, though **polygyny** and child marriages are not prohibited, **adult marriage and monogamy are commonly practised.**
- Cross cousin marriages are preferred and parallel cousin marriages are strictly prohibited.
- They have a traditional village council (Kulam Panchayat) headed by a Kula Peda, assisted by a Pillipudamari.
- They also have an inter-village community council, these councils handle their customary affairs in their respective jurisdictions.
- The tribe is endogamous, divided into two main groups: **Pedda Kondulu and China Kondulu**, each with several clans. Modernization and cultural contact are transforming their traditional lifestyle.

**Note:** The Lower Sileru Hydro Electric Project is a 460 MW hydro power project on the **Sileru river** and is situated in the midst of dense forest in the agency area of Visakhapatnam, Andhra Pradesh.

## SC Allows for Sub-Classification of SCs and STs

### Why in News?

The **Supreme Court of India** in review judgement of Punjab and Haryana High Court, delivered a landmark verdict allowing **states the authority to sub-classify reserved category groups**, such as **Scheduled Castes (SCs)** and **Scheduled Tribes (STs)**, for the purpose of reservations.

- This 6-1 majority decision overturns the **2004 ruling in E.V. Chinnaiah vs. State of Andhra Pradesh**, fundamentally altering the landscape of reservation policies in India.

### What was the SC's Verdict on Sub-Classifications of SCs and STs?

- **Sub-Classifications Permitted:** The Court ruled that states are constitutionally allowed to sub-classify SCs and STs based on varying levels of backwardness.
- The seven-judge Bench ruled that states can now sub-classify SCs within the **15% reservation quota to provide better support** for the most disadvantaged groups.
  - Chief Justice of India emphasised the difference between **"sub-classification"** and **"sub-**

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categorisation,” cautioning against using these classifications for political appeasement rather than genuine upliftment.

- The Court noted that sub-classification should be based on empirical data and historical evidence of **systemic discrimination, rather than arbitrary or political reasons**.
- States must base their sub-classification on empirical evidence to ensure fairness and effectiveness.
- The Court clarified that **100% reservation for any sub-class is not permissible**. State decisions on sub-classification are subject to judicial review to prevent political misuse.
- The Supreme Court has ruled that the ‘**creamy layer**’ principle, previously applied only to **Other Backward Classes (OBCs)** (as highlighted in **Indra Sawhney Case**), should now also be applied to SCs and STs.
  - This means states must identify and exclude the creamy layer within SCs and STs from reservation benefits. The judgement responds to the need for a **more nuanced approach to reservations, ensuring that benefits reach those who are truly disadvantaged**.
- The court stated that Reservation has to be **limited only to the first generation**.
  - If any generation in the family has taken advantage of the reservation and **achieved a higher status**, the benefit of reservation would not be **logically available to the second generation**.
- **Rationale for the Verdict:** The Court acknowledged that systemic discrimination **prevents some members of SCs and STs from advancing**, and therefore, sub-classification under **Article 14 of the Constitution** can help address these disparities.
  - This approach allows states to tailor reservation policies to more effectively support the most disadvantaged within these groups.

### **What led to the Reference of the Sub-Classification Issue?**

- The issue of sub-classification of Scheduled Castes (SCs) and its referral to a seven-judge bench was initiated by a five-judge bench in the case of **State of Punjab v. Davinder Singh, 2020**.

- The primary factors leading to this reference were:
  - **Reconsideration of EV Chinniah Judgment:** The five-judge bench found it necessary to reconsider the judgement in **EV Chinniah v. State of Andhra Pradesh, 2004**.
    - The EV Chinniah ruling stated that sub-classification within SCs was not permissible, as **SCs formed a homogeneous group**.
  - **Punjab Scheduled Caste and Backward Classes (Reservation in Services) Act, 2006:** The specific legal challenge in this case involved the validity of Section 4(5) of the Punjab Scheduled Caste and Backward Classes Act, 2006.
    - This provision mandated that **50% of vacancies reserved for SCs** in direct recruitment be offered to **Balmikis and Mazhabi Sikhs, contingent on their availability**.
  - **High Court Ruling:** A division bench of the Punjab and Haryana High Court, in 2010, **struck down this provision**, relying on the **EV Chinniah judgment**.
    - The High Court ruled that all castes in the **Presidential Order under Article 341(1)** formed **one homogeneous group** and could not be subdivided further.
    - The EV Chinniah judgement had established that Article 341 of the Constitution, which empowers the President to identify and notify SCs, was the basis for reservations.
- According to Article 341, SCs can only be identified and categorised by the President in consultation with the Governor and through public notification.

### **What are the Arguments For and Against Sub-Classification?**

- **Arguments For Sub-Classification:**
  - **Enhanced Flexibility:** Sub-classification allows both central and state governments to design policies that better address the needs of the most disadvantaged within SC/ST communities.
  - **Alignment with Social Justice:** Supporters argue that sub-classification helps achieve the **constitutional goal of social justice by providing targeted benefits to those who need them the most**.
  - **Constitutional Provisions:** **Article 16(4) of the Constitution**, this provision permits reservations for backward classes who are inadequately represented in state services.

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- **Article 15(4)** empowers the state to create special arrangements for promoting the interests and welfare of **socially and educationally backward classes of the society such as SC and STs**.
- **Article 342A** supports the flexibility of states in maintaining their lists of socially and economically backward classes.

➤ **Arguments Against Sub-Classification:**

- **Homogeneity of SCs and STs:** Critics argue that sub-classification could undermine the **uniform status of SCs and STs as recognised in the Presidential list**.
- **Potential for Inequality:** There are concerns that sub-classification could **lead to further division and potentially exacerbate inequalities** within the SC community.

**What is the Significance of the Supreme Court Verdict?**

- **Overruling Previous Judgement:** The Supreme Court's decision reverses the *E.V. Chinnaiah* ruling, which had previously held that SCs and STs were a **homogeneous group and thus could not be subdivided for reservation purposes by the states and unconstitutional under Article 341 of the Indian Constitution**.
- The **Chief Justice of India** stated that the new ruling on sub-classifying Scheduled Castes and Scheduled Tribes **does not violate Articles 14 or 341 of the Constitution**.
- **Impact on State Laws:** The ruling upholds various state laws that had previously been struck down, such as those in Punjab and Tamil Nadu, allowing states to create sub-categories within SC and ST groups.
- The **Punjab government's 1975 notification**, which divided its SC reservation into categories for Valmiki and Mazhabi Sikhs, was initially upheld but later challenged following the *E.V. Chinnaiah judgment*.

- **Future of Reservations:** States will now have the authority to implement sub-classification policies, which could lead to more nuanced and effective reservation strategies.

- The decision sets a new precedent for how reservations can be administered, potentially influencing similar cases and policies across the country.

**What are the Challenges for Sub-Classification?**

- **Data Collection and Evidence:** Gathering **accurate and comprehensive data** on the socio-economic conditions of different sub-groups within SCs and STs is essential.
  - States must rely on empirical evidence to justify their sub-classification decisions. **Ensuring data accuracy and avoiding biases can be challenging.**
- **Balancing Interests:** Sub-classification aims to uplift the most disadvantaged sub-groups, but **balancing competing interests can be complex.**
- **Uniformity vs. Diversity:** While sub-classification allows tailoring policies, it may lead to variations across states. **Striking a balance between uniformity and addressing local needs is a challenge.**
  - Ensuring that sub-categories do not undermine the **overall goals of reservation policies is crucial.**
- **Political Resistance:** Sub-classification policies can **face opposition from political groups** that either support or oppose changes to reservation systems, leading to potential delays and conflicts.
- **Social Tensions:** Sub-classification might exacerbate existing social tensions within SC/ST communities, leading to intra-community conflicts and divisions.
- **Administrative Burden:** The process of creating, managing, and updating sub-categories adds a significant administrative burden on government agencies, necessitating additional resources and manpower.



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# Science & Technology

## Highlights

- Astronauts Stuck in ISS
- Sucralose: A Promising Sweetener for Diabetics
- High Temperature Impacting Flight Operations
- Ransomware Attack Disrupts Bank Operations
- Criticality of Prototype Fast Breeder Reactor
- Genetic Testing in Sports
- Artificial Intelligence (AI)

## Astronauts Stuck in ISS

### Why in News?

Astronauts **Sunita Williams** and Barry "Butch" Wilmore are staying on the **International Space Station (ISS)** until February 2025 due to technical issues with the **Boeing Starliner spacecraft** that brought them there in June 2024.

- NASA is working to resolve the issues, which raise concerns about astronaut safety, the ISS's capacity, and the effects of prolonged space travel on human health.

#### Note:

- **Starliner** is a spacecraft designed for carrying astronauts to space, featuring a crew capsule, **reentry capability**, and a **non-reusable service module** providing life support and propulsion systems.
  - **SpaceX's Crew Dragon** and **NASA's SpaceX Demo-2** provide similar spacecraft services like Starliner.

### How did the Astronauts Get Stuck in the ISS ?

- Williams and Wilmore travelled to the ISS in June on **Boeing's Starliner**, its **first crewed mission**.
- **Despite a pre-launch helium leak and additional leaks** during the journey, Starliner arrived at the ISS, but new issues remain unresolved.
- **Regular cargo spacecraft deliveries ensure a steady supply** of essentials, allowing the ISS to support the crew for an extended stay.
- Earlier Instances of Longer Stays in Space:
  - **Russian cosmonaut Valeri Polyakov** holds the record with 438 days on the **Mir Space Station** (Russian Space station deorbited in 2001) in 1994-95.
  - **US astronaut Frank Rubio** completed 371 days (2022-23) on the ISS.

### What is the Impact on the Human Body in the ISS ?

- **Bone Density Loss:** Prolonged exposure to microgravity can lead to several health issues for astronauts as they can lose up to **1% of bone mass per month** due to the **lack of gravitational force**, increasing the risk of **osteoporosis and fractures**.
- **Muscle Atrophy:** Muscle mass and strength can diminish significantly in microgravity, necessitating rigorous daily exercise routines to mitigate these effects.
- **Vision Problems:** Changes in **fluid distribution in the body** can lead to increased **intracranial pressure**, causing vision-related issues, often referred to as **Spaceflight Associated Neuro-ocular Syndrome (SANS)**.

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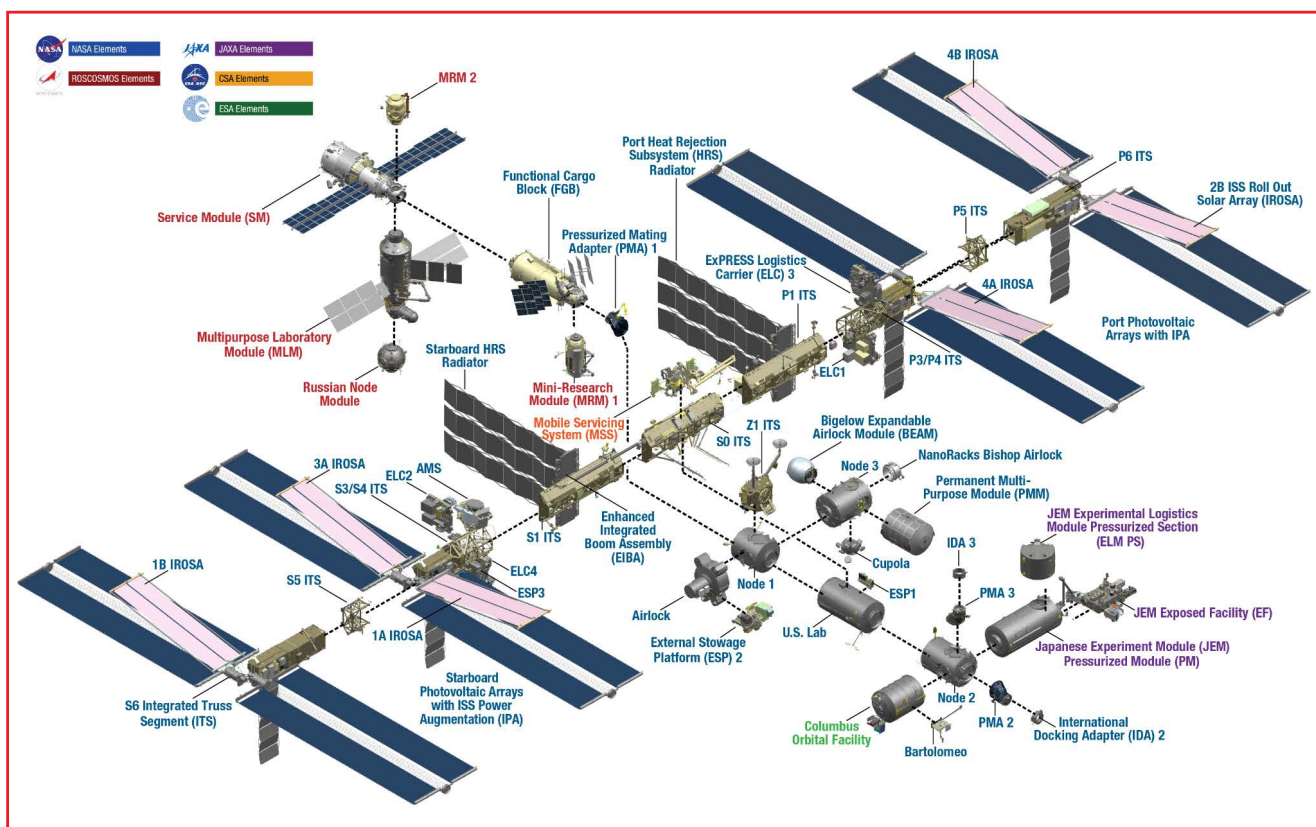


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- **Cardiovascular Changes:** The heart can change shape and size in microgravity, leading to potential **cardiovascular** issues.
- **Psychological Effects:** Extended isolation and **confinement** can also **impact mental health**, leading to **stress, anxiety**, and other psychological challenges.

### International Space Station (ISS)

- It is the **largest man-made structure in space**, and was launched in **1998**.
- It functions as a habitat for astronauts and has been continuously occupied since 2000.
- **Participating Agencies:** The ISS is a joint effort of the space agencies of the **United States (NASA)**, **Russia (Roscosmos)**, **Europe (ESA)**, **Japan (JAXA)**, and **Canada (CSA)**.
- **Orbit:** The ISS orbits approximately **400 kilometres above Earth**.
- **Speed:** It travels around Earth at about **28,000 kilometres per hour**, completing an orbit every 90 minutes.
- **Objectives:** The ISS aims to **advance our understanding of space and microgravity**, support new scientific research, and exemplify international collaboration.



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### International Space Station: Interesting facts:a

The International Space Station is a large spacecraft. It orbits around Earth. It is a home where astronauts live.

The space station is also a science lab. Many countries worked together to build it. They also work together to use it.

The space station is made of many pieces. The pieces were put together in space by astronauts. The space station's orbit is approximately 250 miles above Earth.

The first piece of the International Space Station was launched in 1998. A Russian rocket launched that piece. After that, more pieces were added. Two years later, the station was ready for people.

The space station is as big inside as a house with five bedrooms. It has two bathrooms, a gymnasium and a big bay window. Six people are able to live there. It weighs almost a million pounds.

The space station is a home in orbit. People have lived in space every day since the year 2000. The space station's labs are where crew members do research.

Astronauts and supplies are ferried by the U.S. space shuttles and the Russian Soyuz and Progress spacecraft.

Information courtesy - [www.nasa.gov](http://www.nasa.gov)

Read more: [Space Missions in 2024](#), [Impact of Spaceflight on Brain Fluid Dynamics](#)

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## Sucralose: A Promising Sweetener for Diabetics

### Why in News?

A recent study from India has highlighted the potential benefits of using **sucralose**, a **non-nutritive sweetener**, as a substitute for **sucrose (table sugar)** among individuals with **Type 2 Diabetes**.

- The study contrasts with the **WHO's** recent caution against **Non-Nutritive Sweeteners (NNS)** for weight control in non-diabetics.

### What were the Key Findings of the Study?

- The study reported **no significant changes in glucose or HbA1c levels**, a key indicator of blood glucose control, between the intervention and control groups.
- Participants using sucralose showed slight improvements in body weight, waist circumference, and **Body Mass Index (BMI)**.
- The judicious use of sucralose can help in reducing overall calorie and sugar intake, which is crucial for managing diabetes effectively.
- **Significance:** These findings are significant for India, where **sweeteners** are **less commonly used**. The study suggests that sucralose could **improve dietary compliance** and **aid in weight management for diabetics** in the country.

### What are Sugar and Sugar Substitutes?

- **Sugar:** It is a form of carbohydrate, along with fibre and starch. While carbohydrates are important for our health, **sugar itself is not essential**.

- White table sugar, known as **sucrose**, is the most widely used sweetener.
- Other **natural sugars** include: **fructose, galactose, glucose, lactose, maltose**.
- **Sugar Substitutes:**
  - Sugar substitutes offer a **sweet taste without the calories** associated with sugar, with some containing no calories at all.
  - They are commonly found in products labelled as **"sugar-free", "keto", "low carb" or "diet"**.
  - **Types of Sugar Substitutes:**
    - **Artificial Sweeteners:** Also known as **Non-Nutritive Sweeteners (NNS)**, are primarily synthesised from chemicals in laboratories, or derived from natural herbs. They can be 200 to 700 times sweeter than table sugar.
- **Examples:** Acesulfame potassium (Ace-K), Advantame, Aspartame, Neotame, Saccharin, Sucralose etc.
  - **Sugar Alcohols:** They are synthetically derived from sugars, and are used in many processed foods. They are **less sweet than artificial sweeteners** and add texture and taste to items like **chewing gum and hard candies**.
- **Examples:** Erythritol, isomalt, lactitol, maltitol, sorbitol, and xylitol etc.
  - **Novel Sweeteners:** They are derived from natural sources, offer the **benefits of both artificial and natural sweeteners**. They are **low in calories and sugar**, preventing weight gain and blood sugar spikes, and are typically **less processed**, closely resembling their natural sources.
- **Example:** Allulose, Monk fruit, Stevia, Tagatose etc.

### What is Diabetes?

#### ➤ About:

- **Diabetes** or **Diabetes Mellitus (DM)** is a medical disorder characterised by **insufficient insulin production** or an **abnormal response to insulin**, leading to **elevated blood sugar (glucose) levels**.
- While 70–110 mg/dL fasting blood glucose is considered normal, blood glucose levels between 100 and 125 mg/dL is considered prediabetes, and **126 mg/dL or higher is defined as diabetes**.

### Types of Diabetes

	Type 1 Diabetes	Type 2 Diabetes
<b>Causes</b>	In this, the <b>pancreas does not make insulin</b> , because the body's immune system attacks the islet cells in the pancreas that make insulin.	In this, the <b>pancreas makes less insulin</b> and the body becomes resistant to insulin.

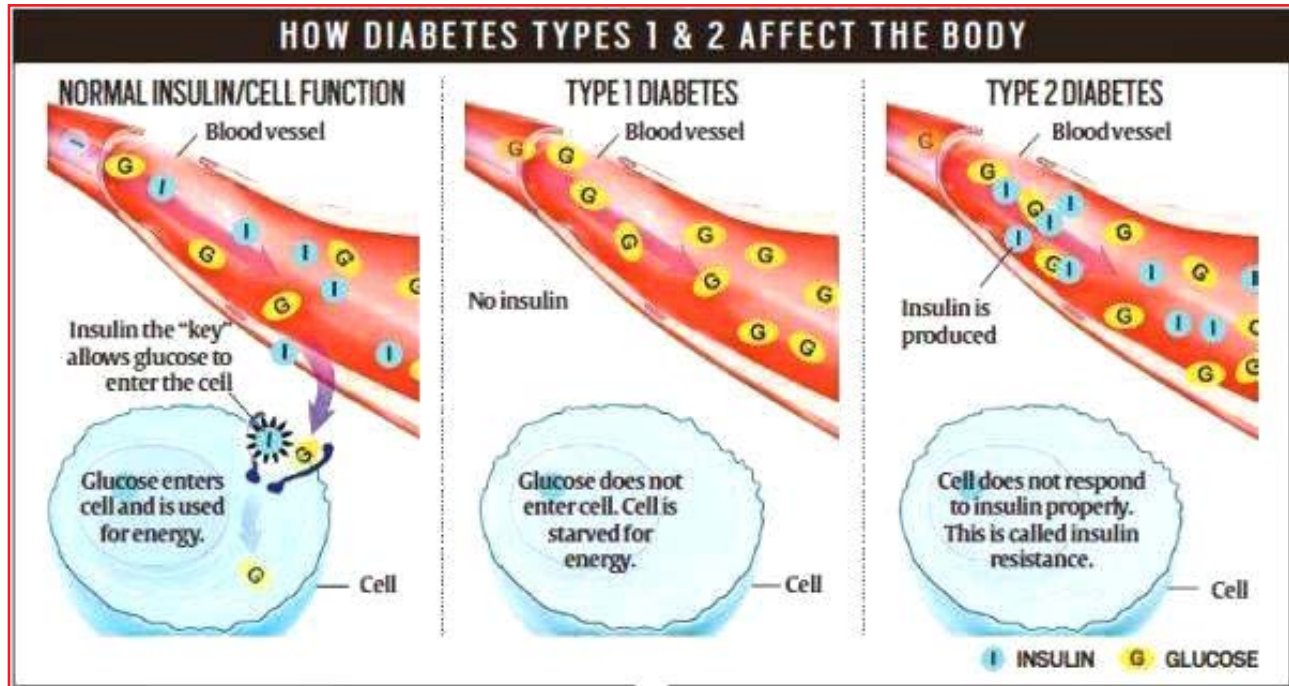
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<b>Prevalence</b>	Type 1 diabetes affects about <b>5-10% of people</b> with diabetes, typically developing <b>before age 30</b> , though it can occur later in life.	Type 2 diabetes is <b>more common</b> but typically begins <b>after age 30</b> and increases with age.
<b>Prevention</b>	<b>Cannot</b> be prevented.	<b>Can be prevented</b> with lifestyle changes.

➤ **Initiatives to Tackle Diabetes:**

- National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS).
- [World Diabetes Day](#)
- [Global Diabetes Compact](#)



## High Temperature Impacting Flight Operations

### Why in News?

Recently, several air operators cancelled their flights to Leh citing high temperature in the region that led to runway restrictions.

- The mountainous region has seen a rise in temperatures due to climate change in India's cold desert.

### What is the Impact of High Temperatures on Aircraft Operation?

- **Reduced Lift:** Less dense air provides **diminished support for aircraft wings**, necessitating **higher speeds and longer runways** for takeoff. The **lift-to-drag ratio** is adversely affected, impacting overall aircraft efficiency.
- **Engine Performance Deterioration:** The combustion process within aircraft engines is compromised due to the **decreased oxygen content in thinner air**. This results in reduced engine thrust, further exacerbating takeoff challenges.
- **Extended Landing Distances:** The reduced effectiveness of reverse thrust in less dense air prolongs the landing process, requiring **greater runway length for deceleration**.

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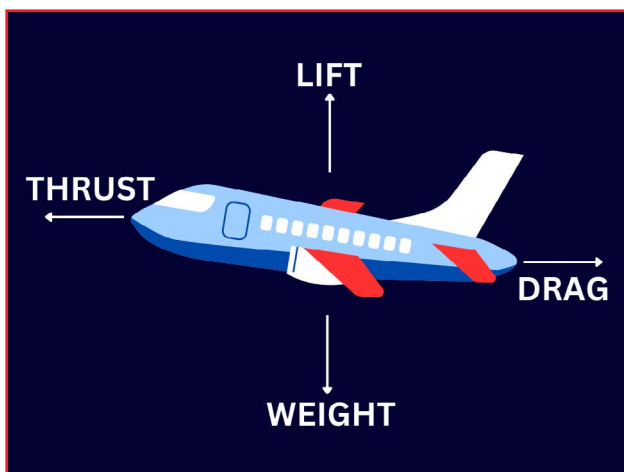
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- A 2023 study revealed that **global warming** is expected to **increase the take-off distance** for **Boeing 737-800 aircraft** by an average of 6% during the period of **2071-2080**, compared to 1991-2000.
  - This change is **particularly significant at low-altitude airports**, necessitating an additional 113-222 meters for take-offs in future summers.
- **Operational Constraints:** Airports situated at higher altitudes, where air density is naturally lower, are particularly **vulnerable to temperature-induced flight restrictions**. During periods of extreme heat, **takeoff weight limits may be imposed**, and flight operations could be suspended altogether.

**Note:** The global average temperature has risen by at least **1.1 degrees Celsius** since **1880**, with India experiencing an increase of approximately **0.7 degrees Celsius** compared to 1900 levels.

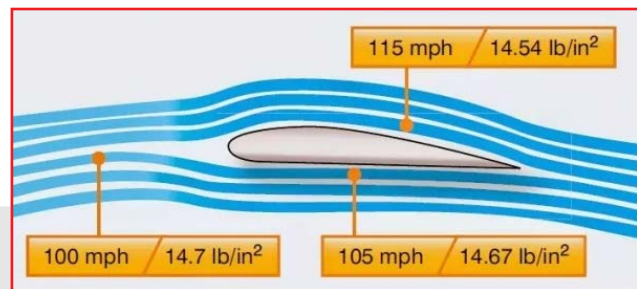
### What is the Principle of Aircraft Flight Operation?

- All flying objects that use wings require air, as moving air generates a lifting force essential for maintaining the flight of kites, airplanes, and balloons.
- **An aircraft experiences 4 basic forces:**
  - **Lift:** The **upward force** acting on the aircraft which helps the airplane to fly.
  - **Drag:** The **backward force** caused by the resistance of air flow.
  - **Thrust:** The **forward force** produced by the engines of the aircraft
  - **Weight:** The **body and cargo weight** of the aircraft acting in a **downward direction**.



- **An aircraft flies when the lift force generated by its wings overcomes its weight.** To achieve this, the aircraft requires sufficient forward speed.

- The **engines** provide **thrust** to propel the aircraft forward. As the aircraft moves, the **airfoil-shaped wings** interact with the air, creating **lift**. This lift is generated due to a **pressure difference** between the upper and lower surfaces of the wing.
- The **curved upper surface** of the airfoil accelerates the air flowing over it, reducing the pressure according to **Bernoulli's principle**. Simultaneously, the air flowing under the wing is slightly compressed, increasing pressure. This pressure difference creates an **upward force**, **lifting the aircraft**.



- The **angle of attack**, the angle between the **wing and the oncoming air**, significantly influences lift. A small increase in angle of attack generates more lift, but excessive angles can lead to a **stall**.
- To maintain level flight, the **lift force must equal the aircraft's weight**. Pilots control lift by adjusting the wing's angle of attack and shape using control surfaces.

### What are the Causes of High Temperature in Leh-Ladakh Region?

- **Altitude:** Leh-Ladakh's high elevation of approximately 3,000 metres **causes thinner atmospheric density**.
  - Further the region's **clear skies, minimal cloud cover, and sparse vegetation** which **increases solar radiation penetration** and results in **higher daytime temperatures** during the summer.
- **Topography:** The **Himalayas** and **Zaskar** ranges create a **rain shadow effect** (form rain shadow desert) by **blocking moisture-laden winds**, resulting in minimal precipitation.
  - This dry air **enhances temperature fluctuations**, causing higher daytime temperatures.
- **Climate Change:** **Global warming** has led to **rising temperatures globally**, affecting cold deserts as well. This phenomenon alters **local weather patterns**, potentially leading to warmer conditions in Leh-Ladakh.

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- **Human Activities: Urbanisation and infrastructure development in Leh** and surrounding areas create **localised warming effects**, known as the **urban heat island effect**.
  - “Urban heat islands” occur when **cities replace natural land cover** with dense concentrations of pavement, buildings, and other surfaces that absorb and retain heat, increasing energy costs, air pollution, and heat-related illness and mortality.
  - Additionally, increased human activity, including **tourism and military movement**, contributes to rising temperatures.



## Ransomware Attack Disrupts Bank Operations

### Why in News?

Recently, a **ransomware attack** severely disrupted the operations of at least 150-200 **cooperative banks** and **Regional Rural Banks (RRBs)** in India.

- The **National Payments Corporation of India (NPCI)** has identified the attack, which has primarily affected banks serviced by **C-Edge Technologies Ltd.**, a joint venture between **Tata Consultancy Services Ltd. (TCS)** and **State Bank of India (SBI)**.

### How has the Ransomware Attack Affected the Banks?

- The ransomware attack targeted C-Edge Technologies Ltd., impacting their ability to provide services to cooperative banks and RRBs.

- Customers of the affected banks were unable to access payment systems, including **Unified Payments Interface (UPI)** and **Aadhaar-enabled payment systems (AePS)**.
- Some RRBs, depending on their sponsor banks, continued to function normally as they use different technology service providers.
- **Broader Implications for the Payment Ecosystem:**
  - The attack highlights the **vulnerability of technology service providers** and their critical role in maintaining the payment infrastructure.
  - The incident underscores the **need for robust cybersecurity measures** to protect against such attacks in the future.
  - Cooperation between NPCI, banks, and technology providers is crucial to swiftly address and mitigate the impacts of such disruptions.

**Note:** AePS is a bank-led model that allows **online interoperable financial transactions** at Point of Sale (PoS) or micro-ATMs through the Business Correspondent of any bank using **Aadhaar authentication**.

- It was taken up by NPCI, a joint initiative of **Reserve Bank of India (RBI)** and **Indian Banks' Association (IBA)** to provide easy and secure access to banking services for the poor and marginalised, especially in rural and remote areas.

### What is Ransomware?

- **Definition:** Ransomware is a type of **malware** that encrypts a victim's data or locks their device, demanding a ransom for the decryption key or to regain access.
- **Early Attacks:** Initially, ransomware attacks focused on **encrypting data and demanding a ransom for the decryption key**.
- **Modern Tactics:** Recent ransomware attacks have evolved to include double-extortion and triple-extortion tactics:
  - **Double-extortion:** Attackers threaten to leak stolen data online if the ransom is not paid.
  - **Triple-extortion:** Attackers use stolen data to target the victim's customers or business partners.
- **Types of Ransomware:**
  - **Encrypting Ransomware (Crypto Ransomware):** Encrypts the victim's data, demanding a ransom for the decryption key.

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- **Non-encrypting Ransomware (Screen-locking Ransomware):** Locks the victim's entire device, displaying a ransom demand on the screen.
- Subcategories of Ransomware Include:
  - **Leakware or Doxware:** Steals and threatens to publish sensitive data.
  - **Mobile Ransomware:** Affects mobile devices, often using screen-lockers.
  - **Wipers:** Threaten to destroy data, sometimes even if the ransom is paid.
  - **Scareware:** Uses fear tactics to coerce payment, sometimes posing as legitimate alerts.
- **Ransomware as Cyber Threat:**
  - **Financial Impact:** Ransomware attacks can cost organisations millions of dollars.
    - An IBM (International Business Machines Corporation) report showed that the **average cost of a data breach touched an all-time high of Rs 19.5 crore (USD 2.35 million)** in financial year 2024, up by around 7% over 2023, with the local industrial sector being the most impacted.
    - Ransomware victims and negotiators are reluctant to disclose ransom payments.
  - **Speed of Attacks:** Once hackers gain access to a network, they can deploy ransomware in **less than four days**, giving organisations **little time to detect and respond**.
- **Steps for Responding to a Ransomware:**
  - **Isolate the infected device from the network** to contain the infection. Disconnect all suspiciously behaving devices from the network to stop the spread of infection.
  - Identify the **entry point by checking for any alerts** from any active monitoring platform and identify the ransomware by scanning encrypted files and ransom notes.
  - **Prioritize the restoration of systems** by restoring the most critical ones first, followed by eradication of the threat from the network.
    - If backup is available, restore the systems from a backup. **Otherwise, try for decryption options.**

### How does Ransomware Infect Systems?

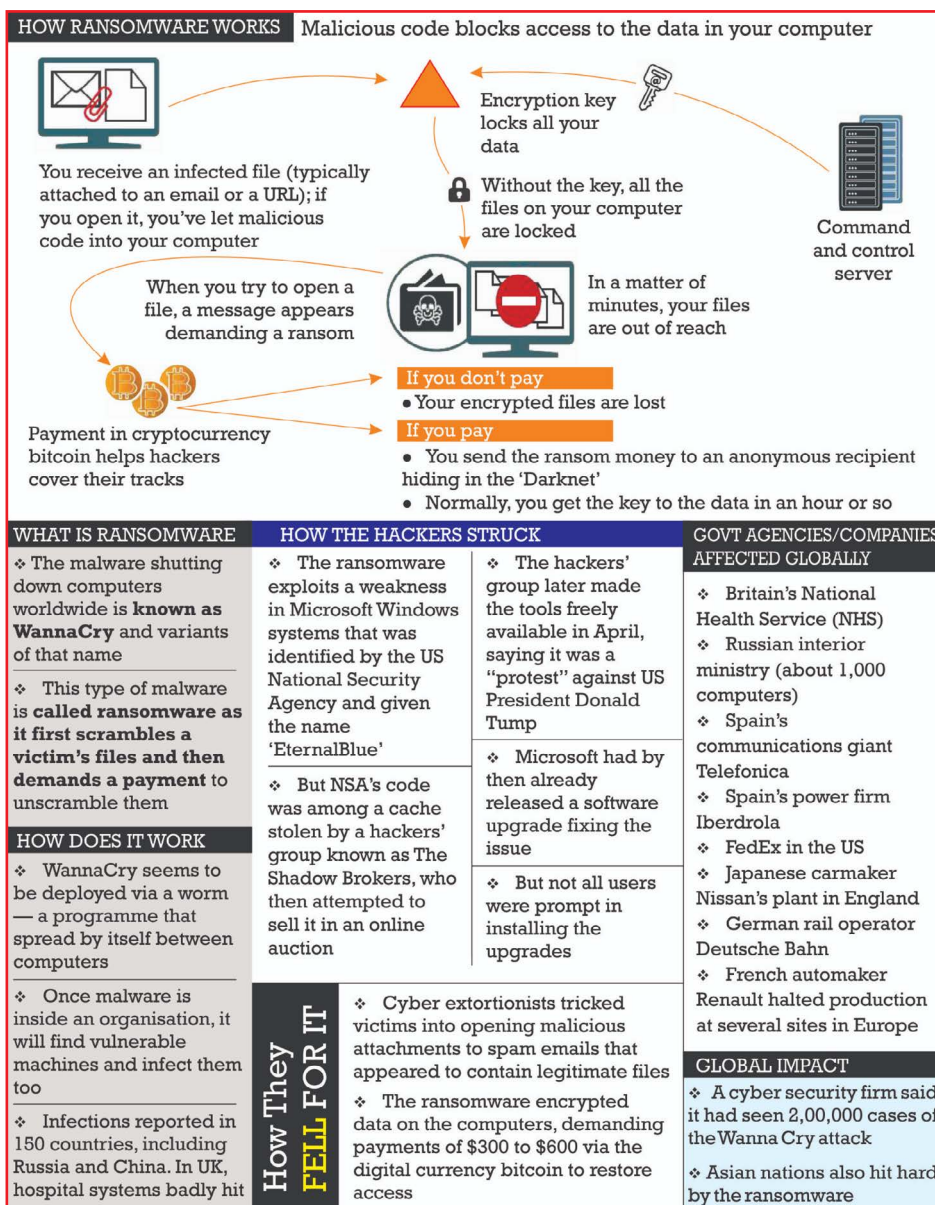
- **Phishing:** It is a type of cyberattack that uses **Social Engineering tricks** to deceive victims into downloading ransomware through malicious attachments or links.
  - Social engineering is the use of psychological manipulation to trick users into making security mistakes or revealing sensitive information.
- **Exploiting Vulnerabilities:** Uses existing or **zero-day vulnerabilities** to inject ransomware.
- **Credential Theft:** Steals authorised user credentials to deploy ransomware.
- **Other Malware:** Use other malware (e.g., **Trojans**) to spread ransomware.
- **Drive-by Downloads:** Infects devices through compromised websites.
- **Ransomware as a Service (RaaS):** Allows cybercriminals to use ransomware developed by others in exchange for a share of the ransom.

### Notable Ransomware Variants

- **Akira Ransomware**
- **LockBit Ransomware**
- **CryptoLocker:** Credited with kick-starting the modern age of ransomware in 2013.
- **WannaCry:** A cryptoworm that attacked over 200,000 computers in 150 countries in 2017.
- **Petya and NotPetya:** Encrypts the file system table, rendering computers unable to boot.
- **Ryuk:** Popularized big-game ransomware attacks against high-value targets.
- **DarkSide:** Responsible for the Colonial Pipeline attack in 2021.
- **Locky:** Uses macros in email attachments to infect devices.
- **REvil:** Known for big-game hunting and double-extortion attacks.
- **Conti:** Operated a RaaS scheme, using double-extortion tactics.

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### What are the Legislations to Protect Against Ransomware Attacks in India?

- Ransomware attacks constitute various offences under the **Indian Penal Code 1860** and the **Information Technology(IT) Act 2000**.
  - The IT Act has **relevant provisions include: Section 43 and 66 (damage to computer/system), Section 65 (tampering with computer source documents), and Section 66D (cheating by personation)**. Additionally, corporate bodies holding sensitive personal data have an obligation to implement reasonable security practices under the IT Rules.
  - The punishment for ransomware attacks under the IT Act ranges from imprisonment for a term of three years to seven years and a fine of up to Rs. 1 crore.
- The **Ransomware Task Force (RTF)** is a specialised unit within **India's National Cyber Security Coordinator (NCSC)** organisation that serves as a central point of contact for victims of ransomware attacks, providing assistance with investigation, recovery, and prevention efforts.

Note:

- **Cybersecurity Framework for the Indian Banking Sector, 2018**, issued by the **RBI** provides specific guidelines for banks and financial institutions to protect against cyber threats, including ransomware attacks.
  - It mandates banks to implement robust cybersecurity measures, such as multi-factor authentication, encryption, and regular security audits.

# CYBER SECURITY

**Cybersecurity refers to any technology, measure, or practice for preventing cyberattacks or mitigating their impact.**

**CYBER SECURITY ATTACKS**

Phishing Attack

Dos / DDos

Vishing Attack

Viruses

Malware Attack

SQL Injection Attack

Man in The Middle Attack

Password Attacks

Brute Force Attack

Spyware and Keylogger

Cross-Site Scripting

**'Crime in India' Report 2022 (NCRB) highlighted 24.4% surge in cybercrimes in India since 2021.**

### Common Cybersecurity Myths

- ⌚ Strong passwords alone are adequate protection
- ⌚ Major cybersecurity risks are well-known
- ⌚ All cyberattack vectors are contained
- ⌚ Cybercriminals don't attack small businesses

### Cyber Warfare

- ⌚ Digital attacks to disrupt vital computer systems, to inflict damage, death, and destruction.

### Recent Major Cyber Attacks

- ⌚ WannaCry Ransomware Attack (2017)
- ⌚ Cambridge Analytica Data Breach (2018)
- ⌚ Financial data of 9M+ cardholders, including SBI, leaked (2022)

### Regulations & Initiatives

- ⌚ **International:**
  - ⌚ UN Group of Governmental Experts (GGE) on Advancing Responsible State Behaviour in Cyberspace
  - ⌚ NATO's Cooperative Cyber Defense Centre of Excellence (CCDCOE)
  - ⌚ Budapest Convention on Cybercrime, 2001 (India not a signatory)
- ⌚ **India:**
  - ⌚ IT Act, 2000 (Sections 43, 66, 66B, 66C, 66D)
  - ⌚ National Cyber Security Policy, 2013
  - ⌚ National Cyber Security Strategy 2020
  - ⌚ Cyber Surakshit Bharat Initiative
  - ⌚ Indian Cyber Crime Coordination Centre (I4C)
  - ⌚ Computer Emergency Response Team-India (CERT-In)

### CYBER THREAT ACTORS

CYBER THREAT ACTOR	MOTIVATION
NATION-STATES	GEOPOLITICAL
CYBERCRIMINALS	PROFIT
HACKTIVISTS	IDEOLOGICAL
TERRORIST GROUPS	IDEOLOGICAL VIOLENCE
THRILL-SEEKERS	SATISFACTION
INSIDER THREATS	DISCONTENT

### Types of Cybersecurity

- ⌚ Critical infrastructure security (Robust access controls)
- ⌚ Network security (Deploying firewalls)
- ⌚ Application security (Code reviews)
- ⌚ Cloud Security (Tokenization)
- ⌚ Information security (Data masking)

### Steps Needed for Cyber Security

- ⌚ Network Security
- ⌚ Malware Protection
- ⌚ Incident Management
- ⌚ User Education and Awareness
- ⌚ Secure Configuration
- ⌚ Managing User Privileges
- ⌚ Information Risk Management Regime

Note:

## Criticality of Prototype Fast Breeder Reactor

### Why in News?

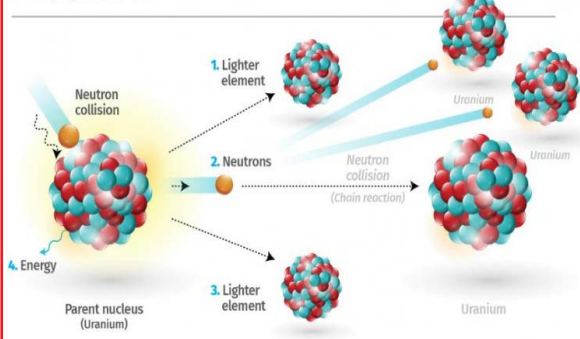
Recently, the **Atomic Energy Regulatory Board (AERB)** has officially granted permission for the “**First Approach to Criticality**” of the 500 MWe **Prototype Fast Breeder Reactor (PFBR)** at Kalpakkam, Tamil Nadu, **India's first indigenous PFBR**.

**Note: Criticality:** Criticality in a nuclear reactor is when **enough neutrons are produced by fission to replace those lost** through leakage or absorption, ensuring the number of neutrons remains constant.

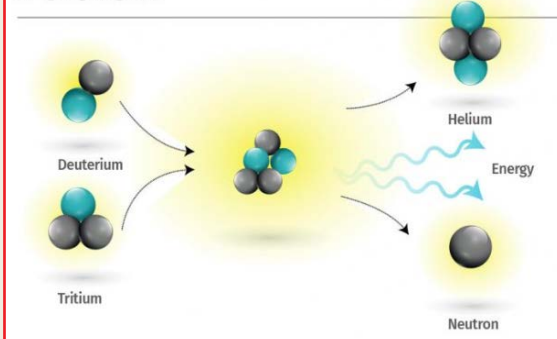
#### ➤ Fission Vs Fusion:

Parameters	Nuclear Fission	Nuclear Fusion
Natural occurrence	This is not observed in nature.	This is observed in stars such as the sun.
By-products formed	A lot many high particles are generated.	Very few radioactive particles are produced.
Critical conditions	A critical mass of the substance with high-speed neutrons.	A higher density and high temperature are necessary.
Energy requirement	It takes a small amount of energy to split an atom.	Very high energy is required.
The release of energy	This process is exothermic.	This process is endothermic.
The production of energy	In nuclear power plants.	Experiments that are used for the generation of energy.

### NUCLEAR Fission



### NUCLEAR Fusion



Note:



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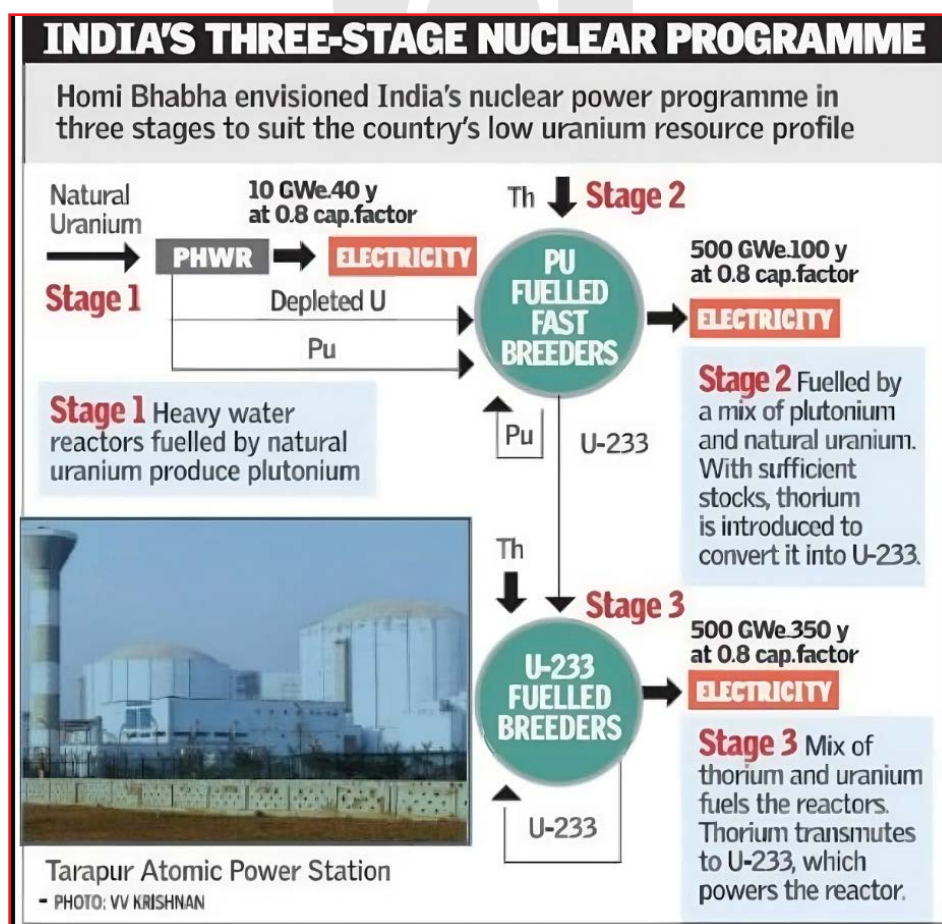
### What is India's FBR Programme?

- Efforts to build an FBR were initiated two decades ago.
  - It is a step towards India developing comprehensive capabilities that span the entire **nuclear fuel cycle**, by which electricity is produced from uranium in nuclear power reactors.
- The **Department of Atomic Energy (DAE)** aims to **increase the share of nuclear power** in the energy mix by 2032 by producing 22,400 MWe from its nuclear power plants.
  - It has **approved the construction of 10 new PHWRs** in 'fleet mode', in which a plant is expected to be built in five years from the first pouring of concrete.
  - FBRs reactors **generate more nuclear fuel** than they consume due to the gainful conversion of fertile isotopes into fissile material.
- In 2003, the **Bharatiya Nabhikiya Vidyut Nigam Ltd or BHAVINI** was incorporated to **build and operate India's most advanced nuclear reactor**, the **Prototype Fast Breeder Reactor (PFBR)**.

- Once commissioned, India will be the second country after Russia to have a commercial operating FBR.

### What are the Three stages of India's Nuclear Energy Program?

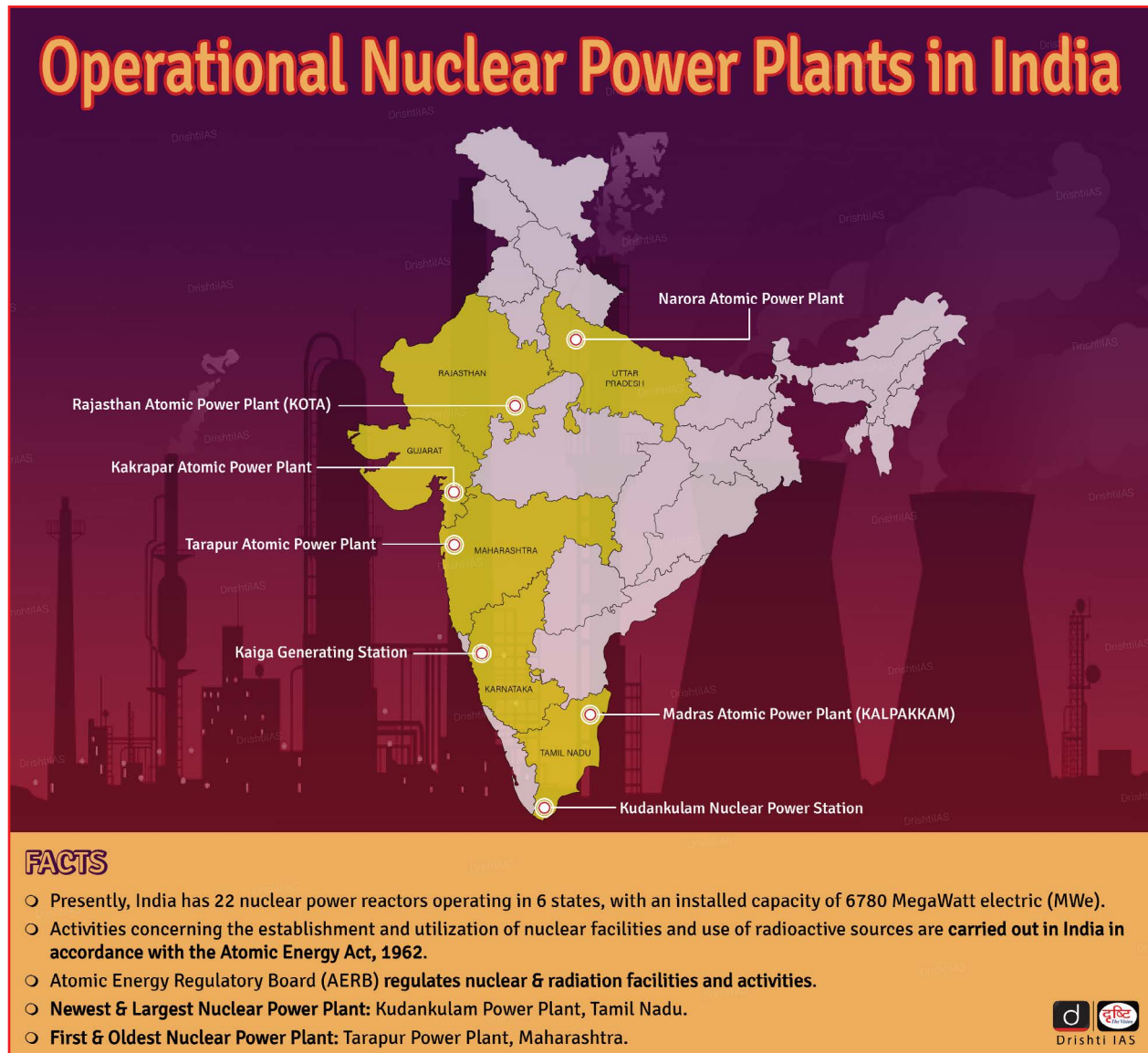
- **The First Stage:** The installation of Pressurised Heavy Water Reactors (PHWRs) is underway, with PHWRs using natural uranium as fuel and heavy water as coolant and moderator.
- **The Second Stage:** It involves the **setting up of FBRs backed by reprocessing plants** and plutonium fabrication plants, primarily to multiply the inventory of fissile material.
  - **Multiplication of fissile inventory** is also needed to establish a higher power base **for using thorium in the third stage of the programme.**
- **The Third Stage:** It will be **based on the Thorium and Uranium Cycle**. For producing Uranium-233 (U233), obtained by irradiation of thorium in PHWRs and FBRs, an **Advanced Heavy Water Reactor (AHWR)** is proposed.



Note:



- The combination of power reactors from all three stages is **expected to ensure long-term energy security** for the country.
  - But the commercial utilisation of thorium on a significant scale can begin **only when abundant supplies of either Uranium-233 (U233) or Plutonium-239 (Pu239)** are available.
  - The progress on the FBR has made the **passage to the third phase visible**.



## Genetic Testing in Sports

### Why in News?

The emergence of genetic testing in sports has gained significant attention, especially with athletes utilising it for performance enhancement ahead of the **2024 Paris Olympics**.

- This trend has sparked debates about the potential benefits and ethical concerns surrounding athletic genetic screening.

Note:

### What is Genetic Testing?

#### ➤ About:

- **Genetic testing** involves analysing an individual's DNA to identify genetic variants that can influence health, traits, and performance.
- It detects **alterations in chromosomes, genes, or proteins** to confirm or exclude genetic conditions and assess the likelihood of developing or transmitting genetic disorders.
- These tests can be conducted **using samples from blood, hair, skin, amniotic fluid, or other tissues**.

#### ➤ Types:

- **Cytogenetic Testing:** Examines whole chromosomes.
- **Biochemical Testing:** Measures proteins produced by genes.
- **Molecular Testing:** It detects small DNA mutations.

#### ➤ Applications:

- **Newborn Screening and Diagnostic Testing:** Genetic testing can be conducted just **after birth to identify treatable genetic disorders**. It can be used to confirm or rule out specific genetic conditions based on physical signs and symptoms.
- **Carrier Testing:** It identifies individuals **carrying one copy of a gene mutation that could cause a genetic disorder if present** in two copies. Useful for those with a family history of genetic disorders or belonging to certain high-risk ethnic groups.
- **Preimplantation Testing (PGD):** It can be used in conjunction **with in-vitro fertilisation to test embryos for genetic changes** before implantation, reducing the risk of genetic disorders.
- **Forensic Testing:** It utilises DNA sequences for legal purposes, such as identifying **crime victims, suspects, or establishing biological relationships**.

### What are Genes, DNA and Chromosomes?

#### ➤ DNA:

- DNA is a long molecule that contains our **unique genetic code**. DNA is composed of 2 strands that wrap around each other to form a **double helix shape**, like a spiral staircase.
- Each strand of DNA is formed of 4 basic building blocks or 'bases': **adenine (A), cytosine (C), guanine (G), and thymine (T)**.

#### ➤ Gene:

- Genes are **sections of DNA** that contain the **set of instructions** to produce one specific molecule in the body, usually a protein.

- These proteins control how the body grows and works and are responsible for characteristics like eye colour, blood type, or height.

- **Each cell contains 2 sets of genes**, one from your mother and one from your father. For ease of storage and access, the **genes are packaged up into 46 parcels called chromosomes**.

#### ➤ Chromosome:

- In the nucleus of each cell, the DNA molecule is packaged into **thread-like structures** called chromosomes.
- Each chromosome is made up of DNA tightly coiled many times around proteins called histones that support its structure.
- **Chromosomes are not visible in the cell's nucleus, even under a microscope.**

### How is Genetic Testing Used to Improve Athlete's Performance?

- **Identification of Genetic Markers:** Genetic testing can reveal specific markers associated with physical traits that contribute to athletic performance.
  - For example, variations in genes like **ACE (angiotensin-converting enzyme)** and **ACTN3 (alpha-actinin 3)** have been linked to **endurance and strength capabilities**, respectively.
- **Assessment of Muscle Fiber Composition:** The **ACTN3** genes influence the proportion of fast-twitch muscle fibres, which are crucial for explosive strength and sprinting.
  - Athletes with certain variants of this gene may be predisposed to excel in power sports, while others may have a genetic makeup favouring endurance activities.
- **Evaluation of Recovery and Injury Risk:** Genetic testing can identify predispositions to injuries or recovery times.
  - For instance, **variations in genes related to collagen production** can indicate **susceptibility to tendon and ligament injuries**, allowing for tailored training and preventive strategies.
- **Nutritional Needs and Metabolism:** Genetic insights can help determine how well an athlete metabolises nutrients.
  - For example, identifying **lactose intolerance or variations in vitamin D metabolism** can guide dietary choices that optimise performance and overall health.

Note:

- **Psychological Traits:** Certain genetic variants may influence psychological traits such as motivation, stress response, and pain tolerance, which are critical for competitive success.
  - Understanding these traits can help in mental conditioning and preparation.
- **Tailored Training Programs:** By understanding an athlete's genetic predispositions, coaches can design training regimens that align with their strengths and weaknesses, enhancing performance potential.

### What are the Limitations of Genetic Testing?

- **Scientific Uncertainty:** The relationship between genetics and athletic performance is **complex and not fully understood**.
  - Many studies yield conflicting results, making it difficult to draw definitive conclusions.
- **Small Sample Sizes:** Many genetic studies involve limited sample sizes, which can affect the reliability and generalisability of findings across different populations and sports.
- **Overemphasis on Genetics:** Focusing too much on genetic factors **can overshadow the importance of training, practice, nutrition, and psychological aspects**, which are crucial for athletic success.
- **Ethical Concerns:** Issues related to **privacy, potential**

**discrimination, and misuse of genetic information pose significant ethical challenges for athletes.**

- **Misinterpretation of Data:** Genetic data can be **complex and may be misinterpreted without expert guidance**, leading to incorrect conclusions about an athlete's potential.
- **Commercial Exploitation:** The rise of direct-to-consumer **genetic testing often prioritises profit over scientific validity**, raising concerns about the accuracy of results and the motivations behind testing.

## Artificial Intelligence (AI)



Note:



# Environment and Ecology

## Highlights

- Ground-Level Ozone Pollution in India
- World Biofuels Day 2024
- SIT Report on Tigers Deaths in MP
- Woody Encroachment in Grasslands
- Increase in Coastal Erosion
- Nicobar Port Plan From No-Go Zone to Permitted Area
- Oil Drilling in Assam's Hoollongapar Gibbon Sanctuary
- The State of the World's Mangroves 2024

## Ground-Level Ozone Pollution in India

### Why in News?

A recent study by the [Centre for Science and Environment \(CSE\)](#) has brought attention to the **alarming levels of ground-level ozone (O<sub>3</sub>)** in major cities across India.

- The findings raise serious concerns about public health, particularly for vulnerable populations such as those with [respiratory issues](#).

### What are the Key Findings of the Study?

- **High Ozone Exceedance in Major Cities:** Delhi-NCR recorded 176 days of ground-level ozone exceedance between 1<sup>st</sup> January and 18<sup>th</sup> July 2023, leading the list. **Mumbai and Pune** followed with 138 days each, while Jaipur had 126 days.
  - Contrary to expectations, **ozone levels remained high after sunset** in several cities, with Mumbai logging 171 nights of exceedance, and Delhi-NCR 161 nights.
  - Compared to last year, **seven out of ten cities saw increased ozone exceedances**, with Ahmedabad's rising by 4,000%, followed by Pune, with a 500% rise and Jaipur, with a 152% rise.
- **Standards and Measurement Issues:** The 8-hourly standard for ozone is set at 100 µg/m<sup>3</sup>. The one-hour standard is 180 µg/m<sup>3</sup>.
  - The study highlights that the [Central Pollution Control Board](#) caps data at 200 µg/m<sup>3</sup>, making it difficult to fully assess the severity of exceedances.
- **Health Risks:** Exposure to ground-level ozone can cause respiratory problems, including **chest pain**,

**coughing, bronchitis, emphysema, and asthma**, and can also inflame and damage the lining of the lungs, leading to long-term health issues.

- **Green Areas Worst Affected:** High-end, green neighbourhoods were found to be **hotspots for ground-level ozone**, challenging the assumption that these areas are safer in terms of air quality.
  - Ozone tends to accumulate in cleaner areas where fewer gaseous pollutants are available to react with it.
- **Inverse Spatial Distribution:** The study found that the spatial distribution of ozone is **inversely related to nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>2.5</sub>)**. While ozone is created in polluted areas, it tends to drift and accumulate in areas with less NO<sub>2</sub>, making these **areas more vulnerable to higher ozone concentrations**.

### What is Ground-Level Ozone?

- **About:** Ground-level ozone, or **tropospheric ozone**, is a secondary pollutant formed when **nitrogen oxides (NO<sub>x</sub>)** and **volatile organic compounds (VOCs)** from vehicles, industries, and power plants react in the presence of sunlight, with levels rising especially during summer. It is a **colourless gas** forming just above the Earth's surface.
  - Unlike the beneficial ozone layer in the stratosphere, which protects the Earth from **harmful ultraviolet (UV) radiation**, ground-level ozone is a harmful air pollutant it is often referred to as "**bad ozone**".
  - Rising temperatures, especially during [heatwaves](#), worsen ground-level ozone formation, leading to dangerous [air quality in cities like New Delhi](#) when ozone levels exceed permissible limits.
- **Impact:** A significant increase in ozone-attributable deaths has been observed **globally, with South Asia, including India, showing the highest rise**. Projections

Note:



suggest that by 2050, **more than a million deaths in India could be linked to ozone exposure** if emissions of its precursor gases are not adequately controlled.

- Ground-level ozone is detrimental to **crop health, reducing yields and seed quality**. Essential crops like **wheat and rice**, which are staples in India, are particularly **vulnerable to ozone pollution**, threatening food security.

## Air Pollutants

<p><b>Sulphur Dioxide (SO<sub>2</sub>)</b></p> <p>It comes from the consumption of fossil fuels (oil, coal and natural gas). Reacts with water to form acid rain.</p> <p><b>Impact:</b> Causes respiratory problems.</p>	<p><b>Ozone (O<sub>3</sub>)</b></p> <p>Secondary pollutant formed from other pollutants (NOx and VOC) under the action of the sun.</p> <p><b>Impact:</b> Irritation of the eye and respiratory mucous membranes, asthma attacks.</p>
<p><b>Nitrogen Dioxide (NO<sub>2</sub>)</b></p> <p>Emissions from road transport, industry and energy production sectors. Contributes to Ozone and PM formation.</p> <p><b>Impact:</b> Chronic lung disease.</p>	<p><b>Carbon Monoxide (CO)</b></p> <p>It is a product of the incomplete combustion of carbon-containing compounds.</p> <p><b>Impact:</b> Fatigue, confusion, and dizziness due to inadequate oxygen delivery to the brain.</p>
<p><b>Ammonia (NH<sub>3</sub>)</b></p> <p>Produced by the metabolism of amino acids and other compounds which contain nitrogen.</p> <p><b>Impact:</b> Immediate burning of the eyes, nose, throat and respiratory tract and can result in blindness, lung damage.</p>	<p><b>Lead (Pb)</b></p> <p>Released as a waste product from extraction of metals such as silver, platinum, and iron from their respective ores.</p> <p><b>Impact:</b> Anemia, weakness, and kidney and brain damage.</p>

**Particulate Matter (PM)**

**PM10:** Inhalable particles, with diameters that are generally 10 micrometers and smaller.

**PM2.5:** Fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller.

**Source:** Emitted from construction sites, unpaved roads, fields, fires.

**Impact:** Irregular heartbeat, aggravated asthma, decreased lung function.

Note: These major air pollutants are included in the Air quality index for which short-term National Ambient Air Quality Standards are prescribed.

- **Concerns for India:** India is home to **10 of the world's 15 most polluted cities**, with air quality far exceeding **World Health Organization (WHO) guidelines**.

- The poor air quality, rising temperatures, and frequent heat waves make India vulnerable to the harmful effects of ground-level ozone.
- The **country's growing and ageing population** is increasingly at risk from the health impacts of ozone pollution, and the public health burden is likely to increase as more people are exposed to this pollutant.

- **Challenge in Reducing Ground-Level Ozone:** Unlike other air pollutants, **ground-level ozone is part of a cyclical chemical reaction**. Reducing precursor gases (NOx and VOCs) does not necessarily reduce ozone levels, and if conditions are not carefully managed, ozone can linger in the atmosphere, leading to prolonged exposure.
- **Expanding air quality monitoring and implementing alerts like Delhi** can help mitigate ozone pollution by informing the public and industries when to take preventive actions.

### Initiatives to Control Air Pollution

- **Graded Response Action Plan**
- **The Commission for Air Quality Management in National Capital Region (NCR) and Adjoining Areas.**
- **Bharat Stage (BS) VI norms.**
- **National Clean Air Programme.**
- **National Air Quality Index (AQI).**
- **Air (Prevention and Control of Pollution) Act, 1981.**

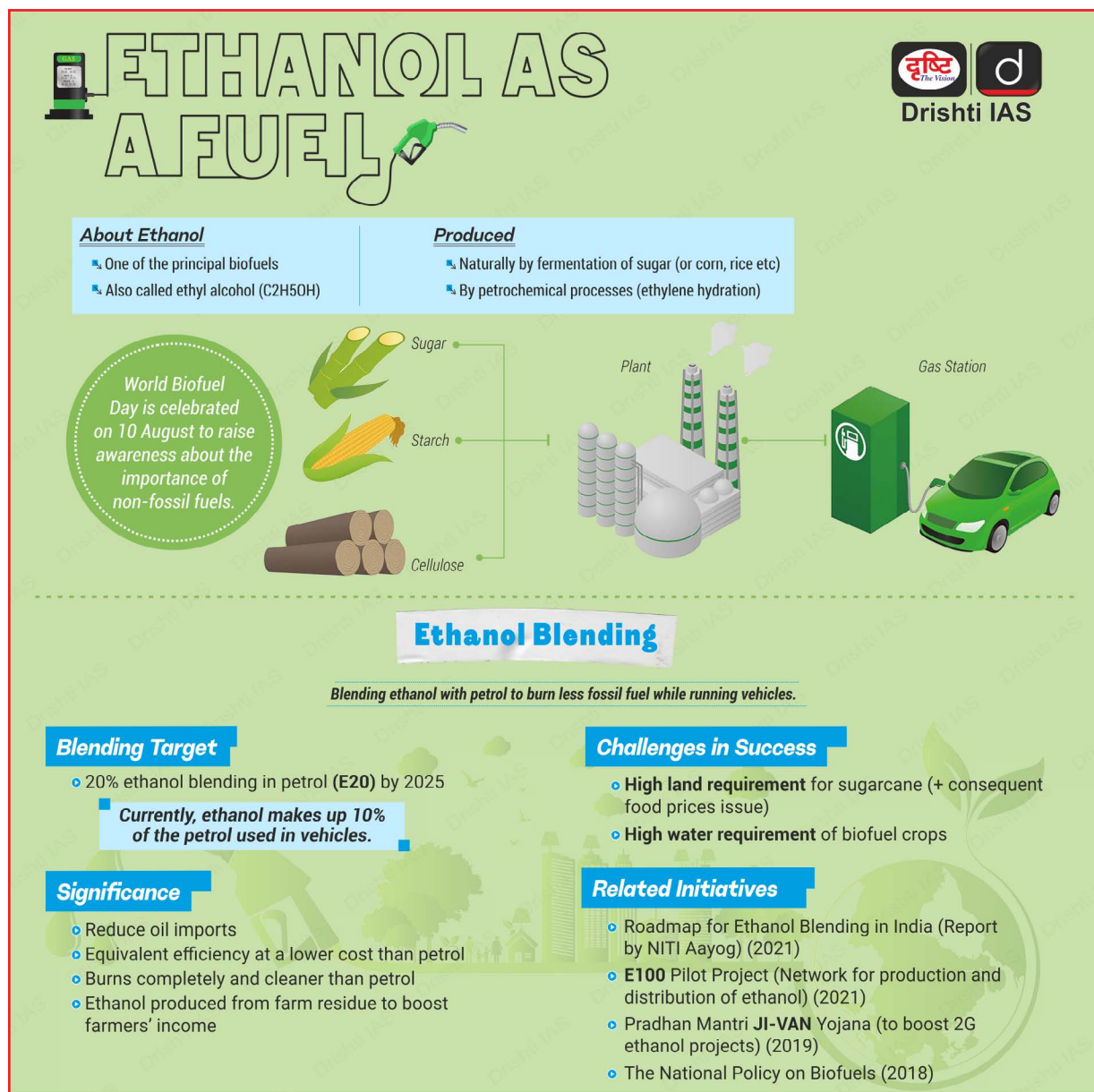
## World Biofuels Day 2024

### Why in News?

Recently, **World Biofuel Day** was observed on 10<sup>th</sup> August 2024. It aims to raise awareness about **non-fossil fuels as sustainable energy alternatives** and to highlight government initiatives that support the biofuel industry.

- The day also commemorates the **successful operation of an engine on peanut oil by German engineer Sir Rudolf Diesel on 9<sup>th</sup> August 1893**.

Note:



### What are Biofuels?

#### ➤ About:

- Biofuels are the fuel derived from the **biomass of plants or animal wastes**.
- It is commonly produced from **corn, sugarcane and animal waste like cow dung**.
- These come under renewable sources of energy.

#### ➤ Most Common Biofuels:

- Ethanol:** It is produced by **fermentation of crop residues** such as corn and sugarcane. After fermentation, the **ethanol is mixed with petroleum**, diluting it and reducing emissions.
  - The most common blend is **Ethanol-10**, which contains **10% ethanol**.
  - Ethanol used in **fuel** is **99.9% pure alcohol**, while **96% extra neutral alcohol** is used in **potable liquor** and **94% rectified spirit** is found in **paints, cosmetics, pharmaceuticals**, and other industrial products.

Note:

- **Biodiesel:** It is a renewable, biodegradable fuel made from **used cooking oil, recycled restaurant grease, yellow grease, or animal fats**.
  - Its production involves **burning the oil or fat with alcohol** in the presence of a **catalyst**.
- **Significance:**
  - **Environmental Benefits:** Biofuels are crucial for **environmental sustainability** as they can help alleviate some of the negative impacts of fossil fuel use, such as **greenhouse gas emissions** and **resource depletion** and they also offer **improved waste management solutions**.
  - **Energy Security:** India, the **world's third-largest crude oil consumer**, **imports over 85% of its oil**. With rising energy demand and heavy reliance on imports, biofuels can help **improve energy security**.
  - **Economic Benefits:** Biofuels can **cut India's oil imports and import bill**, while also **boosting farm incomes** and **addressing surplus production of crops** like **corn and sugarcane**.
  - **Abundant Availability:** Biofuels can be produced from a variety of sources, including crops, waste, and algae.



Note:



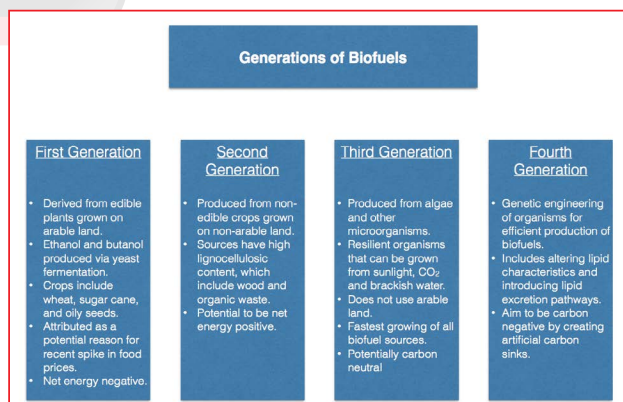
## What are the Government Initiatives and Policies on Biofuels?

- **National Policy on Biofuel, 2018:** It aims to **reduce import dependence by promoting fuel blending with bioethanol, biodiesel, and bio-CNG.**
  - Key elements include the **Ethanol Blending Programme (EBP)**, production of **second-generation ethanol** (derived from forest and agricultural residues), increasing **local fuel additive production** under the **"Make in India"** program, and **R&D in feedstock.**
  - In May 2022, the policy was amended to **advance the 20% ethanol blending target** from 2030 to **2025-26.**
- **Reduced GST on Ethanol:**
  - To encourage ethanol blending, the government **lowered the Goods and Services Tax (GST)** rate on ethanol used for blending under the **Ethanol Blended Petrol (EBP) Programme** from **18% to 5%.**
- **Pradhan Mantri JI-VAN Yojana, 2019:**
  - It aims to boost **Second Generation (2G) ethanol production** from **cellulosic and lignocellulosic** sources, including petrochemical routes, by offering financial support.
  - **Lignocellulosic biomass (or LC biomass)** refers to plant biomass that is composed of **cellulose, hemicellulose, and lignin.** For examples cereal straw, bagasse, forest residues, and **purpose-grown energy crops such as vegetative grasses.**
  - The government has approved an **extension of the scheme's implementation timeline by 5 years,** now running until **2028-29.**
- **GOBAR (Galvanizing Organic Bio-Agro Resources) DHAN Scheme, 2018:**
  - It focuses on **managing and converting cattle dung and solid waste** in farms to useful compost, biogas and bio-CNG, thus **keeping villages clean and increasing the income of rural households.**
  - It was launched under the **Swachh Bharat Mission (Gramin).**
- **Repurpose Used Cooking Oil (RUCO):**
  - It was launched by the **Food Safety and Standards Authority of India (FSSAI)** and aims for an ecosystem that will **enable the collection and conversion of used cooking oil to biodiesel.**

- **Global Biofuels Alliance (GBA):** It is a **multi-stakeholder alliance** to facilitate international cooperation and promote the use of sustainable biofuels.
  - It was formally **launched in 2023 by India** along with the leaders of the USA, Brazil, Italy, Argentina, Singapore, Bangladesh, Mauritius and the UAE on the sidelines of the **G20 Summit** in New Delhi.
  - Additionally, it aims to **facilitate global biofuel trade** and provide technical support for national biofuel programs.

### Note:

- The **first 2G ethanol project** was inaugurated in Panipat, Haryana in 2022.
- **Ethanol blending** increased from 38 crore liters in 2013-14 to over 500 crore liters in 2022-23.
  - **Blending percentage** rose from 1.53% to **12.06%**, reaching **15.83% in July 2024.**
- Oil Marketing Companies (OMCs) aim for a **20% ethanol blending target** by the end of Ethanol Supply Year (ESY) 2025-26, requiring approximately 1,100 crore litres of ethanol.
- A total of 1,750 crore litres of **ethanol distillation capacity** is needed to meet blending requirements.



## What are the Challenges Related to Biofuels?

- **Environmental Issues:** Biofuel production can **strain land and water resources, cause pollution,** and alter cropping patterns.
  - Producing **one litre of ethanol** from sugar **requires about 2,860 litres of water.**
- **Food vs. Fuel Challenge:** There are concerns about **balancing food security with energy security,** depending on the choice of feedstock and production methods for biofuels.

Note:



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- The availability and **cost of these feedstocks can fluctuate** based on factors like season, weather, market conditions, and policy changes.
- **Conversion Efficiency and Yield:** Ethanol production involves **pretreatment, hydrolysis, fermentation, and distillation**, with varying **efficiencies and yields** depending on feedstock type, process technology, and conditions.
  - For example, **lignocellulosic biomass**, which is more **abundant and diverse than sugarcane or corn**, requires more intensive and complex pretreatment and hydrolysis to break down the cellulose and hemicellulose into fermentable sugars.
  - The **conversion efficiency and yield of ethanol** also affect the **economic viability and environmental impact** of the production process.
- **Infrastructure and Distribution:** Ethanol production needs **robust infrastructure for transporting, storing, and delivering feedstock and fuel**, which can be **costly and face logistical and regulatory challenges**.
  - For example, **ethanol is corrosive and hygroscopic**, which means that it can damage or **contaminate the existing pipelines, tanks, and pumps** that are designed for gasoline or diesel.
- **Vehicle Compatibility and Performance:** Vehicles need **modifications** to run on ethanol-blended fuels or pure ethanol, affecting **engines, fuel systems, and maintenance practices**.
  - For example, Ethanol has a **lower energy density than gasoline**, which means that **more volume of ethanol is needed** to provide the same amount of energy, resulting in **higher transportation and storage costs**.

## SIT Report on Tigers Deaths in MP

### Why in News?

Recently, a **Special Investigation Team (SIT)** report on the deaths of 43 tigers in Madhya Pradesh in **Bandhavgarh Tiger Reserve and Shahdol Forest Circle** between 2021 and 2023 has raised significant concerns regarding the effectiveness of wildlife protection measures in India.

- The report highlights serious lapses in investigations, insufficient evidence collection, and a lack of accountability among officials responsible for tiger conservation.

### Tiger Mortalities in India

- The **National Tiger Conservation Authority (NTCA)** reported a **rising trend in tiger deaths** over recent years, with totals of **96 in 2019, 106 in 2020, 127 in 2021, 121 in 2022**, and peaking at **178 in 2023**, marking the highest number of fatalities since 2012.
- A total of 628 **tigers** died in India between 2019 and 2024.
- The number of tigers in India stood at **3,682**, around **75%** of the global wild tiger population, in 2022.
- India launched **Project Tiger** in **1973**, to promote tiger conservation.
- Currently, India has **55 tiger reserves** covering more than **78,735 square km**, nearly **2.4%** of the country's geographical area, of tiger habitat.

### Bandhavgarh Tiger Reserve (BTR)

- It is located in the Umaria district of Madhya Pradesh, within the Vindhya hills.
- The park consists of 3 distinct areas: '**Bandhavgarh National Park**', '**Panpatha Wildlife Sanctuary**' (the "**Core Area**") and the adjoining notified "**Buffer Area**" spread across the districts of **Umaria, Shahdol and Katni**.
- It was declared a **national park** in **1968** and a **tiger reserve** in **1993** under the **Project Tiger** Network, alongside the Panpatha Sanctuary.
- Wildlife species found here include **Tiger, Leopard, Dhole (Indian Wild Dog), Bengal or Indian Fox, Sloth Bear, Smooth-coated Otter, Indian Rock Python, Rusty Spotted Cat, Fishing Cat, Gaur, and Wild Elephant**.
- BTR is renowned for its high density of Royal Bengal Tigers, the highest in India and the world.

### HOW THE TIGERS DIED, ACCORDING TO SIT REPORT

Reason for death	Bandhavgarh Tiger Reserve	Shahdol forest circle
Electrocution	3	3
Infighting	17	0
Disease/illness	4	0
Senility	2	0
Body parts seized	2	0
Poisoning	0	1
Road accident	0	1
Unconfirmed	6	4
<b>Total</b>	<b>34</b>	<b>9</b>

Figures for 2021-2023 period



Note:

### What are the Key Findings of the SIT Report?

- **Inadequate Investigations:** Insufficient probing into at least 10 cases of tiger deaths, with only two arrests for unnatural deaths. Authorities showed disinterest, leading to many missing body parts.
- **Absence of Vital Evidence:** Lacking mobile forensics and electric trip data in electrocution cases, and neglecting land ownership investigations relevant to poaching.
- **Misclassification of Death Causes:** Tendency to attribute deaths to infighting without proper investigation, potentially hiding poaching incidents.
- **Post-Mortem Issues:** Inadequate post-mortem procedures, with poor sample collection and documentation.
- **Negligence in Treatment:** Documented medical negligence, including failure to identify foreign objects during treatment, causing a tigress's death.

# TIGER

Royal Bengal Tiger (*Panthera Tigris*) is the National animal of India.

## Subspecies of Tiger

- \* The continental (*Panthera tigris tigris*)
- \* The Sunda (*Panthera tigris sondaica*)

## Habitat

Tropical rainforests, evergreen forests, temperate forests, mangrove swamps, grasslands, and savannas

## Countries Where Tiger Population Is Found

- Found only in 13 **Tiger Range countries**- India, Nepal, Bhutan, Bangladesh, Myanmar, Russia, China, Thailand, Malaysia, Indonesia, Cambodia, Laos, and Vietnam
- ◆ As per the latest report by IUCN, tiger has gone extinct in Cambodia, Laos, and Vietnam

## Protection Status

- IUCN Red List: Endangered
- CITES: Appendix I
- WPA 1972: Schedule I

## Threats

- Habitat loss
- Poaching and illegal trade
- Human-Wildlife conflict

## Conservation Efforts

- **International Big Cats Alliance (IBCA):** For conservation of seven big cats namely Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar and Puma (launched by India)
- **Tx2 campaign:** Launched by WWF; stands for 'Tiger times 2' signaling the goal to double the tiger population by 2022
- **National Tiger Conservation authority (NTCA):** Constituted under the WPA, 1972
- **Project Tiger:** Launched in 1973
- **Tiger Census:** Every 4 years

## Tigers In India

- India has the **largest** population
  - ◆ As of 2022, India has 3167 tigers
  - ◆ Largest population has been found in Central Indian Highlands & Eastern Ghats Landscape
- **Tiger Reserves:** India now has 55 tiger reserves
  - ◆ **Dholpur-Karauli in Rajasthan** is the latest
  - ◆ **Nagarjun Sagar (Andhra Pradesh)** is the **largest** while Orang (Assam) is the **smallest** (Core area)



Note:

### Central Empowered Committee (CEC) of the SC-Recommendations for Sariska Tiger Reserve (STR) (2024)

- **High Traffic Impact:** Significant **vehicular traffic from temple pilgrims** is degrading habitats and increasing pollution.
  - **Recommendation:** Ban private vehicle entry by March 2025, and introduce electric shuttle buses. Explore tramways, elevated roads, or ropeways based on feasibility studies.
- **Special Tiger Protection Force:** Establish a force to address man-animal conflicts and poaching risks due to the growing tiger population and nearby villages.

## Woody Encroachment in Grasslands

### Why in News?

Increasing tree cover is often seen as a positive outcome of **biodiversity conservation**, and a much-needed effort to combat **climate change**.

- However, a study published by the **Universities of Witwatersrand, Cape Town, and Oxford** reported that more trees in open ecosystems like **savannahs and grasslands** have substantially reduced the number of native grassland birds.

### What has the Study Revealed?

- **Grasslands and Savannas:**
  - **Grasslands and savannahs** are diverse habitats found in tropical and temperate regions, covering nearly 40% of the Earth's landmass.
  - These ecosystems are home to a variety of species, including large herbivores like elephants and rhinoceroses, and grassland birds such as bustards and floricans. Despite their importance, these habitats are rapidly declining due to various threats.
- **Woody Encroachment:**
  - Woody encroachment refers to the **gradual transformation of open habitats into areas with higher tree and shrub density**.
  - This process results in the homogenization of ecosystems, shifting from a diverse grassy understory to a uniform woody cover.

- Factors such as **climate change**, increased atmospheric CO<sub>2</sub>, and disruption of natural disturbance regimes like grazing and fire contribute to this phenomenon.
- **Effects on Ecosystems:**
  - The increase in tree cover can have **detrimental effects on grassland ecosystems**.
  - Higher CO<sub>2</sub> levels promote the growth of deep-rooted woody plants, which can overshadow and suppress grasses.
  - This shift in vegetation **alters soil conditions and faunal associations**, leading to **declines in grassland species and disrupting ecological balance**.
- **Global and Local Impact:**
  - **In South America**, fire suppression is a major driver, while in **Australia and Africa**, increased CO<sub>2</sub> and variations in rainfall play significant roles.
  - **In India**, grasslands face threats from both **natural encroachment and large-scale tree plantation programs**.
  - Studies have shown significant woody encroachment in national parks in **India and Nepal**, with grassland habitats shrinking by 34% and tree cover increasing by 8.7% over the past three decades.
- **Human Influence:**
  - **Human activities**, including colonial-era conservation policies and modern tree plantation programs, have exacerbated woody encroachment.
  - Historical policies viewed open ecosystems as "wastelands," leading to their conversion for timber and agricultural use. Today, the focus on **carbon sequestration** further pressures these habitats.
- **Mitigation and Conservation:**
  - To address the issue of **woody encroachment**, it is crucial to gather more evidence on its impact, conduct **long-term ecological monitoring**, and challenge outdated colonial terminologies that misclassify open ecosystems.
  - Effective conservation strategies must consider the ecological value of grasslands and promote practices that maintain their biodiversity and resilience.

Note:



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# GRASSLAND OF THE WORLD



## FACTS

- There are **two main kinds of grasslands**: tropical and temperate. Examples of **temperate grasslands** include Eurasian **steppes**, North American **prairies**, and Argentine **pampas**. Tropical grasslands include the hot **savannas** of sub-Saharan Africa and northern Australia.
- Tropical grasslands have dry and wet seasons that remain warm all the time (**temperature: 25°C to 30°C**). Temperate grasslands have cold winters and warm summers with some rain (**below 0°C in winters to 32°C in summers**).
- **Wildfires are vital for grasslands' existence**; they prevent woody plants from spreading and enable the grass to re-grow thicker and healthier.



## What is the Impact of Declining Grasslands?

### ➤ Ecological Impacts:

- **Loss of Biodiversity:** Grasslands support diverse species of plants, insects, birds, and mammals. Their decline leads to habitat loss, threatening species that are specially adapted to these environments.
- **Disruption of Ecosystem Services:** Grasslands provide vital ecosystem services such as **soil stabilisation, water filtration, and carbon sequestration**.
  - Their degradation can reduce these services, impacting soil health, water quality, and climate regulation.

- Their decline can lead to increased atmospheric CO<sub>2</sub> levels, exacerbating **climate change**.

- **Altered Fire Regimes:** Grasslands help in maintaining natural disturbances like fire. When grasslands decline, the frequency and intensity of fires can change, which can further alter the ecosystem dynamics.

### ➤ Environmental Impacts:

- **Increased Soil Erosion:** Grasslands help bind soil with their root systems. Without them, soils are more prone to erosion, leading to loss of topsoil and degradation of land.

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- **Altered Water Cycles:** Grasslands play a role in maintaining hydrological cycles by regulating water infiltration and runoff. Their loss can lead to changes in local and regional water cycles, potentially causing flooding or reduced water availability.
- **Socio-Economic Impacts:**
  - **Impact on Livelihoods:** Many communities rely on grasslands for grazing livestock and other agricultural activities. The decline in grasslands can negatively affect these livelihoods, leading to economic hardship for pastoralists and farmers.
  - **Reduced Agricultural Productivity:** The loss of grasslands can lead to a decrease in soil fertility and productivity, affecting crop yields and food security.

## Increase in Coastal Erosion

Why in News?

A recent study revealed that **coastal erosion is threatening the livelihood of fishers and other inhabitants in coastal Tamil Nadu.**

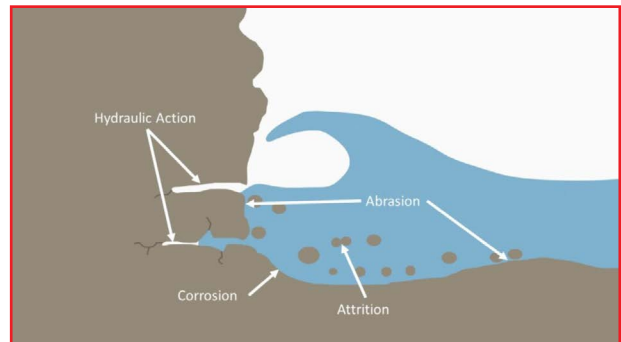
- Nearly **43%** of its coast faces **erosion** with a loss of more than **4,450 acres of land**.
- Area under erosion is increasing by **3 metres per year** on the east coast and **2.5 metres per year** on the west coast.
- **Development projects** meant to boost **economic growth** and prevent sea erosion are making things worse by **changing the shoreline**.

### What are the Key Findings of the Study Regarding Tamil Nadu Coast?

- In **Tamil Nadu**, for most of the year (about eight months), the **wind and sea currents** move from south to north, **carrying sand** with them. During the northeast monsoon (about four months), they **flow** in the **opposite direction**.
  - When structures like **ports, breakwaters** or **groynes** are built extending into the sea, they **block the natural movement of sand**.
  - This causes sand to **pile up** on one side and leads to **erosion** on the other side, where sand is lost.
  - This **imbalance** speeds up coastal erosion, causing **waves** to move further **inland** and **increasing the risk** to coastal areas.

## What is Coastal Erosion?

- **About:** Coastal erosion occurs when the **sea wears away the land**, often caused by strong waves **breaking down** the coast.
  - It is the process by which **local sea level rise**, **strong wave action**, and **coastal flooding** wear down or carry away rocks, soils, and/or sands along the coast.
- **Process:** There are **four main processes** of coastal erosion. These are **corrosion, abrasion, hydraulic action** and **attrition**.
  - **Corrosion:** It happens when strong waves throw beach material like **pebbles** at the **base of a cliff**, gradually breaking it down and creating a **wave-cut notch** (small, curved indent at the base of a cliff).
  - **Abrasion:** It happens when waves, carrying **sand** and **larger fragments**, wear away the base of a cliff or headland. It's like a **sandpaper effect** and is especially common during **powerful storms**.
  - **Hydraulic Action:** It occurs when waves hit a cliff, **compressing air** in cracks and joints. When the wave pulls back, the **trapped air rushes out** explosively, causing **chunks** of the cliff to break off. Weathering weakens the cliff further, making this process more effective.
  - **Attrition:** It occurs when waves cause **rocks** and **pebbles** to bump into **each other** and break up.



- **Causes:**
  - **Waves:** Powerful waves can **erode coastlines** through abrasion, corrosion, and hydraulic action. E.g. the **cliffs of Dover** in England are being eroded by the constant action of the **English Channel's waves**.
  - **Tides:** High and low tides can affect the amount of erosion, particularly in areas with significant **tidal ranges**. E.g., the **Bay of Fundy** in Canada experiences extreme tides that can erode coastlines significantly.

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- **Wind and Sea Currents:** It can cause gradual and **long-term erosion**. E.g., On the Tamil Nadu coast, **for most of the year (eight months)**, wind and sea currents move from south to north, **carrying sand along the coast**. During the northeast monsoon (four months), this direction reverses.
- **Hard Structures:** Ports, breakwaters, and groynes **interfere** with the **natural movement** of sand, causing erosion on the down-current side and **sand accumulation** on the up-current side.
  - **Groynes** are low-lying **wood** or **concrete structures** designed to trap sediment and dissipate wave energy.
- **Development Projects:** Infrastructure projects aimed at boosting economic growth are exacerbating erosion by **altering** the **shoreline**. E.g., **Land reclamation** in places like Mumbai causes erosion in nearby coastal regions.
- **Port Expansion:** When **ports** and **harbours** are expanded, structures like **breakwaters** and **jetties** block the natural movement of sand and sediment along the coast. This can lead to **sediment accumulation** on one side of the structure and increased erosion on the other side. E.g., **Ennore Port** and the Adani **Kattupalli Port** in Tamil Nadu.

#### Coastline of India

- India has a coastline of 7516.6 Km [6100 km of mainland+1197 km of islands] touching 13 States and Union Territories (UTs).
- **Gujarat (1214.7 km) has the longest Coastline** among states followed by Andhra Pradesh (973.7 km) and Tamil Nadu (906.9 km).
- Andaman & Nicobar Islands (1962 km) have the longest Coastline among UTs.
- **Coromandel coast (Tamil Nadu) is a coast of emergence** while Konkan coast (Maharashtra and Goa Coast) is a coast of submergence.

#### What are the Impacts of Coastal Erosion?

- **Loss of Land:** Erosion can lead to the **loss** of valuable **coastal land**, affecting property and infrastructure. E.g. the loss of land along the **Marina Beach area** in Chennai severely affected property and **public spaces**.
- **Impact on Coastal Ecosystems:** Erosion can destroy habitats such as **mangroves**, **salt marshes** and **sand dunes**, which are crucial for various species. E.g., In the **Sundarbans region** of West Bengal, erosion has led to the loss of mangrove forests.

- **Flooding Risk:** Erosion can **reduce the natural barriers** that protect coastal areas from **flooding**. E.g., In coastal regions of Kerala, erosion has increased the risk of flooding, affecting low-lying areas and exacerbating the impacts of **heavy rains** and **storms**.
- **Displacement of Communities:** Erosion can force communities to **relocate**, leading to social and economic disruption. E.g., coastal erosion in the **Andaman and Nicobar Islands** has led to the displacement of local communities, particularly on **smaller islands** where land loss is more pronounced.
- **Salt Water Intrusion:** Coastal erosion can lead to the **salinisation** of agricultural land, **reducing crop yields**.
  - E.g., In Andhra Pradesh, **saltwater intrusion** negatively affected crop yields and reduced the productivity of farmland.
- **Impact on Marine and Coastal Biodiversity:** It can alter ecosystems and **food chains**. E.g., It hampered the health of **marine ecosystems** in the **Lakshadweep Islands**.

#### How to Prevent Coastal Erosion?

- **Vegetation:** Strategic planting of **seagrass** and other **coastal plants** helps prevent erosion. The roots of these plants help **anchor** the **sand** and ensure that it is **not washed off** in erosion.
- **Beach Nourishment:** Nature-based or “**green infrastructure**” protection measures enhance the natural ability of shorelines to **absorb** and **dissipate** storm energy without interfering with natural coastal processes.
  - E.g., planting mangroves to serve as a **buffer** against erosion.
- **Coastal Restoration:** It is aimed at restoring habitats such as **wetlands** to benefit marine and coastal species by providing important **nursery grounds**. It has environmental benefits like **carbon sequestration** and restoration of open spaces.
- **Regulatory Measures:** **Zoning laws**, building codes, and maintaining minimum distance from the shoreline for new buildings or infrastructure facilities to regulate coastal development.

#### What Initiatives has the Government Taken to Tackle Coastal Erosion?

- **Shoreline Mapping System:** The **National Centre for Coastal Research (NCCR)** has observed that **33.6%** of

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the Indian coastline was vulnerable to **erosion**, 26.9% was under **accretion (growing)** and 39.6% was in a **stable** state.

- **Hazard Line:** The Ministry of Environment, Forest & Climate Change (MoEFCC) has defined the **hazard line** to indicate **shoreline changes** and **sea level rise**.
  - It is used for disaster management, adaptive planning, and **mitigation measures** in Coastal States/UTs.
- **Coastal Regulation Zone (CRZ) Notification 2019:** It permits erosion control measures and establishes **No Development Zones (NDZ)** to protect the coastline from encroachment and erosion.
- **Coastal Zone Management Plans (CZMP):** Following a **National Green Tribunal (NGT)** order, States/UTs have been asked to finalise CZMPs, including mapping of **erosion-prone areas** and preparing Shoreline Management Plans.
- **National Strategy for Coastal Protection:** MoEFCC has developed a national strategy and guidelines for **coastal protection** for all Coastal States and UTs.
- **Flood Management Scheme:** Anti-sea erosion schemes are planned and executed by State Governments with Union Government assistance in technical, advisory, catalytic, and promotional capacities.
- **Coastal Management Information System (CMIS):** It collects nearshore coastal data for planning, designing, and maintaining coastal protection structures. An experimental **CMIS** was **set up at three sites each in Kerala, Tamil Nadu, and Puducherry**.

## Nicobar Port Plan From No-Go Zone to Permitted Area

### Why in News?

The **Great Nicobar 'Holistic Development' Project**, spearheaded by the **NITI Aayog (National Institution for Transforming India)** has stirred considerable debate. Initially flagged for potentially falling within a **no-go zone**, the project has now been deemed permissible by a **high-powered committee (HPC)** appointed by the **National Green Tribunal (NGT)**.

### What is the Great Nicobar 'Holistic Development' Project?

- **Project Overview:** Launched in 2021, the **Great Nicobar Island (GNI)** project is a mega infrastructure

initiative aimed at transforming the southern end of the **Andaman and Nicobar islands**.

#### ➤ Components:

- **Trans-shipment Port:** An **International Container Trans-shipment Terminal (ICTT)** expected to bolster regional and global maritime economy.
- **Greenfield International Airport:** Facilitating global connectivity.
- **Township Development:** New urban development that may include a **Special Economic Zone**.
- **Power Plant:** A 450 MVA gas and solar-based power plant.
- **Strategic Location:** Positioned near the **Malacca Strait**, a key maritime route connecting the Indian Ocean to the Pacific Ocean.
  - The project aims to **facilitate the deployment of additional military forces**, larger warships, aircraft, missile batteries, and troops.
  - Close to the Malacca Strait, the upgrade is crucial for India's strategic interests, particularly against the backdrop of **increasing Chinese presence and influence in the region**.

#### ➤ Project Impact on Environment:

- **Deforestation:** The project will involve the **felling of approximately 8.5 lakh trees** in the rich rainforests of Great Nicobar.
- **Wildlife Displacement:** The de-notification of the **Galathea Bay Wildlife Sanctuary** and the **declaration of a "zero extent" eco-sensitive zone for Galathea National Park** threaten critical habitats.
- **Ecological Destruction:** Home to unique and threatened tropical evergreen forest ecosystems, the construction may cause irreversible damage to the island's biodiversity, including endemic species like the **Nicobar Megapode** and **leatherback turtles**.
- **Biodiversity Protection:** The project contradicts **India's commitments under the Convention for Biological Diversity** to **halt and reverse biodiversity loss by 2030** and protect areas of high ecological importance.
- **Concerns of the Local Tribes:** The **Shompen** and **Nicobarese tribes**, primary inhabitants of the island, face significant displacement and cultural disruption.
  - Despite claims of protecting tribal interests, local communities have not received adequate responses to their concerns and requests for relocation.

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- **Local communities withdrew their consent for the project in November 2022**, which is necessary for its implementation as the land is part of the tribal reserve.

➤ **Technical and Legal Issues:**

- **Seismic Risks:** Great Nicobar rests on a **major fault line and is prone to earthquakes and tsunamis**. There has been no comprehensive risk assessment conducted for these natural hazards.
- **Inadequate Reports:** The **Environmental Impact Assessment (EIA) report** lacks compliance with several Terms of Reference and fails to address critical environmental and social impacts.
- **Legal Challenges:** Many approvals and exemptions granted under various laws protecting forests, tribal rights, and coastal ecosystems could face legal challenges in courts and tribunals.

**Why was the Project Previously Flagged in a No-Go Zone?**

- **Initial Information:** The **Andaman & Nicobar Coastal Management Authority** stated that the port, airport, and township spanned 7 sq km in the **Island Coastal Regulation Zone-IA (ICRZ-IA)**, where port activities are prohibited.
- **Environmental Concerns:** The **ICRZ-IA areas ecologically sensitive zones** including mangroves, corals, coral reefs, sand dunes, mudflats, marine parks, wildlife habitats, salt marshes, turtle and bird nesting grounds
- **Permitted Activities in ICRZ-IA:** **Eco-tourism activities** like mangrove walks and natural trails, Roads and roads-on-stilts for **defence and strategic projects**, with necessary permits.

**What is the Island Coastal Regulation Zone (ICRZ)?**

- The Central Government has declared certain **coastal stretches of the Andaman & Nicobar Islands and Lakshadweep as Island Protection Zone (IPZ)** under the **Environment Protection Act, 1986**.
- In response to representations from various stakeholders, the Ministry of Environment, Forest and Climate Change (MoEF&CC) has revised the **IPZ Notification, 2011**, establishing the **Island Coastal Regulation Zone (ICRZ), 2011** to regulate activities within **500m of the High Tide Line (HTL) and 100m along banks of creeks, estuaries, backwaters and rivers** subject to tidal fluctuations.

- **HTL means the line on the land up to which the highest water line reaches during the spring tide.** Low Tide Line (LTL) similarly, it means the line on the land up to which the lowest water line reaches during the spring tide.

- The ICRZ is divided into **four categories**, and the notification imposes restrictions on setting up and expansion of industries or processing plants in the ICRZ.

- **ICRZ-I:** Ecologically sensitive areas and areas **between the LTL and HTL**.

- **ICRZ-IA** Ecologically sensitive and important areas such as **national parks/marine parks, sanctuaries**, reserve forests, wild habitats, **mangroves, corals/coral reefs**, areas close to breeding and spawning grounds of fish and other marine life, areas of outstanding natural beauty, historical and heritage areas, areas rich in genetic biodiversity, areas likely to be **inundated due to rise in sea level consequent upon global warming**, and such areas as may be declared by the authorities.

- **ICRZ-IB** (intertidal zones) areas between the Low Tide Line and High Tide Line.

- Between LTL and HTL in areas which are **not ecologically sensitive**, the following may be permitted: exploration and extraction of natural gas; construction of basic amenities for traditional inhabitants living within the biosphere reserves; salt harvesting by solar evaporation of seawater; desalination plants; storage of non-hazardous cargo such as edible oil, fertilizers within notified ports.

- **ICRZ-II:** Areas that are already developed up to or close to the shoreline.

- **ICRZ-III:** Relatively undisturbed areas not falling into CRZ-I or II, including both developed and undeveloped areas.

- **ICRZ-IV:** Coastal stretches in the Andaman and Nicobar Islands, **Lakshadweep**, and small islands, except those designated as CRZ-I, II, or III.

**Note:** The **Coastal Regulation Zone (CRZ)** covers **coastal areas** influenced by tidal action, extending up to 500 meters from the HTL and includes land between the LTL and HTL.

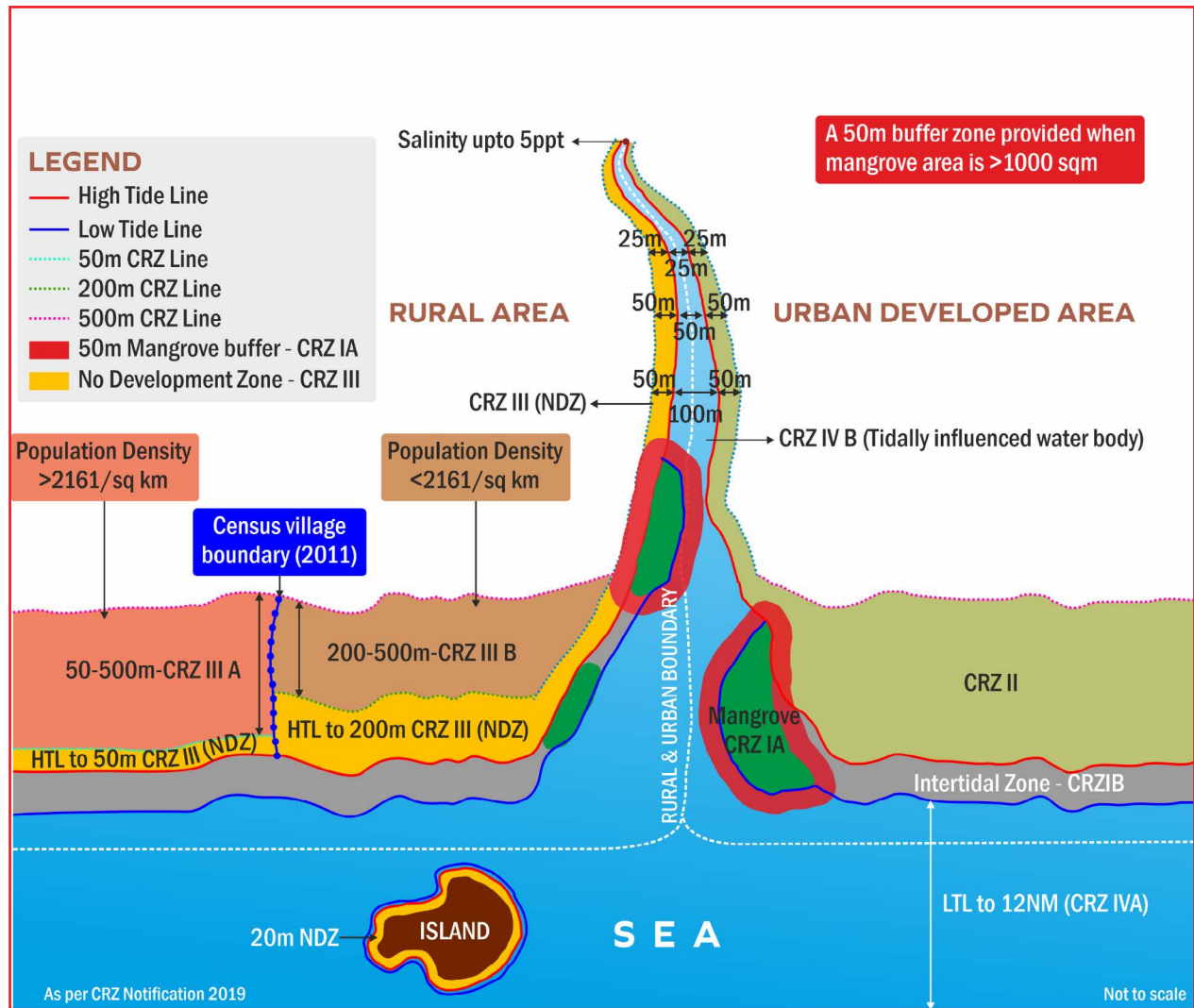
- The **ICRZ pertains to the Andaman and Nicobar Islands and Lakshadweep**, addressing their specific ecological and developmental challenges.

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### What led to the Reclassification to a Permitted Area?

- The **High-Powered Committee (HPC)** appointed by the National Green Tribunal (NGT) concluded that **no part of the project falls in the ICRZ-IA area based on a "ground-truthing exercise"** by the **National Centre for Sustainable Coastal Management (NCSCM)**.
  - The NCSCM concluded that no part of the project fell under the ICRZ-IA area, confirming it was within the **permissible Island Coastal Regulation Zone-IB (ICRZ-IB) area**.
- **HPC's Conclusions and Recommendations:**
  - **Coral Colonies:** The HPC agreed with the Zoological Survey of India's recommendation to **translocate 16,150 out of 20,668 coral colonies**. Continuous observation of sedimentation for the remaining 4,518 colonies was recommended.

- **Baseline Data Collection:** The HPC determined that **one-season baseline data collection** (excluding the monsoon season) was adequate for assessing the environmental impact of the project, as per the **EIA notification, 2006**.
- **Environmental Compliance:** The HPC's findings were submitted to the NGT bench by the **Andaman and Nicobar Islands Integrated Development Corporation (ANIIDCO)**.
  - ANIIDCO assured that no activity is proposed within the ICRZ-IA area, in line with specific and general conditions of the environmental clearance.
  - ANIIDCO did not disclose the minutes of HPC's meetings, citing the project's defence and strategic nature.

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**Note:** ANIIDCO was incorporated in 1988 under the **Companies Act 1956** for rapid economic growth of the Islands. The main objective of the Corporation is to **develop and commercially exploit the natural resources** for the balanced and environment friendly development of the territory.

### What are the Stakeholders' Responses to the Project?

- **NGT's Role:** A special bench of the NGT formed the HPC to revisit the project's environmental clearance, addressing concerns raised by environmentalists.
- **Activist's Plea:** Environmental activists filed a plea seeking the exclusion of the project's activities from ICRZ-IA and disclosure of HPC's recommendations and meeting minutes.
- **Government Response:** The Andaman & Nicobar administration has yet to respond to queries regarding changes in the project's siting and differing information about its extent in ICRZ areas.
- **Political and Public Outcry:** Political leaders questioned the change in land categorization and demanded transparency regarding the new information that led to this change.
  - There are demands for a thorough impartial review of the proposed projects, including by concerned Parliamentary committees.

#### National Green Tribunal

- The NGT has been established in 2010 under the **National Green Tribunal Act 2010** to effectively and expeditiously dispose of cases relating to environmental protection, conservation and compensation for damages to persons and property and for matters connected therewith or incidental thereto.
- The Tribunal shall not be bound by the procedure laid down under the **Code of Civil Procedure, 1908**, but shall be guided by **principles of natural justice**.
- The Tribunal is mandated to make an endeavor for disposal of applications or **appeals finally within 6 months of filing of the same**.
- New Delhi is the Principal Place of Sitting of the Tribunal and Bhopal, Pune, Kolkata and Chennai shall be the other four places of sitting of the Tribunal.

## Oil Drilling in Assam's Hoollongapar Gibbon Sanctuary

### Why in News?

The Union Environment Ministry's recent approval for exploratory oil and gas drilling in Assam's **eco-sensitive zones** has raised concerns about the **potential threat to the endangered hoolock gibbons**.

- Cairn India, the oil and gas unit of Vedanta Ltd, seeks to use 4.4998 hectares of reserved forest land for exploration in the **eco-sensitive zone of the Hoollongapar Gibbon Wildlife Sanctuary**.

### How will Oil and Gas Drilling Impact the Hoolock Gibbon?

- **Endangered Species at Risk:** The hoolock gibbon, a canopy dweller, is highly sensitive to habitat fragmentation. Any disruption, **even minor, can severely impact their movement and survival**.
- **Presence of Multiple Species:** The area proposed for exploration is home to **elephants, leopards**, and hoolock gibbons, highlighting the rich biodiversity at stake.
  - There are concerns raised that oil drilling could exacerbate **human-wildlife conflicts** and **disrupt these species' habitats**.
- **Past Incidents:** The Baghjan blow-out (2020) in Assam which caused extensive ecological damage, serves as a cautionary example of the risks associated with oil and gas exploration in sensitive areas.

#### Current Status of the Oil and Gas Drilling Project in Assam

- **Approval:** Granted preliminary approval for exploratory oil and gas drilling in parts of Assam, specifically within the Hoollongapar Gibbon Wildlife Sanctuary and other ecologically sensitive areas.
  - Although the **Forest Advisory Committee (FAC)** has deferred its final decision.
  - A separate proposal for extended reach drilling within this park has been rejected by the FAC, aligning with **Supreme Court** directives.
    - The **Supreme Court in 2023** directed that **mining within a national park and wildlife sanctuary and within an area of one km from their boundary shall not be permissible**.

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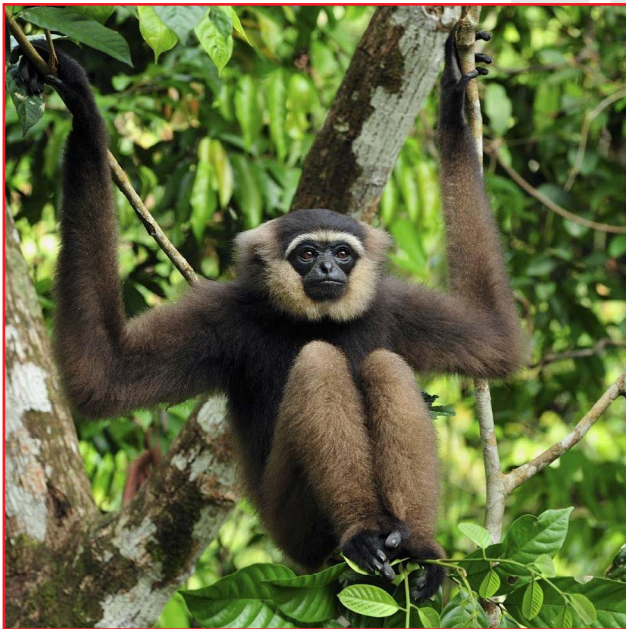


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- **Environmental and Wildlife Concerns:** The FAC has suggested preparing a wildlife management and mitigation plan to minimise disturbance to the hoolock gibbons and other wildlife.
  - The project is subject to strict adherence to safety procedures and preventive measures against **landslides** and **erosion**.

### What are the Key Facts About the Hoolock Gibbon?

- **About:** Gibbons, the **smallest and fastest apes**, live in Asia's tropical and subtropical forests. The hoolock gibbon, unique to India's northeast, is one of 20 gibbon species with an estimated population of 12,000.
  - All 20 gibbon species are at high risk of extinction due to declining populations and distribution since 1900.
  - The hoolock gibbon faces threats **primarily from deforestation** for infrastructure projects.



- **Gibbon Species in India:** Two distinct hoolock gibbon species are found in India's northeastern region: the **eastern hoolock gibbon (*Hoolock leuconedys*)** and the **western hoolock gibbon (*Hoolock hoolock*)**.
  - A study by Hyderabad-based **Centre for Cellular and Molecular Biology (CCMB)** in 2021 proved through genetic analysis that **there is only one species of**

**ape in India**, debunking earlier research that the eastern hoolock gibbon was a separate species.

- The study concluded that the two populations diverged 1.48 million years ago, while gibbons separated from a common ancestor 8.38 million years ago.
- However, the **IUCN Red List** categorises the **western hoolock gibbon as endangered** and the **eastern hoolock gibbon as vulnerable**.
- **Conservation:**
  - In India, the species is protected under **Schedule 1 of the Indian (Wildlife) Protection Act 1972**.
  - The Government of Assam upgraded the Hoollongapar Reserve Forest to a **Gibbon Wildlife Sanctuary in 1997**, the first protected area dedicated to a primate species.

### What are the Key Facts About the Hoollongapar Gibbon Wildlife Sanctuary?

- The Hoollongapar Gibbon Wildlife Sanctuary, established and renamed in 1997, is a crucial protected area in **Assam, India**.
  - **Renamed from the Gibbon Wildlife Sanctuary or Hollongapar Reserve Forest in 2004**, this sanctuary is renowned for its unique biodiversity, particularly its status as the **sole habitat for gibbons in India**.
- **Flora:** Upper Canopy is dominated by the **Hollong tree (*Dipterocarpus macrocarpus*)**, which grows up to 30 metres tall, along with species like Sam, Amari, Sopas, Bhelu, Udal, and Hingori.
  - The Middle Canopy is characterised by the **Nahar tree**. Lower Canopy features a variety of **evergreen shrubs and herbs**.
- **Fauna:** Hoolock Gibbons and Bengal Slow Loris, the only nocturnal primate in Northeastern India.
  - **Other Primates:** **Stump-tailed macaque, northern pig-tailed macaque**, eastern Assamese macaque, rhesus macaque, and capped langur.
  - **Mammals:** Indian elephants, tigers, leopards, jungle cats, wild boar, and various civets, squirrels, and other mammals.

Note:



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# HUMAN-WILDLIFE CONFLICT



When encounters between humans and wildlife lead to negative results, such as loss of property, livelihoods, and even life

## Causes of HWC

- Agricultural Expansion
- Urbanization
- Infrastructure Development
- Climate Change
- Wildlife Populations Growth and Range Expansion

## Impacts of HWC

- Grave injuries, Loss of life
- Damage to farms and crops
- ↑ violence against animals

WWF India during 2003-2004 developed the Sonitpur Model by which community members were connected with Assam Forest Dept and given training on how to drive elephants away from crop fields and human habitations safely.

In 2020, the SC upheld Madras HC's decision on the Nilgiris elephant corridor, affirming the right of passage of the animals and closure of resorts in the area.

## Data on HWC

- Tigers killed 125 humans between 2019 and 2021
- Death of 329 tigers due to poaching, natural and unnatural causes.
- Elephants killed 1,579 humans in three years
- Death of 307 elephants due to poaching, electrocution, poisoning and train accidents

## Advisory for HWC Management

(Standing Committee of the National Board of Wildlife)

- Gram Panchayats empowered to deal with problematic wild animals (WPA 1972)
- Compensation against crop damage due to HWC (PM Fasal Bima Yojna)
- Local/State depts. to adopt early warning systems and create barriers
- Paying a part of ex-gratia as interim relief within 24 hours of the incident to the victim/family

## State – Specific Initiatives

- **UP** - Man-animal conflict under **listed disasters** (in State Disaster Response Fund)
- **Uttarakhand** - **Bio-fencing** carried out by growing various species of plants in areas
- **Odisha** - Casting **seed balls** inside different forests to **enrich food stock for wild elephants**



## The State of the World's Mangroves 2024

### Why in News?

Recently, a report titled “**The State of the World’s Mangroves 2024**” was released by the **Global Mangrove Alliance (GMA)** on **World Mangrove Day (26 July)**.

- The GMA is the preeminent alliance of 100-plus members **driving the conservation and restoration** for the world’s mangroves.

Note:



# MANGROVES

\*Diverse group of salt-tolerant plant communities found in the (tropical/subtropical) coastal intertidal zone\*

## CHARACTERISTICS

- Survive under hostile environments (high salt, low oxygen)
- Their roots (**pneumatophores**) absorb oxygen from atmosphere
- Thick **succulent leaves** to store fresh water

## MANGROVE COVER

- Global:** Asia > Africa > North and Central America > S America
- India (ISFR 2021):** West Bengal > Gujarat > A&N Islands > Andhra Pradesh > Maharashtra

**Sunderbans – World's largest single patch of Mangrove forests**

## SIGNIFICANCE

- Stabilise the coastline and reduce soil erosion
- Protection against cyclones
- Improve water quality by absorbing nutrients
- Important carbon sink

## THREATS

- Commercialisation of coastal areas
- Emergence of shrimp farms
- Temperature fluctuations (Mangroves can't survive freezing temperatures)

## CONSERVATION MEASURES

### Global

- Inclusion of Mangroves in Biosphere Reserves and UNESCO Global Geoparks
- Mangroves for the Future Initiative (IUCN & UNDP)
- Mangrove Alliance for Climate (UNFCCC COP27)

### India

- National Mangrove Committee (1976)
- Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI) (Union Budget 2023-24)



## What are the Key Benefits of the Mangroves as Per the State of the World's Mangroves 2024 Report?

### About:

- The latest world map (**GMW v4.0**), developed by the [Global Mangrove Watch](#), provides a sixfold improvement in spatial resolution.

Note:

- It maps 147,256 km<sup>2</sup> of mangroves in 2020, adding data for six new territories.
- **Southeast Asia** holds about **one-third of the world's mangroves**, with Indonesia alone accounting for 21%.



#### ➤ Key Benefits of Mangroves:

- **Carbon Storage:** Mangroves hold, on average, a remarkable **394 tonnes of carbon** per hectare in their living biomass and in the top metre of soil.
  - Some mangrove areas, like in the **Philippines**, the average values are over 650 tonnes of carbon per hectare.
- **Biodiversity:** Mangroves are **home to a tremendous diversity of species**, reflecting their ecotone nature.
  - Over 5,700 plant and animal species, across 21 phyla, have been recorded in Indian mangroves alone.
- **Flood Reduction:** **Flooding** is the **most frequently occurring** natural disaster worldwide and is exacerbated by climate change.
  - Mangroves **reduce flood depths by 15-20%**, and over 70% in some areas.
- **Food Security:** Mangroves **support nearly 800 billion young fish, prawns, bivalves**, and crabs annually, crucial for global fisheries.
  - They **provide non-aquatic food resources** like honey, leaves, and fruits, essential for local communities.





Note:




- **Cultural Significance:** Mangrove species are widely used in traditional medicine, providing health benefits to local populations.

# WHY MANGROVES MATTER





Mangroves consist of a variety of salt-tolerant trees and shrubs that thrive in shallow and muddy saltwater. Mangrove forests can be found in mostly tropical and subtropical coastal regions. There are about 80 species of mangroves globally, 3 of which occur in Belize, and they take up to 15 years to reach maturity.


## Mangroves provide a variety of benefits including:

**1 Biodiversity Hotspots** 


Mangroves are home to an incredible array of species, providing habitat for fish, sharks, rays, sea turtles, and birds. An estimated 80% of the global fish catch relies on mangrove forests either directly or indirectly

**2 Livelihoods** 


The fisher communities we work with depend on their natural environment to provide for their families. **Healthy mangrove ecosystems mean healthy fisheries**

**3 Water Filtration** 


Mangroves are vital to maintain seawater quality. They retain flowing sediments, and can trap pollutants, protecting connected habitats such as coral reefs and seagrass beds.

**4 Landmass builders** 


The dense network of roots and surrounding vegetation which trap sediment prevents erosion and can buildup coastlines and cayes over time.

**5 Fighting climate change** 


Mangroves extract carbon from the atmosphere at a higher rate than tropical forests, and can store up to **5 times** more carbon per acre in their soils.

**6 Economy** 

Many coastal communities rely on mangroves for their economic benefits, especially in the fisheries and tourism sectors. Mangroves also reduce costly damages from hurricanes by providing protection against wave action and storm surges.




Mangrove roots promote water clarity and provide protection for juvenile fishes.



Juvenile lemon sharks are almost exclusively found in mangrove habitats.

Photos: Rachel Graham



### What are the Key Highlights in the Report Regarding India?

- **Mangrove Cover in India:** In India West Bengal holds the largest mangrove area followed by Gujarat, majorly located in the Gulf of Kutch and Gulf of Khambhat.

Note:



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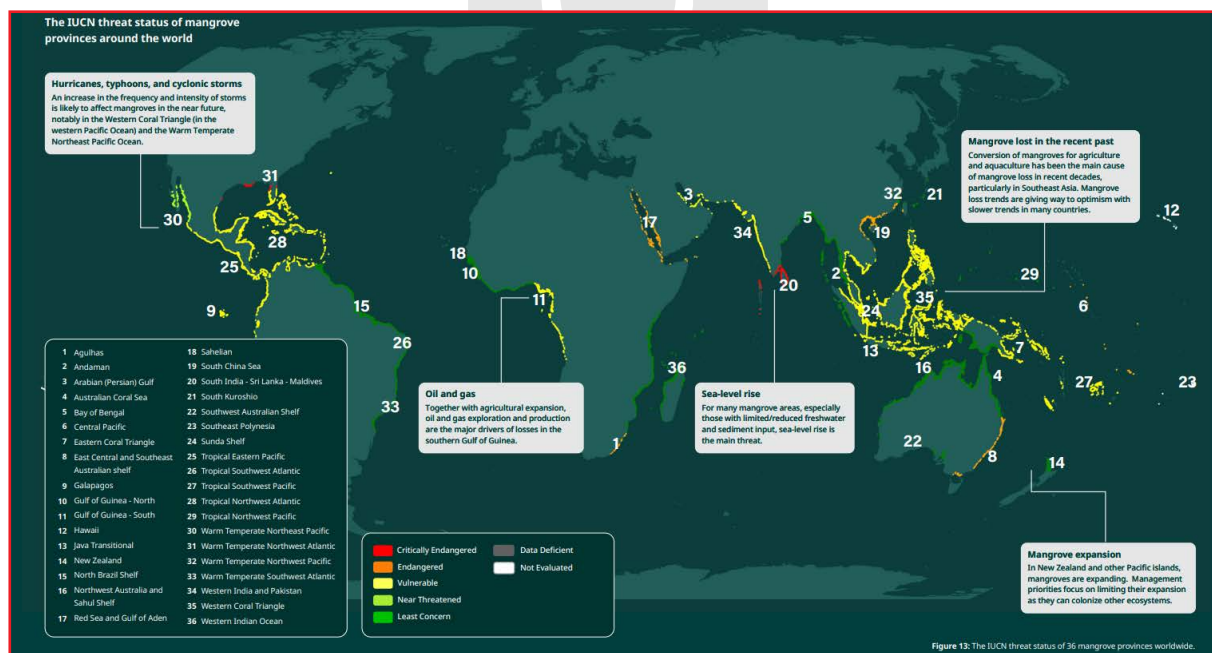
- **Biodiversity in the Mangrove Ecosystems of India:** Mangrove ecosystems of India have perhaps the **highest record of biodiversity of any country**, with a total of 5,746 species. Of these, 4,822 species (84%) are animals.
- **Critically Endangered and Vulnerable Mangroves:** Natural mangrove forests on the **southern Indian coast** are **critically endangered**, particularly in the **Lakshadweep archipelago** and Tamil Nadu, due to rising sea levels from **global warming**.
  - The report identifies **shrimp aquaculture** as a **major driver of mangrove loss**, highlighting its expansion in states like Andhra Pradesh, West Bengal, and Gujarat.
  - Mangroves on the western coast, extending from Gujarat to Kerala, are **vulnerable to collapse** due to human activities like **shrimp aquaculture** and natural threats such as **tropical storms**.
    - Conservation challenges in the **Gulf of Cambay (Khambhat)** include **severe grazing and logging** during the flowering season, which

hinders natural regeneration and damages the mangrove stock.

- **Government Initiatives:** The Union government has launched the **Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI) programme** to augment mangrove cover by planting mangroves in 540 sq km across 11 states and two Union territories.
  - Corporate involvement includes six major corporations signing MoUs with the Gujarat forest department to plant mangroves in 30 sq km.

### What are the Challenges Highlighted in the Report?

- **Conversion to aquaculture (26%), oil palm plantations and rice cultivation** together explain 43% of mangrove losses between 2000 and 2020.
  - The expansion of oil palm plantations and rice cultivation significantly contributes to the **destruction of mangrove forests**.
  - Logging for **timber and charcoal production** leads to significant mangrove degradation.



- **Natural retraction, influenced by climate change**, sediment shifts, and sea-level rise, also impacted 26% of mangrove areas.
  - Increasing **sea levels threaten mangrove habitats**, especially those with limited freshwater and sediment input.
  - More **frequent and intense cyclonic storms** cause significant damage to mangrove ecosystems.
- **Regional breakdowns highlight** very diverse patterns of change, with human impacts dominating change in Africa, Asia, and North and Central America.

Note:



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- Despite efforts, **only 40% of the world's remaining mangrove forests are in protected areas**. Some countries, like Malaysia and Myanmar, have less than 5% protection.
- The **IUCN Red List** identifies that **half of the world's mangrove** provinces are **threatened**, with climate change being a significant exacerbating factor.
- **Pollution from oil spills (8.2%)**, particularly in regions like the **Niger Delta**, poses severe risks to mangrove health and regeneration.
- Securing **adequate financing** for mangrove conservation remains a challenge.

### ***What are the Steps Suggested in the Report for the Protection of Mangroves?***

- Six Guiding Principles for Successful Mangrove Restoration:
  - **Principle 1: Safeguard nature and maximise biodiversity.**
    - **Protect** the remaining intact mangrove ecosystems, **enhance their resilience**, and implement **science-based ecological restoration protocols**.
  - Policy frameworks like the **Kunming-Montreal Global Biodiversity Framework** are crucial in driving international conservation efforts
  - **Principle 2: Employ the best information and practices.**
    - Use the **best available science-based knowledge**, including Indigenous, traditional, and local knowledge, for mangrove interventions.
  - Case studies from regions like the Philippines, Colombia, and Kenya highlight **successful community-led restoration projects**.
  - **Principle 3: Empower people and address their needs.**

- Implement, in all aspects of project design, **social safeguards that operate locally and contextually** to protect and enhance community member rights, knowledge, and leadership to achieve fair and equitable benefit sharing.
- **Principle 4: Align to the broader context – operate locally and contextually.**
  - Operate in the local context, including **cultural customs, resource use, management**, and ownership regimes, while taking a land and seascape approach and aligning to international trends and their local implications.
- **Principle 5: Design for sustainability.**
  - Create **sustainable mangrove projects and programs** that are inclusive of how these initiatives will last into the future, including considerations for financing, **threat abatement, community stewardship, and climate change**.
- **Principle 6: Mobilize High-integrity capital.**
  - **Ensure capital flows at the scale** needed and allow funding to be distributed to ready-to-scale projects.
- **Innovative financial tools**, including **carbon credits** and mangrove insurance, are essential for supporting conservation actions.
- **Expand Protected Areas:** The Global Mangrove Alliance **aims to halt mangrove loss**, restore half of the world's lost mangroves, and **double protection by 2030**.
  - Increase the percentage of mangrove areas under legal protection. The Global Mangrove Alliance **aims to double the protection to 80% by 2030**.
- **Other Effective Area-Based Conservation Measures (OECMs):** Implement OECMs that **integrate biodiversity into sectors like food and water security**, even if conservation is not the primary objective.



Note:

# Art and Culture

## Highlights

- Muradabad ki Pahadi

- Quarrying Threatens Hampi

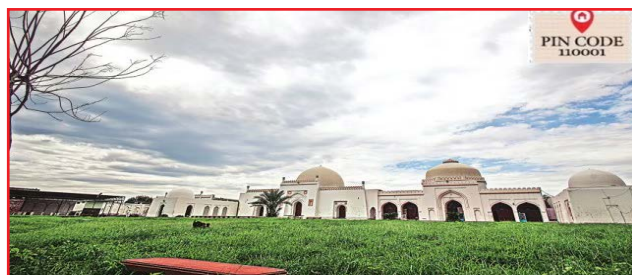
## Muradabad ki Pahadi

### Why in News?

**Muradabad ki Pahadi**, a historical site in Delhi, has recently come into the spotlight. Named after the 14th-century **Sufi saint Syed Murad Ali**, this site features two mosques from different historical periods, attracting the interest of historians and locals alike.

### What are the Key Facts About Muradabad ki Pahadi?

- The site features two mosques from the **Tughlaq** and Lodi dynasties, reflecting their distinct architectural styles.
  - Tughlaq-era mosque known as **Qasai Wala Gumbad**.
  - Lodhi-era mosque known as **Shahi Masjid**, features a lotus kalash.
- Syed Murad Ali's tomb is situated here, adorned with intricate arches and ornate doorways.
- The site now houses the **Abdul Mannan Academy**, a madarsa that serves the community and continues to preserve the site's heritage.



**Note:** Muradabad ki Pahadi has nothing to do with the city of Moradabad, named after **Prince Murad Baksh**, son of **Emperor Shah Jahan**.

### What are the Key Features of Tughlaq Architecture?

- Tughlaq architecture is known for its sturdy and solid

construction. Buildings featured **sloping walls**, a **technique known as batter**, to support the increased height and loftiness of the domes.

- The Tughlaqs innovatively combined the **principles of the arch, lintel, and beam in their constructions**.
- Decorative items such as the water pot and lotus, derived from Hindu motifs, were incorporated into Tughlaq architecture, resulting in the **Indo-Islamic style**.
- Notable Tughlaq Constructions:
  - **Tughlaqabad:** Founded by **Ghiyasuddin Tughlaq**, Tughlaqabad was the third city of Delhi, combining a city, fort, and palace. It marked the beginning of large-scale urban complexes.
  - **Ghiyasuddin Tughlaq's Tomb:** This tomb introduced new architectural trends, including the use of a **high platform for elevation**, a white marble dome, and red sandstone for beautification. The pointed or '**Tartar**' dome design became a hallmark of Indo-Islamic architecture.
  - **Jahanpanah:** Built by **Muhammad Bin Tughlaq**, Jahanpanah was the fourth city of Delhi, emphasising the dynasty's urban planning prowess.
  - **Firuzabad:** Constructed by **Firuz Shah Tughlaq** in 1354, Firuzabad included notable structures such as **Kushk-i-Firuz palace** and **Kotla Firuz Shah citadel**. Firuz Shah also added two more storeys to the **Qutub Minar** and constructed **Hauz Khas**.

### What are the Key Features of Lodi Architecture?

- The Lodis **utilised both the arch and lintel-and-beam methods** in their constructions, showcasing their mastery of diverse architectural principles.
- They adopted elements **from Rajasthani and Gujarati architecture**, including balconies, kiosks, and eaves.
- Only tombs were commissioned during the Lodi period (1451–1526) featuring hard, bare, octagonal designs about 15 metres in diameter, with a sloping verandah.

Note:

- Many Lodi tombs were set on elevated platforms and surrounded by gardens, creating a visually striking and serene environment.
- A major innovation under the Lodis was the **introduction of double dome architecture**. This technique involved constructing a dome with an inner and outer shell, with a distinct space between them.
  - The double domes were used to strengthen the structure and reduce the dome's inner height.
- **Notable Lodi Construction:**
  - **Lodi Gardens:** This expansive garden complex in Delhi is a notable example of the Lodi architectural style. It includes several significant structures.
    - **Tomb of Sikander Lodi:** Renowned for its double dome architecture, this tomb exemplifies the innovative design of the Lodi period.
    - **Tomb of Mohammed Shah:** Another prominent tomb in Lodi Gardens, showcasing the elevated platform design characteristic of Lodi architecture.

## Quarrying Threatens Hampi

### Why in News?

Recently, **Hampi**, a **UNESCO World Heritage Site** in the **Vijayanagara** district of Karnataka, has been experiencing **stone quarrying activities** in its vicinity.

- Environmentalists and tourists have raised alarms about the impact of these activities on the site's historical and ecological integrity.

### What are Key Facts About the Vijayanagar Empire and Hampi?

- **Vijaynagar Empire:**
  - The Vijayanagar kingdom or "city of victory" was

founded in **1336** by **Harihara and Bukka**, two brothers who had previously served in the army of **Muhammad-bin-Tughlaq**.

- They broke away from the **Delhi Sultanate** and established an independent state in Karnataka, with their capital city Vijayanagar located on the banks of the Tungabhadra river.
- The establishment of their kingdom was aided and inspired by the contemporary **scholar and saint Vidyaranya**.
- Vijayanagar Empire was **ruled by four important dynasties named Sangama, Saluva, Tuluva, and Aravidu**.
- **Krishnadevaraya (1509-29)** of the Tuluva dynasty was the most famous ruler of Vijayanagar.
  - He composed a work on statecraft in Telugu known as the **Amuktamalyada**.
- **Hampi:**
  - It is located in the **Bellary District** of Karnataka consisting of the remnants of the **Vijayanagara Empire's** capital city (**14<sup>th</sup>-16<sup>th</sup> century CE**).
  - One of the unique features of the temples at Hampi is the **wide chariot streets** flanked by a row of pillared mandapas.
  - Its famous places include the **Krishna temple complex, Narasimha, Ganesa, Hemakuta group of temples, Achyutaraya temple complex, Vitthala temple complex, Pattabhirama temple complex, Lotus Mahal complex, etc.**
  - Hampi was declared a **World Heritage Site** by UNESCO in **1986**.
  - The Vijayanagara Empire was defeated by a **coalition of Deccan sultanates in 1565 (Battle of Talikota)**, after which Hampi remained in ruins.

### Vittala Temple

- It was built in the 15th century **during the rule of Devaraya II**, one of the rulers of the Vijayanagara Empire.
- It is **dedicated to Vittala** (Lord Vishnu) and is also called Vijaya Vittala Temple.
- It features notable attractions such as a **stone chariot** and **musical pillars**, with the stone chariot being depicted on the **Rs 50 currency note**.

#### Hampi Chariot:

- It is among three famous stone chariots in India, the other two being in **Konark** (Odisha) and **Mahabalipuram** (Tamil Nadu).
- It was built in the **16th century by the orders of King Krishnadevaraya**, a Vijayanagara ruler.
- It is a shrine **dedicated to Garuda, the official vehicle of Lord Vishnu**.

Note:



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**Virupaksha Temple:**

- It is the 7th-century **Shiva temple** in Hampi, Central Karnataka.
- **Lord Virupaksha**, also referred to as **Pampapathi** is the main deity in Virupaksha Temple.
- It was built in the **Vijayanagara style of architecture** and was built by **Lakhan Dandesha**, a **nayaka** under the ruler **Deva Raya II** of the Vijayanagara Empire.

**Vijayanagara School of Temple Architecture**

- **Diverse Structures:** It encompassed **temples, monolithic sculptures, palaces, official buildings, cities, irrigation systems, step wells, and tanks.**
- **Blend of Styles:** The architecture uniquely **integrated Hindu and Islamic elements.**
- **The features of the temples were:**
  - The **walls of the temples were highly decorated with carvings** and geometrical patterns.
  - **Gopurams** were now built on all sides.
  - Monolithic rock pillars
  - Generally, **temple pillars have a mythical creature Yali (Horse)** engraved in them
  - More than **one mandaps were built in each temple.** The central mandap came to be **known as the Kalyan mandap.**
  - The **concept of secular buildings inside the temple premises** was also introduced during this period.
  - Notable structures include **Mahanavami Tibba, Kalyana Mandapas, and Hazara Ram Temple.** Decorative elements often **featured horses and Raya Gopurams (grand gateway towers).**



Note:



# History

## Highlights

- 82nd Anniversary of the QIM

### 82nd Anniversary of the QIM

**August Kranti Day (August Revolution Day)** is observed on the **8<sup>th</sup> August** annually in India. In **2024**, India celebrates the **82<sup>nd</sup> anniversary** of the **Quit India Movement (QIM)**.

- It commemorates the historic **launch** of the **QIM** in 1942, under the leadership of Mahatma Gandhi.

#### What was QIM?

- **About:** It was a pivotal moment in India's struggle for **independence** from British colonial rule, which called for the **immediate withdrawal** of British forces from India.
  - It aimed to **mobilise Indians** in a **non-violent civil disobedience** campaign against British colonialism.
  - Internationally, it drew **sympathetic voices** within the **British public** and pressure from **Allied powers** during **World War II**.
- Reasons for Starting QIM:
  - **Failure of Cripps Mission (1942):** **Cripps Mission** exposed Britain's **unchanged attitude** on **constitutional advance** and made it clear that any more silence would be tantamount to accepting the British right to decide the fate of Indians without consulting them.
    - It offered **dominion status** instead of complete independence. It provided provinces the **right to secede** which went against the principle of **national unity**.
  - **Economic Impact of World War II:** There was popular discontent because of **rising prices** and shortage of **rice, salt** etc. While the higher food prices **hit the poor**, the **rich** were hurt by **excess profit tax**. It got aggravated by gross mismanagement and deliberate **profiteering**.
  - **Hasty British Evacuation from Southeast Asia:** Refugees returning from Malaya and Burma after

the **Japanese invasion** reported the collapse of British power in **Southeast Asia** and how British authorities abandoned Indian refugees.

- This led to fears that Britain might similarly abandon India if Japan invaded.
- **Feeling of Imminent British Collapse:** The news of **Allied reverses** and British withdrawals from Southeast Asia and Burma **made people in India believe that British power was going to collapse soon**.
- **Imminent Japanese invasion:** The leaders felt it was essential to initiate a struggle because they believed the people were **losing morale and might not resist if Japan invaded**.
- Quit India Resolution:
  - The **Congress Working Committee** adopted the **'Quit India' Resolution** on **14<sup>th</sup> July 1942** at Wardha.
  - The **All India Congress Committee (AICC)** accepted this resolution with some modifications, on **8<sup>th</sup> August 1942** at **Gowalia Tank** in **Bombay** and **Gandhiji** was named the **leader** of the struggle.
    - The meeting also resolved to:
      - demand an immediate end to British rule in India.
      - **declare commitment of free India** to defend itself against all types of **Fascism and imperialism**.
      - form a **provisional Government of India** after the British withdrawal.
      - **sanction a civil disobedience movement against British rule**.
        - Gandhi was named the leader of the struggle
      - On this occasion, Gandhi delivered his famous **"Do or Die" speech**, arguing that **"We shall either free India or die in the attempt; we shall not live to see the perpetuation of our slavery."**

#### How did the Government Respond to the Spread of QIM?

- **Spread of the Movement:**
  - **Public on Rampage:** The general public attacked **symbols of authority**. Satyagrahis offered

Note:



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themselves up to arrest, **bridges** were blown up, **railway tracks** were **removed**, and telegraph lines were cut.

- **Underground Activity:** The main personalities taking up underground activity were **Rammanohar Lohia, Jayaprakash Narayan, Aruna Asaf Ali, Usha Mehta** and R.P. Goenka. Usha Mehta started an **underground radio** in Bombay.
  - Due to the arrest of major leaders, a **young** and till then relatively unknown **Aruna Asaf Ali** presided over the **AICC session** on 9<sup>th</sup> August and hoisted the flag, later the Congress party was banned.
- **Parallel Governments:** Parallel governments were established in **Ballia** (Uttar Pradesh), **Tamluk** (Bengal) and **Satara** (Maharashtra).
- **Extent of Mass Participation:** Youth, women, workers and peasants remained at the forefront.
- **British Government Response:**
  - In the early hours of 9<sup>th</sup> August 1942, all the top leaders of the Congress were **arrested** and taken to **unknown destinations**.
    - It produced an **instantaneous reaction** among the people. There were **clashes** with authority, strikes, public demonstrations and **processions** in various parts of the country.
  - The Government responded by **gagging** the press. The newspaper **National Herald** and weekly journal **Harijan** ceased publication for the entire duration of the struggle, others for shorter periods.
  - **Agitating crowds were lathi-charged, tear-gassed**, and fired upon. The number of those killed is estimated at 10,000.
    - The military took over many cities; police and secret service reigned supreme.
  - **Rebellious villages were fined heavily**, and in many villages, mass flogging was done.

#### Parallel Governments during QIM

- **Ballia, Uttar Pradesh:** It was formed by Chittu Pandey and provided healthcare, education, and other services to the people.
- **Satara, Maharashtra:** Known as "Prati Sarkar," it was organized by leaders including Y.B. Chavan, Nana Patil, and others. 'Gandhi marriages' were organized.
- **Tamluk, Bengal:** It was known as Tamralipta Jatiya Sarkar and was set up by Ambika Chakrabarty.

### Was QIM a Spontaneous Outburst, or an Organized Movement?

#### ➤ Spontaneous Nature of QIM:

- **Viceroy Linlithgow** described it as "**by far the most serious rebellion since 1857**".
- It was violent and **totally uncontrolled** as the entire upper echelon of the Congress leadership was **behind bars** even before it began.
- And therefore, it is also characterised as a "**spontaneous revolution**", as "no preconceived plan could have produced such instantaneous and uniform results".

#### ➤ Organised Nature of QIM:

- **Radical Movements:** In the past two decades, the radical mass movements led by Congress-affiliated groups like the **AITUC** (All India Trade Union Congress), **CSP** (Congress Socialist Party), **AIKS** (All India Kisan Sabha), and **Forward Block** had set the stage for such a conflagration.
- **Twelve Point Programme:** Before 9<sup>th</sup> August 1942, Congress leaders drafted a **twelve-point program** that included **Gandhian satyagraha** methods, **industrial strikes**, railway and telegraph disruptions, **tax refusal**, and establishing a parallel government.
- **Past Preparation:** In the **Civil Disobedience Movement (1930-34)**, while Gandhi initiated the struggle with the **Dandi March** and **salt law violation**, local leaders and people decided whether to **stop land revenue payments**, defy forest laws, **picket liquor shops**, or pursue other aspects of the program.
  - These previous experiences of the masses enriched QIM.
- **Mobilisation in Countryside:** In **East U.P. and Bihar**, the areas of the most intense activity in 1942 were precisely the ones in which considerable **mobilisation** and **organisational work** had been carried out from 1937 onwards.

### What were the Lessons and Significance of the QIM?

#### ➤ Lessons from QIM:

- **For Indian Masses:** To the Indian masses in 1942, Gandhi and the Congress were **symbols of liberation**, not sources of ideological constraint.

Note:



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- **For Congress:** The suppression of QIM by the government **discredited** the **left-wingers (like followers of Forward Block)** within Congress who had been demanding violent action against the government.
  - Now dominated by moderates and **right-wing members**, Congress strongly opposed the popular militancy, favouring a return to **discipline** and order, and advocated for a **negotiated settlement** over confrontation.
- **For the British:** They realised it was **difficult** to manage **militant mass movements** without wartime emergency powers.

- After the war, maintaining control by force would be costly, leading to a greater willingness to accept a negotiated and orderly withdrawal.

➤ **Significance of QIM:**

- It placed the demand for **independence** on the **immediate agenda** of the national movement. After Quit India there could be **no retreat**.
- **Constructive work** became the main form of Congress activity, with a special emphasis on the **reorganisation** of the Congress machinery.
- The Congress leaders were released to participate in the **Simla Conference** in June 1945. That marked the end of the phase of confrontation that had existed since August 1942.



Note:

# Geography

## Highlights

- Impact of Climate Change on Earth's Rotational Dynamics
- Antarctica's Deep Winter Heatwaves
- Tectonic Events Changed the Course of Ganga
- Underwater Structures in the Indian Ocean
- Warming of Great Barrier Reef Waters
- Transit-Oriented Urban Development
- Wildfires Triggering Pyrocumulonimbus Clouds

## Impact of Climate Change on Earth's Rotational Dynamics

### Why in News?

Recent research highlights that **melting polar ice caps** due to **climate change** are causing the Earth to spin more slowly, leading to minute changes in the duration of a day.

- This phenomenon, while not immediately noticeable in daily lives, could have significant implications for technology reliant on precise timekeeping.

### How is Climate Change Affecting Earth's Rotation?

- **Melting Ice Caps:** The melting of polar ice sheets causes **water to flow towards the equator**, increasing the **Earth's oblateness and moment of inertia**.
  - Studies show that over the last two decades, the Earth's rotation has slowed by **approximately 1.3 milliseconds per century**.
    - The principle of **angular momentum** explains this effect, as polar ice melts and moves towards the equator, the **Earth's moment of inertia (mass distribution near the equator)** increases, causing its **rotational speed (velocity)** to decrease to conserve **angular momentum, resulting in a slower spin**.
  - Projections indicate that if **high emission scenarios persist**, this rate may **increase to 2.6 milliseconds per century**, making climate change a dominant factor in the Earth's rotational slowdown.
- **Axis Shifts:** The melting ice also **influences the Earth's axis of rotation**, causing a slight but **measurable shift**.

This movement, while small, is another indicator of how climate change impacts fundamental Earth processes.

- The Earth's rotational axis is tilted relative to its geographic axis. This tilt causes a phenomenon known as the **Chandler wobble, which can affect rotational timing and stability**.

### Other Factors Affecting the Earth's Rotation Speed

- **Groundwater Depletion:** The loss of groundwater can also alter mass distribution, contributing to changes in rotational dynamics.
- **Torsional Waves:** Convection currents in the Earth's outer core **generate torsional waves that impact the planet's rotation**. These waves oscillate through the Earth and can correlate with changes in the length of a day.
  - **Torsional waves are oscillating movements within the Earth's outer core** that twist or rotate around the Earth's axis, influencing the planet's rotational speed.
- **Influence of Celestial Bodies:** Earth's rotation is influenced by the Moon and also other celestial bodies. About 1.4 billion years ago, the **Moon was much closer to Earth, resulting in significantly shorter days of just 18 hours and 41 minutes**. Today, a day is 24 hours, and it continues to **increase due to the Moon's gradual distancing**.
  - The gravitational pull of the **moon creates tidal forces that can affect the rotation of the Earth**. These tidal effects typically contribute to a gradual slowing of the planet's rotation over time.
- **Earth's Interior Dynamics:** Movements within the **Earth's mantle and core** can influence rotational speed. These include changes in the **tilt of the inner core or fluctuations in core density**.

Note:



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### What are the Implications of Slowdown of Earth's Rotation?

- **Leap Seconds:** The rotation of the Earth affects the need for **leap seconds** to synchronise **atomic clocks with solar time**.
  - A slowdown in rotation may necessitate the addition of leap seconds, impacting systems reliant on precise timekeeping.
  - This adjustment can cause issues in technology, such as **network outages or discrepancies in data timestamps**.
- **Global Positioning Systems (GPS):** GPS satellites rely on precise time measurements. Variations in Earth's rotation can affect the **accuracy of GPS systems, potentially leading to minor errors in navigation and location services**.
- **Sea Level Rise:** The redistribution of mass from melting polar ice contributes to **changes in sea levels**. A slowdown in Earth's rotation can affect ocean currents, including the **Global Mean Ocean Circulation (GMOC)**, potentially influencing regional climate patterns and exacerbating issues related to sea level rise.
  - GMOC is a large-scale system that moves water, heat, and nutrients across the world's oceans. It plays a vital role in regulating global climate by redistributing heat between regions.
- The redistribution of mass from melting polar ice contributes to **changes in sea levels**. A slowdown in Earth's rotation **can affect ocean currents and potentially influence regional climate patterns**, exacerbating issues related to sea level rise.
- **Earthquakes and Volcanic Activity:** Although less direct, changes in Earth's rotation and **mass distribution can influence tectonic processes**.
  - Variations in rotation might impact the **stress distribution in Earth's crust, potentially influencing seismic and volcanic activity**.
- **Climate Change Evidence:** This phenomenon is a stark reminder of climate change's extensive impact, **affecting not only weather patterns and sea levels but also the very mechanics of our planet's rotation**.

#### What are the Motions of the Earth and Their Effects?

- **Earth's Rotation:** The Earth rotates around its axis, which is an imaginary line running from the North Pole to the South Pole. This **rotation occurs from west to east**.

- It takes **approximately 24 hours to complete one full rotation**, resulting in the cycle of day and night.
- **Effects:**
  - **Precession:** It involves the **wobble in Earth's rotational axis**, altering the direction it points relative to fixed stars.
- **Precession** affects the timing and intensity of seasons. Currently, the Northern Hemisphere experiences winter during perihelion and summer during aphelion. In about 13,000 years, **these conditions will reverse, making Northern Hemisphere winters colder and summers hotter**.
  - **Coriolis Effect:** Rotation affects wind and ocean currents, causing them to turn right in the Northern Hemisphere and left in the Southern Hemisphere due to the **Coriolis force**.
  - **Time Zones:** Different regions experience **sunrise and sunset at different times**, necessitating the establishment of time zones.
  - **Circle of Illumination:** The boundary **line dividing the day and night sides** of the Earth is known as the circle of illumination.
- **Revolution of the Earth:** Earth revolves around the **Sun in 365 days, 6 hours, 9 minutes at a speed of 29.29 to 30.29 km/s**. The extra 6 hours, 9 minutes results in an additional day every four years, designated as a **leap year** with 29<sup>th</sup> February.
  - **Effects:**
    - **Seasons:** The tilt of the Earth's axis relative to its orbit around the Sun results in varying angles of sunlight throughout the year, causing the **four seasons: spring, summer, autumn, and winter**.
    - **Solstices:** The **summer solstice** (around 21<sup>st</sup> June) and **winter solstice** (around 21<sup>st</sup> December) mark the longest and shortest days of the year, respectively.
    - **Equinoxes:** The **vernal equinox** (around 21<sup>st</sup> March) and **autumnal equinox** (around 23<sup>rd</sup> September) are characterised by nearly equal lengths of day and night.
    - **Axial Tilt:** Earth's axis is tilted at 23.5° from the vertical, perpendicular to its orbit around the sun. This axial tilt, also known as obliquity, creates an angle of 66.5° with the orbital plane. **This tilt, combined with Earth's revolution around the sun, affects the length of days and nights and is crucial for the changing seasons**.

Note:



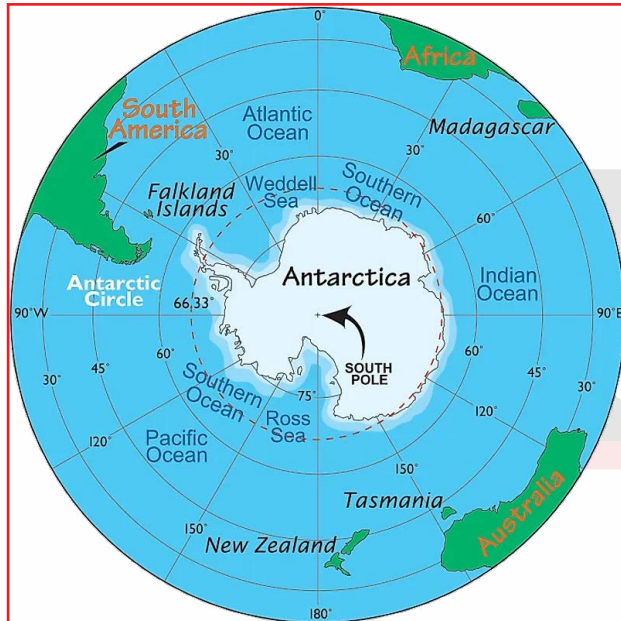
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# Antarctica's Deep Winter Heatwaves

## Why in News?

Recently, Antarctica has been experiencing a significant **deep-winter heatwave**, marking the second instance of record-breaking temperatures in two years.

- Ground temperatures have risen by an average of 10 degrees Celsius above normal since mid-July 2024, with some areas experiencing increases of up to 28 degrees Celsius.



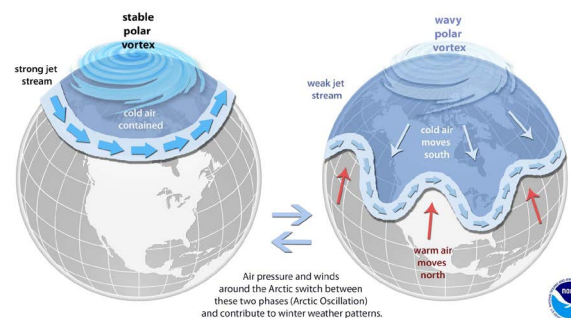
## What are the Causes of Deep-Winter Heat Waves in Antarctica?

- **Weakening of the Polar Vortex:**
  - The **polar vortex** (also known as polar pig) is a large area of low pressure and cold air surrounding both of the Earth's poles.
    - The term "vortex" refers to the **counterclockwise flow of air** that helps keep the **colder air near the Poles**. It always exists near the poles, but **weakens in summer and strengthens in winter**.
  - **Higher temperatures and powerful atmospheric waves** (periodic disturbances in the fields of atmospheric variables) **disrupted the vortex**.
    - This allowed **cold air to escape and warm air from above to descend**. The arrival of this warm air led to a rise in temperatures in the region.

- **Reduction of Antarctic Sea Ice:**
  - Antarctic **sea ice** has reached historically low levels, **reducing its ability to reflect solar energy** and **act as a barrier between cold air and warmer waters**. This loss contributes to **rising global temperatures**.
- **High Rate of Global Warming:**
  - **Antarctica** is experiencing **warming at a rate nearly double** that of the global average, estimated at **0.22 to 0.32 degrees Celsius per decade**.
    - As per **IPCC** estimates **Earth** as a whole is warming at the rate of **0.14-0.18 degrees Celsius per decade**.
    - This **accelerated warming** is primarily driven by **anthropogenic climate change**, which exacerbates the effects of natural climate variability.
- **Impact of the Southern Ocean:**
  - The **warming Southern Ocean** absorbs more heat due to reduced sea ice, creating a feedback loop that **raises air temperatures over Antarctica** and increases the risk of extreme weather events.

## The Science Behind the Polar Vortex

The polar vortex is a large area of low pressure and cold air surrounding the Earth's North and South poles. The term vortex refers to the counterclockwise flow of air that helps keep the colder air close to the poles (left globe). Often during winter in the Northern Hemisphere, the polar vortex will become less stable and expand, sending cold Arctic air southward over the United States with the jet stream (right globe). The polar vortex is nothing new — in fact, it's thought that the term first appeared in an 1853 issue of E. Littell's *Living Age*.



## What are the Consequences of Heat Waves in Antarctica?

- **Accelerated Ice Melt:** Antarctica's rising winter temperatures are **accelerating ice mass loss**, with recent decades seeing a **280% increase** compared to the 1980s and 1990s.
  - In March 2022, a **heat wave** caused a section of **ice of around 1300 square kilometres** to collapse, highlighting the significant risk of rising global sea levels.
- **Global Sea Level Rise:** The Antarctic ice Sheet covers **98% of Antarctica** and contains **over 60% of the world's freshwater**.

Note:



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- A slight increase of a few feet in sea levels could result in the displacement of around **230 million people** residing **within 3 feet of existing high tide lines**, posing a significant threat to coastal cities and ecosystems.
- **Disruption of Ocean Circulation:** The influx of freshwater from melting ice alters the **salinity and density of ocean waters**, slowing down **global ocean circulation**.
  - A 2023 study revealed that this slowdown **weakens the ocean's capacity to store and transport heat, carbon, and nutrients**, which are essential for climate regulation. **Reduced ocean circulation decreases heat and CO<sub>2</sub> absorption**, intensifying global warming and increasing the frequency of

**extreme weather events** that affect **ecosystems** and human populations worldwide.

- **Ecosystem Disruption:** Temperature changes and **ice loss disrupt local ecosystems, threatening species** dependent on stable ice, leading to biodiversity loss and altering global food webs.
  - For example species like **polar bears** and **penguins** rely on **stable ice for survival**.
- **Feedback Loops:** Melting ice reduces sunlight reflection (**albedo effect**), increasing heat absorption by oceans and land, which accelerates further ice melt, creating a feedback loop that worsens climate change.
  - **Albedo** is an expression of the **ability of surfaces to reflect sunlight** (heat from the sun).

# OCEAN WARMING

*The ocean absorbs most of the excess heat due to global warming caused by greenhouse gas (GHG) emissions, leading to rising ocean temperatures*

**Increase in Ocean Temperature**

**1.2°C** from 1950 to 2020

**Projected to Future Increase**

**1.7°C to 3.8°C** from 2020 to 2100

## Causes of Ocean Warming (due to Global Warming)

- **GHG Emissions:** Fossil fuels burning releases CO<sub>2</sub> and GHG
- **Deforestation:** Lesser trees → More CO<sub>2</sub> & GHG → Global Warming → Warming of Ocean
- **Industrial Activities:** Emit various pollutants that contribute to greenhouse effect
- **Agricultural Practices:** Produces methane and nitrous oxide – potent greenhouse gases
- **Heat Absorption by Oceans:** Oceans absorb ~90% of excess heat generated by GHGs

## Impact of Ocean Warming

- **Sea Level Rise:** Warmer water expands, causing sea levels to rise
- **Coral Bleaching:** Corals expel the algae (*zooxanthellae*) living in their tissues and turn completely white
- **Ocean Acidification:** Ocean absorbs ~1/4<sup>th</sup> of total CO<sub>2</sub> thus making it more acidic (non-metallic oxides - acidic in nature)
- **Impacts on Marine Life:** Causes many marine species to shift towards the poles and disrupts food webs
- **Impacts on Climate Patterns:** Influences atmospheric circulation patterns, such as El Niño and La Niña & extreme weather events



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## India's Initiatives for Antarctica

- **Antarctic Treaty**
- **National Centre for Polar and Ocean Research**
- **Indian Antarctic Act of 2022**

Note:



## Tectonic Events Changed the Course of Ganga

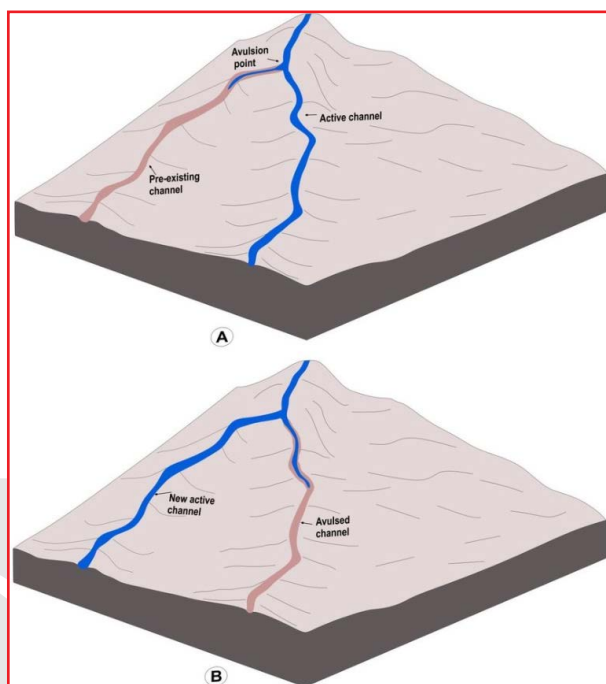
Recently, Researchers studied river channels in the **Ganges delta** in Bangladesh.

- They discovered a **paleochannel** (ancient river channel) indicating the Ganga had changed its course abruptly about 2,500 years ago due to an earthquake.

### How Earthquakes Impact the Course of a River Ganga?

- **Earthquake Origin:** The researchers speculated the earthquake could have originated from the **Indo-Burma mountain ranges** or the **Shillong hills**, where the Indian and Eurasian **tectonic plates** meet.
- **Impact:** The discovery highlights that large earthquakes can trigger major river **avulsions** (changes in the course of river flow), which could lead to **devastating floods**, especially in densely populated regions like the **Ganges-Meghna-Brahmaputra delta**.
- **Earthquake Evidence:**
  - **Seismites Formation:** **Seismites** (sedimentary beds deformed by seismic movements) are formed when **seismic waves** pressurise a layer of watery sand, causing it to burst through mud layers.
  - **Sand Dikes:** Researchers found two large **sand dikes** a kilometre to the east of the palaeochannel. Sand Dikes are formed when earthquakes disturb the river bed and cause sediments to flow (**liquefaction**).
  - **Dating Techniques:** Researchers used **optically stimulated luminescence (OSL) dating** to estimate the timing of the avulsion and the formation of the sand dikes. They determined that both events occurred around 2,500 years ago, suggesting the earthquake caused the river avulsion.
- **Future Hazards and Recommendations:**
  - **Potential Impact:** A similar earthquake today could **flood** areas affecting up to 170 million people in India and Bangladesh.
  - **Increased Risk:** Factors such as rapid **subsidence** and climate change-induced sea level rise increase the risk of river avulsions.
  - **Future Research:** Emphasis should be placed on understanding the frequency of quake-driven avulsions and improving earthquake forecasting.

- **Preparedness:** There is a need for **collaboration between India, Bangladesh, and Myanmar** for **research, monitoring**, and preparedness to mitigate the risks associated with such natural disasters.

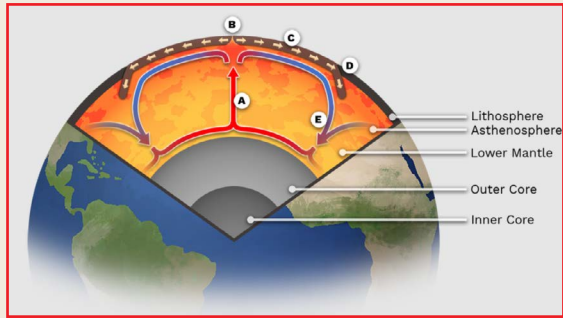


### What are Tectonic Activities?

- **Tectonic Activities:**
  - The Earth's outermost layer, the **lithosphere** (comprising the crust and upper mantle), is broken into **large rocky plates**.
    - These plates **rest** on a partially **molten layer** called the **asthenosphere**.
    - Due to **convection current** in the asthenosphere, the plates move at **different rates**, from 2-15 centimetres per year.
    - This movement creates various **geological formations**, including the **Himalayas**, the **East African Rift** and the **San Andreas Fault** in California.
  - It explains how **major landforms** including the formation of **mountains**, **volcanic activity**, and **earthquakes** are created by the movements beneath the Earth's surface.
  - The **seven major plates** listed from largest to smallest are the Pacific, **North American**, **Eurasian**, **African**, **Antarctic**, **Indo-Australian** and the **South American Plate**.

Note:

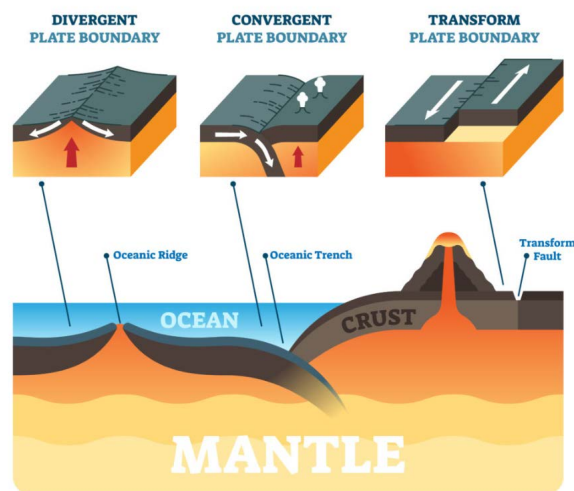




### ➤ Earthquakes due to Tectonic Activities:

- Tectonic activities lead to **earthquakes** primarily through the movement of the Earth's tectonic plates.
- Earthquakes typically occur at the **boundaries** of tectonic plates, which can be **categorised into three main types**:
  - **Convergent Boundaries**: Plates move toward each other, causing one plate to be forced **beneath another (subduction)**. This process can create intense pressure and lead to **powerful earthquakes**.
  - **Divergent Boundaries**: Plates move apart from each other, allowing magma to rise and create new crust. Earthquakes here are usually **less powerful but frequent**.
  - **Transform Boundaries**: Plates slide past each other horizontally. The **friction** between the plates can cause stress to build up, which, when released, results in an **earthquake**.

### PLATE BOUNDARIES



## EARTHQUAKE

### ABOUT

- Shaking of the earth, caused due to release of energy, generating **seismic waves in all directions**

### HYPOCENTER

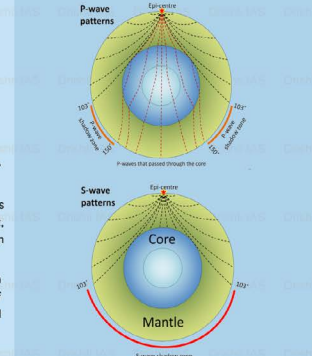
- Location where the earthquake starts (below earth's surface)

### EPICENTER

- Location right above the Hypocenter (on the earth's surface)

### EARTHQUAKE WAVES

- **Body Waves**: Move in all directions travelling through the body of the earth
- **P Waves**: Move faster, First to arrive at surface, Similar to sound waves, Travel through gaseous, liquid and solid materials
- **S Waves**: Arrive at surface with some time lag, Travel only through solid materials
- **Surface Waves**: Last to report on seismographs, More destructive, Cause displacement of rocks
- **Love Waves**: Same motion as S-waves (horizontal) without vertical displacement, Sideways motion perpendicular to the direction of propagation, Faster than Rayleigh waves
- **Rayleigh Waves**: Cause the ground to shake in an elliptical pattern, Spread out the most of all seismic waves, Move vertically and horizontally in a vertical plane



### CAUSES OF EARTHQUAKES

- Release of energy along a **Fault/Fault Zones** (break in the crustal rocks)
- Movement of **tectonic plates (most common)**
- **Volcanic eruption** (stress changes in rock-injection/withdrawal of magma)
- Human activities (mining, explosion of chemical/nuclear devices etc.)

### MEASURING EARTHQUAKE

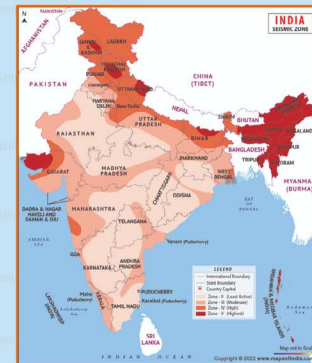
- **Seismometers** - Measures seismic waves
- **Richter Scale** - Measures magnitude (energy released; range: 0-10)
- **Mercalli** - Measures intensity (visible damage; range: 1-12)

### DISTRIBUTION

- **Circum-Pacific Belt** - 81% of earthquakes
- **Alpine Earthquake Belt** - 17% of the largest earthquakes
- **Mid-Atlantic Ridge** - Mostly submerged underwater

### EARTHQUAKE IN INDIA

- India is one of the **highly earthquake affected countries** due to the presence of technically active mountains - the Himalayas.
- India has been divided into **4 seismic zones (II, III, IV, and V)**

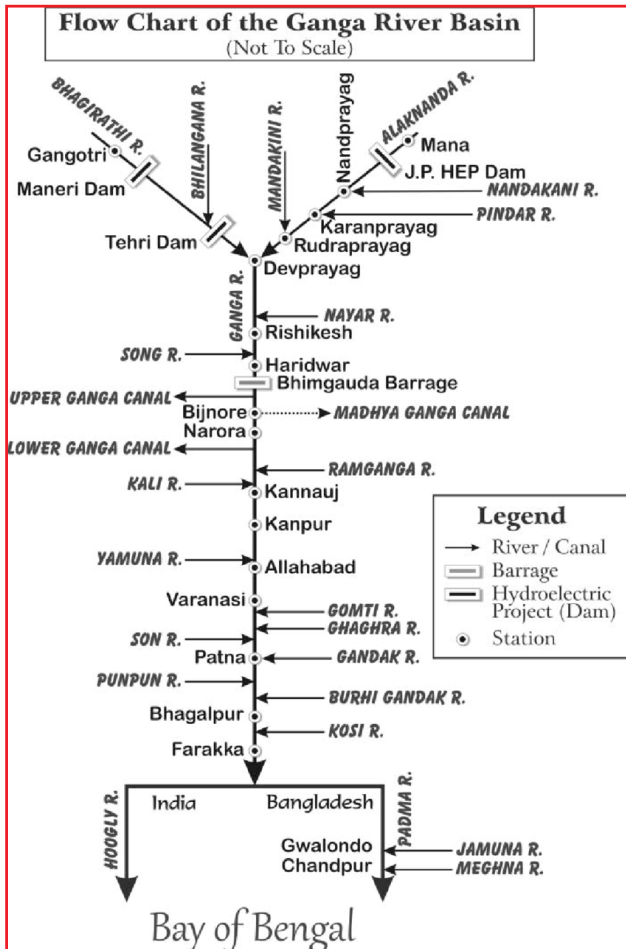


### What are Key Facts About the Ganga River System?

- The **Ganga** originates as Bhagirathi from **Gangotri Glacier, Uttarakhand** at an elevation of 3,892 m.
- Many small streams comprise the **headwaters** of the Ganga. The important among these are **Alaknanda, Dhauliganga, Pindar, Mandakini and Bhilangana**.
  - At Devprayag, where Alaknanda joins Bhagirathi, the river acquires the name Ganga. It traverses 2525 km before flowing into the Bay of Bengal.
- The Ganga is **formed from the 6 headstreams and their five confluences**.
  - **Devprayag**: Confluence of Bhagirathi river and Alaknanda river.

Note:

- **Rudraprayag:** Confluence of Mandakini river and Alaknanda river.
- **Nandaprayag:** Confluence of Nandakini river and Alaknanda river.
- **Karnaprayag:** Confluence of Pindar river and Alaknanda river.
- **Vishnuprayag:** Confluence of Dhauliganga river and Alaknanda river.



- The **Bhagirathi**, considered to be the source stream, rises at the foot of Gangotri Glacier, at Gaumukh. It finally empties into the Bay of Bengal.
- Major Tributaries of the Ganga River:
  - **Left Bank Tributaries:** Ramganga, Gomti, Ghaghara, Gandak, Burhi Gandak, Koshi, Mahananda.
  - **Right Bank Tributaries:** Yamuna, Tons, Karamnasa, Sone, Punpun, Falgu, Kiul, Chandan, Ajoy, Damodar, Rupnarayan.
- The **Ganga** flows out of the hills and into the plains at a point where it **meets the Yamuna in Allahabad**.

#### ➤ Delta and Outflow:

- After a journey of around **2,510 kilometres**, the **Ganga River merges with the Brahmaputra River in Bangladesh**, forming the Padma River.
- The **Padma River then joins the Meghna River** and flows into the Bay of Bengal through the Meghna Estuary.

#### Tectonic Movement and Decline of Harappan Civilization

- Multiple **layers of silt at Mohenjodaro** show that repeated **Indus river floods** contributed to the **decline** of the Harappan civilization.
- **Researchers** argued that the floods at Mohenjodaro were the result of **tectonic movements**.
- The theory states that the Indus area is a **disturbed seismic zone** and tectonic movements led to the creation of a **gigantic natural dam** that **prevented** the **Indus** from flowing towards the **sea**, turning the area around Mohenjo Daro into a **huge lake**.
  - It caused **prolonged submergence** of the cities located on the bank of the river Indus.
- They argued that such flooding which could **drown buildings 30 feet** above the ground level of the settlement could **not** be the result of **normal flooding** in the river Indus.
- However, few researchers pointed out that the idea that a river would be dammed in such a manner even by tectonic uplifts is **not convincing**.

## Underwater Structures in the Indian Ocean

### Why in News?

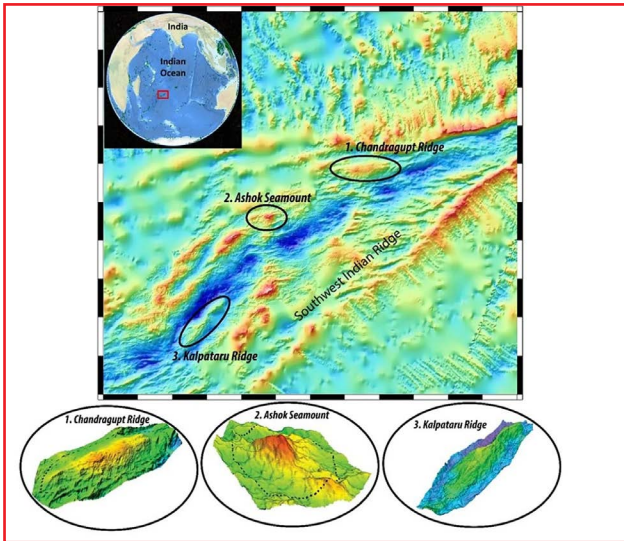
Recently, three **underwater structures** in the **Indian Ocean** were named as **Ashoka, Chandragupt, and Kalpataru**, which reflect India's growing influence in marine science and its commitment to exploring and understanding the Indian Ocean.

- This naming was proposed by India and approved by the **International Hydrographic Organisation (IHO)** and **UNESCO's Intergovernmental Oceanographic Commission (IOC)**.

Note:



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### International Hydrographic Organisation (IHO)

- It is an intergovernmental **consultative and technical body** established in **1921** to enhance **navigation safety and protect the marine environment**.
- India is a member of the IHO.
- **Objectives:**
  - **Coordinating the activities** of national hydrographic offices.
  - Achieving the highest possible uniformity in nautical charts and documents.
  - Promoting the **adoption of reliable and efficient methods** for conducting and utilising hydrographic surveys.
  - **Advancing the sciences of hydrography** and the techniques used in descriptive oceanography.

### UNESCO's Intergovernmental Oceanographic Commission (IOC)

- It promotes **international cooperation in marine sciences**, capacity development, ocean observations and services, ocean science, tsunami warning, and ocean literacy.
- It has 150 member states, and **India has been a member since 1946**.
- The IOC's work contributes to UNESCO's mission to promote the advancement of science and its applications for economic and social progress.
- The IOC is coordinating the **United Nations Decade of Ocean Science for Sustainable Development 2021-2030**, also known as the **"Ocean Decade."**

### What are the Key Facts About the Underwater Structures?

- **Background and Significance:** The discoveries of these underwater structures are part of the **Indian Southern Ocean Research Programme**, initiated in 2004, with the **National Centre for Polar and Ocean Research (NCPOR)** as the nodal agency.
  - The program aims to study various aspects including **bio-geochemistry, biodiversity, and hydrodynamics**.
- **Total Structures:**
  - **Seven structures, including the recently added ones** in the Indian Ocean, are now named primarily after Indian scientists or based on names proposed by India.
  - **Previously Named Structures:**
    - **Raman Ridge** (accepted in 1992): It was discovered in 1951 by a US oil vessel. It was named after Physicist and Nobel Laureate **Sir CV Raman**.
    - **Panikkar Seamount** (accepted in 1993): It was discovered in 1992 by India research vessel **Sagar Kanya**. It is named after NK Panikkar, a renowned oceanographer.
    - **Sagar Kanya Seamount** (accepted in 1991): For its successful 22nd cruise in 1986 leading to its discovery, a seamount was named after the research vessel Sagar Kanya itself.
    - **DN Wadia Guyot**: It was named after geologist DN Wadia in 1993 when an underwater **volcanic mountain (guyot)**, was discovered in 1992 by Sagar Kanya.
  - **Recently Named Structures:**
    - **Ashoka Seamount**: It was discovered in 2012. It is in an oval-shaped structure spanning approximately **180 sq km** and was identified using the **Russian vessel Akademik Nikolay Strakhov**.
    - **Kalpataru Ridge**: It was discovered in 2012. This elongated ridge covers an area of 430 sq km and may play a critical role in supporting marine biodiversity.
- Experts believe that this ridge **could have provided essential support for marine life** by offering habitat shelter and food sources for various species.
  - **Chandragupt Ridge**: This ridge is an elongated structure covering 675 sq km. It was identified in 2020 by the Indian research vessel **MGS Sagar**.

Note:



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### Who were Ashoka and Chandragupta?

#### ➤ Chandragupta Maurya (350–295 BCE):

- He was the Emperor of Magadha and the **founder of the Maurya dynasty**, which established a significant empire centred in Magadha.
- He took advantage of the decline and weakness of the Nandas and overthrew the last ruler of the **Nanda dynasty**, **Dhanananda** with the help of **Chanakya (Kautilya)** and crowned himself as the emperor.
- He gave up his throne and became a disciple of **Jain teacher Bhadrabahu**.

#### ➤ Ashoka: He was the **third king** (after Chandragupta Maurya and Bindusara) of the Mauryan dynasty and ruled around 269 BC.

- Ashoka's policy of Dhamma and efforts to spread **Buddhism** are significant aspects of his rule.
- He **adopted the titles of Priyadasi and Devanampiya**, which can be seen in his Rock and Pillar edicts.

#### Note:

- **"Kalpataru"** is a Sanskrit term that translates to **"wish-fulfilling tree."** In Hindu mythology, it is often associated with a divine tree that grants wishes and desires to those who seek its blessings. The concept symbolises abundance, prosperity, and the fulfilment of dreams.

### What are the Different Underwater Structures/Relief on the Ocean Floor?

#### ➤ About:

- **Ocean Floor or Seabed** is the **bottom of the water** that covers more than 70% of the Earth's surface and it includes elements like **Phosphorus, Gold, Silver, Copper, Zinc, and Nickel**.
- The primary causes of Ocean Relief are interactions between **tectonic plates**, and erosional, depositional, and volcanic processes.

#### ➤ Zones of Ocean Floor:

##### ○ Continental Shelf:

- The **shallowest and widest** part of the ocean floor.
- Extends **from the coast to the edge** of the continent, where it drops sharply into the continental slope.
- Rich in marine life and resources, such as **fish, oil, and gas**.

##### ○ Continental Slope:

- The steep slope that **connects the continental shelf to the abyssal plain**.
- Cut by **deep canyons and valleys** that are formed by underwater landslides and rivers of sediment.
- Home to some **deep-sea creatures, such as octopuses, squids, and anglerfish**.

##### ○ Continental Rise:

- Made up of thick sequences of continental material that **accumulate between the continental slope and the abyssal plain**.
- It can rise from processes such as the **downhill movement of sediment**, the settling of particles carried by **underwater currents**, and the slow settling of both non-living and living **particles from above**.

##### ○ Abyssal Plain:

- The **flattest** part of the ocean floor.
- Covers **most of the ocean basin** and lies between 4,000 and 6,000 meters below sea level.
- Covered by a **thick layer of fine sediments** that are carried by **ocean currents** and settle on the seafloor.
- Inhabited by some of the most **bizarre and mysterious animals** on Earth, such as giant tube worms, bioluminescent fish, and vampire squids.

##### ○ Oceanic Deeps or Trenches:

- These areas are the **deepest parts** of the oceans.
- The trenches are relatively **steep sided, narrow basins**. They are some 3-5 km deeper than the surrounding ocean floor.
- They occur at the **bases of continental slopes** and along island arcs and are associated with active volcanoes and strong earthquakes, so are very significant in the study of plate movements.

#### ➤ Minor Relief Features of Ocean Floor:

##### ○ Submarine Canyons: They are significant geological structures found on continental margins, serving as connections between the **upper continental shelf** and the **abyssal plain**.

- They are deep, narrow valleys featuring vertical sidewalls and steep slopes, similar to land valleys.

##### ○ Mid Oceanic Ridges: They are found along **diverging plate boundaries** where tectonic plates move apart, and the gap is filled by upwelling magma that solidifies to form new oceanic crust.

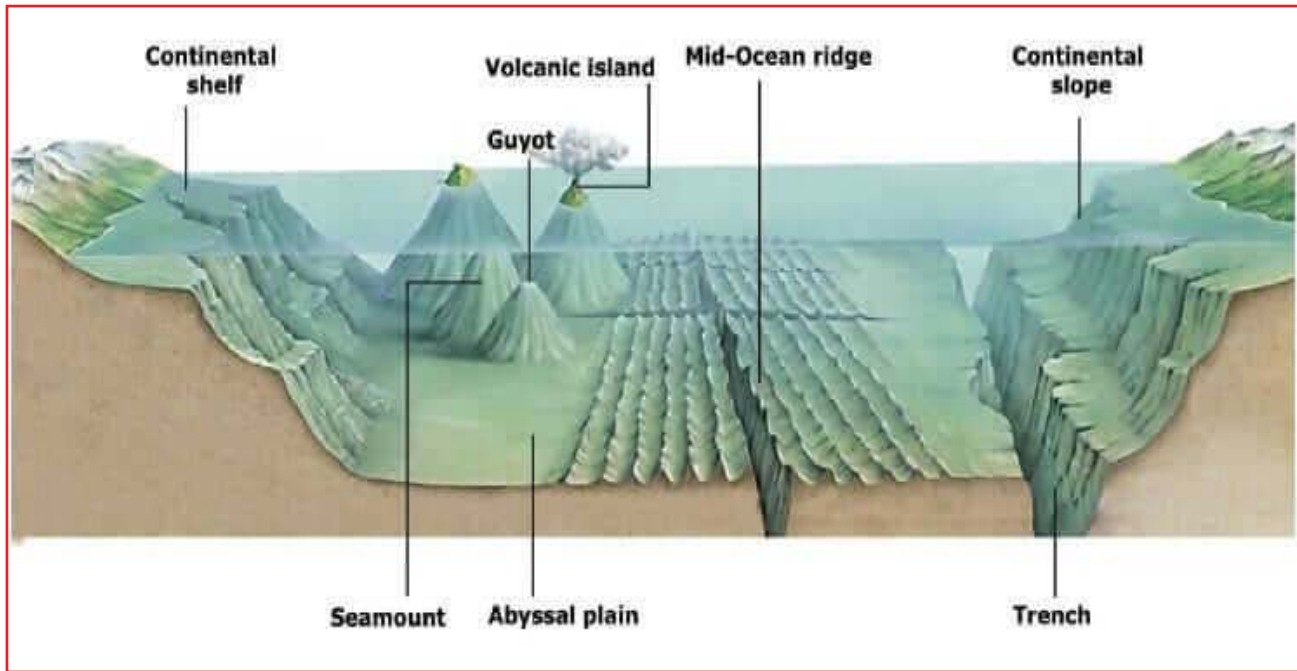
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- These ridges consist of two parallel mountain ranges separated by a deep depression. The mountain peaks can reach heights of up to 2,500 meters.
- **Seamounts and Guyots:** **Seamounts** are **undersea mountains** formed by volcanic activity that rise hundreds or thousands of feet from the sea floor, often near plate boundaries. Example: the **Emperor seamount**, an extension of the **Hawaiian Islands** in Pacific Ocean
  - **Guyots** are **flat-topped seamounts** that have been submerged as the seafloor gradually sinks away from oceanic ridges.
- **Atoll:** It is a **ring-shaped formation of coral reefs or islands** that encircles a **lagoon**, typically developing seamounts.
  - These structures **consist of low islands in tropical oceans**, with the reef surrounding a central depression that can contain various types of water, including seawater, fresh water, or brackish water.



## Warming of Great Barrier Reef Waters

### Why in News?

Ocean temperatures in the **Great Barrier Reef** hit their highest level in 400 years over the past decade. The reef suffered mass **coral bleaching** events between 2016 and 2024.

#### Great Barrier Reef (GBR)

- The GBR is the world's largest coral reef system. It's located in the Coral Sea off the coast of **Queensland, Australia**.
- It stretches across 2,300 km and is made up of around 3,000 individual reefs and 900 islands. The GBR is home to 400 types of coral, and 1,500 species of fish.
- It's also home to endangered species such as the dugong and the large green turtle.
- The GBR is a **UNESCO World Heritage site** and was inscribed in 1981.
- Widespread mass bleaching of the Great Barrier Reef was first seen in 1998 and happened again in 2002, 2016, 2017, 2020, 2022 and 2024.

Note:



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### What are the Research Findings?

- **Coral Bleaching:** Aerial surveys of more than 300 reefs along **Australia's northeast coast** revealed bleaching in shallow waters, affecting two-thirds of the reef.
- **Rising Threats:** Even if global warming is kept under the **Paris Agreement's goal**, 70% to 90% of corals across the globe could be threatened.
- **Less Diversity:** **Coral reefs** have been evolving over the past quarter century in response to bleaching events. As more **heat-tolerant coral** replaces the less heat-tolerant species, there is a real concern about the expected extreme loss in the number of species and reduction in area that the world's largest reef covers.

### What are Coral Reefs?

- **About:**
  - Coral reefs are **marine ecosystems** primarily composed of **coral polyps** that form **symbiotic** relationships with **zooxanthellae**, a photosynthetic **algae**.
  - The **zooxanthellae** provide corals with **nutrients** and **oxygen**, while corals offer **shelter**. This **mutualism** is vital for the health and survival of coral reef ecosystems.

### Types:

- **Hydrocorals (Fire Corals):** They are **reef-building** hydroids that have a **hard calcareous exoskeleton** and **stinging cells** that can cause a burning sensation when touched.
- **Octocorals (Soft Corals):** It includes **sea fans** and **sea whips**, which grow more like **fleshy plants** and do not form calcium carbonate skeletal structures.
- **Antipatharians (Black Corals):** They are a type of '**soft**' coral recognised by their **jet-black** or **dark brown chitin skeletons**.

### Geographical Extent:

- **Corals** can be found throughout the world's oceans, in both **shallow** and **deep water**. However, the **reef-building corals** that rely on a **symbiotic relationship** with algae need **shallow, clear water**, allowing light penetration for photosynthesis.
  - **Stony corals** also require tropical or subtropical temperatures, which exist in a band between **30° north** and **south latitudes**.
- The major coral reef formations in India are **Gulf of Mannar, Palk Bay, Gulf of Kachchh, Andaman and Nicobar Islands** and **Lakshadweep Islands**.

### Importance:

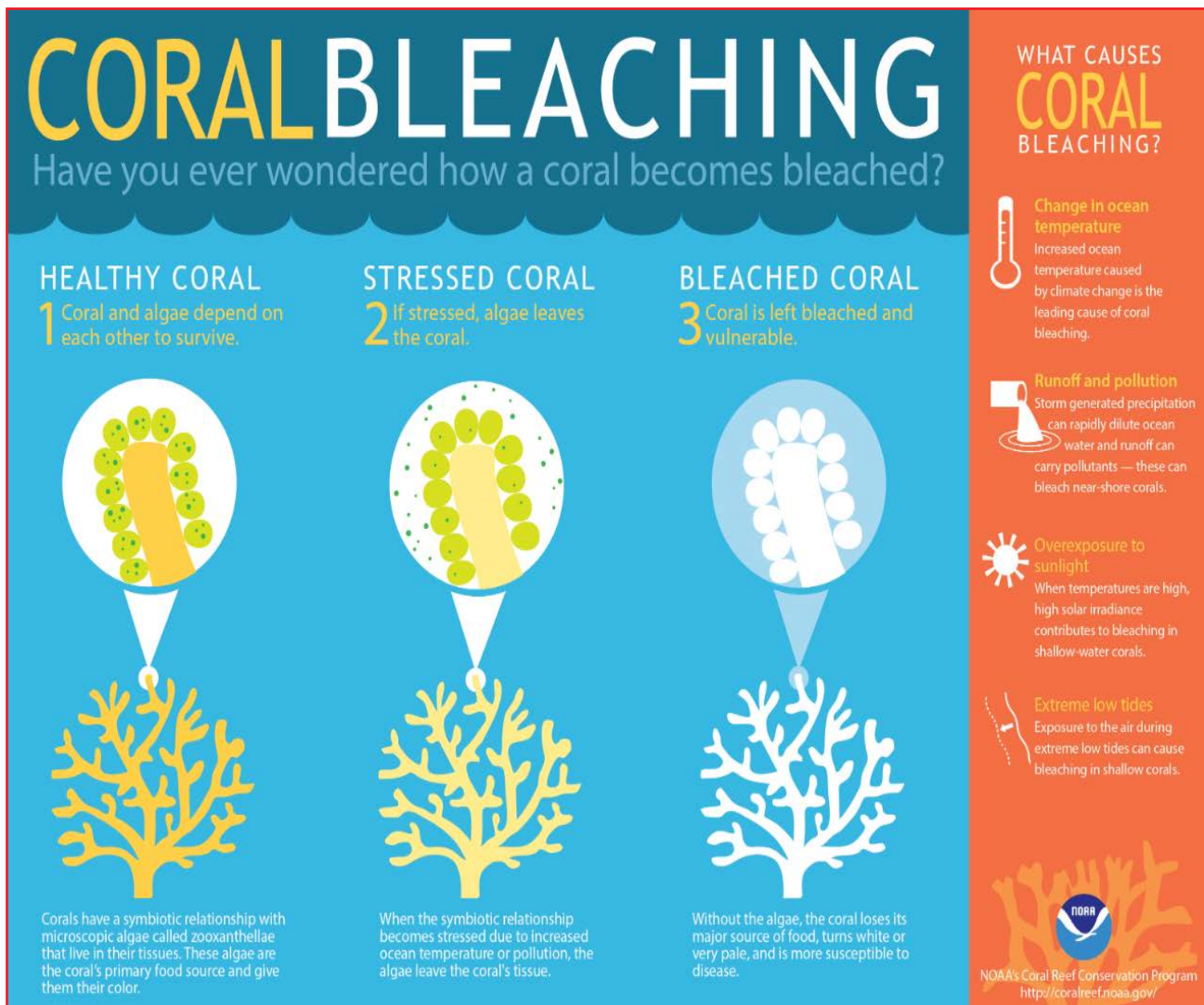
- They **cover only 1%** of the world's oceans but provide **habitat** for at **least 25%** of the world's marine species.

Note:

- Coral reefs are valuable for medicinal research, with many drugs being developed from reef organisms to treat **cancer, arthritis, infections**, and other diseases.
- Coral reefs **protect shorelines** by mitigating the impact of waves, storms, and floods and contribute to **beach formation**, with much of the sand on nearby beaches made from broken-down coral skeletons.
- Coral reefs are also **home** to important filter feeders, like **sponges**, that filter toxins and contaminants out of the oceans, and support large amounts of **plant life** that take in carbon dioxide and release oxygen.

➤ **Coral Bleaching:**

- When corals are **stressed** due to factors like **increased ocean temperature** or pollution, the algae **leave** the coral's tissue.
- Without algae, corals **lose their color**, turning white or very pale, and become more vulnerable to disease.
- The loss of algae disrupts the coral's food supply and leads to coral bleaching.



Note:



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# Coral Reefs

(Rainforests of the seas)



## About

- ✦ **Large underwater structures** – made of skeletons of **colonial marine invertebrates** 'coral' – individually called **polyp**
- ✦ **Symbiotic Relationship** with **algae** '**zooxanthellae**' (responsible for beautiful colours of corals)
- ✦ Support over 25% of marine biodiversity

## Hard Corals vs Soft Corals

- ✦ **Hard Corals** - Rigid skeleton made of **CaCO<sub>3</sub>** - **reef-building** corals
- ✦ **Soft Corals** - Non reef-building

## Great Barrier Reef (Australia)

- ✦ Largest Coral Reef in the World
- ✦ World Heritage Site (1981)
- ✦ Endures Mass Coral Bleaching



## Corals in India

- ✦ Present in the areas of Gulf of Kutch, Gulf of Mannar, Andaman & Nicobar, Lakshadweep Islands and Malvan



## Significance

- ✦ Coral reefs **protect coastlines** from **storms/erosion**, provide jobs, offer opportunities for recreation
- ✦ Source of **food/medicines**

## Threats

- ✦ **Natural:** Temperature, Sediment Deposition, Salinity, pH, etc.
- ✦ **Anthropogenic:** Mining, Bottom Fishing, Tourism, pollution, etc.

## Coral Bleaching

- ✦ Corals under stress - expel algae – thus turning white (bleached)
- ✦ Bleached corals - not dead – but, more risk of starvation/disease



## Initiatives to Protect Corals

### Technology

- ✦ **Cyromesh:** Storage of the coral larvae at (-196°C) - Can be later reintroduced to the wild
- ✦ **Biorock:** Creating artificial reefs on which coral can grow rapidly



### Global

- ✦ International Coral Reef Initiative
- ✦ The Global Coral Reef R&D Accelerator Platform

### Indian

National Coastal Mission Programme

Note:



# Transit-Oriented Urban Development

## Why in News?

The union government proposed a **transit-oriented development (TOD)** plan for **14 large cities** with a population of over 30 lakh.

- Cities will be developed as **“growth hubs”** through economic and transit planning, and orderly development of **peri-urban areas** (areas immediately surrounding a city).

## What is Transit-Oriented Development (TOD)?

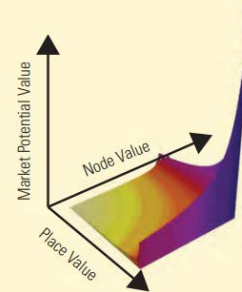
### About:

- TOD is a planning strategy that aims to **concentrate jobs, housing and services** around public transport stations.
  - It encourages development that is **easy to walk or bike** through, with jobs, homes, and services located close to transit options.
- TOD works on the idea that **economic growth, urban transport** and **land use** are more efficient when planned together.
- This approach has been successfully used in cities like **Stockholm, Copenhagen, Hong Kong, Tokyo, and Singapore**.

### World Bank 3V Framework Guiding TOD Plans:

- **Node Value:** It describes the **importance of a station** in the public transit network based on **passenger traffic, connections** with other transport modes, and **centrality** within the network.
- **Place Value:** It reflects the quality and **attractiveness of the area around the station**.
  - Key factors include diverse land use, access to essential services like **schools and healthcare**, the availability of amenities within walking or cycling distance, **pedestrian-friendly design**, and the size of urban blocks around the station.
- **Market Potential Value:** It refers to the **potential market value** of areas around stations.
  - This is assessed by considering factors like the number of **current and future jobs** nearby, the number of jobs accessible by transit within 30 minutes, housing density, available land for development, possible zoning changes, and **overall market activity**.

## Synchronization of Node, Place, and Market Potential Values



### Benefits of TOD:

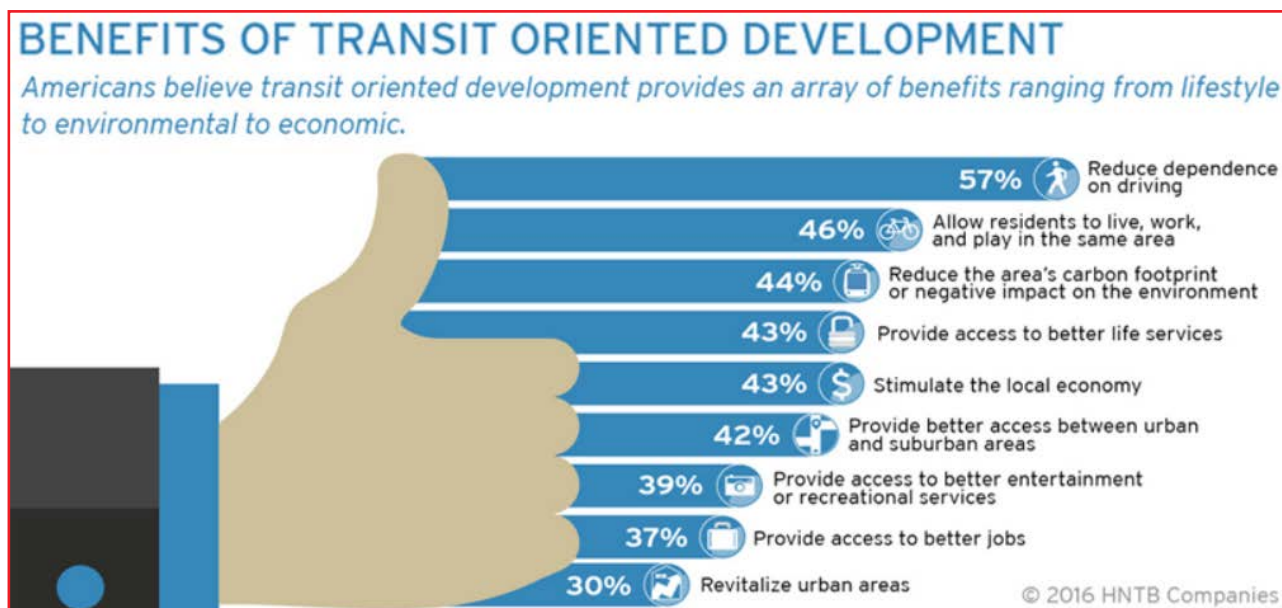
- **Boosting Economic Competitiveness:** TOD encourages higher densities and **clusters jobs** in smaller areas, leading to benefits like increased city competitiveness.
  - Research shows that doubling job density can **boost economic productivity by 5 to 10%**.
- **Vibrant and Livable Communities:** TOD brings jobs, housing, and amenities closer to transit stations, creating lively communities with **great public spaces** and **shorter commutes**, making cities more livable.
- **Mutual Reinforcement of Compact Urban Development and Public Transit:** Compact urban development and good public transit work together. High-density areas bring more passengers, making transit systems profitable, while the **concentration of jobs and housing near stations** supports these **transport systems**.
- **Increasing Real Estate Value:** Being close to mass transit makes TOD neighbourhoods more attractive, increasing **real estate values**.
  - Cities can **use this extra value to fund transit upgrades**, affordable housing, and sustainable growth.
  - **In Hong Kong**, this approach raised Hong Kong Dollar 140 billion and provided land for 600,000 public housing units between 1980 and 2005.
- **Promoting Inclusivity:** While TOD **can increase property prices**, this can be mitigated by including **affordable housing** in new developments.
  - **An inclusive TOD approach ensures access to jobs and services** for people of all income levels.

Note:



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- **Reducing Carbon Footprint:** TOD reduces car use, shortens commutes, increases productivity, and **lowers carbon emissions**.
  - E.g., in **Stockholm**, development along transit routes boosted economic **value per person by 41%** and cut **greenhouse gas emissions** per person by 35% from 1993 to 2010.
- **Supporting Disaster Resilience:** When implemented in areas less prone to natural hazards, TOD can enhance **disaster resilience** by encouraging high-density development in **safer zones**, reducing exposure to risks.



#### ➤ Factors Driving Demand for TOD:

- **Rapidly Growing Traffic Congestion:** Nationwide **traffic congestion** is increasing rapidly and becoming overwhelming, prompting the need for more efficient urban planning.
- **Dissatisfaction with Suburban areas:** There is a growing discontent with **suburban sprawl** and strip development, leading people to seek alternatives.
- **Desire for a Quality Urban Lifestyle:** More people are seeking a higher quality urban lifestyle that offers **better amenities** and experiences.
- **Preference for Walkable Environments:** There is a growing desire for more **walkable lifestyles** that are free from heavy traffic, enhancing daily convenience and safety.
- **Changes in Family Structures:** The rise in **single-person households** and **empty-nesters** (people whose adult children have left home) is **influencing** the demand for urban living options.
- **Support for Smart Growth:** There is increasing national support for **Smart Growth principles**, which emphasise sustainable and efficient land use.

#### ➤ Components of TOD:

- **Walkable Design:** It prioritises **pedestrian-friendly design** with walking as the main focus.
- **Regional Node:** A regional hub includes a **mix of uses**, such as office spaces, residential areas, retail, and civic facilities, all in close proximity.
- **Collector Transit Systems:** It includes **supporting transit systems like streetcars, light rail, and buses**.
  - Designed for easy use of bicycles and scooters as daily transport options.
- **Managed Parking:** Parking is reduced and managed within the 10-minute walk circle around the town centre and train station.
- **Specialised Retail:** Stations feature specialised **retail services for commuters and locals**, such as cafes, grocery stores, and dry cleaners.

#### **What are the Challenges Associated with TOD?**

- **Lack of Regional Coordination at the Metropolitan Level:** India's metropolitan areas often have **multiple municipal and state authorities** with differing agendas, leading to fragmented TOD planning.

Note:

- **Not Inclusive:** Separate planning processes for land use and transportation can result in mismatched goals and inefficient TOD development.
  - Also, it does not take into account the requirements of other sectors of the economy like agriculture and allied services.
- **Higher Population Density:** Inadequate regulations may result in either an overconcentration of development in certain areas or underutilization in others.
  - This can strain infrastructure in high-density areas while leaving other parts of the city underdeveloped and poorly connected.
- **Neglected Urban Design:** Many Indian cities lack well-designed sidewalks, crosswalks, and pedestrian zones, making it difficult for people to access transit stations safely and comfortably. It forces pedestrians to navigate dangerous and congested streets.
- **May not Suit Indian Cities:** In island cities like Hong Kong and Singapore, TOD maximises land use efficiency, allowing more people to live and work in proximity to transit, reducing the need for sprawling development. It may not be suitable for Indian cities like New Delhi or Bengaluru.
- **No Impact on People's Behaviour:** Behavioural change is a key factor in **reducing the use of private vehicles for lowering greenhouse gas (GHG) emissions**. TOD may not motivate people to reduce private vehicle use despite heavy investment in inefficient public transit systems.
- **Higher Vulnerabilities to Disaster:** The concentration of people in a small area increases the **likelihood of casualties and injuries during a disaster**. Due to overburdened infrastructure, such as roads, utilities, and emergency services, it can quickly become overwhelmed during a disaster.
- **Urban Sprawl:** Rapid urbanisation leads to sprawling cities, making it challenging to create compact, walkable neighbourhoods. For example, cities like Ahmedabad experience significant sprawl, complicating the implementation of TOD principles.
- **Socioeconomic Disparities:** Ensuring that TOD benefits all socioeconomic groups is crucial but challenging. There is a risk that new developments may cater primarily to affluent populations, excluding lower-income residents.
- **Other Issues:** **Regulatory, community and financial challenges** hinder TOD in Indian cities like Bengaluru,

Chennai, and Kolkata. **Zoning laws, community resistance** and **budget constraints** limit mixed-use development and transit improvements.

#### National Transit Oriented Development (TOD) Policy, 2017

- The **Ministry of Housing and Urban Affairs (MoHUA)** launched the **National Transit-Oriented Development policy 2017**. It is designed to **assist** states and cities in using **Transit Oriented Development (TOD)** for urban growth.
- **Vision:**
  - **Transformation:** Shift from private vehicle dependence **to public transport-oriented development**.
  - **Accessibility:** Promote public transport use, **green mobility, and reduce pollution**.
  - **Walkable Communities:** Develop compact, affordable, and walkable neighbourhoods.
  - **Public Transport:** Increase transit and walk trips, reduce pollution and congestion.
  - **Dense Infrastructure:** Create dense road networks and reduce private vehicle ownership.
  - **Inclusive Housing:** Incorporate affordable and economically weaker sections housing.
  - **Recreation and Safety:** Ensure recreational spaces and safety, particularly for vulnerable groups.
  - **Environmental Impact:** Reduce carbon footprints by promoting eco-friendly travel options.

#### Initiatives Taken for Transit Oriented Urban Development in India

- **National TOD Policy 2017**
- **Metro Rail Policy 2017**
- **Urban Infrastructure Development Fund (UIDF)**
- **Multi-Modal Transport Hub (MMTH)**

## Wildfires Triggering Pyrocumulonimbus Clouds

### Why in News?

Recently **wildfires** raging in the United States and Canada are so intense that they have created **pyrocumulonimbus clouds (pyroCbs)**, which have the potential to spit out thunder and spark more fires.

Note:



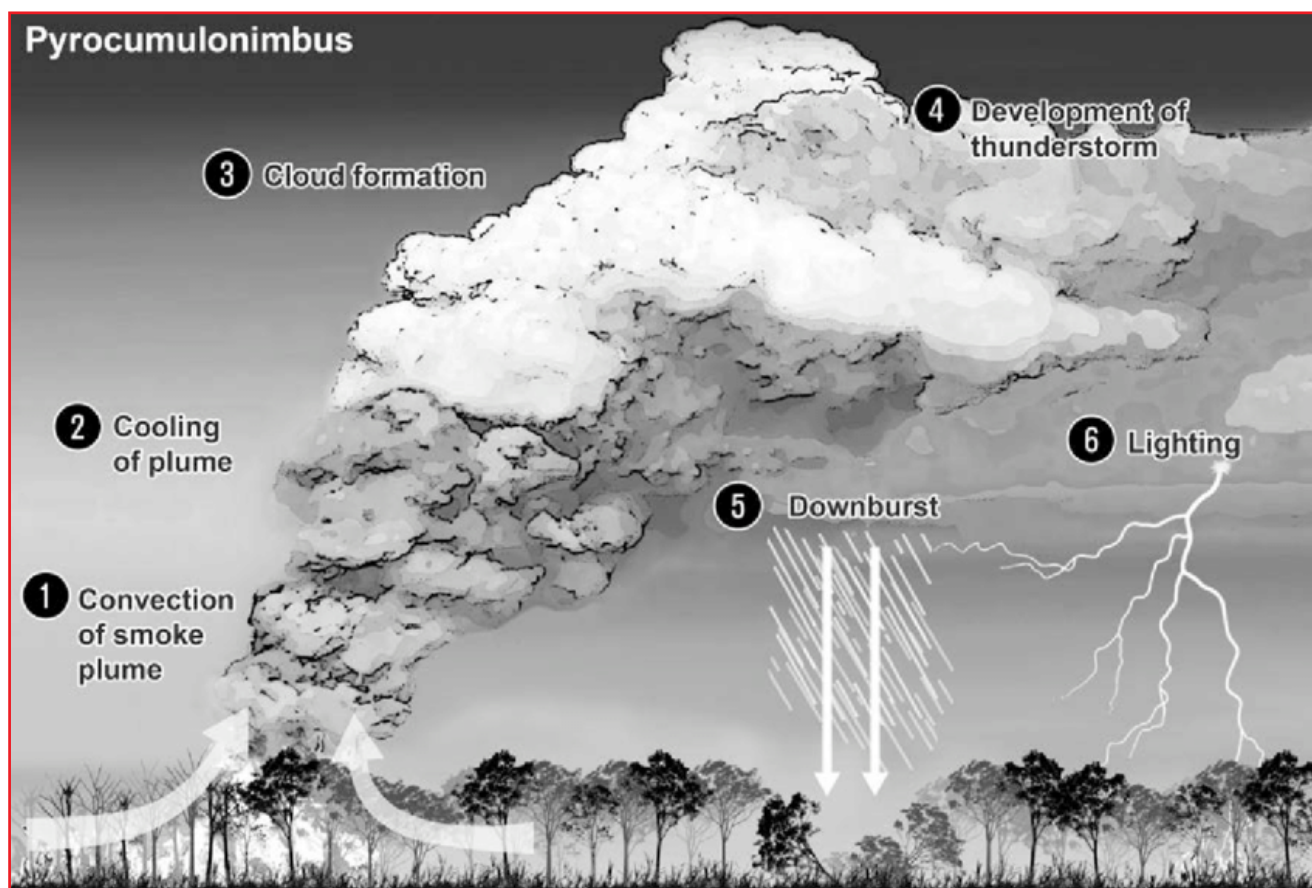
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### What are Pyrocumulonimbus Clouds?

- **Definition:** Pyrocumulonimbus clouds are **thunder clouds created by intense heat from the Earth's surface**. They are also called **fire clouds**.
  - They are formed similarly to **cumulonimbus clouds**, but the intense heat that results in the **vigorous updraft comes from fire**, either large wildfires or volcanic eruptions.
- Conditions for its Formation:
  - Pyrocumulonimbus clouds **form under extreme heat** (like wildfires).
    - **Not every wildfire produces these clouds**, temperatures need to exceed 800°C, as seen in the 2019-2020 **Australian bushfires**.

- Intense heat from the fire causes hot air to rapidly rise, **carrying water vapour, smoke, and ash that condense** into pyrocumulus clouds as they cool.
- These clouds can **reach up to 50,000 feet and form thunderstorm systems** with lightning and strong winds.
- Impacts and Characteristics:
  - Pyrocumulonimbus clouds can produce lightning that may ignite new wildfires several kilometres away.
  - They **generally generate minimal rain, aiding wildfire spread rather than suppression**.
  - These clouds can trigger strong winds, accelerating and **complicating wildfire management**.



### Why are Pyrocumulonimbus Cloud Events Occurring More Often?

- **Rising Temperatures and Extended Fire Seasons:** **Global warming** leads to higher temperatures and **longer dry periods**, creating **drier conditions** that increase the frequency and intensity of wildfires and **provide more opportunities for pyrocumulonimbus cloud formation**.
- **Increased vegetation and Drought Conditions:** Warmer temperatures and changing **precipitation patterns** increase **vegetation growth**, which serves as **fuel for wildfires**.

Note:



- Additionally, **persistent droughts** dry out forests and grasslands, making them **more susceptible to ignition**.
- **Extreme Weather Patterns:** Intense and frequent **heatwaves**, along with **altered wind patterns**, can trigger and spread wildfires more rapidly, **increasing the likelihood of pyrocumulonimbus clouds forming**.
- **Human Activities:** **Deforestation**, **land use changes**, and **urbanization** exacerbate wildfire risks by increasing the **likelihood of human-caused fires** and indirectly contributing to pyrocumulonimbus cloud formation.

Read More: [Forest Fires: A Very Big Concern](#)



Note:

# Disaster Management

## Highlights

- *Cloudbursts in Himachal Pradesh*
- *FAO Guidelines on Wildfire Management*
- *Drowning Disasters in India*
- *Landslides in Wayanad*

## Cloudbursts in Himachal Pradesh

### Why in News?

Recently, a cloudburst, leading to flash floods in Himachal Pradesh has killed many people and several missing.

- These floods caused significant destruction, including the washing away of several buildings, bridges, and roads, according to officials.

### What is a Cloudburst?

#### ➤ About:

- According to the [India Meteorological Department \(IMD\)](#), cloudbursts are **sudden, heavy rainstorms** where more than **10 cm of rain falls in less than an hour over a small area, of about 10 square km**. They often happen in mountainous areas, especially in the Himalayas.
- In the Indian Subcontinent, it generally occurs when a monsoon cloud drifts northwards, from the Bay of Bengal or the Arabian Sea across the plains then on to the Himalaya which **sometimes brings 75 mm of rain per hour**.

#### ➤ Causes:

- Cloudbursts occur when **strong upward currents of hot air prevent raindrops from falling**, allowing them to **grow larger** while new smaller drops form below.
- This leads to a **significant accumulation of water in the atmosphere**, which is **released abruptly when the upward currents weaken**.
- Cloudbursts frequently occur in the **hilly and mountainous areas** of the Indian subcontinent, largely due to the **region's complex topography**, which facilitates **orographic lifting**.

- **Orographic lifting** occurs when **air rises and cools** as it travels up the windward side of a mountain.
- This process **enhances cloud development** and rainfall as moist air ascends over the mountains, with monsoon dynamics and localised weather patterns further influencing these intense precipitation events.

#### ➤ Cloudburst are Different from Rainfall:

- **Rain is condensed water falling from a cloud while cloudburst is a sudden heavy rainstorm.**
- Rain over **10 cm per hour** is categorised as a cloudburst.
- The **cloudburst is a natural phenomenon**, but occurs quite unexpectedly, very abruptly, and rather drenching.

#### ➤ Prediction:

- There is **no satisfactory technique** for anticipating the occurrence of cloud bursts through **satellites and ground monitoring stations** because they **develop over a small area and for a period of time**.
- A **very fine net work of radars is required to be able to detect** the likelihood of a cloud burst and this would be expensive.
- Only the areas likely to receive heavy rainfall can be identified on a short range scale. Much of the **damage can be avoided by way of identifying the areas** and the meteorological situations that favour the occurrence of cloud bursts.

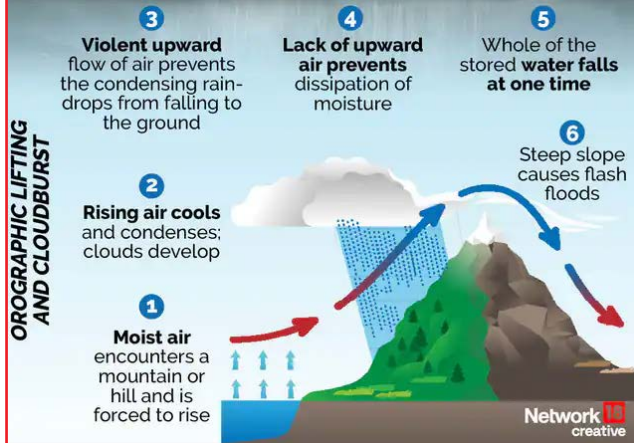
#### ➤ Examples of Cloudbursts:

- **Uttarakhand Cloudburst (July 2021):** Devastating cloudbursts in Chamoli, Uttarkashi, and Pithoragarh caused **flash floods, landslides, and extensive damage to infrastructure and lives**.
- **Himachal Pradesh Cloudburst (August 2020):** Cloudbursts in Kullu, Lahaul-Spiti, and Kinnaur triggered landslides and flash floods, damaging roads, bridges, and houses.

Note:

## WHAT CAUSES CLOUDBURSTS?

Cloudbursts occur only via orographic lift i.e. a situation when a warm air parcel mixes with cooler air, resulting in sudden condensation.



### What are the Consequences of Cloudbursts?

- **Flash floods:** **Flash floods** are sudden, localised surges in water levels during or after intense rainfall.
  - Flash flooding starts **within 6 or 3 hours of heavy rainfall**. It is typically caused by **intense thunderstorms** but can also result from dam or levee breaks and mudslides.
  - Factors like **rainfall intensity, location, land use, topography, vegetation, soil type, and water content** determine the speed and location of flash flooding.
- **Landslides:** A **landslide** is a **mass movement of material**, such as **rock, earth or debris**, down a slope. It can happen **suddenly or more slowly** over long periods of time.
  - Factors like heavy rainfall, erosion, and weathering can trigger landslides.
  - In India, landslides account for about **8% of global fatalities**, with **847 deaths** and thousands displaced from 2001 to 2021, according to research from IIT-Madras.
  - **Around 13.17% of India's area is susceptible to landslides**, with **4.75%** designated as "very highly susceptible."
  - **Sikkim is the most prone state, while Kerala has over 14%** of its land in the very high susceptibility category.

- **Mudflows:** It is a type of **water flow** characterised by its **high density and viscosity**, containing significant amounts of suspended particles and silt.
  - Mudflow can **only transport and deposit the coarsest materials**, leading to **irreversible sediment entrainment**, and it typically does not flow as far as regular water streams.

### Why forecasting cloudbursts is a challenge

Efforts to monitor and forecast cloudbursts are still at a nascent stage

- |  |  |   |
|--|--|---|
| <p><b>1</b> As per the IMD definition, over <b>100 mm of rainfall in one hour</b> is called a cloudburst. It usually occurs over a small geographical region (20-30 sq. km)</p> <p><b>2</b> Rainfall of 100 mm per hour translates to <b>100 litres for every square metre</b> where a cloudburst occurs. For a small region of 20 sq. km, it is about <b>two billion litres of water</b> in an hour</p> <p><b>3</b> Tall cumulonimbus clouds causing cloudbursts can develop quickly (in about <b>30 minutes</b>) as the moisture</p> | <p>updraft happens rapidly – 60-120 km/hr</p> <p><b>4</b> Cloudbursts occur mostly over the rugged terrains over the <b>Himalayas, Western Ghats</b>, and northeastern hill States of India</p> <p><b>5</b> In India, cloudbursts often occur during the monsoon season, when the <b>SW monsoon winds</b> bring in copious amounts of moisture inland</p> <p><b>6</b> Satellites fail to detect cloudburst systems as the <b>resolution of the</b></p> | <p><b>precipitation radars</b> are much smaller than the area of individual cloudburst events</p> <p><b>7</b> Multiple doppler weather radars can <b>monitor moving cloud droplets</b> and help to provide forecast for the next three hours. But <b>radars are expensive</b> and installing them widely may not be feasible</p> <p><b>8</b> The change in monsoon extremes and cloudbursts are in response to the <b>1-degree Celsius rise</b> in global surface temperature</p> |
|--|--|---|

### What is the Impact of Climate Change on Cloudburst?

- **Increased Atmospheric Moisture:** Rising global temperatures allow the atmosphere to hold more moisture. This **moisture-laden air** can lead to **more intense cloud formation** and increased potential for cloudbursts, especially in mountainous areas like the Himalayas.
- **Changes in Precipitation Patterns:** Climate change can **shift precipitation patterns**, causing some regions to experience prolonged dry periods while others face more intense rainfall events.
- **Altered Atmospheric Stability:** Higher temperatures can **destabilise the atmosphere**, leading to increased convective activity and more frequent **thunderstorms**, which are often linked to cloudbursts.
- **Glacier Retreat and Snowmelt:** Melting glaciers in regions like the **Himalayas**, driven by rising temperatures, are **releasing water more quickly**, potentially contributing to cloudburst events.
- **Land Use Changes:** Human activities such as **deforestation** and **urbanisation** can alter local climates and precipitation patterns, **affecting microclimates in mountainous areas** and potentially influencing cloudburst occurrences.

### What are the Ways to Mitigate the Devastating Impact of Cloudbursts?

- **Early Warning Systems:** Develop effective early warning

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systems to **predict cloudbursts and provide timely alerts**, allowing people to prepare and evacuate if necessary.

- **Urban Planning and Infrastructure:** Invest in resilient **urban planning** and infrastructure, such as stormwater drainage systems, retention ponds, and green spaces, **to manage excess water and reduce flooding**.
- **Watershed Management:** Implement practices to manage watersheds, like **reducing soil erosion and increasing soil infiltration**, to help control water flow and lessen the impact of cloudbursts.
- **Reforestation and Green Infrastructure:** Plant trees and **maintain green areas to absorb excess water**, reduce soil erosion, and **stabilise slopes**, helping to mitigate cloudburst effects.
- **Awareness and Education:** Educate communities about **cloudburst risks and train them on response and evacuation** procedures to ensure they take necessary precautions.
- **Sustainable Land Use Practices:** Promote land use practices that reduce vulnerability to cloudbursts, such as **avoiding construction in flood-prone areas**, controlling deforestation, and **implementing soil conservation measures**.
- **International Cooperation:** Work with neighbouring countries and international organisations to share best practices, technology, and **resources for managing cloudbursts, especially in shared river basins**.

## FAO Guidelines on Wildfire Management

### Why in News?

Recently, the **Food and Agriculture Organization (FAO)** released the updated “**Integrated Fire Management Voluntary Guidelines: Principles and Strategic Actions**.”

- These new guidelines revise the previous FAO **fire management guidelines** from two decades ago to address current **climate crisis challenges**.

### What are the New FAO Fire Management Guidelines?

- **Integration of Knowledge:**
  - The guidelines stress the importance of **integrating science and traditional knowledge** from **Indigenous Peoples and local knowledge holders**.

- This approach enhances **fire management decisions**, helps in preventing wildfires, managing fire outbreaks, and restoring areas affected by severe burning.

- **Gender inclusion and diverse fire management knowledge** are also promoted.

### ➤ Impact and Adoption:

- Since the original guidelines’ release nearly 20 years ago, many countries have developed public policies and training programs based on them.
- The updated guidelines are expected to see broader adoption globally.

### Note:

- **FAO and the UN Environment Programme (UNEP)** established the **Global Fire Management Hub (Fire Hub)** at the **8<sup>th</sup> International Wildland Fire Conference** in May 2023.
- It is supported by the governments of **Canada, France, Germany, Portugal, the Republic of Korea and the United States of America**.
- It aims to unite the global fire management community and enhance national capacities for implementing integrated fire management strategies.

### What is a Wildfire?

#### ➤ About:

- Also known as bush, vegetation, or forest fire, a **wildfire is any uncontrolled and non-prescribed burning** of plants in natural settings such as forests, grasslands, brushlands, or tundras.
- It consumes natural fuels and spreads based on environmental conditions like **wind and topography**.

#### ➤ Classification:

- **Surface Fire:** Burns primarily along the ground, consuming surface litter like leaves, twigs, and dry grasses.
- **Underground Fire/Zombie Fire:** Low-intensity fires that consume organic matter beneath the surface. They spread slowly underground, making them hard to detect and control, and can burn for months.
- **Canopy or Crown Fires:** Spread through the upper canopy of trees, often fueled by high winds and dry conditions, and can be very intense and difficult to control.
- **Controlled Deliberate Fires:** Also known as prescribed burns, these are intentionally set by

Note:



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forest management agencies to reduce fuel loads, mitigate wildfire risks, and promote ecosystem health. They are carefully planned and executed under specific conditions.

➤ **Reasons:**

- **Human Activities:** Many forest fires are caused by **human activities** such as discarded cigarettes, campfires, burning debris, and other similar actions.
  - **Increased urbanisation and human presence** in forested areas raise the risk of accidental fires.
  - **Poachers and illegal smugglers** may set fires to distract forest officials or eliminate evidence of their activities.
- **Weather Conditions:** Exceptionally **hot and dry weather**, particularly in southern India during early summer, creates conditions conducive to fire spread. High temperatures, low humidity, and calm winds increase fire risks.
- **Aridity:** **Above-normal temperatures**, clear skies, and lack of rainfall in southern India lead to increased aridity, drying out vegetation and making it more prone to ignition and rapid fire spread.
- **Early Availability of Dry Biomass:** **Above-normal temperatures** before the summer season have led to an early buildup of dry biomass in forests, including the flammable leaves of chir forests, increasing fire risks and intensity.

#### Forest Fires in India

➤ **Forest Fire Season:**

- The forest fire season in India extends from **November to June**, with peak activity from February onward as summer approaches. April and May are typically the worst months for fires.
- Based on the forest inventory records (of **Forest Survey of India**), **54.40%** of forests in India are exposed to **occasional fires**, **7.49%** to **moderately frequent fires** and **2.40%** to **high incidence levels**.
- According to the **India State of Forest Report (ISFR) 2021** by the **Forest Survey of India (FSI)**, **35.47% of forest cover is classified as fire-prone**.

➤ **Regions:**

- Severe fires are prevalent in dry deciduous forests, while evergreen, semi-evergreen, and montane temperate forests are less prone to fires.
- Most vulnerable regions include **Northeast India, Odisha, Maharashtra, Jharkhand, Chhattisgarh, and Uttarakhand**.

➤ **Present Scenario (2024):**

- The forest department of **Uttarakhand** has reported that between **January and June 2024**, there have been 1,309 forest fires in **Uttarakhand** up from 241 over the same period last year and 733 for the entirety of 2023.
- The highest number of forest fires reported are in **Mizoram (3,738), Manipur (1,702), Assam (1,652), Meghalaya (1,252), and Maharashtra (1,215)**, according to FSI data.
- **ISRO satellite data** indicates an increase in forest fires since early March 2024, affecting areas such as the **Konkan belt in Maharashtra, south-coastal Gujarat, southern Rajasthan, southwestern Madhya Pradesh, coastal and interior Odisha, and adjoining Jharkhand**. South India, including **Andhra Pradesh, Karnataka, and Tamil Nadu**, has also seen recent fire incidents.

➤ **Government Initiatives:**

- **National Action Plan for Forest Fires (NAPFF):** Launched in 2018 to reduce forest fires by informing and empowering forest fringe communities and incentivizing collaboration with state forest departments.
- **Forest Fire Prevention and Management Scheme (FPM):** Launched in 2017, it is the only government-sponsored program dedicated to assisting states in managing forest fires.

## Drowning Disasters in India

### Why in News?

Recently, **25<sup>th</sup> July 2024** was observed as **World Drowning Prevention Day**. It is a global initiative that is dedicated to raising awareness and accelerating action on global drowning prevention.

- Drowning is a major public health problem that has caused over 2.5 million deaths in the last decade, mostly in low- and middle-income countries.

#### Drowning

- As per **World Health Organisation (WHO)**, drowning is defined as **respiratory impairment resulting from submersion or immersion in liquid**, with outcomes classified as death, morbidity, or no morbidity.

Note:



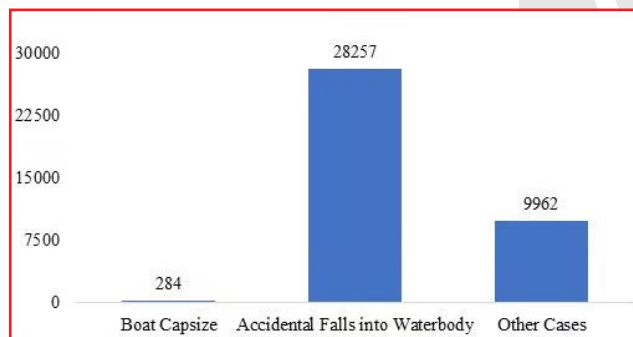
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### ➤ World Drowning Prevention Day:

- It is an **annual global event** held on **25<sup>th</sup> July** to honour those who have lost their lives to drowning and to promote water safety awareness.
- Established by a **United Nations General Assembly (UNGA)** resolution in **April 2021**, the event is coordinated by the **World Health Organization (WHO)**.
- **Theme for 2024:** "Anyone can drown, no one should"
- **WHO Slogan:** "Seconds can save a life".

### What are the Factors Contributing to Incidents of Drowning in India?

- **Access to Water Bodies:** Many Indians live near rivers, ponds, and wells for daily activities, lacking safety measures and supervision, especially for children.
- **Accidental falls** into water bodies accounted for 28,257 deaths in 2022.
- **'Other Cases'**, accounts for 9,962 deaths, reflecting a range of unclassified drowning incidents and boat capsizes resulted in 284 deaths.

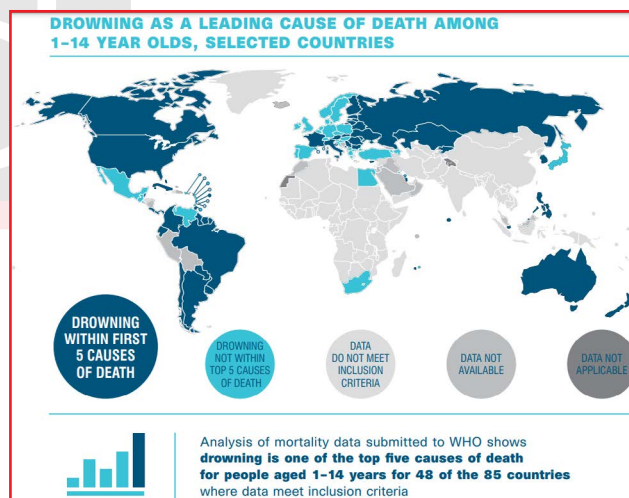


- **Flooding:** Monsoon rains cause flooding, worsened by poor drainage, making communities vulnerable to drowning.
- **Cultural Perceptions:** Some communities view drowning as inevitable, hindering safety measures and awareness campaigns.
- **Economic Constraints:** Poverty limits access to safety equipment, swimming lessons, and emergency services, affecting low-income families in high-risk areas.
- **Inadequate Safety Regulations:** There is a lack of stringent safety regulations governing the use of public water bodies.
  - Enforcement of safety measures, such as lifeguards at beaches and swimming pools, is often lacking, contributing to higher drowning rates.

### What are the Statistics Related to Drowning Deaths?

#### ➤ Global Data:

- **Global Mortality:** As per **WHO Report on Drowning 2014**, Drowning is a serious and neglected public health threat claiming the lives of 3,72,000 people a year worldwide.
- **Regional Disparities:**
  - Low- and middle-income countries account for over 90% of unintentional drowning deaths. This death toll is almost **two-thirds that of malnutrition** and well over **half that of malaria**.
  - More than half of global drowning incidents occur in the WHO Western Pacific and South-East Asia regions.
  - Drowning death rates in the WHO Western Pacific Region are 27–32 times higher than those in the UK or Germany.



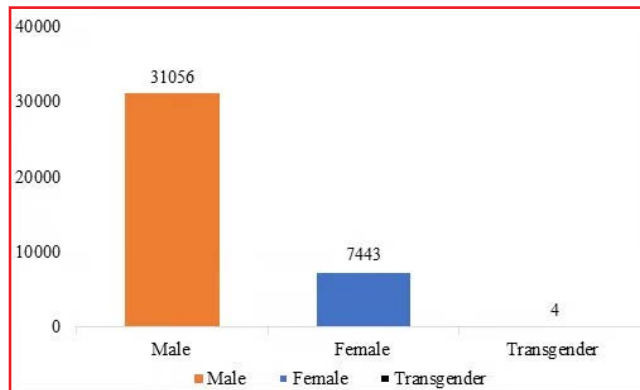
#### ➤ Scenario for India:

- **Data:** Around **38,000 Indians** die of drowning every year.
- **Drowning a Significant Concern:** According to the **National Crime Records Bureau (NCRB)** report for 2022, drowning is a significant public safety concern and accounted for **9.1%** of all accidental deaths in India, with **38,503 fatalities**.
- **State-wise Data:** **Madhya Pradesh** reported the highest number of drowning deaths at 5,427, followed by **Maharashtra** (4,728) and **Uttar Pradesh** (3,007). This indicates a widespread issue across multiple states.

Note:

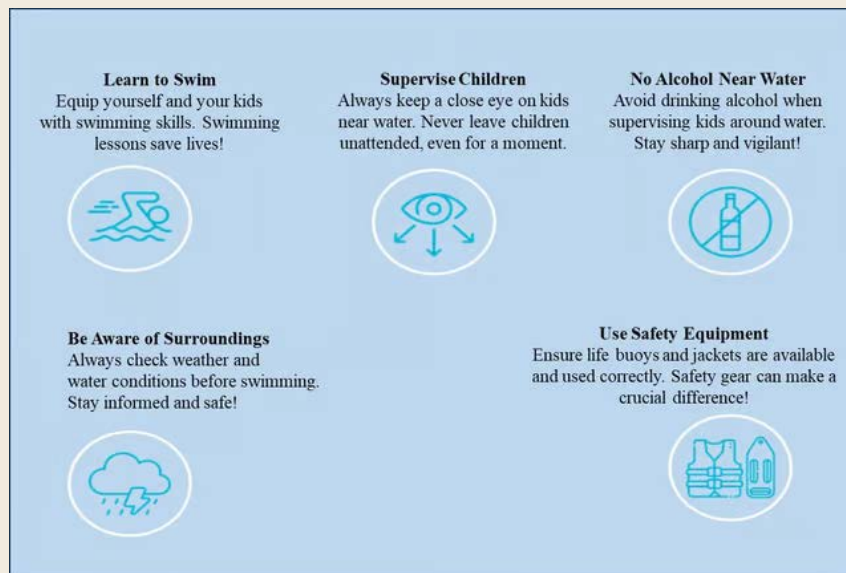
### ○ Gender-wise Drowning Deaths:

- **Age and Gender-wise Distribution of Deaths:** Children aged 1-14 are particularly at risk, with drowning being a leading cause of death in this age group.



### Role of WHO in Addressing Drowning Incidents

- The World Health Organization (WHO) has recognised drowning as a leading cause of injury-related death and disability worldwide.
- Drowning deaths have emerged as a significant public health issue, gaining international attention with the **WHO's first Global Report on Drowning Prevention in 2014**.
- The **WHO Resolution WHA76.18** emphasises the need for coordinated multi-sectoral action to combat this issue.
- WHO Recommendation for the Prevention of Drowning Accidents:



### What Measures Can be Implemented to Prevent Drowning Incidents?

- **Installation of Barriers:** Erecting physical barriers around water bodies such as pools, wells, and ponds can significantly limit access, particularly for young children.
  - Fencing and secure covers act as primary preventive measures to control entry to potentially hazardous areas.
- **Safe Areas Away from Water:** Creating designated safe zones for children and adults away from water bodies helps minimise the risk of accidental drowning. These areas should be equipped with engaging activities to divert attention away from water.

Note:

- **Training in Rescue Techniques:** Educating bystanders in safe rescue and resuscitation techniques, such as **Cardiopulmonary Resuscitation (CPR) and mouth-to-mouth breathing**, can save lives. Community programs should focus on training individuals to respond effectively in emergency situations.
- **Integration into Education Curriculums:** Incorporating water safety education into school curriculums ensures that children learn preventive measures from a young age.
- **Enforcement of Boating Regulations:** Implementing and enforcing strict boating and shipping regulations is essential. This includes mandatory **life jacket use, regular maintenance of vessels, and adherence to safety protocols** to prevent accidents on water.
- **Flood Risk Management:** Improving flood risk management through the development of flood-resistant infrastructure and early warning systems can significantly reduce the incidence of **drowning during flood events**. Local authorities should invest in such systems to enhance community resilience.

## Landslides in Wayanad

### Why in News?

Recently, the Wayanad district of Kerala has witnessed one of the most devastating **landslide**-related disasters due to extreme rainfall and fragile ecological conditions.

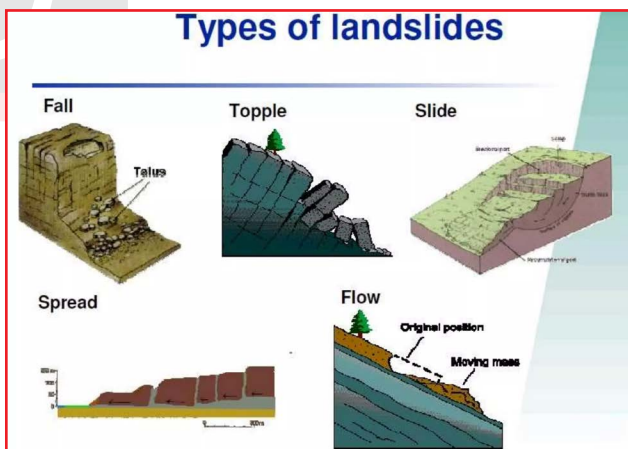
- The district received over 140 mm of rain in 24 hours, surpassing expectations and **recalling the devastating 2018 floods** that claimed around 500 lives.

#### Note:

- The central government has planned to introduce the **Disaster Management (Amendment) Bill, 2024** in the 18<sup>th</sup> **Lok Sabha**.
- The Bill seeks to create a **disaster database** at national and State level and makes provision for the constitution of **Urban Disaster Management Authority** for State capitals and large cities having Municipal Corporations.
  - The **database will include** disaster assessment, fund allocation details, expenditure, preparedness and mitigation plan, risk register according to type and severity of risk and such other relevant matters.

### What are Landslides?

- **About:**
  - A landslide is the **downward movement of rock, soil, and debris** on a slope, ranging from small shifts to large, destructive events.
  - It can occur on **natural or man-made slopes** and is **triggered by factors like heavy rainfall, earthquakes, volcanic activity**, human activities, and changes in groundwater levels.
- **Types:**
  - **Slides:** Movement along a rupture surface, including rotational and translational slides.
  - **Flows:** Soil or rock mixed with water moving like a fluid, such as earth flows, debris flows, mudflows, and creep.
  - **Spreads:** Lateral extension and cracking of the mass, often due to liquefaction.
  - **Topples:** Forward rotation and free-fall from a vertical or near-vertical slope.
  - **Falls:** Detachment from a steep slope or cliff, descending by free-fall, bouncing, or rolling.

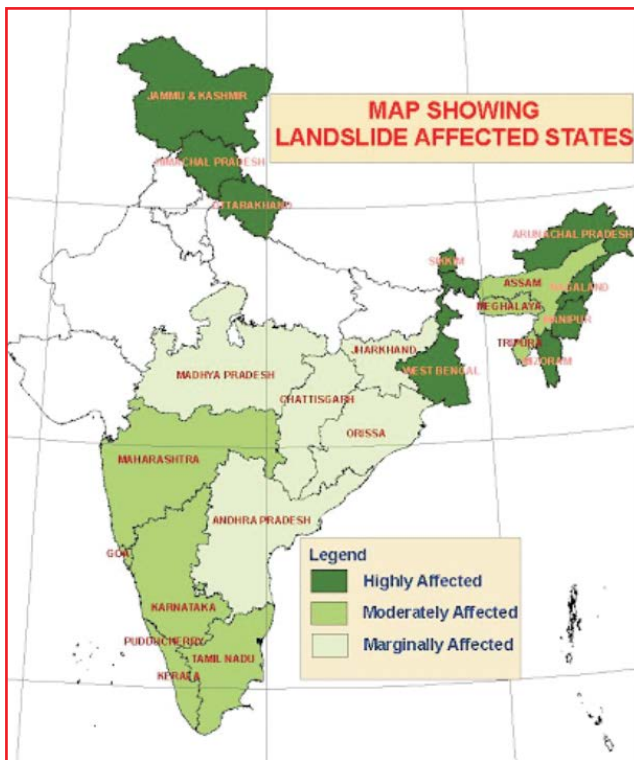


- **The Landslide Atlas of India by ISRO:**
  - India is among the top 5 landslide-prone countries globally.
    - Others are China, US, Italy and Switzerland.
  - In India, about **0.42 million sq. km (12.6% of land area)** is prone to landslide hazard.
  - Reported landslides in India are distributed as follows:
    - 66.5% in the Northwestern Himalayas
    - 18.8% in the Northeastern Himalayas
    - 14.7% in the Western Ghats

Note:



- As per the **Geological Survey of India**, the **economic loss due to landslides** may amount to as much as 1% to 2% of the **Gross National Product (GNP)** in many developing countries
- **Major Landslide-Prone Areas in India:**
  - The **Northeastern Region** (comprising about 50% of the total landslide-prone areas)
  - Uttarakhand, Himachal Pradesh, and Jammu & Kashmir along the **Himalayas**.
  - Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu along the Western Ghats
  - The **Araku region** in Andhra Pradesh along the **Eastern Ghats**.
  - Nearly **17,000 sq km** of area in Kerala, mostly on the western side of the Western Ghats, is mapped as landslide-prone.



#### Major Landslides in India

- **Kedarnath, Uttarakhand in 2013**
- **Pettimudi, Kerala in 2020**
- **Mumbai, Maharashtra in 2021**
- **Tupal, Manipur in 2022**
- **Raigarh, Maharashtra in 2023**
- **Aizawl, Mizoram in 2024**
- **Shirur, Karnataka in 2024**

#### What are the Causes of Landslides?

- **Gravitational Forces:** These are the primary cause of landslides, **constantly pulling materials on slopes downward**.
  - When **gravity exceeds the shear strength** of geomaterials like rocks, sand, silt, and clay, the slope fails, resulting in the **downhill movement** of these materials.
- **Natural Triggers:**
  - **Rainfall:** Prolonged or intense rainfall **increases soil water content, reducing cohesion and adding weight to slopes**, making them more prone to failure.
    - The terrain in Wayanad has **two distinctive layers: a soil layer atop hard rocks**. Heavy rainfall saturates the soil with moisture, weakening the force binding the soil to the rocks, triggering landslides.
    - Also, the recent **warming of the Arabian Sea** has led to **deep cloud systems** and extremely heavy rainfall in the Western Ghats, heightening landslide risks. **Climate change** has also **shifted the rain-bearing belt**, increasing **convective rainfall** in southern regions like Wayanad.
  - **Convectional rainfall** occurs when heated air from the earth's surface rises upwards with water vapour, condensing at higher altitudes. The clouds carrying the water vapour are not carried away by wind, resulting in rainfall at the same place.
  - **Earthquakes:** Earthquakes destabilise slopes by shaking the ground and weakening the structural integrity of geomaterials, especially in tectonically active regions like the Himalayas.
  - **Erosion:** Natural processes such as river or wave action can erode the base of slopes, undermining their stability. Coastal areas are particularly susceptible to landslides due to wave-induced erosion.
- **Hydrological Factors:** Groundwater movement can contribute to landslide risk. Water can seep through porous materials, increasing pore pressure and reducing effective stress, thereby weakening the slope.
- **Anthropogenic Influences:**
  - **Deforestation:** This has removed vegetation, destabilising slopes by eliminating tree roots that provide natural reinforcement and water drainage.

Note:



- **Construction and Land Use Changes:** Activities such as **mining**, road construction, and urban development have disrupted natural drainage and load distribution, increasing landslide risks.
    - Also, historical deforestation for agriculture and tea plantations by Britishers has weakened soil stability, making the region (western ghats) more prone to landslides during heavy rains.
  - **Infrastructure Development:** Tourism and infrastructure development, including resorts, artificial lakes, and construction activities, have intensified land pressure and disrupted natural drainage, increasing landslide risks.
- **Geological Factors:** Geological factors, such as the composition, structure, and weathering state of materials, significantly affect slope stability.
    - The **Western Ghats** have a fragile ecology with **steep slopes and dual-layered terrain**, making them prone to **landslides** when rainwater saturates the soil, increasing its weight and reducing stability.
  - **Defunct Quarries:** The presence of quarries in the vicinity, even after they have ceased operations have also contributed to soil destabilisation as the vibrations and shockwaves from these activities could weaken the geological structure, making the area more prone to landslides during heavy rains.

### ***How do Landslides in the Western Ghats Differ from Those in the Himalayan Region?***

Region	Causes
Western Ghats	<ul style="list-style-type: none"> <li>● Concentrated rainfall</li> <li>● Overburdening of hills</li> <li>● Mining and quarrying</li> <li>● Anthropogenic activities such as agricultural activities, windmill projects, etc.</li> <li>● Forest fragmentation with dense vegetation on thin soil</li> </ul>
Himalayas	<ul style="list-style-type: none"> <li>● High seismicity due to plate tectonic movement</li> <li>● Easily erodible sedimentary rocks</li> <li>● Young and energetic rivers (Ex: <b>Ganga</b>, <b>Yamuna</b>, <b>Jhelum</b> etc. )with high erodibility</li> <li>● Heavy downpour and snowfall</li> <li>● Anthropogenic factors such as deforestation, jhum cultivation, road construction, etc.</li> </ul>

### ***What are the Challenges Associated with Landslides?***

- **Loss of Life and Injury:** Landslides can result in fatalities and serious injuries to individuals in affected areas. The sudden nature of landslides often leaves little time for evacuation.
- **Displacement of Communities:** Landslides can lead to the displacement of populations, forcing communities to relocate. This can **disrupt social structures** and lead to long-term socio-economic challenges.
- **Damage to Infrastructure:** Critical infrastructure such as **roads, bridges, and buildings** can be severely damaged or destroyed, leading to significant economic losses and hampering rescue and relief operations.
- **Economic Impact:** The cost of repairing damaged infrastructure and providing humanitarian aid can be substantial. Additionally, landslides can disrupt local economies, particularly in areas reliant on agriculture and tourism.

- **Environmental Degradation:** Landslides can lead to **soil erosion, loss of vegetation, and habitat destruction**, adversely affecting biodiversity and ecosystem services.

### ***Why is Predicting Landslides Difficult?***

- **Complexity of Geomaterials:** The subsurface consists of various rocks and particulate materials with differing strengths, making it difficult to assess stability accurately.
- **Insufficient Data:** Detailed three-dimensional mapping of geomaterials is required, but current technology often relies on limited data from select locations, leading to uncertainty.
- **Identifying Weak Points:** Critical weak points, such as fractures in rock masses, can be easily overlooked, contributing to prediction inaccuracies.
- **Estimating Size and Runout:** Determining the exact size of a potential landslide and its runout distance is challenging, complicating risk assessments.

Note:

- **Timing Predictions:** Forecasting when landslides will occur is difficult, akin to predicting weather or seismic activity, which involves inherent uncertainties.
- **Environmental Variability:** Changes in rainfall patterns, seismic activity, and human activities can all influence slope stability, adding further complexity to predictions.
- **Technological Limitations:** Current sensors and models may not provide the necessary precision for accurate predictions, especially in remote or inaccessible areas.

### ***What are the Government Initiatives to Mitigate Landslide Risks in India?***

- **National Landslide Risk Management Strategy (2019):** It is a comprehensive strategy addressing hazard mapping, monitoring, early warning systems, awareness programs, capacity building, policies, and stabilisation measures.
- **Landslide Risk Mitigation Scheme (LRMS):** This scheme **under preparation**, aims to provide **financial support for tailored landslide mitigation projects** in vulnerable states, focusing on disaster prevention, mitigation strategies, and research and development for monitoring critical landslides.
  - This initiative will contribute to the establishment of an Early Warning System (EWS) and enhance capacity-building efforts.
- **Flood Risk Mitigation Scheme (FRMS):** A forthcoming scheme for developing flood shelters, river basin-specific early warning systems, and digital elevation maps for flood preparedness and evacuation.
- **National Guidelines on Landslides and Snow Avalanches:** Guidelines by **National Disaster Management Authority (NDMA)** covering hazard assessment, risk management, structural and non-structural measures, institutional mechanisms, financial arrangements, and community participation.
- **Landslide Atlas of India:** It is a detailed resource that documents landslide events in the country's vulnerable areas and includes damage assessments for certain sites. Developed by the **National Remote Sensing Centre (NRSC)** under **Indian Space Research Organisation (ISRO)**, it offers important information and insights related to landslides in India.

### **What are the Recommendations of Various Committees on Western Ghats?**

- **Western Ghats Ecology Expert Panel, 2011 (Headed by Madhav Gadgil):**
  - All of the Western Ghats be declared as **Ecologically Sensitive Areas (ESA)**
  - with only limited development allowed in graded zones.
  - Classify the Western Ghats into ESA 1, 2 and 3 with ESA-1 having a high priority where almost all developmental activities are restricted.
  - Specified the system of governance to be a bottom-to-top approach (right from Gram sabhas) rather than a top-to-bottom approach.
  - **Western Ghats Ecology Authority (WGEA)** to be constituted as a statutory authority under the **Ministry of Environment, Forest and Climate Change**, with the powers under **Section 3 of the Environment (Protection) Act, 1986.**
  - The report was criticised for being **more environment-friendly and not in tune with the ground realities.**
- **Kasturirangan Committee, 2013:** It sought to balance the development and environmental protection in contrast to the Gadgil report:
  - Instead of the total area of Western Ghats, **only 37% of the total area** to be brought under ESA.
  - **Complete ban on mining, quarrying and sand mining** in ESAs.
  - No **thermal power projects** to be allowed and **hydropower projects** be allowed only after detailed study.
  - **Red industries** i.e. which are highly polluting to be **strictly banned.**
  - **Exclusion of inhabited regions and plantations** from the purview of ESAs making it a pro-farmer approach.

### ***What Measures can be Taken to Prevent Landslides Hazards?***

- **Building Resilience:** This involves setting up a network of **sensors for real-time monitoring and data collection.**
  - Assessment of **rainfall thresholds for soil saturation** in different areas.
  - **Mapping out the routes that landslides are likely to take** after being triggered.

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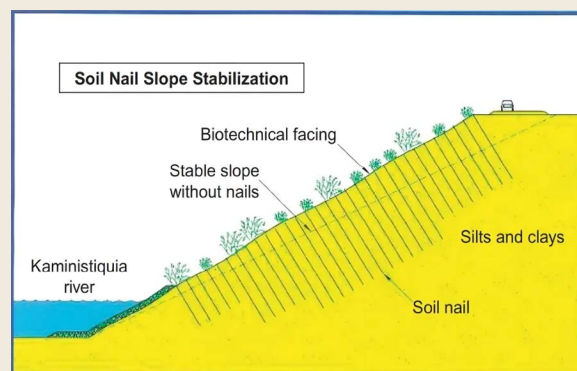
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- Creating route maps to mark areas that should be out of bounds for settlements or activities.
- **Harnessing Technology for Vigilant Monitoring:** Utilise web-based sensors like rain gauges, piezometers, inclinometers, extensometers, **InSAR (Interferometric Synthetic Aperture Radar)**, and total stations to monitor vulnerable areas, focusing on densely populated and urbanised zones.
- **Integrated EWS:** Develop a comprehensive EWS using **Artificial Intelligence (AI)** and **Machine Learning (ML)** algorithms to predict and alert communities about impending hazards, providing valuable time for precautionary measures.
- **Sustainable Socio-Economic Progress:** Recognise the region's valuable natural resources, such as glaciers, springs, minerals, energy sources, and medicinal plants, for sustainable socio-economic development. Balance resource utilisation with ecological conservation for long-term viability.
- **Environmental Considerations:** There is a need to safeguard ecosystems through **sustainable practices and responsible resource** use.
  - Implement **thoughtful urban planning** in mountainous areas, restricting extensive construction and managing drainage and slope excavation scientifically.
  - Use **retaining walls to support soil** and restore ecological balance through **reforestation and soil conservation efforts**.

- **Building Codes and Evaluation:** There is a need to map towns and assess load-bearing capacities to develop robust building codes for safe construction in hazard-prone areas. Enforce strict land use restrictions in these areas to prevent activities that could destabilise the soil.

#### Soil Nailing and Hydroseeding for Landslide Prevention

- The State highways department in Kerala is tackling landslide issues in the **Nilgiris** with **soil nailing and hydroseeding**.
- Soil nailing reinforces soil, while hydroseeding promotes plant growth with a mix of seeds, fertiliser, and water.
- This approach includes planting five grass species and maintaining the vegetation to reduce the environmental impact of road infrastructure.



■■■

Note:



# Ethics

## Highlights

- *Hunger Strikes as a Tool of Protest*

## Hunger Strikes as a Tool of Protest

### Why in News?

**Hunger strikes** have always raised a series of complicated moral questions, such as whether it is appropriate to provide medicine against the will of a person on strike or if force-feeding could be a dangerous protocol.

### What are Hunger Strikes?

#### ➤ About:

- Hunger strikes are a **form of protest involving the voluntary deprivation of food**, sometimes also water.
- They are used to **inspire, dissuade, or pressure** others by highlighting injustices or demanding change.
- This form of protest can be seen as a **last resort** when other means of protest are unavailable or ineffective.

#### ➤ Historical Context of Hunger Strikes:

##### ○ Ancient Practices:

- The **rules in pre-Christian Ireland** provided for a **troscad (fast)** aimed at protesting against an **unpayable debt**, the object being to bring shame to the creditor.
- **Kalhana's Rajatarangini** (account of royal dynasties of ancient Kashmir) has also **several mentions of hunger strikes** against **undesirable royal edicts or taxes**.

##### ○ Modern Development:

- **Russian Political Prisoners (1870s)**: Used hunger strikes to protest prison conditions.
- **Irish Republicans (1917-1920)**: Notable figures like Thomas Ashe and Terence MacSwiney died during hunger strikes, drawing attention to the Irish independence movement.

#### • Indian Freedom Fighters:

- **Mahatma Gandhi**: He described fasts as **"a great weapon in the armoury of Satyagraha"** and undertook this form of protest **at least 20 times** during the Independence movement.
- **Jatin Das (1929)**: Died after a 63-day hunger strike, highlighting the inhumane treatment of political prisoners.
- **Bhagat Singh and Batukeshwar Dutt**: Protested poor prison conditions, drawing widespread support and media attention.
- Modern Context of Hunger Strikes in Independent India:
  - **Potti Sriramulu (1952)**: His hunger strike led to the formation of the state of Andhra Pradesh.
  - **Irom Sharmila (2000-2016)**: Protested against the **Armed Forces Special Powers Act (AFSPA)** in Manipur, highlighting human rights issues.
    - Continued her hunger strike for 16 years while being force-fed.
  - **Anna Hazare**: He started a **hunger strike in 2011** to exert pressure on the Indian government to **enact a stringent anti-corruption law**.
- Recent Examples:
  - **Activist Manoj Jarange-Patil's fasts** demanding reservations for the **Maratha community**.
  - **Sonam Wangchuk's** 21-day hunger strike for **Constitutional safeguards for Ladakh**.
  - Palestinian prisoner Khader Adnan's death after an 87-day hunger strike in 2023.

### What are the Arguments in Favour of Hunger Strike?

#### ➤ Personal Autonomy and Freedom of Choice:

- **Autonomy**: Hunger strikes are seen as an **expression of personal autonomy** and self-determination. Individuals have the right to make decisions about their own bodies and to protest in a way that they see fit.

Note:



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- **Freedom of Expression:** Hunger strikes are a **form of free speech** and a way for individuals to **voice their dissent** in a peaceful manner. This aligns with democratic values and the **right to protest**.
- **Non-violent Resistance:**
  - **Non-violence:** Hunger strikes are a **form of non-violent protest**, which can be **ethically preferable to violent resistance**. This approach can draw attention to injustices without causing harm to others.
  - **Moral High Ground:** By choosing to **suffer personally** rather than inflicting suffering on others, hunger strikers can **claim the moral high ground**. Their willingness to endure personal hardship can highlight the perceived injustice they are protesting against.
- **Drawing Attention to Injustices:**
  - **Awareness:** Hunger strikes can **effectively draw public and media attention** to issues that **may otherwise be ignored**. This can lead to increased awareness and pressure on authorities to **address the grievances being protested**.
  - **Symbolic Power:** The act of a hunger strike **carries powerful symbolism**. It demonstrates the depth of the protester's conviction and the seriousness of the issue, potentially galvanising public opinion and support.
- **Historical and Cultural Significance:**
  - **Historical Precedent:** Hunger strikes have been **used effectively in various historical contexts**, such as the suffragette movement, the Indian independence movement led by Mahatma Gandhi, and more recent political prisoners. This historical context **lends ethical weight to the practice**.
  - **Cultural Resonance:** In some cultures, **hunger strikes resonate deeply** as a form of protest and sacrifice (**Jaina's practice of Santhara**). They can evoke sympathy and solidarity from the community and wider society.
- **Power Dynamics:**
  - **Challenging Power Dynamics:** Hunger strikes can **challenge power dynamics by putting pressure on those in authority** to address the protester's demands. This can lead to negotiations and potentially peaceful resolutions.

### ***What are the Arguments Against Hunger Strike?***

- **Self-Harm and Preservation of Life:**
  - **Self-Harm:** Hunger strikes involve **deliberate self-starvation**, which can lead to serious health consequences or even death.
    - From an ethical perspective, **deliberately causing harm to oneself can be problematic**, especially if there are other non-harmful ways to protest.
  - **Preservation of Life:** Many ethical frameworks, **including religious and philosophical traditions, emphasise the importance of preserving life**. A hunger strike, particularly one that leads to severe health deterioration or death, may **conflict with these principles**.
- **Coercion and Manipulation:**
  - **Coercion:** Hunger strikes can be **seen as a form of coercion**, pressuring authorities or the public to meet the protester's demands.
    - This can **raise ethical questions about the fairness** and legitimacy of one's own demand.
  - **Manipulation:** The hunger strikes **may manipulate public sentiment and decision-making processes** by exploiting empathy and moral guilt, which might not always lead to rational or just outcomes.
- **Impact on Others:**
  - **Emotional Burden:** Hunger strikes can place a **significant emotional burden on family, friends, and supporters** who may suffer from stress, anxiety, and guilt.
    - This raises ethical concerns about the **broader impact of the protest** on innocent parties.
  - **Responsibility:** The responsibility for the **striker's well-being may fall on others** who might be obliged to intervene to save the individual's life, potentially conflicting with the striker's autonomy.
- **Effectiveness:**
  - **Questionable Effectiveness:** There is **no guarantee that a hunger strike will achieve its intended goals**. Ethical concerns can also be raised about the **proportionality and rationality** of the protest.
  - **Moral Outcomes:** Even if successful, the outcomes of hunger strikes **might not always be morally justifiable**.

Note:

➤ **Exploitation and Vulnerability:**

- **Exploitation:** Vulnerable individuals, including prisoners or marginalised groups, might be coerced or manipulated into participating in hunger strikes by more powerful actors, raising concerns about exploitation and informed consent.
  - It could be seen as an ethically problematic situation of desperation rather than a genuine choice.

➤ **Legal and Medical Ethics:**

- **Legal Obligations:** Authorities may face legal and ethical dilemmas regarding their duty of care.
  - For instance, forcibly feeding a hunger striker can be seen as a violation of their autonomy, but not intervening can be seen as neglect.
- **Medical Ethics:** Healthcare professionals may face conflicts between respecting patient autonomy and their duty to preserve life.
  - The ethical principle of “do no harm” can be challenged by the self-inflicted harm of a hunger striker.

***What are the Other Dimensions of Hunger Strike?***

➤ **Significant Views on Hunger Strikes:**

- **Mahatma Gandhi:** Preferred the term ‘fasting’ and used it as a form of non-violent protest.

- Fasts aimed at **reforming those in power** and appealing to their conscience.
- Believed fasting should be used against a “lover” (someone one loves) to reform rather than extort rights.

- **Dr. B.R. Ambedkar:** Criticised hunger strikes as “unconstitutional methods.”

- Advocated for constructive approaches within the legal framework to achieve social and economic objectives.

➤ **Legal Framework for Hunger Strikes:**

- **Geneva Convention:** The Geneva Conventions set standards for treating wounded combatants, but their application to hunger strikers is unclear.
  - Hunger strikes as a form of protest can be seen as an **extension of combat**, complicating the role of health professionals.
- **Indian Context:** The **Madras High Court** had ruled that sitting on a hunger strike cannot attract the offence under **Section 309 of the IPC (attempt to suicide)** and it would not constitute an attempt to commit suicide.
  - However as per **Section 224 of BNS** anyone who **tries to commit suicide to force or stop a public servant** from doing their job can be punished with up to one year in jail, a fine, both, or community service.



Note:

# Miscellaneous

## Highlights

- NIRF Rankings 2024
- Nobel Laureates Transitioned to National Leaders
- India at Paris Olympics 2024
- Weigh-in Controversy at the Paris Olympics
- Rashtriya Vigyan Puraskar 2024

## NIRF Rankings 2024

### Why in News?

The **National Institutional Ranking Framework (NIRF) rankings 2024**, announced by the Union Ministry of Education (MoE), has once again highlighted the leading institutions in India's higher education landscape.

### What are the Key Highlights of NIRF 2024?

- **Indian Institute of Technology (IIT) Madras:** Maintained its **top position** in the 'Overall' and 'Engineering' categories for six and nine consecutive years, respectively. The institute also retained its **second rank** in the 'Research Institutions' and 'Innovations' categories.
- **Indian Institute of Science (IISc), Bengaluru:** Continued its dominance by **topping the 'Universities' and 'Research Institutions' categories** for the ninth and fourth consecutive years, respectively.
- **IIM Ahmedabad:** Secured the **top position** in the 'Management' category for the fifth consecutive year.
- **AIIMS, New Delhi:** Remained the leading institution in the 'Medical' category for seven consecutive years, and was ranked 7<sup>th</sup> in the 'Overall' category.
- **Jamia Hamdard:** Topped the 'Pharmacy' category, while IIT Roorkee led in 'Architecture and Planning'.
- **Delhi University (DU):** Made a notable jump from 11<sup>th</sup> to 6<sup>th</sup> place in the overall rankings, re-entering the top 10 university club in the country.
  - **DU's Hindu College claimed the top position among colleges** for the first time, surpassing Miranda House, which had been the top college for seven consecutive years.
  - St. Stephen's College secured the third position, completing the top three rankings.

### ➤ New Additions to the NIRF 2024:

- **New Categories:** The 9<sup>th</sup> edition of NIRF Rankings introduced three new categories **State Public Universities, Open Universities, and Skill Universities**, and integrated "Innovation" ranking using the NIRF, expanding the portfolio to 16 categories and subject domains.
  - **Anna University** and **Indira Gandhi National Open University (IGNOU)** topped the new State Public Universities and Open Universities categories, respectively.
  - **Symbiosis Skill and Professional University (SSPU), Pune** topped the Skill Universities category.
  - Looking ahead, the Ministry of Education plans to introduce a **new category for Sustainability Rankings in the 2025 edition of the NIRF**, evaluating institutions on their commitment to **environmental sustainability, energy efficiency, and green campus initiatives**.
- **Increased Applications:** The number of unique institutions participating in the rankings increased from 2,426 in 2016 to 6,517 in 2024.
- The total number of applications also rose significantly, highlighting the growing engagement and recognition of the NIRF rankings.

### What is the National Institutional Ranking Framework?

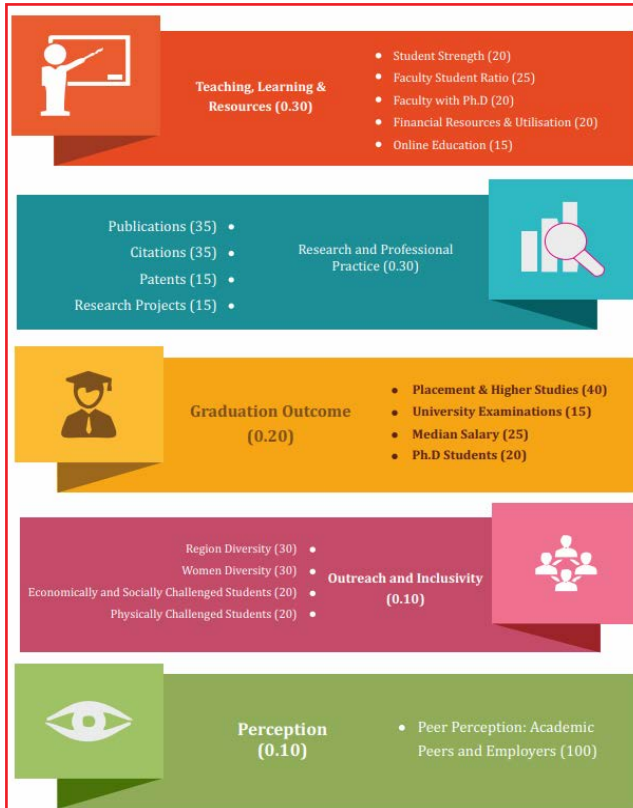
- **About:** The NIRF is a ranking system introduced by the Ministry of Education, Government of India, in 2015. It aims to provide a fair and transparent assessment of higher education institutions across India based on various parameters.
- **Parameters for Ranking:** The NIRF evaluates institutions based on five broad categories:

Note:



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**Note:**

- **The National Assessment and Accreditation Council (NAAC)** also evaluates educational institutions. NAAC evaluates and accredits higher education institutions based on a comprehensive **assessment of their overall quality**, encompassing various dimensions. NAAC's accreditation process is **qualitative, focusing on an institution's ability to provide a well-rounded educational experience**.
- The accreditation system **categorises institutions into grades ranging from A++ to D**, indicating their overall quality status.
- In contrast, NIRF's primary role is to rank institutions annually based on specific quantitative parameters, helping **prospective students gauge the relative performance of institutions across the country**.

## Nobel Laureates Transitioned to National Leaders

### Why in News?

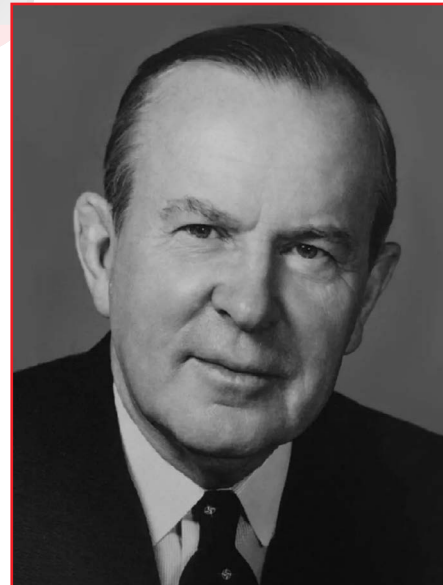
The recent news of **Muhammad Yunus**, the **Nobel Peace Prize** laureate of 2006, set to assume leadership

of **Bangladesh's interim government** has reignited interest in the history of Nobel laureates who have served as heads of state.

- Yunus is known for his work in **microfinance and poverty alleviation**. His expertise in economics and social entrepreneurship may shape the interim government's focus on **poverty reduction and economic development**.

### Who are the Other Nobel Laureates Who Led Their Countries?

- **Lester B. Pearson**: Served as the Canadian prime minister from 1963 to 1968, and a leader of the Liberal Party.
  - He introduced a **national pension plan**, and a family assistance program, **broadened old-age security benefits**, and laid the groundwork for universal healthcare in Canada.
  - **Nobel Peace Prize**: Awarded in 1957 for his role in **resolving the Suez Crisis**, where he came up with the idea of the **UN's first large-scale peacekeeping force** after hostilities commenced, allowing the aggressors to withdraw their forces appear to have been defeated.



- **Lech Wałęsa**: He was a Polish activist who opposed communism and the **first democratically elected president of Poland from 1990-95**.
  - He founded and led the **Solidarity trade union**, which in 1989 brought an end to communist rule in Poland.

Note:



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- **Nobel Peace Prize:** Won in 1983 for his non-violent struggle for free trade unions and human rights in Poland.



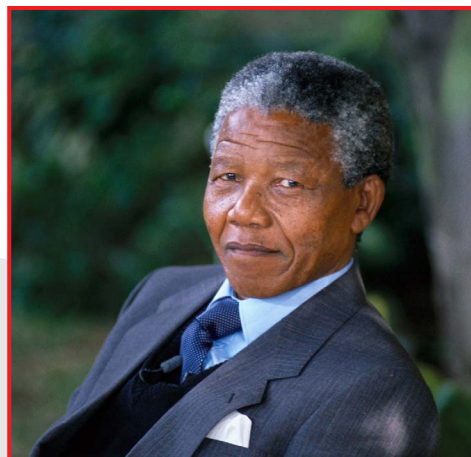
- **Aung San Suu Kyi:** She was the **State Counsellor of Myanmar, the de-facto head of the government equivalent to a prime minister**, from 2016 to 2021 after leading Myanmar's transition from military rule to partial democracy in the 2010s.
  - Suu Kyi rose to prominence during the uprising of 1988 when she founded the **anti-junta National League for Democracy (NLD)**.
    - She led Myanmar's transition to partial democracy, although her tenure has been marred by controversy.
  - **Nobel Peace Prize:** Awarded in 1991 "for her non-violent struggle for democracy and human rights" in Myanmar.



- **Nelson Mandela:** He was the **first Black president of South Africa**, elected in 1994 after the peaceful

**termination of the apartheid system**, for which he and President Frederik Willem de Klerk were awarded the **Nobel Peace Prize in 1993**.

- Mandela joined the African National Congress in 1943 and was repeatedly arrested for his anti-apartheid activities, eventually being sentenced to life in prison in 1962. After 27 years in prison, he was released in 1990 and over the next four years **negotiated a peaceful end to apartheid with de Klerk**.



- **José Ramos-Horta:** He has been the president of East Timor since 2022. He was a leader of the **resistance movement that led to East Timor's independence from Indonesia in 2002**, the first new sovereign state of the 21<sup>st</sup> century.
  - **Nobel Peace Prize:** Won in 1996 for advocating for a peaceful resolution to the conflict in East Timor.



Note:

**Note:**

- Many other leaders have won after serving their terms as heads of state (**former Israel PM Shimon Peres or former US President Jimmy Carter**) or during their terms (**former US President Barack Obama, former UK PM Winston Churchill and Ethiopia's Abiy Ahmed**).
- Of the 30 Nobel recipients to serve as a country's head of state/government, 29 won the Nobel Peace Prize with **Winston Churchill, who won the Nobel for Literature in 1953, the only exception.**

**Why is it Significant to have Nobel Laureates in Leadership Roles?**

- **Symbol of Hope:** Their recognition often brings international attention and credibility to their leadership.
- **Advocacy for Peace and Justice:** Nobel laureates are frequently associated with ideals of peace, democracy, and human rights, setting a moral precedent for governance.
- **Inspiration for Future Leaders:** Their journeys can inspire emerging leaders to pursue significant social and political change.
  - However, it's important to acknowledge that **not all Nobel laureates** have been successful in translating their esteemed recognition into effective governance, as evidenced by the **challenges faced by leaders like Ethiopia's Abiy Ahmed (Nobel Peace Prize in 2019) and Myanmar's Aung San Suu Kyi.**

**India at Paris Olympics 2024****Why in News?**

The **Paris Olympics 2024** have concluded with **India finishing 71<sup>st</sup> in the medal tally**, a decline from its **48<sup>th</sup> place in Tokyo 2020**. Despite winning six medals, including one silver and five bronze, the nation experienced several near misses and disheartening outcomes that have sparked discussions about the future of Indian sports.

**What were the Highlights of India's Performance at Paris Olympics 2024?**

Indian Medal Winners at Paris Olympics 2024		
Indian athletes	Medal	Event
Manu Bhaker	Bronze	Women's 10m air pistol event
Manu Bhaker and Sarabjot Singh	Bronze	10m air pistol mixed team event
Swapnil Kusale	Bronze	Men's 50m rifle 3 positions
Indian hockey team	Bronze	Men's hockey
Neeraj Chopra	Silver	Men's Javelin Throw
Aman Sehrawat	Bronze	Wrestling Men's 57kg freestyle event

**Note:** **Neeraj Chopra** secured a **silver medal in javelin** with a throw of 89.45m. This was his second Olympic medal, making him **India's fifth two-time Olympic medallist.**

- Manu Bhaker became the **first Indian woman to win an Olympic shooting medal**. She also became the **first athlete from independent India to win two medals** in a single Games by clinching a medal in both individual and mixed team events.
- **India won three shooting medals**, including the first-ever Olympic medal in the 50m rifle 3 positions, achieved by Swapnil Kusale. This was the **highest tally for India in shooting at the Olympics.**
- Indian athletes competed in 69 medal events across 16 sports, such as archery, athletics, badminton, boxing, equestrian, golf, hockey, judo, rowing, sailing, shooting, swimming, table tennis, and tennis.

Note:



- **Lakshya Sen** became the **first Indian to reach the semi-finals** in men's badminton at the Olympics, finishing fourth.
- **Wrestler Vinesh Phogat** after reaching the final in the women's 50 kg category, Phogat was **disqualified for being overweight** by 100 grams.
- To date, **India has won a total of 41 Olympic medals**. Notable milestones include **Norman Pritchard's Silver Medals (1900 Paris)**, KD Jadhav's Bronze (1952 Helsinki), Karnam Malleswari's Bronze (2000 Sydney), Abhinav Bindra's Gold (2008 Beijing), and Neeraj Chopra's Gold (2020 Tokyo).
  - **Men's Hockey has won 13 medals, including eight golds, and Wrestling has won eight medals**. India's best-ever Olympic performance was at Tokyo 2020, with seven medals, including one gold. India's second-best performance was in the **2012 London Olympics** when it won six medals (two silver and four bronze).

### **Why India Struggles to Secure Olympic Medals?**

- **Talent Identification:** In India, talent identification often occurs on an ad-hoc basis, with **limited reach and effectiveness**.
  - There are systemic issues in **scouting and identifying young athletes**, particularly in remote areas.
- **Infrastructure and Resources:** Many regions in India lack the necessary infrastructure and resources to train athletes effectively.
  - Limited access to **training facilities, coaching expertise, and financial support** can hinder the development of potential talent.
  - Many athletes struggle due to insufficient financial backing from the government. For instance, **Shiva Keshavan, India's top Winter Olympian, had to resort to crowdfunding to finance his training and participation**.
  - Despite the growing number of billionaires and private wealth in India, there is still a **significant gap in sponsorship and investment in sports other than cricket**.
- **Cricket's Dominance:** Cricket's overwhelming popularity in India has created an imbalance in the sports landscape, with **87% of sports capital allocated to cricket and only 13% for all other sports**. This disproportionate allocation has hindered the development of Olympic sports.
  - The lack of a **robust sports culture and media promotion outside cricket has been a barrier**.
  - A more balanced approach to sports investment and promotion is necessary to support Olympic sports adequately and create a more inclusive and competitive sports culture in India.
- **Insufficient Sports Policies:** India's sports policies have historically been fragmented and underfunded.
  - There have been efforts to improve sports

infrastructure and support athletes, such as the **Target Olympic Podium Scheme (TOPS)**. However, these initiatives are relatively recent and have yet to yield significant results.

- **Long-term Development:** India's sports programs often focus on **short-term successes rather than long-term athlete development**.
  - Developing world-class athletes requires **sustained investment and planning over many years**.
  - **Examples:** Successful Olympic countries have long-term development plans that include scouting young talent, providing them with early training, and supporting them through their careers.
- **Corruption and Politics in Sports Administration:** Sports administration in India is often dominated by **politicians and bureaucrats**, leading to the **politicization of sports governance**.
  - **Corruption and bureaucratic hurdles** frequently impede the development of athletes, with sportspersons' interests often taking a backseat.
  - Indian sport organizations, especially governing bodies, have not adapted to the challenges of a professional and commercialised sector, **relying on volunteers instead of hiring skilled professionals**.
  - The recent conflicts within the **Wrestling Federation** are indicative of the broader issues plaguing Indian sports administration.
- **Absence of a Sports Culture:** In India, there is a **societal preference for education over sports**. Families often prioritise careers in fields like medicine or accounting, viewing sports as less viable for financial security.
  - India's complex **social stratification, with strong ties to caste and regional identity, further hinders the development of a unified sports culture**. Many communities discourage pursuing sports at an elite level, focusing instead on traditional roles.

Note:



### ***What can India do to Improve its Olympic Performance?***

- **Grassroots Development:** There needs to be a stronger emphasis on developing sports at the grassroots level. Identifying and **nurturing talent** from a young age across various sports disciplines can help build a strong foundation.
- **Investment in Infrastructure:** Building world-class training facilities and providing athletes with access to **the best coaching and support systems** are crucial. This includes psychological support, nutrition, and injury management.
  - **Small Nations like Jamaica and Grenada**, with much smaller populations, **regularly outperform India at the Olympics**. Their **focused investment in specific sports**, like sprinting, shows the importance of targeted development.
- **Empowering Athletes:** Athletes are the primary stakeholders in sports, and their **involvement in decision-making can bring much-needed accountability and transparency to sports organizations**.
- **Collegiate Sports System:** India can develop a collegiate sports system that mirrors the **National Collegiate Athletics Association (NCAA) in the United States**.
  - The NCAA has produced a staggering number of Olympic champions, not just for the US but for countries around the world. If the NCAA were a country, it would have topped the medal tally with **60 gold medals in Paris Olympics 2024**.
  - **Many athletes from small and large nations owe their Olympic success to training and competing in the NCAA**, making the American college sports system a key player in global sports.
  - India's collegiate sports system should strike a **balance between academics and athletics by offering scholarships and academic support** to attract talented athletes who might otherwise drop out of sports.
  - By fostering **regular inter-college and inter-university competitions** across various sports, young athletes will **gain more exposure to high-pressure situations**, preparing them for international events like the Olympics.
- **Cultural Shift:** Changing societal attitudes towards sports is essential. Encouraging families to support children in pursuing sports careers and integrating sports into the education system can help.

- **China, which shares some socio-economic similarities with India, has excelled by systematically identifying and nurturing talent from a young age.**
- The government's deliberate and sustained investment in sports has resulted in a significant Olympic medal haul.
- **Increased Government Support:** The government should provide more consistent and substantial funding for Olympic sports. This includes direct support to athletes, as well as investments in coaching and international exposure.
- **Focusing on Growth:** India must **aim to triple its athlete count for the 2028 Los Angeles Olympics, increasing from 117** to better compete against the US and Japan, which have over 600 and 400 athletes, respectively.
  - This increase should naturally lead to more medals. **India Instead of solely focusing on hosting the 2036 Games, the priority should be on improving medal tallies in the Los Angeles 2028 Summer Olympics and beyond to establish India as an Olympic sporting nation.** Paris serves as a moment for serious introspection and learning.

### ***What are the Initiatives Related to Sports Development in India?***

- **Khelo India**
- **National Sports Development Fund (NSDF)**
- **Sports Authority of India (SAI):** It was set up as a **Society registered under the Societies Act, 1860** in 1984 to promote sports and games.
  - SAI manages several schemes aimed at youth and senior sports promotion, including the **National Sports Academy (NSA) Scheme, Center of Excellence Scheme, National Sports Talent Contest Scheme (NSTC), Army Boys Sports Company Scheme, Special Area Games Scheme, and COME and PLAY Scheme**.
- **National Sports Awards:** **Rajiv Gandhi Khel Ratna, Arjuna Awards, Dhyanchand Awards, and Dronacharya Awards.**
  - These awards are the highest sporting honours in India, celebrating excellence and inspiring future generations.
- **Scheme for Sports & Games for People with Disabilities:** Introduced as a **Central Sector Scheme in 2009-10**, the program provides specialised training and support to athletes with disabilities, encouraging their participation in sports and enhancing their skills.

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- **Rajiv Gandhi Khel Abhiyan:** Launched in 2014, this federally funded program aims to build sports complexes at the block level, providing infrastructure for both indoor and outdoor sports.
- **Fit India Movement**

## **Weigh-in Controversy at the Paris Olympics**

### **Why in News?**

Recently, **Vinesh Phogat (Indian Wrestler)** failed to make a **crucial second weight cut**, which **prevented her from participating in the gold medal bout**, thus ending her chances of medaling at the Paris Olympics. She was 100 grams overweight at the weigh-in.

### **What is Controversy Related to Weigh-in at the Paris Olympics?**

- **Background:** She had been participating in the **53 kg category until recently** before she made the switch to 50 kg at the Paris Olympics.
  - Phogat's usual weight is around 55-56 kg, which she has to cut to 50 kg on the days of competition.
  - She is already lean due to intense training, with very little body fat left to lose.
- **Methods of Weight Cutting:** Athletes typically use various methods.
  - **Dehydration:** Reducing water intake and using **saunas or sweat suits** to lose water weight.
  - **Dietary Restrictions:** Limiting calorie intake and **following low-carbohydrate diets**.
  - **Exercise:** Engaging in **intense workouts to burn calories** and lose weight quickly.

### **What is Weigh-in at Paris Olympics 2024?**

- **UWW Rules on Weigh-ins:** According to **United World Wrestling's (UWW)** Olympics weigh-in rules, wrestlers **have to weigh in on the morning of their competition**.
  - Athletes must **weigh in at or below the category limit** on all competition days. Olympic **wrestling competitions occur over two days**, requiring weigh-ins on both days.
  - Phogat made **weight on the first day** but **failed to meet the 50 kg limit on the second day**, resulting in her disqualification.

- **Consequences of Failing the Weigh-in:** Athletes **failing to weigh in on either day** are disqualified and **ranked last, without rank**, unless injured on the first day.
- **Injury Exception:** Injured athletes on Day 1 are exempt from the second weigh-in and can retain their results. Injuries after Day 1 still require attending the second weigh-in.
- **Format Change for Olympic Wrestling:** Before 2017, Olympic wrestling competitions in each weight category occurred in one day, **with athletes weighing in only once**. In 2017, **UWW changed to a two-day format to improve fairness** and athlete safety, requiring athletes to weigh in on both days of competition.

### **How Can a Wrestler Gain More Weight in Kilograms after Correcting on Day 1?**

- **Rehydration and Recovery:** After Day 1 weigh-in, wrestlers **rehydrate and replenish with fluids, electrolytes, and carbohydrates, regaining much of the lost weight**.
- **Temporary Nature of Weight Loss:** **Weight lost via dehydration** is mostly water weight, regained once normal hydration and eating resume, leading to higher Day 2 weight.
- **Impact on Performance:** While **rehydration restores energy**, rapid weight changes can impact performance, **causing fatigue, cramps, and reduced endurance** if not managed well.
- **Strategic Advantage:** Some wrestlers use **weight cutting to gain a competitive edge** by weighing more on **competition day, enhancing power and strength** against less-depleted opponents.

#### **Note:**

- In another development related to Paris Olympic, **Swapnil Kusale won the bronze medal in the men's 50-metre rifle three positions event**.
- India's men hockey team won the Bronze medal by defeating Spain and Neeraj Chopra won Silver medal in Javelin throw at the Paris Olympics 2024

Read More: [\*\*Manu Bhaker Wins Olympic Bronze, India's Ambitious Bid to Host the 2036 Olympic Games\*\*](#)

## **Rashtriya Vigyan Puraskar 2024**

### **Why in News?**

The Indian government announced the **first-ever**

Note:

**Rashtriya Vigyan Puraskar (RVP) awardees 2024**, marking a significant shift in the country's approach to recognising scientific achievements.

- The awards will be presented on **23<sup>rd</sup> August, first National Space Day**, celebrating the milestone of Chandrayaan-3's moon landing.

### **What are the Key Facts about Rashtriya Vigyan Puraskar?**

- **About:** The RVP is a prestigious set of awards that recognize and encourage significant achievements by scientists, technologists, and innovators of **Indian origin**, including **Persons of Indian Origin (PIO)**, whether working in India or abroad.
  - These awards **honour individuals who have made distinguished contributions** through impactful research, innovation, or discovery that benefits Indian communities or society.
  - The RVP is being **introduced for the first time in 2024**. It was established to replace the existing science awards, including the **Shanti Swarup Bhatnagar Prize**, to provide a more inclusive and updated recognition system.
    - The new awards allow for a more comprehensive acknowledgement of achievements.
  - These awards shall be announced on **11<sup>th</sup> May (National Technology Day) every year**. The Award Ceremony for all categories of awards will be held on **National Space Day**.
  - **RVP is awarded in various categories** such as Physical Sciences, Chemical Sciences, Biological Sciences, Mathematical Sciences, Earth & Atmospheric Sciences, and Engineering Sciences.
- **Categories of the Awards:**
  - **Vigyan Ratna (VR):** It honours **lifetime achievements and substantial contributions** in any field of science and technology. **Up to 3 awards** are given each year.
    - **Eligibility:** Distinguished scientists and technologists with a career of significant achievements.
  - **Vigyan Shri (VS):** It recognizes distinguished contributions in any field of science and technology. **Up to 25 awards** are given each year.

- **Eligibility:** Individuals with notable achievements in their respective scientific or technological domains.

- **Vigyan Yuva-Shanti Swarup Bhatnagar (VY-SSB):** It recognizes and encourages **young scientists under 45 years of age** who have made exceptional contributions. **Up to 25 awards** are given each year.

- **Eligibility:** Young scientists who have demonstrated exceptional research or innovation.

- **Vigyan Team (VT):** It awards a team of three or more scientists, researchers, or innovators for exceptional collaborative contributions. **Up to 3 awards** for teams of three or more.

- **Eligibility:** Teams with outstanding achievements in any field of science and technology.

- **Benefits of the Award:** Each awardee receives a **Sanad (Certificate)** signed by the **President of India**.

- A brochure with the **citation** and photograph of the awardees is released on the ceremony day. Decorations are given to the next of kin in case of posthumous awards.

### **Who are the Key Awardees of the 2024 Rashtriya Vigyan Puraskar?**

- **Vigyan Ratna:** Awarded to G. Padmanabhan, who is recognized for his lifetime achievements in biological sciences, particularly for his work on **malaria parasites**. He is a **former director of the Indian Institute of Science** and has previously received the **Padma Shri and Padma Bhushan**.
- **Vigyan Team:** **Chandrayaan-3 Team** was awarded with Vigyan Team for their successful mission **landing India's first spacecraft on the Moon in 2023**, a landmark in India's space exploration history.
- **Vigyan Shri:** **Annapurni Subramaniam** (formation and evolution of star clusters and galaxies), **Jayant Bhalchandra Udgaonkar** (biology), **Naba Kumar Mondal** (particle physics).
- **Vigyan Yuva:** **Vivek Polshettiwar** (**carbon capture** technologies), **Urbasi Sinha** (quantum research), **Roxy Mathew Koll** (climate science).



Note:



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# Rapid Fire Current Affairs

## Highlights

- Delhi HC Questions Missing Provisions for Unnatural Sex in BNS 2023
- Partition Horrors Remembrance Day
- Har Ghar Tiranga, Har Ghar Khadi Campaign
- Iconic Flag of 1947 Displayed at Fort St. George
- Afghan Sikhs' Citizenship Under the CAA
- Premature Repayment Guidelines for NBFC Depositors
- Somanathan Appointed as India's New Cabinet Secretary
- Neelakurinji Declared as a Threatened Species
- Vikram Sarabhai's 105th Birth Anniversary
- World Lion Day
- World Elephant Day
- Timor-Leste Bestows Top Civilian Honor on President Murmu
- President of India Receives Fiji's Highest Civilian Award
- Omkareshwar Floating Solar Project
- Idol in Temple Must be Treated as a Living Person
- Mandatory FIR Registration in Alleged Fake Encounter Cases
- China's Major Gas Field Discovery in the South China Sea
- Kasturi Cotton Bharat Initiative
- Jaisalmer Fort
- Fast Tracking BIMSTEC Free Trade Agreement
- Bailey Bridge
- Preamble Removed from new NCERT Textbooks
- 72% of Taxpayers Opted for New Tax Regim
- Google Faces Antitrust Complaints in the US and India
- National Handloom Day
- Hiroshima Day 2024
- India to Explore Lithium in Chile
- WCC to Host Programme for Kashmiri Artisans
- ASI Copies Stone Inscriptions
- Ceramics
- Donor Agreement between Ayush Ministry and WHO
- Refugees in J&K Get Land Ownership
- Ministry of Mines Published Mineral Production Data
- Acharya Prafulla Chandra Ray
- Green National Highway Corridor Project
- Pingali Venkayya, the Man Behind Tricolour
- World Ranger Day 2024
- US Surpasses UAE as India's Second Largest LNG Supplier
- India-US Cultural Property Agreement
- SC Launches Special Lok Adalat Drive

## Delhi HC Questions Missing Provisions for Unnatural Sex in BNS 2023

The **Delhi High Court** has raised concerns over the exclusion of penal provisions for unnatural sex and sodomy from the newly enacted **Bharatiya Nyaya Sanhita 2023**, replacing the **Indian Penal Code (IPC), 1860**.

- The court questioned the absence of provisions equivalent to **Section 377 of the IPC in the BNS, which previously criminalized non-consensual unnatural sex.**
  - In India, "unnatural sex" refers to **sexual activities considered against the order of nature**. Section 377 of the IPC defines "**unnatural offenses**" as voluntary carnal intercourse against the order of nature with any man, woman, or animal.
- The exclusion has raised concerns about the protection of the **LGBTQ community**, male victims of sexual assault and other vulnerable groups.
  - The Central government acknowledged the issue but emphasised that **courts cannot direct the legislature to enact specific provisions in law.**
- In 2018, the **Supreme Court decriminalised homosexuality** by striking off parts of **Section 377** of the IPC which were held violative of **Fundamental Rights** of LGBTQ Community.

Note:



- **BNS came into effect on 1<sup>st</sup> July 2024**, replacing the IPC but has been criticized for leaving a critical void in legal protection against non-consensual sexual acts.

# BHARATIYA NYAYA SANHITA (BNS), 2023

**BNS 2023 replaced Indian Penal Code 1860, incorporating 358 sections (511 in IPC), maintaining most of the IPC provisions, introducing new offences, eliminating court- struck-down offences, and enhancing penalties for various offences.**

## New Offences

- **Promise to Marry:** Criminalising “deceitful” promises to marry
- **Mob Lynching:** Codify offences linked to mob lynching and hate-crime murders
- Ordinary criminal law now covers **Organized Crime and Terrorism**, including a broader scope for terror financing in BNS compared to UAPA
- **Attempt to Suicide:** Criminalises attempts to commit suicide with intent to compel or restrain any public servant from discharging official duty
- **Community Service:** Added as possible form of punishment

## Deletions

- **Unnatural Sexual Offences:** Section 377 of the IPC, which criminalised homosexuality among other “unnatural” sexual activities repealed completely
- **Adultery:** Offence of adultery omitted in consonance of apex court judgement
- **Thugs:** Section 310 of IPC fully omitted
- **Gender Neutrality:** Some laws dealing with children modified to bring gender neutrality



## Other Modifications

- **Fake News:** Criminalisation of publishing false and misleading information
- **Sedition:** Introduced under a new name ‘deshdroh’ with wider definition
- **Mandatory Minimum Sentence:** In several provisions, mandatory minimum sentences prescribed which may limit scope for judicial discretion
- **Damage to Public Property:** Carry a graded fine (i.e. fine corresponding to the amount of damage caused)
- **Death by Negligence:** Elevates punishment for causing death by negligence from two to five years (for doctors - 2 yrs imprisonment)

## Key Issues

- **Criminal Responsibility Age Discrepancy:** Criminal responsibility starts at seven, extendable to 12 based on maturity, potentially conflicting with global recommendations
- **Inconsistencies in Child Offense Definitions:** It sets child age below 18, but age criteria for offenses like rape differ, causing inconsistency
- **Retention of IPC Provisions on Rape and Sexual Harassment:** Maintains IPC provisions on rape and sexual harassment, omitting **Justice Verma Committee's 2013** suggestions for gender-neutral rape and recognizing marital rape as an offense.

Read more: [The Bharatiya Nyaya Sanhita, 2023](#), [Supreme Court Decriminalizes Homosexuality](#)

## Partition Horrors Remembrance Day

Recently, marking the **Partition Horrors Remembrance Day (Vibhajan Vibhishika Smriti Diwas)** Prime Minister paid tributes to those impacted during the Partition of the country.

- Government declared 14<sup>th</sup> August as Partition Horrors Remembrance Day (**Vibhajan Vibhishika Smriti Diwas**) in 2021.
- 14<sup>th</sup> August is a day to honour those who lost their lives or were displaced during the partition.

Note:



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- The day ensures that **future generations remember the pain and suffering** endured by the people, as the **birth of independent India** was marked by the **violent partition**, which left lasting scars on millions
- The partition triggered one of the largest and most tragic human migrations in history, accompanied by **communal riots** and interreligious conflict.
  - The legacy of the **partition continues to influence the region**, with ongoing tensions between India and Pakistan, especially over the contested region of Kashmir.

Read more: [The Partition of India: Times of Violence](#)

## Har Ghar Tiranga, Har Ghar Khadi Campaign

Recently, the Chairman of the **Khadi and Village Industries Commission (KVIC)** launched the “**Har Ghar Tiranga, Har Ghar Khadi**” campaign to **increase the use and trade of Khadi clothes** through hoisting national flags made of khadi.

- **Special national flags of 3X2 feet** made of **Khadi/Polyester** are available at Khadi stores across the country at a special price of **Rs 198**.
- PM Narendra Modi has also appealed to the countrymen to join the **Tiranga Yatra** campaign on Independence Day and buy Khadi clothes.

### Har Ghar Tiranga (HGT) Campaign:

- The **3<sup>rd</sup> edition** of the HGT campaign is celebrated from **9<sup>th</sup> to 15<sup>th</sup> August 2024** as part of the **Independence Day** celebrations.
- It aims to instil a spirit of **patriotism** and **national pride** among citizens by encouraging every Indian to hoist the national flag.
- It was launched under the aegis of **Azadi Ka Amrit Mahotsav** in **2022** and has grown into a people's movement.
- Other **outreach activities** being organized are Tiranga Concerts, Street Plays (Nukkad Natak), Exhibitions on the **Evolution of Tiranga** etc.

Read more: [National Flag Day](#)

## Iconic Flag of 1947 Displayed at Fort St. George

The Fort St. George Museum in Chennai displays a **12x8 feet Indian flag**, one of the **first hoisted on 15<sup>th</sup> August 1947**, and the **only surviving flag** from that date.

- Made of **pure silk**, it symbolises India's freedom struggle and is part of the Indian Independence Gallery.

### Evolution of the Indian Flag:

- The first national flag was hoisted on **7<sup>th</sup> August 1906** in Calcutta, featuring **red, yellow, and green** stripes.
- In **1921**, **Pingali Venkayya** designed a flag with **red and green stripes**, with **Gandhi** later added a **white stripe** and spinning wheel.
- The **current tricolour** was adopted on **22<sup>nd</sup> July 1947**.

### Fort St. George:

- It was established in 1639 in Chennai. It is the **first English fortification** in India.
- It was briefly under **French control** from **1746 to 1749** and later returned to the British by the **Treaty of Aix-la-Chapelle (1748)** after **1<sup>st</sup> Carnatic War**.
- It serves as an **administrative hub** for Tamil Nadu's legislative assembly and houses a garrison.
- The Fort Museum, maintained by the **Archaeological Survey of India (ASI)**, showcases relics from the Raj era, including portraits of Madras Governors.

Read More: [National Flag Day: Commemorating India's Journey Towards Independence](#)

## Afghan Sikhs' Citizenship Under the CAA

In a significant development, **twenty Afghan Sikhs** have recently been granted citizenship under the **Citizenship Amendment Act (CAA), 2019** in New Delhi, marking a pivotal step for many long-term visa holders who have sought Indian citizenship for decades.

- Some applicants, who have been **living in India on long-term visas since 1997**, had their citizenship applications pending under the **Citizenship Act, 1955**.
- **CAA vs. 1955 Act:** In December 2019, the Citizenship Act, 1955 was amended to facilitate citizenship through **registration and naturalisation** to undocumented migrants belonging to **six non-Muslim communities (Hindu, Sikh, Buddhist, Jain, Parsi or Christian)** from

Note:



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**Afghanistan, Bangladesh and Pakistan**, who entered India on or before 31<sup>st</sup> December 2014, and reduced the period to qualify for citizenship from the **existing requirement of continuous stay of 11 years to five years**.

- Many Afghan Sikhs are petitioning to migrate their applications from the 1955 Act to the CAA, as the latter provides a **better chance of obtaining citizenship**.
- Applications under the 1955 Act faced delays due to the involvement of multiple authorities, whereas the CAA streamlined the process by removing the State government's role, resulting in quicker approvals.

Read more: [Centre Notifies Rules for CAA Implementation](#)

## Premature Repayment Guidelines for NBFC Depositors

In a significant move to assist **non-banking finance company (NBFC) depositors** facing urgent financial needs, the **Reserve Bank of India (RBI)** has introduced guidelines **allowing premature repayment of deposits under specific conditions**.

- Premature repayment of deposits **within three months is now permitted** without interest, addressing emergencies like medical expenses or natural disasters as **notified by the concerned government** or authority.
  - Tiny deposits (up to Rs 10,000) can be fully repaid at the depositor's request, while for other public deposits, **up to 50% or Rs 5 lakh (whichever is lower) can be withdrawn**.
  - In cases of **critical illness, 100% of the principal can be withdrawn prematurely** without interest.
- NBFCs must establish a system for acknowledging nomination requests, ensuring all customers are informed about their nomination status.
  - The notice period for deposit maturity has been reduced from two months to 14 days, enhancing communication with depositors.
- A NBFC is a company registered under the **Companies Act, 1956** engaged in the business of loans and advances, acquisition of securities, insurance business, chit business.

- The key differences between banks and NBFCs are that **NBFCs cannot accept demand deposits**, do not form part of the payment and settlement system, and **deposit insurance facility** is not available to depositors of NBFCs.

Read more: [RBI to Review NBFCs](#)

## Somanathan Appointed as India's New Cabinet Secretary

The Indian government has appointed **TV Somanathan** as the **new Cabinet Secretary**, succeeding Rajiv Gauba.

- Earlier as Finance Secretary, Somanathan was noted for his careful management of finances and contributed to **Production Linked Incentive Schemes** and initiatives like **PM Garib Kalyan** and **Atmanirbhar Bharat**.
- The Cabinet Secretary is the **highest-ranking civil servant in the Government of India**, ex-officio chairman of the **Civil Services Board, the Cabinet Secretariat**.
  - Appointed for a **fixed two-year term**, the Cabinet Secretary ranks eleventh in the Indian order of precedence and is **directly accountable to the Prime Minister**.
  - The Cabinet Secretary's tenure **can be extended up to four years, with an additional extension of up to three months possible**, as per the amended **All India Services (Death-Cum-Retirement-Benefits) Rules, 1958**.
  - Facilitates government operations, provides secretarial support to Cabinet, coordinates inter-ministerial efforts, and resolves conflicts through committees.

## Neelakurinji Declared as a Threatened Species

**Neelakurinji (*Strobilanthes kunthiana*)**, a flowering shrub that blooms once every 12 years, is now classified as **Vulnerable** (Criteria A2c) on the **IUCN Red List**.

- The species was not previously evaluated under IUCN standards due to its unique blooming cycle and ecological challenges.
- **Strobilanthes kunthiana** is an **endemic shrub of three-metre height**, seen only in the **high-altitude shola grassland ecosystems** of five mountain landscapes of southwest India at an elevation of **1,340–2,600 m**.

Note:



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- The scientific name of the Neelakurinji is named after the **Kunthi River in Kerala's Silent Valley National Park** where it is abundantly found.
- They are **semelparous** (reproducing only once in a lifetime) with **showy synchronous blooming and fruiting** every 12 years at the end of the life cycle.
- Known for their massive blooming, they impart purplish-blue colours to the mountain grasslands and are popularly known as **Neelakurinji (Blue Strobilanthes) blooms**.
- The species has **34 subpopulations within 14 ecoregions of the high-altitude mountain ranges of southwest India**, with 33 subpopulations in the **Western Ghats** and one in the **Eastern Ghats** (Yercaud, Shevaroy Hills).
  - Most subpopulations are in the **Nilgiris of Tamil Nadu**, followed by Munnar, Palani-Kodaikanal, and Anamalai mountains.
- **Main Threats:** Major threats include habitat loss from tea and softwood plantations, urbanisation, invasive species, and climate change. **Approximately 40% of its habitat has been lost.**



Read more: [New Varieties of Neelakurinji Flowers](#)

## Vikram Sarabhai's 105th Birth Anniversary

Recently, India celebrated Dr. Vikram Sarabhai's 105th birth anniversary on 12<sup>th</sup> August, who pioneered **India's space program** and founded key institutions across various fields.

- Dr. Vikram Sarabhai, born in Ahmedabad in 1919, is the father of India's space program and mentor to **A.P.J. Abdul Kalam**.
- He established the Physical Research Laboratory at age 28 and conducted pioneering research on **cosmic rays**.
- Sarabhai's efforts led to the **creation of INCOSPAR in 1962, which later became ISRO**, and facilitated the transfer of **Viking engine technology from France to India**.

- His contact with NASA paved the way for the Satellite Instructional T.V. Experiment (SITE) in 1975, introducing cable TV to India.
- Sarabhai was honoured with the **Padma Bhushan in 1966** and the **Padma Vibhushan posthumously in 1972**.

Read More: [Vikram Sarabhai Centenary Programme, Padma Awards 2024, Upgraded Vikas Engine to Boost ISRO's Rockets](#)

## World Lion Day

**World Lion Day**, established by Big Cat Rescue and celebrated on **10<sup>th</sup> August since 2013**, highlights the urgent need for lion conservation due to threats like habitat loss, human-wildlife conflict, and poaching.


- As apex predators, **lions control herbivore populations** and support ecosystem health, with a **lifespan of 10-14 years in the wild** and a **birth interval of around 2 years**.
- In India, the **Asiatic lion**, a symbol of strength in the national emblem, has seen its **population increase from 523 in 2015 to about 674 in 2020** due to successful conservation efforts.
- Launched on 15<sup>th</sup> August 2020, **'Project Lion'** aims to secure the future of Asiatic lions through habitat improvement, advanced monitoring, and addressing human-wildlife conflict.

Note:



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# Asiatic Lion

*Panthera Leo Persica*

## Features

- Asiatic lions are slightly smaller than African lions.
- The most striking morphological character, which is always seen in Asiatic lions, and rarely in African lions, is a longitudinal fold of skin running along its belly.

## Habitat

- At present Gir National Park and Wildlife Sanctuary (Gujarat) is the only abode of the Asiatic lion.

## Protection Status



- Endangered: IUCN Red List
- Appendix I: CITES
- Schedule I: Indian Wildlife (Protection) Act 1972

## Threats

- Human Animal Conflict
- Poaching
- Genetic Inbreeding
- Diseases such as plague, canine distemper

## Conservation Efforts

- Asiatic Lion Conservation Project
- Project Lion
- World Lion Day (10<sup>th</sup> August)



Read More: [World Lion Day 2022](#), [Asiatic Lion Conservation Project](#)



## World Elephant Day

**World Elephant Day** is celebrated every year on the **12<sup>th</sup> August** to bring awareness to the status of Asian and African elephants in the wild.

- The theme for 2024 is “**Personifying prehistoric beauty, theological relevance, and environmental importance**”.
- India is home to about **60%** of the world’s Asian elephant population, with an estimated 27,312 individuals as per the 2017 census and 138 identified **elephant corridors**.
- Elephants have a **gestation period of about 22 months**, the longest of any land animal.

Note:

- Asian elephants(Indian) are classified as **Endangered** on the **IUCN Red List** due to habitat loss, human-elephant conflict, and poaching.


  
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# ELEPHANT

**4 Main Species of Elephant**

Species	Found in	IUCN Red List Status	Habitat
Indian	Asia	EN (CITES - Appendix I, WPA - Schedule I)	Subtropical broadleaf forest, tropical broadleaf moist forest, dry forest, grassland
Sumatran	Asia	CR	Broadleaf moist tropical forests
Savanna (Bush)	Africa	EN	All sub-Saharan Africa except for Central Africa's dense tropical forest
Forest	Africa	CR	Dense Tropical Forests

**Indian Elephant (*Elephas maximus*)**

**Largest Land Mammal on Asian Continent**  
**National Heritage Animal of India**

➤ **Top 5 Indian States by Maximum Elephant Population:**  
(As per elephant census 2017)

- Karnataka > Assam > Kerala > Tamil Nadu > Odisha

➤ **Social Structure:**

- Female elephants are more social than males; form herd (generally 5-7)
- Led by the oldest female, the 'matriarch'
- Males usually live alone

➤ **Threats:**

- Habitat Fragmentation
- Poaching for Ivory
- Human-Elephant Conflict
- Mistreatment in Captivity

➤ **Conservation Efforts:**

- Gaj Sookhna App (2022)
- Gaj Yatra (2017)
- Hathi Mere Sathi campaign (2011)
- National Elephant Corridor project (2005)
- Monitoring the Illegal Killing of Elephants (MIKE) Programme (2003)
- Project Elephant (1992)

Read More: [World Elephant Day](#), [Elephant Corridors](#)

## Timor-Leste Bestows Top Civilian Honor on President Murmu

Recently, President Horta of Timor-Leste awarded President Droupadi Murmu the **Grand-Collar of the Order of Timor-Leste**, recognizing her contributions to public service, education, and women's empowerment.

- President Murmu and Prime Minister Gusmão observed the signing of **three** MoUs covering Cultural Exchanges, the collaboration between Prasar Bharati and Timor-Leste Radio & Television (RTTL), and **visa exemptions for diplomatic, official, and service passports**.

### East Timor:

- **East Timor also known as Timor-Leste** is bounded by the **Timor Sea to the southeast, the Wetar Strait to the north, the Ombai Strait to the northwest, and western Timor (part of the Indonesian province of East Nusa Tenggara) to the southwest**.
- **East Timor comprises the eastern half of Timor Island**, the western half of which is part of Indonesia.
- **East Timor**, colonised by **Portugal** in the 18<sup>th</sup> century, was **annexed by Indonesia in 1975 after Portugal withdrew**, leading to a long struggle for independence.
- In a **1999 UN-supervised referendum**, **East Timorese voted for independence**, which led to further violence until peace-keeping forces intervened, and the **country was officially recognized by the UN in 2002**.
- East Timor has applied for **ASEAN** membership and currently holds observer status.

Note:



Read More: [East Timor](#)

## President of India Receives Fiji's Highest Civilian Award

Recently, President Droupadi Murmu has been awarded the **Companion of the Order of Fiji**, the highest civilian honour from Fiji recognising the strong **India-Fiji ties**. This recognition comes during her historic visit to the island nation, marking the **first time an Indian President has travelled to Fiji**.

- The President of India acknowledged the contributions of the Indian diaspora, particularly the **Girmitiya laborers**, and emphasised the importance of overseas Indian communities.
  - The word '**girmitiya**' is derived from '**girmit**', meaning '**agreement**'. Indian indentured labourers transported to places like Fiji and Mauritius were known as 'girmitiyas'.
  - Though girmitiyas were not technically slaves, they were subjected to "blackbirding" (deceiving or tricking people to work as slaves or poorly paid labourers).

Note:



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- Fiji, a country and archipelago in the **South Pacific Ocean**. It surrounds the **Koro Sea** north of Auckland, New Zealand. It comprises over 300 islands, with only about 100 inhabited.
  - It is known as the “**soft coral capital of the world**,” Fiji boasts over 4,000 square kilometres of vibrant **coral reefs**.
    - **Sugarcane** was a major economic driver for Fiji for many years.
  - Fiji is a **parliamentary democracy**, its population is a mix of Indigenous Fijians, Indians, Europeans, and other ethnicities. Fiji is home to the **largest Hindu temple in the Southern Hemisphere**, the **Sri Siva Subramaniya Swami Temple**.



Read more: [New Great Game in South Pacific](#)

## Omkareshwar Floating Solar Project

Recently, **SJVN Green Energy Limited (SGEL)** commissioned a **90 MW Omkareshwar Floating Solar Project**.

- **SJVN Limited** is a Mini Ratna Schedule 'A' Central Public Sector Undertaking (CPSU) under the Ministry of Power, Government of India.

Note:



- Omkareshwar Floating Solar Project
  - Located in the **Omkareshwar Floating Solar Park** on river **Narmada** in **Khandwa, Madhya Pradesh**.
  - It is the **largest floating solar park in India**.
  - The project aims to significantly **reduce carbon emissions by 2.3 lakh tons of CO<sub>2</sub>**, supporting India's goal of achieving **net-zero emissions by 2070**.
  - It will also help in **water conservation** by reducing water evaporation.
- India's **installed solar energy capacity** has grown significantly, reaching **85.47 GW** as of June 2024.
- As of May 2024, **renewable energy sources** have a **total installed capacity of 195.01 GW**, which includes **wind power at 46.65 GW**, **biomass/cogeneration at 10.35 GW**, **small hydropower at 5 GW**, **waste-to-energy at 0.59 GW**, and **large hydropower at 46.92 GW**.

## Renewable Energy



India is the world's third largest producer of renewable energy.

## Targets



- Achieve net zero carbon emissions by **2070**
- Produce **5 Million Tonnes** of green hydrogen by **2030**
- **57** Solar Parks aggregate capacity of **39.28 GW**
- Wind Energy offshore target of **30 GW** by **2030**

## Installed capacity of renewable sources of energy in India



Read More: [India Emerges as Third-Largest Solar Power Producer in 2023](#)

Note:

## Idol in Temple Must be Treated as a Living Person

Recently, the Madras **High Court** observed that an **idol is treated as a juristic personality in law** during a case involving the **closure of a temple for 10 years without customary pujas** due to a dispute between the communities **over the issue of Untouchability**.

- The court emphasised the responsibility of the administration to prevent the illegal closure of temples and ensure adherence to worship rights.
- The Court recognized the **idol in a temple can hold property and engage in legal actions**. A temple must remain open for worship and customary rituals.
- Considering the Idol's **Juristic personality**, the court exercised **parens patriae** jurisdiction to protect the rights of idols, ensuring daily dharmic rituals continued.
  - The Doctrine of **Parens Patriae**, which means "parent of the nation," is a legal principle that grants the state (judiciary) the inherent power and authority to act as the **guardian for those who are unable to care for themselves**.
- A **juristic person**, as defined in **Shiromani Gurdwara Parbandhak Committee vs Som Nath Dass, 2000**, is a legally recognized entity with a legal personality, encompassing gods, corporations, rivers, and animals.

Read more: **Sukhna Lake (as a Living Entity)**

## Mandatory FIR Registration in Alleged Fake Encounter Cases

The Delhi High Court has ruled that a **first information report (FIR)** must be mandatorily registered in **cases of alleged fake encounters**, reinforcing legal accountability for police actions.

- **Case Background:** The petition was filed to challenge orders directing the registration of an FIR against police officers involved in the death of a man during an alleged encounter.
  - Despite an SDM's inquiry report claiming police fired in self-defense, the court insisted on further investigation to determine whether the encounter was genuine or a case of murder.

- Delhi High Court cited the Supreme Court's ruling in **Lalita Kumari vs. State of Uttar Pradesh, 2013**, emphasizing that an **FIR must be registered if a complaint suggests a cognizable offence**, even if it may eventually lead to a closure report rather than a charge sheet.
  - The court highlighted the **National Human Rights Commission's** 1997 letter to Chief Ministers, stressing the need for proper investigation of extrajudicial killings by the police.

Read more: **FIR and General Diary**

## China's Major Gas Field Discovery in the South China Sea

China has announced the discovery of the **Lingshui 36-1 gas field in the South China Sea**, marking it as the **world's first large, ultra-shallow gas field in ultra-deep waters**. This significant find could intensify the already existing geopolitical tensions in the region.

- The Lingshui 36-1 gas field is estimated to contain **over 100 billion cubic meters of natural gas**, positioning it as a substantial resource in the South China Sea.
- As the **world's largest natural gas importer**, spending approximately USD 64.3 billion on gas in 2023, China aims to enhance its energy security with this discovery.
- The South China Sea's combined **original gas in place (OGIP) exceeds 1 trillion cubic metres**, emphasizing its critical role in global energy resources.
- The **South China Sea is contested by** the Philippines, Vietnam, Malaysia, Brunei, and Taiwan against China's claims.
  - Past incidents, like the **2014 Vietnam protests over China's oil rig**, show the diplomatic issues related to resource development. The United States, European Union, Japan, and allies support the smaller nations' claims, increasing regional tensions.

Read more: **Introspecting the South China Sea**

## Kasturi Cotton Bharat Initiative

The **Kasturi Cotton Bharat** programme of the Ministry of Textiles is a pioneering effort in traceability, certification and branding of Indian cotton.

Note:



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- It is a collaboration between the Government of India (**Cotton Corporation of India**), trade bodies, and industry to **enhance cotton traceability and certification**.
- A **microsite with QR code verification** and a **blockchain platform** has been developed for end-to-end traceability and transaction certification.
- The program is **promoted at both national and international levels**, with funds allocated at the national level rather than state-specific.
- Approximately **343 modernised ginning and pressing units are registered**, including 15 units in Andhra Pradesh.
  - Around 100 bales from Andhra Pradesh have been certified under the Kasturi Cotton Bharat brand.
- **Cotton** is a vital crop in India, contributing to **25% of global production and is known as "White-Gold"** for its economic value. It thrives in **hot, sunny climates** and various soil types but is **sensitive to waterlogging**.



Read more: [Kastoori Cotton Nurturing India's Cotton Sector, Cotton Production in India](#)

## Jaisalmer Fort

The historic **Jaisalmer Fort in Rajasthan**, experienced a collapse of its

walls following heavy rainfall, highlighting the need for **better maintenance and preservation** of this **UNESCO World Heritage Site**. The collapse is attributed to weakened walls due to a lack of proper maintenance.

- The **Jaisalmer Fort is India's only 'living' fort**, with residents living within its walls, making its maintenance crucial for their safety.
  - Built in **1156 AD by Raja Rawal Singh**, the fort was strategically constructed to protect the kingdom from invasions. It was an important trade centre along the **Silk Route**, connecting India with Central Asia.
    - Constructed from **yellow sandstone** that changes colour with sunlight, the fort appears golden, earning it the name **"Sonar Quila" or "Golden Fort."**
  - The **Raj Mahal (Royal Palace)** is the largest palace within the fort, featuring ornate balconies and intricate carvings. It is a splendid example of medieval Rajasthani architecture, featuring a remarkable blend of **Islamic and Rajput style influences**.
- The **Archaeological Survey of India (ASI)** is responsible for the fort's maintenance.
- The hill forts of Rajasthan, including **Chittor, Kumbhalgarh, Ranthambore, Gagron, Amer, and Jaisalmer Forts**, were designated as a **UNESCO World Heritage Site in 2013**.
  - Jaisalmer Fort along with the Forts of Chittorgarh, Kumbhalgarh and Ranthambore

Note:



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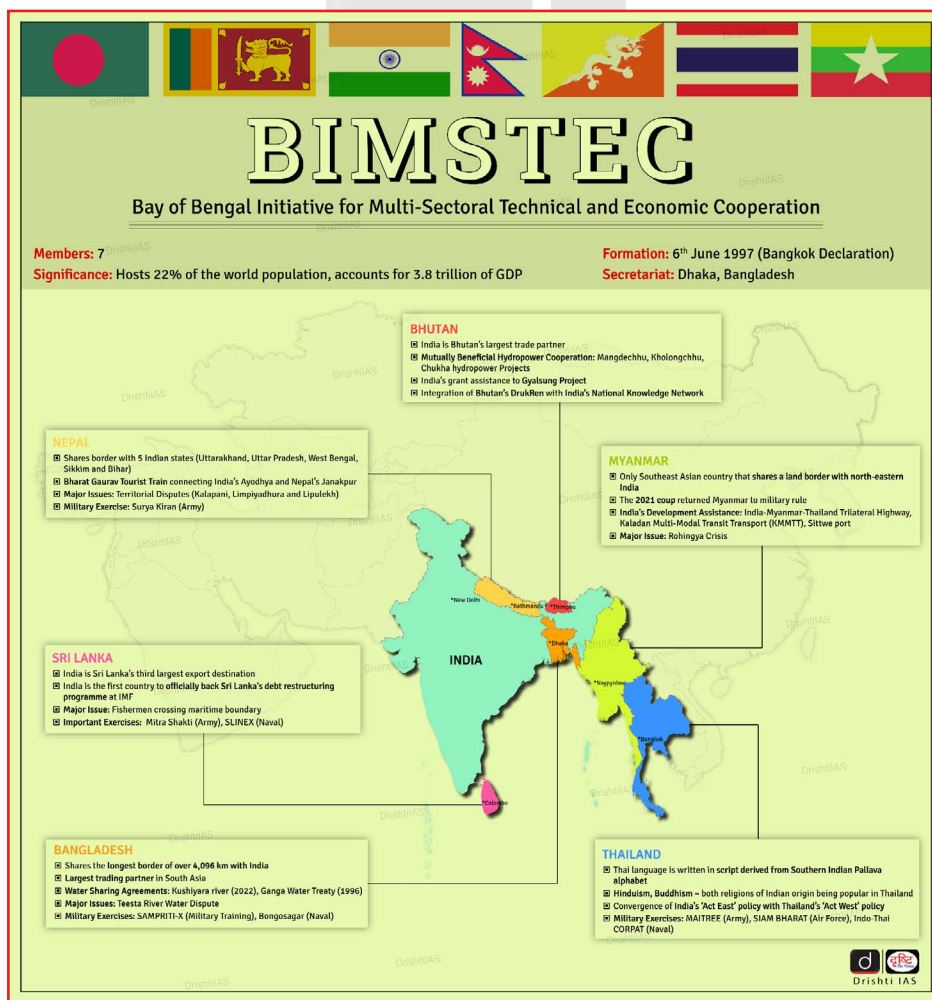
are protected as **Monuments of National Importance of India** under the Ancient and Historical Monuments and Archaeological Sites and Remains (Declaration of National Importance) Act of 1951.



Read More: [6 New Sites from MP Listed on UNESCO's Tentative World Heritage Sites List](#)

## Fast Tracking BIMSTEC Free Trade Agreement

The Indian Minister of Commerce & Industry called for faster negotiations of the **BIMSTEC Free Trade Agreement (FTA)** at the BIMSTEC Business Summit in New Delhi.



Note:



- He called for a **preferential trade agreement** to begin with to foster intra-regional trade and investment and enhance regional competitiveness.
- **India's total trade** with BIMSTEC countries amounted to **USD 44.32 billion** in 2023-24.
  - **Thailand was India's largest trading partner** within the bloc, with exports worth **USD 5.04 billion** and imports at **USD 9.91 billion**.
  - **Bangladesh** followed, with exports of **USD 11.06 billion** and imports of **USD 1.84 billion**, creating a trade balance of **USD 9.22 billion** in India's favour.

### ***BIMSTEC Free Trade Agreement (FTA):***

- It was signed in February 2004.
- It **includes provision for negotiation of FTA** on goods, services, investment and economic cooperation amongst the member countries.

BIMSTEC countries **constituted the Trade Negotiating Committee** to carry forward the negotiations in accordance with the Framework Agreement.

Read More: [BIMSTEC](#)

## **Bailey Bridge**

The **Indian Army's** Madras Engineer Group assembled a 190-foot **Bailey bridge** in Chooralmala, **Wayanad, Kerala** to facilitate the movement of vehicles and machinery following **devastating landslides**.

- The Bailey bridge enables the transport of men, heavy machinery, and ambulances in disaster-hit areas.



- A Bailey bridge is a type of **modular bridge** whose parts are **pre-built**, so they can be put together quickly as needed. **Donald Coleman Bailey** an english civil engineer is credited with inventing it during **World War II**.

- The Indian armed forces inherited the Bailey bridge design from the British, using it in the **1971 war with Pakistan** and in various disaster relief efforts, such as after the **2021 Uttarakhand flash floods**.

Read more: [New Defence Systems For Indian Army](#)

## **Preamble Removed from new NCERT Textbooks**

The **National Council of Educational Research and Training (NCERT)** has dropped the **Preamble** to the Constitution from several Class 3 and 6 textbooks issued in 2024.

- The NCERT has clarified that the organisation is now focusing on various aspects of the Indian Constitution, including the **Preamble, fundamental duties, fundamental rights**, and the **National Anthem** for holistic development as per **National Education Policy 2020**.

### **Preamble:**

- The Preamble to the Constitution is a **reflection** of the **core constitutional values** that embody the Constitution. It highlights that:
  - India to be a **Sovereign, Socialist, Secular, Democratic Republic** committed to **Justice, Equality** and **Liberty** for the people.
    - It **aims** to promote fraternity to maintain the **unity and integrity** of the nation.
  - The **source** of authority of the Constitution lies with the **people** of India.
  - It was adopted on **26<sup>th</sup> November, 1949**.
- In the **Kesavananda Bharati Case, 1973** and **Union Government Vs LIC of India, 1995**, the **SC** held that the Preamble is an **integral part** of the Constitution.
- The Preamble does **not grant substantive rights** and is **not enforceable** in the courts.

Read more: [Preamble to the Indian Constitution](#)

## **72% of Taxpayers Opted for New Tax Regime**

The **Central Board of Direct Taxes (CBDT)** reported that **72% of Income Tax (IT)** assessee chose the **new tax regime** in 2023-24.

Note:



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- Out of the **7.28 crore** IT returns filed for the assessment year 2024-25, **5.27 crore** were under the new regime.
- **Increase in I-T Return Filings: Assessment Year 2024-25** saw a **7.5% rise in filings**, with nearly **58.6 lakh** returns from **first-time filers**, indicating an expanding **tax base**.
- **Changes in Tax Structure:**
  - The new tax regime was made the default option, with **tax slabs reduced from 6 to 5**.
  - The **tax-free income limit** increased from **Rs 2.5 lakh to Rs 3 lakh**.
  - The **tax rebate limit** under the new regime was raised from **Rs 5 lakh to Rs 7 lakh**.
  - The **standard deduction** was increased from **Rs 50,000 to Rs 75,000**.
- India's **net direct tax collections** increased by **17.7%** in **2023-24**, reaching **Rs. 19.58 lakh crores**, largely due to a rise in **personal income taxes**, which now comprise **53.3% of total tax revenue**, up from 50.06% in 2022-23.
- **Direct taxes** are the taxes an individual pays directly to the government, such as income tax, poll tax, land tax, and personal property tax.

INCOME TAX SLABS			
New tax regime		Old tax regime	
	FY24		FY24
Rs 0-3 lakh	Nil	Rs 0-2.5 lakh	Nil
Rs 3-6 lakh	5%	Rs 2.5-5 lakh	5%
Rs 6-9 lakh	10%	Rs 5-10 lakh	20%
Rs 9-12 lakh	15%	Rs 10 lakh+	30%
Rs 12-15 lakh	20%		
Rs 15 lakh+	30%		
Those earning up to Rs 7 lakh are entitled to a rebate		Those earning up to Rs 5 lakh are entitled to a rebate	

Read more: [Rising Share of Personal Income Tax and Indirect Tax](#)

## Google Faces Antitrust Complaints in the US and India

Recently, a US District Court has found **Google guilty of monopolistic practices** in search and text **advertising**, disrupting its longstanding dominance and is coinciding with India's new digital competition law discussions.

- Google has invested over USD 26 billion annually to maintain its default search engine status on devices, with a substantial market share of **89.2% in general search services** and **94.9% on mobile**.
- In India, the **Alliance of Digital India Foundation (ADIF)** has filed a complaint with the **Competition Commission of India (CCI)** claiming Google's dominance hinders competition and negatively impacts Indian businesses.
  - ADIF is an industry body for India's digital startups formed in 2020 to transform the **Indian startup ecosystem into the top 3 globally by 2030**.
  - ADIF is concerned that **Google's Privacy Sandbox initiative**, which removes **third-party cookies from Chrome**, could **hinder non-Google Demand Side Platforms' effectiveness in digital advertising**.
  - The development comes as India discusses a **digital competition law**, which could lead to increased compliance by large tech companies. It also comes amid **antitrust scrutiny into Google by the CCI**, after fining it in 2022 for "**abusing its market dominant position**" in Android-related categories.
- India is proposing the **Digital Competition Bill, 2024**, which aims to curb **anti-competitive practices by setting presumptive norms** and imposing heavy penalties.
  - The bill also addresses the role of **Associate Digital Enterprises (ADEs)** in regulating data use among group companies.

Read more: [Regulating Big-Techs: India & Abroad](#)

## National Handloom Day

Recently, the **10<sup>th</sup> National Handloom Day** was celebrated on **7<sup>th</sup> August 2024**. This day has been celebrated since **2015** and marks the launch of the **Swadeshi Movement** on **7th August 1905**, part of the independence struggle promoting domestic handloom products.

Note:



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- **Handloom fabrics** are generally made with high quality **natural fibres** like **cotton, linen, silk**, and **wool** which are resilient and last for a long time.
  - **Unique Handloom Products:** Banarasi, Jamdani, Baluchari, Madhubani, Kosa, Ikkat, Patola, Tussar Silk, Maheshwari, Moirang Phee, Phulkari, Laheriya, Khandua and Tangaliya.
- Government Initiatives:
  - **National Handloom Development Programme (NHDP):** Supports handloom clusters with financial aid, marketing assistance, and awards. Plans to fund mega clusters with Rs. 30 crore for 10,000 looms.
  - **Market Access Initiative (MAI):** Promotes exports through market research, international marketing, and support for small industries. Effective until March 2026.
  - **Raw Material Supply Scheme (RMSS):** Provides subsidised yarn, improves dyeing facilities, and offers freight reimbursement and price subsidies to handloom weavers, effective until 2025-26.
- The **Handloom Export Promotion Council (HPEC)** is a not-for-profit agency under the Ministry of Textiles that aims to boost exports of handloom products such as fabrics, home furnishings, and carpets.

## NATIONAL HANDLOOM DAY (NHD) 2023

Celebrated annually - 7 August (Swadeshi Movement 1905 was launched on this day)

### FIRST CELEBRATED

- 2015

### NHD 2023

- Theme - "Handlooms for Sustainable Fashion"
- Launched e-portal - "Textile and Craft Fund of India"

### INDIA'S TEXTILE & HANDLOOM INDUSTRY SCENARIO

- Rural India's **2<sup>nd</sup> largest job provider** after agriculture
- Contribution to GDP - 2%, **India's total exports (2020-21) - 11.4%**
- Engine of 'Saree diplomacy' and 'Khadi diplomacy'
- **Major Export Centres:** Karur, Panipat, Varanasi & Kannur
- **Major Importers** - US, UK, Germany, Italy, France, Japan, Saudi Arabia, Australia, Netherlands and UAE

*India is the 2nd largest exporter of handloom products in the world*

### SCHEMES FOR PROMOTION

- PM MITRA Scheme (2021)
- National Technical Textile Mission (2020)
- SAMARTH Scheme (2017)
- Power-Tex India (2017)
- Amended Technology Upgradation Fund Scheme (ATUFS) (2015)
- Scheme for Integrated Textile Parks (SITP) (2005)



### CHALLENGES FACED

- **Unorganized financial support** and infrastructure
- Lack of **product diversification** in Fashion & Design
- **Low Earning** - 67% of workers earning less than Rs. 5,000/month
- **Unpatented** Handloom designs
- **Free Trade Regime** in textile under WTO
- **Competition** with Powerlooms

### REFORMING THE INDUSTRY

- Leveraging e-commerce for marketing, branding, advt and sales
- Boosting exports of Indian Textiles as "**Brand India**"
- Corporatisation and cooperatisation for better management and lucrative earnings
- Better opportunities for **patenting** and **GI Tagging**
- Collaboration with academic institutions



Read More: [Reforms in Handloom Sector](#)

## Hiroshima Day 2024

- Hiroshima Day** is observed on August 6<sup>th</sup> to commemorate the anniversary of the atomic bombing of Hiroshima, Japan, by the US during **World War II** on August 6<sup>th</sup>, 1945.
- On August 6, 1945, during World War II, the **US dropped an atomic bomb called "Little Boy," on Hiroshima** using the B-29 bomber Enola Gay.
    - Approximately **70,000-80,000 people were killed instantly**, with many more dying later from injuries and radiation.
  - On August 9, 1945, the US dropped a second atomic bomb, "**Fat Man**" on Nagasaki. This led to Japan's surrender and **marked the end of World War II**.

Note:



- **General Douglas MacArthur** and other top commanders supported continued conventional bombing and a planned massive invasion, "**Operation Downfall**," which was estimated to result in up to **1 million US casualties**.
  - To **avoid** such **high casualties**, **President Truman** decided to use the **atomic bomb**.
- In December 1941, the US government launched the **Manhattan Project** to develop the bomb under the leadership of **J. Robert Oppenheimer**.
- The incident of atomic bombing gave birth to the **Comprehensive Nuclear Test Ban Treaty (CTBT)**, **Nuclear Non-Proliferation Treaty**, **Limited Test Ban Treaty**, **Nuclear Suppliers Group**, etc. to restrict proliferation of nuclear weapons.

Read More: [75<sup>th</sup> Anniversary of Hiroshima Bombing](#)

## India to Explore Lithium in Chile

**Coal India Limited (CIL)** is planning to **explore** and **extract** lithium from the **salt flats** (areas of flat land covered with a layer of salt) in **Chile**.

- Chile has the **world's largest lithium reserves (36%)** and is the **second-largest global producer (32%)**. It contributes about 36% to global trade.
  - Chile is a part of the "**lithium triangle**" along with **Argentina** and **Bolivia**.
    - **Australia** and **China** are the **first** and **third** largest **producers** of **Lithium** globally.

- Lithium (white gold) is a **versatile element** used in **rechargeable batteries**, ceramics, glass, aluminum alloys, and pharmaceuticals.
  - It is **soft, silvery white metal**, the **lightest metal** of the periodic table. It has high reactivity, low density and excellent electrochemical properties.
  - Lithium reserves in India include **Reasi district (J&K)**, **Korba district (Chhattisgarh)**, **Marlagalla area (Mandya district, Karnataka)**, **Koderma (Jharkhand)** etc.



Read More: [Lithium](#)

## WCC to Host Programme for Kashmiri Artisans

The **World Crafts Council (WCC)** will hold a knowledge exchange programme for artisans from Kashmir with cities that influenced the craft

Note:



aesthetic here centuries ago. Earlier in June 2024, the WCC named Srinagar a World Craft City.

- The move will bring together artisans with similar culture and specialisation, so that they benefit from each other, both culturally and technically.
- The **WCC-International** was founded in 1964 and **Smt Kamaladevi Chattopadhyay**, being one of the founding members, attended the 1<sup>st</sup> WCC General Assembly. The main objective of the WCC is to strengthen the status of crafts in cultural and economic life.
- **Important crafts from Kashmir:** 7 crafts from Kashmir-Kani Shawl, Pashmina, Sozni, Paper-Machie, Walnut Wood Carving, Khatamband, and Hand Knotted Carpets, have received **Geographical Indication (GI)** certification.
- About Srinagar's Craft:
  - According to an Indian National Trust for Art and Cultural Heritage-Kashmir (INTACH-Kashmir) report of 2024, Srinagar is one of the **ancient cities of South Asia with a continuously recorded history of about 1,500 years.**
    - The INTACH was founded in 1984 in New Delhi with the vision to spearhead heritage awareness and conservation in India. Today, INTACH is recognized as one of the world's largest heritage organisations.
  - The city is known globally for the '**Cashmere**' brand and **paisley motif**.
  - Crafts such as **Zanjan** and **Filigree** were introduced by **Iranian** artisans five centuries ago.
  - Srinagar's **carpet tradition** began in the late **14<sup>th</sup> century** with **Sufi Saint Sayyid Ali Hamdani**.
  - In **2021**, it was recognised as a **UNESCO Creative City** for crafts and folk arts.

**Read More:** [Srinagar: UNESCO Creative Cities Network](#)

## ASI Copies Stone Inscriptions

The **Archaeological Survey of India (ASI)** has begun a project to copy **stone inscriptions** at the **Thalishwarar temple** in the Tiruppur district of Tamil Nadu.

- **Estampage Method:** It is a technique used by archaeologists to **replicate inscriptions for analysis.**
  - The process involves **cleaning the inscribed stone** with a brush, applying **pre-soaked maplitho paper** onto the stone to transfer engravings, and then inking the paper to highlight the characters.

- After drying, details about the inscription's location are noted on the back of the sheet.
- These replicated inscriptions provide valuable insights into the lifestyles, economies, cultures, and administrative practices of historical rulers, allowing for a better understanding of dynastic history through corroboration with other historical sources.

- **Inscriptions Identified:** 8 inscriptions were discovered including one in **Vattezhuthu (ancient Tamil script)** from the 9<sup>th</sup> century and seven in Tamil from the 12<sup>th</sup> century. These inscriptions document the temple's construction by a **Chera ruler** (one of the 3 major dynasties in ancient Tamil Nadu, known for its contributions to art, architecture, and literature).
- The team recorded inscriptions from **two hero stones** (a memorial commemorating the honourable death of a hero in battle), an **Ayyanar (a popular folk deity in South India) sculpture**, and a **Nandi (bull) sculpture** near the temple.



**Read more:** [ASI to Delist Lost Monuments](#)

## Ceramics

Recently, ceramics have gained attention for their diverse applications and historical significance. Derived from the **Greek word 'keramos'** meaning '**potter's clay**,' ceramics have been integral to human civilization for over 25,000 years, with ancient artefacts found in the **Indus Valley** and **Keezhadi, Tamil Nadu**.

- **A ceramic is neither metallic nor organic;** it is a **hard, chemically non-reactive material** that may be crystalline, glassy or both, and can be formed or densified with heat.
- Ceramics are known for their ability to withstand high temperatures, **resist chemical erosion**, and their **hardness**, but they are also brittle and susceptible to shattering under shear stress.

Note:



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- The study of ceramics' microscopic properties is known as **ceramography**.
- The discovery of high-temperature superconductivity in **ceramics won the 1987 Physics Nobel Prize**.
- Gujarat's Morbi district is home to the **world's second-largest ceramic production cluster** (China is the leading ceramic tile manufacturer) with over 1,000 units, an annual turnover of Rs 50,000 crore, and exports exceeding Rs 12,000 crore in 2022-23, contributing significantly to the state's rapid economic growth.
- In 2013, India exported 55 million square metres of tiles. By 2023, exports had soared to 589.5 million sqm, with over half shipped outside Asia, making **India the 2<sup>nd</sup> largest exporter worldwide**.
- **Modern Applications:** Used in space shuttles as heat shields during atmospheric reentry, employed in microwave furnaces for generating heat, utilised as abrasives and in the production of varistors and semiconductors, used as nuclear fuel and in fighter aircraft windows and it is essential in tomographic scanners.

## Donor Agreement between Ayush Ministry and WHO

The **Ministry of Ayush** and the **World Health Organization (WHO)** signed a **Donor Agreement** during a signing ceremony organised at WHO Headquarters in **Geneva** in July 2024.

- It outlines the **financial terms** for implementing the activities of the **WHO Global Traditional Medicine Centre (GTMC)** in Jamnagar, Gujarat.
- It acknowledges the **WHO Global Traditional Medicine Centre** as a major source of knowledge for evidence-based **Traditional Complementary and Integrative Medicine (TCIM)**, aiming to improve the health and well-being of people and the planet.
- Through this collaboration, India will donate **USD 85 million** over a period of **10 years (2022-2032)** to support the operations of the WHO Global Traditional Medicine Centre (GTMC) in Jamnagar, Gujarat.
- WHO Global Traditional Medicine Centre in Jamnagar, Gujarat is the **first and only global out-posted Centre (office)** for traditional medicine across the globe.
- Traditional medicine includes the **knowledge, skills and practices** from various cultures used for maintaining **health and treating physical and mental illnesses**.

- India has **six recognised systems** of traditional medicine i.e., **Ayurveda, Siddha, Unani, Yoga, Naturopathy** and **Homeopathy**.

Read More: **Global Centre for Traditional Medicine: Gujarat**

## Refugees in J&K Get Land Ownership

Recently, the **Jammu and Kashmir (J&K)** government granted **proprietary rights** to **West Pakistan Refugees (WPRs)** and individuals displaced during the **1965 India-Pakistan war**.

- **West Pakistani Refugees (WPRs)** are individuals who migrated from West Pakistan to the erstwhile State of J&K (now **UT**) during the **partition in 1947**, primarily settling in the **Jammu, Kathua, and Rajouri** districts of the Jammu Division.



- This decision was made ahead of the **Supreme Court's** deadline of 30<sup>th</sup> September 2024, for conducting Assembly elections in the region.
- The move **ended discrimination** by granting these displaced persons **rights to state land**, aligning their rights with those of individuals displaced from **Pakistan Occupied Jammu and Kashmir (PoJK)**.
- Earlier, WPR families were considered **"non-state subjects"** and **couldn't vote** in Jammu and Kashmir due to not being residents at the time of the **1947 Partition**.
- They were granted domicile status and voting rights following the **abrogation of Article 370** on 5<sup>th</sup> August 2019.

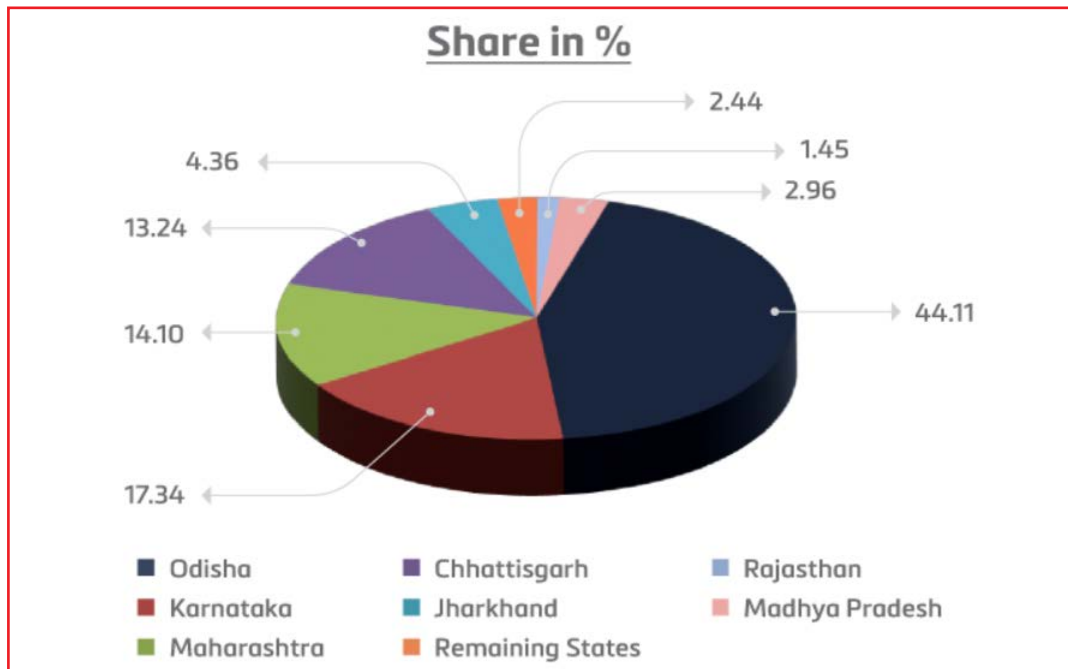
Read More: **SC Verdict on Revocation of Article 370**

Note:

## Ministry of Mines Published Mineral Production Data

The **Ministry of Mines** published **mineral production** data in Quarter 1 of FY 2024-25.

- **Iron ore (275 MMT)** and **limestone (450 MMT)** accounted for about **80%** of the total MCDR mineral production by value in FY 2023-24.
- **India** is the **second largest aluminium producer**, **third largest limestone producer** and **fourth largest iron ore producer** in the world.
  - Globally, **China** is the largest producer of **aluminium** and **limestone** while **Australia** is the largest producer of **iron ore**.



- **Odisha** is the largest **aluminium ore** and **iron ore** producing state in India. **Rajasthan** has the highest share of **limestone** production in India.
  - **Continued growth** in production of Aluminium ore, iron ore and limestone point towards continued strong economic activity in user sectors such as **energy, infrastructure, construction, automotive** and **machinery**.
- **Mineral production** was reported from **19 States** of which the bulk of value of mineral production of about **97.04%** was confined to **7 States** only.
  - Order of mineral production by share - **Odisha (44.11%)**, **Chhattisgarh (17.34%)**, **Rajasthan (14.10%)**, **Karnataka (13.24%)**, **Jharkhand (4.36%)**, **Madhya Pradesh (2.44%)**, and **Maharashtra (1.45%)**.
  - Remaining **12 States** have cumulative share of less than **3%** of total value

**Read More:** [Growth in Mineral Production](#)

## Acharya Prafulla Chandra Ray

Recently, **2<sup>nd</sup> August** was commemorated as the birthday of **Acharya Prafulla Chandra Ray**.

### **Acharya Prafulla Chandra Ray:**

- Often referred to as the “**Father of Indian Chemistry**,” **Prafulla Chandra Ray** (1861-1944) was a distinguished Indian **scientist and educator**, recognized as one of the earliest **modern chemical researchers** in India.

Note:



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- **Trained at the University of Edinburgh**, Ray spent many years at Presidency College and Calcutta University.

#### **His Work:**

- He is credited with discovering the stable compound **Mercurous Nitrite** in 1895.
- A staunch nationalist, Ray was committed to advancing Bengali enterprise and established the **Bengal Chemical and Pharmaceutical Works in 1901**.
- Ray was an active supporter of the **Swadeshi Movement of 1905** and considered the use of Bideshi articles a crime of treason against India.
- Ray opposed the caste system and other irrational social practices, actively promoting social reform until his death.

#### **Awards and Recognitions:**

- Honored by the British Government, he received the title of **Companion of the Indian Empire (CIE)** and then with the **Knighthood in 1919**.
- **In 1920**, he was elected General President of the **Indian Science Congress**.
- In recognition of his contributions, **India Post** issued a postage stamp in his honor on **2<sup>nd</sup> August 1961**, marking his birth anniversary.



Read more: [Acharya Prafulla Chandra Ray](#)

## **Green National Highway Corridor Project**

The **Government of India** and the **World Bank** have signed an agreement for the construction of **Green National Highway Corridors Project (GNHCP)** in **Himachal Pradesh, Rajasthan, Uttar Pradesh and Andhra Pradesh**, with loan assistance of **USD 500 million**.

- The project aims to show how highways can be **safe** and **eco-friendly** by using **green technologies** and focusing on **climate resilience**. It includes:
  - Conservation of natural resources using **cement treated sub base/reclaimed asphalt pavement**
  - Promote use of local/ marginal material such as **lime, fly ash** and **waste plastic**
  - Use of **bio-engineering** measures for slope protection like **hydroseeding**, shotcrete crib wall with vegetation, **bamboo plantation**, hedge brush layer etc.
- The scheduled date of completion of the GNHCP project is by **May 2026**.
- 3 Components of GNHCP:
  - Green highway corridor improvement and maintenance
  - Institutional capacity enhancement
  - Road safety
- Benefits of GNHCP:
  - Reduce **carbon emissions** and **conservation** of natural resources
  - Smooth and motorable roads with **all weather connectivity**
  - Socio-economic development as well as enhanced **trade and connectivity** within the region

Read More: [Green National Highways Corridor Project, World Bank](#)

## **Pingali Venkayya, the Man Behind Tricolour**

The Prime Minister paid tributes to **Pingali Venkayya** on his birth anniversary (2<sup>nd</sup> August).

- He also urged citizens to support the **Har Ghar Tiranga movement** by unfurling the tricolour between 9<sup>th</sup> and 15<sup>th</sup> August, 2024.

Note:



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**Evolution of Flag:**

- In 1916, Pingali Venkayya published a **booklet** titled **A National Flag for India**, featuring nearly 30 designs for a **potential Indian flag**, inspired by flags of other nations.
- Venkayya's **design** for the National Flag was finally **approved** by **Mahatma Gandhi** in a Congress meeting in **Vijayawada** in **1921**.
- The initial flag, called the **Swaraj flag**, consisted of **two red and green bands** (representing the **Hindus** and the **Muslims religious communities**). The flag also had a **charkha**, which represented **Swaraj**.
  - Mahatma Gandhi advised **Venkayya** to add a **white band** to represent **peace**.
- The **Flag Committee (1931)** replaced the red with **saffron** and placed saffron on top followed by **white** and then **green**. The **charkha** was placed on the **white band** in the **middle**.

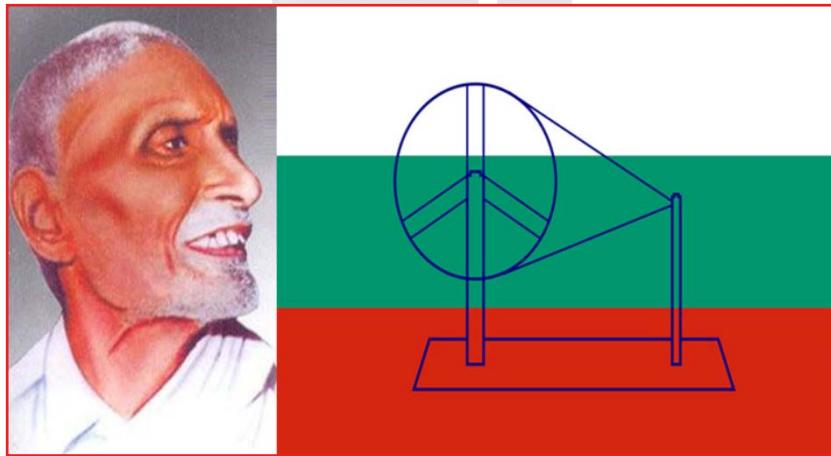
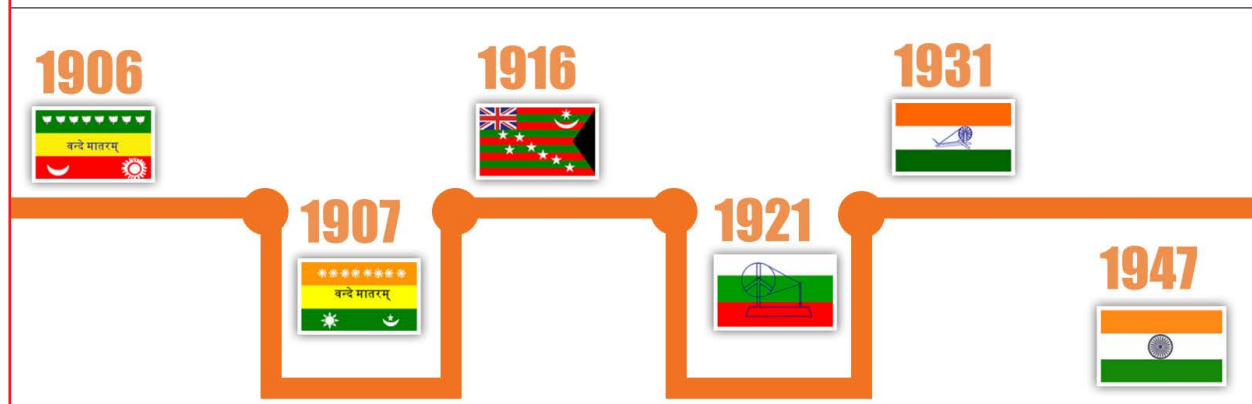
- The **colors** stood for **qualities** and not communities i.e., the **saffron for courage and sacrifice**, **white for truth and peace**, and **green for faith and strength**.

The **charkha** stood for the **welfare of the masses**.

- Post-Independence, a national flag committee under **President Rajendra Prasad** replaced the **charkha** with the **Ashok Chakra**.

**Pingali Venkayya:**

- He fought the Second **Boer War (1899-1902)**.
- In 1913, he delivered a **lecture** in **Japanese** in **Bapatla**, **Andhra Pradesh** called as '**Japan Venkayya**'.
- He was also known as **Patti Venkayya** for his research into the **Cambodia Cotton**.
- In 2009, a **postage stamp** was released for his contribution.

**THE DEVELOPMENT JOURNEY OF THE TRICOLOR**

Read more: National Flag Day

Note:

## World Ranger Day 2024

**World Ranger Day**, observed on **July 31<sup>st</sup>** each year, is dedicated to recognising the dedication of **rangers who protect natural and cultural treasures**. This day commemorates those injured or killed in the line of duty and celebrates the vital role rangers play in conservation efforts.

- **2024 World Ranger Day Theme: “30 by 30”** aligns with the **2022 UN Convention on Biological Diversity (COP15)**, which sets a goal to **conserve at least 30% of the planet’s land and marine areas by 2030**.
- Rangers are crucial in achieving conservation targets, handling tasks such as protection, monitoring, law enforcement, and community support.
  - To meet the “30 by 30” goal, rangers need to be adequately resourced and trained.
- The first World Ranger Day was observed in 2007 on the 15<sup>th</sup> anniversary of the founding of the **International Ranger Federation (IRF)**. It was formed on 31<sup>st</sup> July 1992 and World Ranger Day has been commemorated on July 31<sup>st</sup> each year.
- **Rangers in India**, also known as **Van Rakshaks or Green Soldiers** are responsible for the forests, environment and wildlife-related issues of a Forest Range within a state or union territory of India.

Read more: **Protecting India’s Forest Frontline**

## US Surpasses UAE as India’s Second Largest LNG Supplier

In 2023, the **United States emerged as India’s second-largest supplier of liquefied natural gas (LNG)**, surpassing the United Arab Emirates, delivering 3.09 million tonnes (MT) in 2023. **Qatar remained the largest supplier with shipments** in 2023. This shift is driven by changing global LNG market conditions and evolving trade dynamics.

- **Weakening international LNG prices** and India’s geographical proximity via the **Cape of Good Hope** have made US LNG more competitive compared to other suppliers, including those in North Asia.
- India, the fourth-largest LNG importer globally, saw its **LNG imports decline in 2022 due to rising prices**, but US exports to India increased from 2.16 MT in 2022 to 3.09 MT in 2023.
- The UAE’s LNG exports to India fluctuated, reaching 2.85 MT in 2023 after a decline in previous years.

- LNG is **natural gas cooled to a liquid state at about -260°F**, reducing its volume by 600 times, enabling long-distance transport to markets not connected by pipelines. At terminals, **LNG is converted back to gas and distributed via pipelines**.

- Natural gas is a cleaner and more economical alternative to **conventional hydrocarbons**, comprising 70-90% **methane**, crucial in **India’s transition to greener energy**.

Read more: **Red Sea Disruptions and India’s Oil Import Dynamics**

## India-US Cultural Property Agreement

Recently, India and the US signed the **first-ever Cultural Property Agreement (CPA)** to combat the illegal trafficking of cultural artefacts and ensure the return of antiquarian objects to their place of origin.

- The agreement aligns with the **Article 9 of the 1970 UNESCO Convention** on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property.
- The CPA restricts the importation into the US of **certain archaeological and ethnological material ranging from 1.7 million years ago through 1947**. The list of such items restricted for import will be promulgated by the Government of the US.
  - The US **shall offer to return to India any object or material on the Designate List forfeited** to the Government of the US.
  - Similar agreements exist between the US and countries like Algeria, Cambodia, China, Egypt, and Italy.
- The agreement is the result of year-long bilateral discussions initiated during the G20 meetings. Under **India’s G20 Presidency**, the focus on protecting cultural property has been a top priority.
  - The **Kashi Culture Pathway** and the **New Delhi Leaders’ Declaration (NDLD) in 2023** underscored the commitment to fighting illicit trafficking.
- It marks a shift in the global development strategy, emphasising **culture as a standalone goal in the post-2030 development framework**.

Read More: **G20 Culture Ministerial Meeting and B20 Summit 2023**

Note:



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## SC Launches Special Lok Adalat Drive

The **Supreme Court of India** has launched a week-long special week-long **Lok Adalat** drive to address and resolve long-standing disputes as part of its **75<sup>th</sup> anniversary (diamond jubilee)** celebrations.

- This initiative aims to **tackle the substantial backlog of cases** and provide expedited justice.
- The initiative involves the first seven Benches of the Supreme Court, with the **Chief Justice** leading a five-member panel that includes prominent judges and legal professionals.
- **Cases Covered:** Includes matrimonial disputes, property disputes, motor accident claims, land acquisition, compensation, and service and labour issues.
  - Citizens with pending cases are encouraged to participate for amicable and speedy resolutions.
- The drive employs an **informal, technology-based solution** to facilitate dispute resolution, making the process more accessible and efficient for the public.
- Lok Adalats are informal, voluntary and conciliatory dispute resolution forums based on **Gandhian principles**, which have statutory backing under the **Legal Services Authorities Act, 1987**.
  - It is a component of the Alternative Dispute Resolution (ADR) system that provides **informal, inexpensive, and expeditious justice to the common people**.



Read more: [Diamond Jubilee of the Supreme Court](#)



Note: