

# UPDATED CLASSROOM STUDY MATERIAL-1

(January 2024 to March 2024)

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
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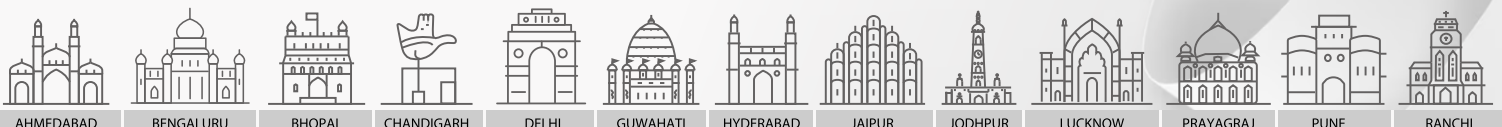
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In our endeavour to further enhance the document in the interest of the aspirants, following additions have been incorporated:



**Consolidated Maps:** They have been added to provide geographical and contextual information about different places in news. These include-

- **Individual maps for each Country or Place** mentioned in the news
- **Comprehensive Continent-wise maps** for quick reference
- **Maps depicting Multilateral Groupings**
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# फाउंडेशन कोर्स सामान्य अध्ययन

## प्रारंभिक एवं मुख्य परीक्षा 2025

इनोवेटिव क्लासरूम प्रोग्राम

- प्रारंभिक परीक्षा, मुख्य परीक्षा और निबंध के लिए महत्वपूर्ण सभी टॉपिक का विस्तृत कवरेज
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- एनीमेशन, पॉवर प्वाइंट, वीडियो जैसी तकनीकी सुविधाओं का प्रयोग
- अंतर - विषयक समझ विकसित करने का प्रयास
- योजनाबद्ध तैयारी हेतु करंट और एंटेड अप्रोच
- नियमित क्लास टेस्ट एवं व्यक्तिगत मूल्यांकन
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- MAINS 365 कक्षाएं
- PT टेस्ट सीरीज
- मुख्य परीक्षा टेस्ट सीरीज
- निबंध टेस्ट सीरीज
- सीसेट टेस्ट सीरीज
- निबंध लेखन - शैली की कक्षाएं
- करंट अफेयर्स मैगजीन

नोट: ऑनलाइन छात्र हमारे पाठ्यक्रम की लाइव वीडियो कक्षाएं अपने घर पर ऑनलाइन प्लेटफॉर्म पर देख सकते हैं। छात्र लाइव चैट विकल्प के माध्यम से कक्षा के दौरान अपने संदेह और विषय संबंधी प्रश्न पूछ सकते हैं। वे अपने संदेह और प्रश्न नोट भी कर सकते हैं और दिल्ली केंद्र में हमारे कक्षा सलाहकार को बता सकते हैं और हम फोन/मेल के माध्यम से प्रश्नों का उत्तर देंगे।

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**LUCKNOW: 5 जून**

**BHOPAL: 11 जून**

**JAIPUR: 7 मई**

**JODHPUR: 22 अप्रैल**



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LEH | LUCKNOW | LUDHIANA | MADURAI (TAMIL NADU) | MANDI (HIMACHAL) | MEERUT | MORADABAD | MUMBAI | MUZAFFARPUR  
MYSURU | NAGPUR | NASHIK | NAVI MUMBAI | NOIDA | ORAI | PANAJI (GOA) | PANIPAT | PATIALA | PATNA | PRAYAGRAJ (ALLAHABAD)  
PUDUCHERRY | PUNE | RAIPUR | RAJKOT | RANCHI | ROHTAK | ROORKEE | SAMBALPUR | SHILLONG | SHIMLA | SILIGURI | SRINAGAR  
SURAT | THANE | THIRUVANANTHAPURAM | TIRUCHIRAPPALLI | TIRUPATI | UDAIPUR | VADODARA | VARANASI | VIJAYAWADA  
VISAKHAPATNAM | WARANGAL



# 1. POLITY

## 1.1. ISSUES RELATED TO CONSTITUTION

### 1.1.1. UNIFORM CIVIL CODE (UCC)

#### Why in the news?

The Uttarakhand State Legislative Assembly passed the Uniform Civil Code, Uttarakhand, 2024 Bill.

#### More on news

- With this, **Uttarakhand became the first State** in the country to pass a **law on Uniform Civil Code**.
  - Also, **Assam and Gujarat are the other states working on the implementation of UCC**.
  - Goa is the only place in India where a form of common civil code is in practice, the Portuguese Civil Code of 1867.

#### Important judicial pronouncement related to UCC

- **Shah Bano Case (1985)**: SC Highlighted need for UCC, especially in maintenance matters.
- **Sarla Mudgal Case (1995)**: SC Urged UCC for gender equality among religions.
- **Paulo Coutinho vs Maria Luiza Valentina Pereira (2019)**: SC highlighted the need for uniform laws for consistency.

#### About UCC

- It provides for the formulation of **one law for the entire country, which would apply to all religious communities** in their personal matters such as marriage, divorce, inheritance, adoption, and succession.
- **Article 44 under Part IV** directs that the State shall endeavour to secure the citizen a UCC throughout the territory of India.

#### Current status of UCC in India

- Different religious communities are currently governed by a **system of personal laws**, which have been codified over the years through various pieces of legislation.
  - For example, **Hindu personal law** is codified in through 4 legislations: the **Hindu Marriage Act (1955)**, the **Hindu Succession Act (1956)**, the **Hindu Minority and Guardianship Act (1956)**, and the **Hindu Adoptions and Maintenance Act (1956)**.
    - ✓ The term 'Hindu' also **includes Sikhs, Jains, and Buddhists** for the purpose of these laws.
  - Certain aspects of **Muslim personal law** are expressly recognized in India in acts such as **Shariat Application Act (1937)** and the **Dissolution of Muslim Marriages Act (1939)**.
- There are **some secular laws** as well, for e.g.
  - **Special Marriage Act, 1954**: under which Inter-religion marriages take place, and
  - **Guardians and Wards Act, 1890**: This establishes the rights and duties of guardians.

### 1.1.2. SIXTH SCHEDULE

#### Why in the news?

The people of Ladakh are protesting for Ladakh **to be recognized as a tribal area under the Sixth Schedule**.

#### About Sixth Schedule

- The Sixth Schedule of the Constitution, under **Article 244(2) and Article 275(1)**, is provided for the **administration of tribal areas in Assam, Meghalaya, Tripura, and Mizoram**.

#### Provisions of the Sixth schedule






- It **empowers the Governor** to create **Autonomous District Councils (ADCs) and Autonomous Regional Councils (ARCs)** in these four states.
  - **Composition of ADCs**: ADCs consist of **not more than thirty members**, out of **which four are** nominated by the Governor while the rest are elected. (Bodoland Territorial Council is an exception; it can have up to 46 members)

- **ARCs:** If there are **multiple Scheduled Tribes in an autonomous district**, the Governor may divide the area(s) inhabited by them into autonomous regions.

- **Powers conferred to ADCs and ARCs under Sixth Schedule:**

Power	Subject
<b>Legislative Power</b>	<b>To make rules in respect of</b> <ul style="list-style-type: none"> <li>● <b>lands, management of forest</b> (other than the Reserved Forest), shifting cultivation, Chiefs or Headmen appointment.</li> <li>● <b>inheritance of property, marriage and divorce</b> and social practice.</li> <li>● regulations and control of <b>moneylending or trading</b> by any person other than Scheduled Tribe residents in that Scheduled District.</li> </ul>
<b>Executive Power</b>	<ul style="list-style-type: none"> <li>● Power to establish or manage primary schools, dispensaries, markets, cattle ponds, fisheries, roads, road transport and waterways in the districts.</li> <li>● Councils are also <b>authorized to prescribe the language and manner of instruction in the primary schools.</b></li> </ul>
<b>Judicial Powers</b>	<ul style="list-style-type: none"> <li>● Empowered to constitute <b>Village and District Council Courts.</b></li> <li>● <b>No courts except the High Courts and the Supreme Court</b> has the jurisdiction over such suits or cases of the Council Courts.</li> <li>● However, these Council Courts are <b>not given the power to decide cases involving offences punishable by death or imprisonment for five or more years.</b></li> </ul>
<b>Financial Powers</b>	<ul style="list-style-type: none"> <li>● Empowered to <b>prepare a budget</b> for their respective Council.</li> <li>● Empowered to <b>assess and collect land revenue</b> and <b>impose taxes</b> on professions, trades etc.</li> <li>● Empowered to <b>grant licenses or leases for extraction of minerals within their jurisdiction.</b></li> </ul>

## Fifth and Sixth Schedule

Feature	Fifth Schedule	Sixth Schedule
 <b>Applicability</b>	Applies to certain tribal areas in any states of India. (Currently in 10 states)	Applies to the tribal areas in the four northeastern states of India.
 <b>Administration</b>	Tribes Advisory Councils (TAC)	District Councils or Regional Councils
 <b>Administrative power</b>	TAC being the creation of the Legislative Assembly of the States has limited powers which are mostly executive.	Extensive powers, including executive, legislative and judicial powers, all derived from the Constitution.
 <b>Emphasizes</b>	More on protection of tribal rights	More on self-governance.
 <b>PESA Act 1996</b>	Applicable	Not applicable



### 1.1.3. MINORITY EDUCATIONAL INSTITUTIONS (MEIS)

#### Why in the News?

A Constitution Bench of the Supreme Court has reserved judgment on the case concerning the minority status of the Aligarh Muslim University (AMU).

#### About Minority Educational Institutions (MEIs)

- **Article 30(1) of Constitution** deals with **right of linguistic and religious minorities** to establish and administer educational institutions of their choice.
- **National Commission for Minority Educational Institutions Act (NCMEIA), 2004** was enacted to safeguard educational rights of the **minorities enshrined in Article 30(1)**.
  - The Commission, a **quasi-judicial body** and possess powers of a **Civil Court, decide questions** relating to the status of **any institution as a MEI**.
- Central Government has notified **six religious minority communities** viz. **Muslim, Christian, Sikh, Buddhist, Parsi and Jain**.
  - However, minorities communities is **not defined in the Constitution**.

#### Special Privileges enjoyed by MEIs

- **Under Article 30(1A)** in case of **acquisition of any property** of an educational institution established and administered by a minority, due compensation to be provided.
- **MEIs are not required to implement the reservation policy** under Section 3 of **Central Educational Institute (Reservation in Admission) Act, 2006** (as amended in 2012).
- **Right to Education Act, 2009** is not applicable to MEIs, aided or unaided.

## 1.2. FUNCTIONING OF PARLIAMENT, STATE LEGISLATURE/LOCAL GOVERNMENT

<b>Panel of Vice-Chairpersons in Rajya Sabha</b>	<ul style="list-style-type: none"> <li>• Vice-President and Rajya Sabha Chairman <b>reconstituted the panel of Vice-Chairpersons</b>.</li> <li>• Chairman constitutes Panel of vice-chairpersons under <b>Rule 8 of the Rules of Procedure and Conduct of Business in the Council of States (Rajya Sabha)</b>.                             <ul style="list-style-type: none"> <li>○ These rules are framed under <b>Article 118 of the Constitution</b>.</li> </ul> </li> <li>• Any of the members of panel <b>may preside over Rajya Sabha in absence of Chairman and Deputy Chairman</b>.</li> <li>• They <b>hold office until a new panel is nominated</b>.</li> <li>• When offices of both <b>Chairman and Deputy Chairman are vacant</b>, duties of office of Chairman are performed by such member of Rajya Sabha as President may appoint.</li> </ul>
<b>Motion of Thanks</b>	<ul style="list-style-type: none"> <li>• Prime Minister replied to the 'Motion of Thanks' on the President's address.</li> <li>• <b>About Motion of Thanks</b> <ul style="list-style-type: none"> <li>○ It is a formal motion moved in the House, expressing its gratitude to the President for the Address delivered by him/her under Article 87(1) of the Constitution.</li> <li>○ <b>Article 87 of the Constitution</b> requires the President to address both Houses of Parliament assembled together and inform Parliament of the causes of it summons at the commencement of:                             <ul style="list-style-type: none"> <li>✓ the first session after each general election to the House of the People, and</li> <li>✓ the first session of each year.</li> </ul> </li> <li>○ It <b>must be adopted in both the Houses of the Parliament</b>.</li> <li>○ It can be adopted with amendments.</li> </ul> </li> </ul>
<b>Minister without Portfolio</b>	<ul style="list-style-type: none"> <li>• Madras High Court questioned Tamil Nadu state government about continuation of an accused as Minister without portfolio.</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>About Minister without Portfolio</b> <ul style="list-style-type: none"> <li>○ <b>Government of India (Allocation of Business) Rules, 1961</b> allows President on advice of PM to entrust responsibilities of specified business to a union minister without portfolio.</li> <li>○ Do not have a department/ office to handle, but <b>entitled to prerequisites and privileges of a minister.</b></li> </ul> </li> <li>• <b>Does not draw salary and emoluments as minister</b>, but only as member of Legislature.</li> </ul>
<b>Denotification of Cantonments</b>	<ul style="list-style-type: none"> <li>• The Ministry of Defence (MoD) denotifies civil areas of 10 cantonments which will be merged with concerned state local bodies.</li> <li>• Earlier, in 2023, MoD had notified the state governments to consider <b>merging civil areas of cantonments with neighbouring state municipalities.</b> <ul style="list-style-type: none"> <li>○ Military areas of cantonments will be declared as <b>military stations</b> under the complete control of the army.</li> </ul> </li> <li>• <b>About Cantonments</b> <ul style="list-style-type: none"> <li>○ An <b>area where military troops are garrisoned</b> and is primarily dedicated to housing soldiers. However, civilian populations are also present.</li> <li>○ <b>Genesis:</b> Established by East India Company after <b>the battle of Plassey in 1757.</b> <ul style="list-style-type: none"> <li>✓ <b>Barrackpore (Calcutta)</b> was first Cantonment established in <b>1765.</b></li> </ul> </li> <li>○ Currently there are <b>62 cantonments in India.</b></li> <li>○ Administration: Local self-government of the Cantonments is the subject matter of Union Government (Entry 3 of Union List).</li> </ul> </li> </ul>

## 1.3. JUDICIARY

### 1.3.1. 75 YEARS OF THE SUPREME COURT OF INDIA

#### Why in the News?

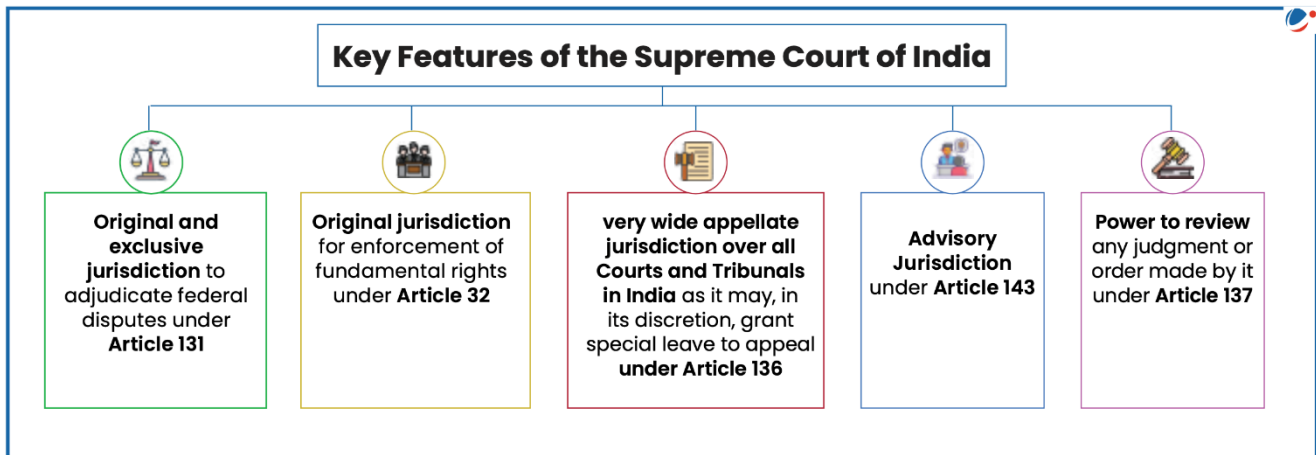
Recently, the Prime minister inaugurated the Diamond Jubilee celebration of the Supreme Court of India on 28<sup>th</sup> January at the Supreme Court auditorium in Delhi.

#### More in News

- On the occasion, PM launched multiple technology initiatives for the Supreme Court.
  - **Digital Supreme Court Reports:** It **will make Supreme Court judgments available to the citizens** of the country free of cost and in electronic format.
  - **Digital Courts 2.0:** Application is a **recent initiative under the e-Courts** project to make court records available to the Judges of the district courts in electronic form.
    - ✓ The e-court mission, launched in 2013, **aims to modernize India's court system** by making it digital and improving access to justice.

#### About Supreme Court of India

- According to **Article 124(1)** of the Indian Constitution, **the Supreme Court of India must have a Chief Justice of India (CJI)** and a maximum of seven additional justices unless Parliament specifies a higher number through a statute.
  - Currently, the **sanctioned strength of the Supreme Court is 34**, including the Chief Justice of India.
- **Constitutional Provisions:** The Supreme Court's powers and jurisdiction are outlined in **Articles 124 to 147** of the Indian Constitution.



### Related News

#### Regional Benches of the Supreme Court

- **Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice** informed the Parliament about the **government's acceptance** of its recommendation to establish regional benches of the SC.
- SC of India may **invoke Article 130** of the Constitution to establish its **regional benches**.
  - As per **Article 130** of the Constitution of India, **the Supreme Court shall sit in Delhi or such other place or places**, as the Chief Justice of India, may, with the approval of the President, from time to time, appoint.

## 1.3.2. TRIBUNAL SYSTEM IN INDIA

### Why in the News?

Recently, the Supreme Court (SC) ruled that **tribunals cannot direct the government** to frame policy.

### More on News

- SC was deciding on whether the **Armed Forces Tribunal (AFT)** could have **directed the government** to make a policy to fill up the post of Judge Advocate General (Air).
  - **The AFT** was set up under the **AFT Act, of 2007**.
  - **AFT** provide for **adjudication or trial** of disputes and complaints to the **commission, appointments, enrolment and conditions of service** in respect of persons subject to the **Army Act, 1950, Navy Act, 1957, Air Force Act, 1950**.
    - ✓ It can further provide for **appeals arising out of orders, findings or sentences of courts-martial** held under the said Acts and for matters connected therewith or incidental thereto.
  - AFT has a **power of civil court**.
- SC held that a **tribunal subject to the High Court's jurisdiction under Article 226 cannot be permitted** by law, **to direct the framing of a policy** by the Government.
  - Also, SC said that **making policy is not in the domain of the Judiciary**.

### About Tribunals System

- **Nature:** Tribunals are **quasi-judicial bodies**. The objective may be to **reduce the caseload of the judiciary** or to **bring in subject expertise for technical matters**.
- **Constitutional Recognition:** In **1976**, Articles 323A and 323B were inserted in the Constitution of India through the **42<sup>nd</sup> Amendment**.
  - **Article 323A:** Empowered **Parliament to constitute administrative Tribunals** (both at central and state level) for adjudication of matters related to recruitment and conditions of service of public servants.
  - **Article 323B:** Specified certain subjects (**such as taxation, land reforms, etc.**) for which **Parliament or state legislatures** may constitute tribunals.

✓ In 2010, the Supreme Court clarified that subject matters under **Article 323B** are not exclusive, and legislatures are empowered to create tribunals on any subject matter under their purview as specified in the **Seventh Schedule of the Constitution**.

- **Composition of Tribunals:** The presence of **expert members (technical members) along with judicial members** is a key feature of tribunals which distinguishes them from traditional courts.
- **Jurisdiction:** Each tribunal is given **specific jurisdiction** to hear and decide cases within its designated area of expertise.
  - **Some tribunals have appellate jurisdiction**, meaning they hear appeals from decisions made by lower authorities or government bodies.
- **Appeals:** Appeals from tribunals usually lie with the concerned **High Court**. However, some laws specify that appeals will be heard by the **Supreme Court**.
  - **In L. Chandra Kumar Case (1997)**, appeals against decisions of tribunals were allowed in the **division bench of High Courts**.

### Key developments in the Indian tribunal system

<b>1941</b>	▶ <b>Income Tax Appellate Tribunal</b> was established as <b>first Tribunal in India</b> .
<b>1976</b>	▶ <b>Swaran Singh Committee (1976)</b> noted that <b>High Courts</b> were burdened with <b>service cases</b> by public servants and <b>42nd amendment</b> to the Constitution was passed ( <b>Articles 323A and 323B inserted</b> ).
<b>Since 1980s</b>	▶ Several tribunals were established under different Acts. ▶ These include <b>Central Administrative Tribunal</b> for administrative matters, <b>Securities Appellate Tribunal</b> to hear appeals against decisions of financial sector regulators, etc.
<b>2017</b>	▶ <b>Finance Act, 2017 reorganized</b> the tribunal system by <b>merging tribunals based on functional similarity</b> . The number of Tribunals was reduced from 26 to 19. ▶ It <b>delegated powers</b> to the central government to make Rules to provide for the <b>qualifications, appointments, removal, and conditions of service</b> for chairpersons and members of these tribunals.
<b>2021</b>	▶ <b>Tribunal Reforms Act, 2021</b> was enacted. ▶ Act <b>abolished certain tribunals</b> (like Film Certification Appellate Tribunal, Intellectual Property Appellate Board etc.) and transfers their functions to existing <b>judicial bodies (mainly High Courts)</b> . ▶ Act also proposed <b>changes in the process of appointment</b> of certain tribunals.

### 1.3.3. DEFAMATION

#### Why in the News?

285th Report of Law Commission recommended that criminal defamation should be retained as part of new criminal laws.

#### More on News

- It highlighted that **reputation flows from Article 21** and being a facet of right to life and personal liberty, it needs to be adequately protected against defamatory speech and imputations.
  - Defamation is considered a **reasonable restriction** under **Article 19(2)** to the freedom of speech and expression in **Article 19(1)(a)**.
- Defamation is any **false statement published or spoken deliberately, intentionally, knowingly** with the intention to damage someone's reputation.

#### Judicial Pronouncements related to defamation.

- **Subramanian Swamy v. Union of India (2016):** SC upheld section 499 to be constitutionally valid
- **Chaman Lal v. State of Punjab (1970):** SC established the criteria for proving good faith and bona fide in defamation cases.



- In India, defamation is **categorized as either criminal or civil.**
  - ✓ **Under criminal defamation**, individuals can be charged with an offence punishable by imprisonment or a fine.
  - ✓ **Civil defamation**, on the other hand, involves filing a lawsuit seeking compensation for damages caused by defamatory statements.

### Constitutional and Legal Provisions for Criminal Defamation

- **Indian Penal Code (IPC), 1860** has comprehensive provisions pertaining to criminal defamation from Section 499-502.
  - **Section 499:** deals with overall definition of defamation.
  - **Section 500:** deals with punishment upto 2 years imprisonment or fine or both.
  - ✓ **The Bharatiya Nyaya Sanhita (BNS), 2023 adds community service as punishment as well.**

## 1.3.4. REMISSION

### Why in the News?

Supreme Court set aside remission of 11 convicts in Bilkis Bano's case granted by the State Government of Gujarat.

### About Remission

- Remission refers to **reduction in period of sentence** imposed on a person, **without affecting the nature of sentence.**
- **State may release convicts early under their remission policy.**

### Constitutional provisions related to Remission

- **Article 72 empowers the President of India** to grant **pardons, reprieves, respites, suspend, remit, or commute** the sentence of a person convicted of any offense where sentence is -
  - by a **court Martial;**
  - for an offence **against any law relating to a matter to which executive power of Union extends;**
  - a **sentence of death.**
- Under **Article 161**, Governor's power is **similar to that of President, but limited to a matter to which executive power of state extends.**
  - Governor can suspend, remit or commute a sentence of death. However, **power to grant pardon for sentence of death lies with President only.**

### Legal basis of Remission

- Section 432 of **Code of Criminal Procedure (CrPC) 1973** grants government power to suspend or remit sentences.
- Section 433A mandates **remission only after 14 years of imprisonment.**
- Sections 473, 475, 476, and 477 of the **Bharatiya Nagarik Surakhsha Sanhita (BNSS), 2023** contain provisions related to remission.

## Judicial Pronouncements related to remission



**Laxman Naskar versus Union of India (2000):** SC laid down five grounds on which remission is to be considered:

- offence affects society at large;
- probability of crime being repeated;
- potential of convict to commit crimes in future;
- if any purpose is being served by keeping convict in prison; and
- socio-economic condition of convict's family.



**Rajkumar v. State of Haryana (2021):** Court held that **Section 433-A of CrPC** cannot and does not in any way affect the constitutional power conferred on President/Governor under Articles 72/161 of Constitution.



### 1.3.5. OTHER IMPORTANT NEWS

<b>Advocate-on-Record (AoR)</b>	<ul style="list-style-type: none"> <li>A committee headed by Chief Justice of India designated 56 lawyers and AoR as senior advocates, 11 of them women.</li> <li><b>Supreme Court Rules, 2013</b> prescribe <b>eligibility criteria for an AoR.</b> <ul style="list-style-type: none"> <li>AoR means an <b>advocate who is entitled under these rules to act as well as to plead</b> for a party in Court.</li> <li><b>No advocate other than AoR for a party shall appear, plead and address the Court in a matter</b> unless he is instructed by AoR or permitted by Court.</li> </ul> </li> </ul>
<b>Bail</b>	<ul style="list-style-type: none"> <li>Recently, the Chief Justice of India (CJI) highlighted that growing reluctance on the part of trial judges to grant bail is violating <b>right to personal liberty</b> under <b>Article 21</b> of the <b>Indian Constitution.</b></li> <li><b>"Bail" means release of a person accused of an offence</b> from the custody of law upon certain conditions imposed by an officer or court including execution by such person of a bond or a bail bond.</li> <li><b>Interim Bail:</b> It is granted for a short time before the hearing for the grant of <b>regular bail</b> or <b>anticipatory bail.</b></li> <li><b>Regular Bail:</b> Granted to a person who has been arrested or is in police custody.</li> <li><b>Anticipatory bail:</b> It can be filed by those who fear arrest for a non-bailable offense.</li> <li><b>Default Bail:</b> Also known as <b>compulsive or statutory bail</b>, it is provided under Section 167(2) of Criminal Procedure Code (CrPC).             <ul style="list-style-type: none"> <li>It affords protection to the accused against detention due to inordinate delays in completion of the investigation and filing of the charge-sheet within timeframe stipulated by law.</li> </ul> </li> <li><b>Changes under Bharatiya Nagarik Suraksha Sanhita</b> <ul style="list-style-type: none"> <li>✓ <b>First-time offenders</b> will be given bail, if detained over one-third of the maximum period of imprisonment.</li> <li>✓ The new law has added a <b>stricter provision by denying bail to the under-trial prisoner</b> if an investigation, inquiry or trial in more than one offence or in multiple cases are pending against a person.</li> <li>✓ The new law has made a provision mandating the Superintendent of Jail to submit an application in writing to the court to proceed to release the under-trial prisoner on bail <b>who has completed one-third or one-half of the sentence</b> as the case may be, prescribed for the offence in the 'Sanhita'.</li> <li>✓ Need for police custody beyond first fifteen days not a ground to deny bail</li> </ul> </li> </ul>

## 1.4. ELECTIONS

### 1.4.1. ELECTORAL BOND SCHEME

#### Why in the news?

Supreme Court, in **Association for Democratic Reforms & Anr. v. Uol & Ors.**, unanimously struck down the Electoral Bond Scheme (EBS).

#### Electoral Bond Scheme (EBS)

- Electoral bond** means a bond issued in the nature of **promissory note** which shall be a bearer banking instrument and shall not carry the name of the buyer or payee.
- Features of Electoral Bonds**
  - Issued to the Purchaser on a **non-refundable basis.**
  - Could be purchased by any citizen of India or a body incorporated in India from **authorized branches of the State Bank of India (SBI).**

- Could be used for donating **only to the registered political parties** which secured not less than **1% of votes polled in the last general election** to the Lok Sabha or a Legislative Assembly.
- **The rationale of the scheme was to enhance transparency** in electoral funding since electoral bond transactions can only be made through legitimate banking channels.
- Each EB had a **unique alphanumeric number** visible under ultraviolet rays.

Changes in Political Funding in India with Finance Act 2017		
Subject (Laws amended by Finance Act 2017)	Before Finance Act 2017	After Finance Act 2017
<b>Corporate Contributions</b> (Section 182 of the Companies Act 2013)	<ul style="list-style-type: none"> <li>● Political contributions by a company in financial year (FY) <b>shall not exceed 7.5% of its average net profits</b> during the 3 preceding FYs.</li> <li>● Required companies to <b>disclose political contributions</b> in its profit and loss account <b>along with particulars of the total amount and of name</b> of the party.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Omitted the cap</b> on corporate funding to political parties.</li> <li>● <b>Allowed any company</b> incorporated or established in India to <b>contribute via Electoral Bonds</b>.</li> <li>● Only required <b>disclosure of the total amount</b> of political contribution and <b>not the particulars</b> of the amount contributed to each political party.</li> </ul>
<b>Curbing black money</b> (Section 13A to the IT Act, 1961)	<ul style="list-style-type: none"> <li>● Political party to maintain a <b>record of voluntary contributions in excess of Rs. 20,000</b> along with the name and address of the contributor.</li> <li>● <b>Cash mode for political donations</b> allowed for individuals.</li> </ul>	<ul style="list-style-type: none"> <li>● Political parties <b>not required to maintain a record</b> of contributions from <b>electoral bonds</b>.</li> <li>● <b>Donation in excess of Rs. 2000</b> must be received only by a <b>cheque, bank draft, electronic clearing system</b> or through <b>electoral bond</b>.</li> </ul>
<b>Transparency</b> (Section 29C of the RP Act, 1951)	<ul style="list-style-type: none"> <li>● Political parties to <b>report on all contributions above Rs 20,000 to the ECI</b>.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Parties will not have to submit records of electoral bonds</b> received to the ECI.</li> </ul>

**Related News**  
**Political parties and Income tax**

- Recently **Income-Tax department** has raised a **demand of ₹210 crore in penalties** from a national level political party for **discrepancy and delay in filing the returns**.
- **Section 13A of the IT Act, 1961, exempts political parties** (registered by Election Commission under Representation of the People Act, 1951) from paying income tax.
  - For exemption parties must fulfil, **some conditions** including maintaining books of account and other documents, their accounts are audited as per the law, etc.
  - However, **under Section 139 (4B) of the IT Act**, Political parties are **required to file their Income tax returns** if: their **total income** (before exemptions under Section 13A) is **higher than the tax exemption threshold**.

### 1.4.2. MUNICIPAL ELECTIONS

#### Why in the News?

**The Supreme Court** recently nullified the outcome of the Chandigarh Mayor election, **exercising its power under Article 142 of the Constitution to ensure "complete justice"**.

## About Municipal Elections

- Elections for the **Municipal Corporations** are held as per the **Municipal Corporation Act** framed by the legislature of the respective state government, whereas elections for the Municipalities and the Town Panchayats are held as per respective Municipal Act.

### Constitutional Provisions related to municipalities.

- **Composition of Municipalities (Article 243R):** All the seats in a Municipality shall be filled by persons chosen by **direct election** from the territorial constituencies in the Municipal area.
  - For this purpose, **each Municipal area shall be divided into territorial constituencies to be known as wards.**
- **Reservation of seats (Article 243T):** Seats are reserved for weaker sections, Scheduled Caste/Tribes, Women, and other groups as per respective municipal Acts.
  - **Not less than 1/3rd of the total number of seats reserved shall be reserved for women** belonging to the SC/STs.
- **Duration of Municipalities (Article 243U): 5 years** from the date appointed for its first meeting.
  - Elections to constitute a municipality are **required to be completed before the expiration of the duration of the municipality.**
  - If the municipality is dissolved **before the expiry of 5 years**, the elections for constituting a new municipality are required to **be completed within a period of 6 months from the date of its dissolution.**
  - A Municipality constituted upon the dissolution shall continue **only for the remainder of the period.**
  - If dissolved Municipality tenure is **less than 6 months**, it **shall not be necessary to hold any election for such period.**
- **State Election Commission (Article 243ZA):** The **superintendence, direction and control** of the preparation of **electoral rolls for, and the conduct of, all elections to the Municipalities shall be vested in the SEC.**

### About Article 142

- Supreme Court in **the exercise of its jurisdiction may pass such decree** or make such order as is necessary for doing **complete justice** in any cause or matter pending before it.
- Enables the **Supreme Court to exercise executive and legislative functions in specific scenarios**, including issuing guidelines, directives, or orders to governmental bodies or other authorities.
- **Permits the Supreme Court to intervene in matters concerning public interest, human rights, constitutional values, or fundamental rights**, safeguarding them against any form of violation or infringement.
- Elevates the Supreme Court's role **as the protector of the constitution and ultimate interpreter of the law**, serving as a catalyst for judicial activism and innovation.

### THREE CATEGORIES OF URBAN LOCAL GOVERNMENT



**Nagar Panchayat** for a transitional area, i.e., an area in transition from a rural to an urban area



**Municipal Council** for smaller urban areas



**Municipal Corporation** for a large urban area.

### Urban Local Bodies

- **A Municipal Corporation has three authorities:** the Council, the Standing Committee, and the Commissioner.
  - **The Council, comprising councilors**, is the **deliberative and legislative wing** of the Corporation that is **headed by a mayor**. He is **assisted by a Deputy Mayor**.
    - ✓ Though the Mayor is an ornamental figure, he is **recognized as the first citizen of the city.**
  - **The standing Committees were created** to facilitate the working of the Council which is too large in size.



- **The Municipal Commissioner** is responsible for the **implementation of the decisions taken by the Council and its Standing Committees.**
- Indian cities largely follow the **‘Commissioner as Chief Executive’ (CACE) model** as opposed to the **directly elected executive mayor’ (DEEM) model:**
  - **DEEM Model:** It’s a **strong mayor model where a mayor has** extensive executive power.
  - **CACE model:** It’s a **weak mayor model where the executive power lies in the hands of the commissioner** (An Indian Administrative Service officer).
- Every State in the country has enacted legislation for the constitution of the Municipalities in the **State specifying their functions, structure, resource and their role in civic administration.**

### 1.4.3. MODEL CODE OF CONDUCT (MCC)

#### Why in the News?

- MCC comes into effect **after ECI announced** that **country would vote in seven phases** from April 19 to June 1 and results will be announced on June 4.

#### About MCC

- It is a set of **guidelines laid down by ECI to govern conduct of political parties** and candidates in run-up to an election to **ensure free and fair elections.**
- This is in keeping with **Article 324 of Constitution**, which gives ECI power to supervise elections to Parliament and State legislatures.
- It is **operational from date that the election schedule is announced** till date that results are announced.
- It is **not enforceable by law**, but some provisions are enforceable through corresponding provisions in statues like Representation of People Act, 1951, etc.

**Role of ECI in light of evolution of MCC**

- In 1960, MCC was **first** introduced in **state assembly elections in Kerala.**
- In 1974, **ECI directed Chief Electoral Officer** to constitute district level standing committee under which **District Collector kept check on MCC violation.**
- In 1979, ECI **added a section to regulate ‘party in power’** and prevent it from gaining an unfair advantage during elections.
- In 2013, Supreme Court in **S. Subramaniam Balaji vs. State of Tamil Nadu case** directed ECI to **include guidelines regarding election manifestos**, which it had included in MCC.

#### Activities prohibited after implementation of MCC

- Candidates **cannot announce financial grants.** Moreover, **government cannot launch new projects.**
- **No promises from authorities** related to infrastructure development like roads, etc.
- **Prohibition of any ad-hoc appointments** in government or public undertakings.
- Ministers or candidates **cannot sanction grants or payments** from discretionary funds.
- **Ban of government resources** like transport, machinery, etc. for campaigning.

### 1.4.4. OTHER IMPORTANT NEWS

<p><b>Registered Unrecognized Political Parties (RUPPs)</b></p>	<ul style="list-style-type: none"> <li>● The Election Commission of India (ECI) brought <b>new rules for the allocation of symbols</b> to RUPPs.               <ul style="list-style-type: none"> <li>○ The new rules mandate RUPPs to furnish the following along with application for symbols                   <ul style="list-style-type: none"> <li>✓ <b>Audited accounts</b> of the last three financial years,</li> <li>✓ <b>Expenditure statements</b> of last two elections</li> </ul> </li> </ul> </li> <li>● RUPPs are those which have <b>not secured enough percentage of votes/ seats</b> in the last general elections to legislative assembly of any state to become a state party or in the last general elections to Lok Sabha to become a national party.               <ul style="list-style-type: none"> <li>○ It also includes <b>newly registered parties</b> or <b>parties that have never contested elections</b> after being registered.</li> </ul> </li> </ul>
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	<ul style="list-style-type: none"> <li>• ECI allots symbols to political parties under the <b>Election Symbols (Reservation and Allotment) Order, 1968.</b></li> </ul>
<b>Internally Displaced Persons (IDP)</b>	<ul style="list-style-type: none"> <li>• Election Commission of India notified a ‘<b>scheme for Internally Displaced Persons (IDPs) of Manipur to cast vote at relief camps</b>’ in upcoming elections. <ul style="list-style-type: none"> <li>○ It will facilitate voting facilities to the people who were displaced from their native places.</li> </ul> </li> <li>• <b>IDPs</b> are those forced to leave their homes due to armed conflict, violence, human rights violations, or disasters, without crossing international borders (<b>United Nations High Commissioner for Refugees</b>)</li> </ul>
<b>Indelible Ink (Voter’s Ink)</b>	<ul style="list-style-type: none"> <li>• <b>Mysore Paints and Varnish Ltd (MPVL)</b>, the <b>sole manufacturer</b> of indelible ink, received its largest order yet from Election Commission for 26.55 lakh vials of marker.</li> <li>• <b>Under rule 49K of the Conduct of Elections Rules, 1961</b> every elector shall allow his <b>left forefinger</b> to be <b>inspected</b> by Presiding officer or Polling Officer and an <b>indelible ink mark to be put</b> on it.</li> <li>• Once applied, <b>Purple-coloured ink cannot be removed by any chemical, detergent, soap or oil</b> for several months.</li> <li>• Ink <b>contains silver nitrate</b>, which on reaction with nail and on exposure to light gets darker.</li> </ul>
<b>Nomination process</b>	<ul style="list-style-type: none"> <li>• Nominations are filed under <b>section 33 of the Representation of the People Act, 1951.</b> <ul style="list-style-type: none"> <li>○ Date for filing of nomination is fixed by <b>Election Commission of India.</b></li> <li>○ <b>Candidate or any of his/ her proposers</b> should deliver the nomination paper to the <b>Returning Officer (RO) or to the Assistant RO.</b> <ul style="list-style-type: none"> <li>✓ Only <b>an elector in the constituency</b> in which the candidate contests the election, <b>can be proposes.</b> <ul style="list-style-type: none"> <li>▪ <b>One proposer</b> is needed for candidate from a <b>recognized political party.</b></li> <li>▪ <b>10 proposers</b> are needed for <b>independent candidates</b> or candidates from <b>registered unrecognized political party.</b></li> </ul> </li> </ul> </li> <li>○ <b>Maximum 4 nomination papers</b> can be filed by a candidate or on his behalf for a constituency.</li> <li>○ <b>Nomination paper cannot be filed on holiday(s).</b></li> </ul> </li> </ul>
<b>Postal ballots</b>	<ul style="list-style-type: none"> <li>• <b>Election Commission has notified</b> Postal ballots for essential services workers.</li> <li>• Postal ballots or vote by post allow eligible voters to exercise their franchise when they are unable to cast their votes in person.</li> <li>• Eligible voters for Postal ballots are <ul style="list-style-type: none"> <li>○ <b>Service voters</b> (member of armed forces, Armed Police Force of a State, government employees, etc.)</li> <li>○ <b>Absentee voters</b> (senior citizens, person with disability, etc.)</li> <li>○ Electors on <b>election duty</b> or under <b>preventive detention.</b></li> <li>○ <b>Paper</b> used in Postal Ballot is <b>different from</b> the one used in the <b>EVM.</b></li> </ul> </li> </ul>

## 1.5. IMPORTANT LEGISLATIONS/BILLS

### 1.5.1. CITIZENSHIP (AMENDMENT) RULES, 2024

#### Why in the news?

Union Ministry of Home Affairs (MHA) has amended **Citizenship Rules, 2009** and notified Citizenship (Amendment) Rules, 2024 **to enforce the Citizenship (Amendment) Act (CAA), 2019.**

#### Background

- Parliament enacted CAA, 2019 under **Article 11** of the Constitution.

- **Article 11** empowers Parliament to make any provision related to the acquisition and termination of citizenship and all other matters relating to citizenship.
- CAA aims to give citizenship to the target group of migrants even if they do not have valid travel documents as mandated in the **Citizenship Act, 1955**.

### Citizenship (Amendment) Act (CAA), 2019

- It provides that **illegal migrants who fulfil four conditions will not be treated as illegal migrants under the Act**. The conditions are:
  - they are **Hindus, Sikhs, Buddhists, Jains, Parsis, or Christians**;
  - they are from **Afghanistan, Bangladesh, or Pakistan**;
  - they entered India on or before **December 31, 2014**;
  - they **are not in certain tribal areas** of Assam, Meghalaya, Mizoram, or Tripura included in the **Sixth Schedule** to the Constitution, or areas under the “**Inner Line**” permit, i.e., Arunachal Pradesh, Mizoram, and Nagaland.
- The Central Government **exempted the said migrants from the adverse penal consequences** of the Passport (Entry into India) Act, 1920 and the Foreigners Act, 1946 and rules or orders made thereunder.
- The **period of naturalisation has been reduced from 11 years to 5 years** for the above category of migrants.
- **Overseas Citizenship of India (OCI)**: Act provides that the central government may cancel the registration of OCIs on five grounds.

### Five grounds of cancellation of OCIs

	<b>Registration through fraud</b>
	<b>Showing disaffection to the Constitution</b>
	<b>Engaging with the enemy during war</b>
	<b>Necessity in the interest of sovereignty of India, security of the state or public interest, or</b>
	<b>If within five years of registration, the OCI has been sentenced to imprisonment for two years or more.</b>

### Key highlights of Citizenship (Amendment) Rules, 2024

<b>Eligibility:</b>	<ul style="list-style-type: none"> <li>● To apply for citizenship by registration/naturalization one must be:                             <ul style="list-style-type: none"> <li>○ Person of Indian origin</li> <li>○ <b>Married</b> to an Indian citizen</li> <li>○ <b>A minor child</b> of an Indian citizen</li> <li>○ A person whose <b>parents are registered as</b> an Indian citizen</li> <li>○ Person or <b>either of his parents was a citizen of Independent India</b></li> <li>○ <b>registered as an Overseas Citizen of India Cardholder</b></li> </ul> </li> </ul>
<b>Other Qualifications for citizenship by naturalization</b>	<ul style="list-style-type: none"> <li>● Applicant will have to present an <b>affidavit verifying correctness of the statements made</b> in the application and an <b>affidavit by an Indian citizen to testify the character of the applicant</b>.</li> <li>● Applicant must have <b>adequate knowledge of one of the languages listed in 8th Schedule</b> of Indian Constitution.</li> </ul>
<b>Proof of nationality</b>	<ul style="list-style-type: none"> <li>● Rules <b>relaxed the requirement</b> of documents to prove the country of origin. Applicants now can provide <b>20 different documents</b> as proof of entry into India, including visas, residential permits, census slips, driving licenses, Aadhaar cards etc.</li> </ul>
<b>Renouncing citizenship of another country</b>	<ul style="list-style-type: none"> <li>● Applicant shall have a declaration <b>saying the citizenship of his country shall stand renounced irrevocably</b> if the application for Indian citizenship is approved.</li> </ul>
<b>Authority to which application may be made</b>	<ul style="list-style-type: none"> <li>● <b>Under Section 6B of the Citizenship Act, 1955</b>, an application shall be submitted in <b>electronic form</b> to the <b>Empowered Committee (EC)</b> through the <b>District Level Committee</b> as may be notified by the <b>Central Government</b>.</li> </ul>

- **Benefits for OCI cardholders**
  - **Multi-purpose, multiple entry, lifelong visa** for visiting India.

- **Exemption from registration with local police authority** for any length of stay in India.
- **Parity with NRIs** in respect of economic, financial, and education fields **except in matters relating to the acquisition of agricultural/plantation properties.**
- **Foreign national eligible to apply for OCI who**
  - was **eligible to become a citizen of India** on 26.01.1950;
  - a **citizen of India on or at any time** after 26.01.1950;
  - **belonged to a territory that became part of India** after **15.08.1947**;
  - is a **child or a grandchild or a great-grandchild** of such a citizen given above.

### 1.5.2. EPIDEMIC DISEASES ACT (EDA), 1897

#### Why in the News?

Recently, the 22<sup>nd</sup> Law Commission of India (LCI) submitted a report titled “**A Comprehensive Review of the Epidemic Diseases Act, 1897**” to the Government of India.

#### More about the News

- The LCI suo motu undertook the examination of **EDA, 1897 and International Health Regulation (IHR), 2005.**
- **LCI Highlighted key issues in EDA, 1897**
  - Law grants **excessive government power, risking abuse.**
  - **Does not define an 'epidemic' or an 'infectious' disease**, and does **not differentiate between an 'outbreak', 'epidemic' and 'pandemic'.**
  - **The Act lacks specific guidelines** for effective disease surveillance, quarantine process, availability of drugs and vaccines etc.
  - The Act does not provide statutory power to **local governments to regulate epidemic diseases.**
- It recommended to either amend the existing law or bring a new comprehensive legislation to address existing gaps.

#### International Health Regulations (IHR)

- It was **adopted by the World Health Assembly** in 1969 and revised in 2005.
- It is an **overarching legal framework for public health events and emergencies** that have the **potential to cross borders.**
- It is **legally binding on 196 countries**, including the 194 WHO Member States.
- **Create rights and obligations for countries**, including the requirement to report public health events.
- Outline the **criteria to determine** whether or not a **particular event** constitutes a “**public health emergency of international concern**”.

#### Key highlights of the EDA, 1897

- **Genesis:** The British government introduced EDA to **tackle the epidemic of bubonic plague** in the erstwhile Bombay Presidency in 1896 when **Lord Elgin-II** was the Viceroy (1894-1899).
- **Powers to Government**
  - **Grants extensive powers to the Government** to regulate, prevent and control the dangerous epidemic diseases.
  - **Allows the Central Government** to inspect ships and vessels departing from or arriving at ports within its jurisdiction.
- **2020 Amendment**
  - **The Epidemic Diseases (Amendment) Act, 2020** was enacted to **stop the violence faced by healthcare Workers** during the Covid-19 Pandemic.
  - Under 2020 Amendment, violence against a healthcare service personnel or damage or loss to any property shall be punished with imprisonment for a term of **3 to 5 years, and with fine ₹ 50 thousand to ₹ 2 Lakhs.**

### 1.5.3. TEMPLE REGULATION IN INDIA

#### Why in the News?

Karnataka Legislative Assembly passed the Karnataka Hindu Religious Institutions and Charitable Endowments (Amendment) Bill, 2024 to regulate temples in the state.



### Legal and Institutional Framework to Regulate Temples

- **Article 25(1)** equally entitles all persons to freedom of conscience and right to freely profess, practise and propagate religion, subject to public order, morality and health.
- **Article 25(2)** enables the State to enact laws to regulate or restrict any **economic, financial, political or other secular activity** associated with religious practice.
  - State can also make laws for **social welfare and reform** or the throwing open of Hindu religious institutions of a public character to all classes and sections of Hindus.
- **Article 26** provides for the freedom to manage the religious affairs of the citizens and is subject to public order, morality and health.
- **Entry 28 of List III (Concurrent List)** of Schedule VII empowers both Union and State Legislatures to make law on “Charities and charitable institutions, charitable and religious endowments, and religious institutions”.
- **Hindu Religious and Charitable Endowments (HR&CE):** Several states across the country have enacted legislative and regulatory frameworks to regulate these institutions through the powers accorded by the Constitution.
- **Hindu Religious Endowments Commission (1960):** The Commission declared that government control over temples was essential to prevent maladministration.

#### Temple regulation in the Colonial Period

- Religious Endowments Act of 1863 was enacted to establish local committees to oversee the temples.
- Madras Hindu Religious Endowments Act of 1925 provided oversight of the management of temples through a board of commissioners with enormous powers.

### 1.5.4. THE CINEMATOGRAPH (CERTIFICATION) RULES, 2024

#### Why in the News?

Under the **Cinematograph (Amendment) Act, 2023**, the Union Ministry of Information and Broadcasting, has notified the **Cinematograph (Certification) Rules, 2024**, replacing the **Cinematograph (Certification) Rules, 1983**.

#### Key Aspects in the Cinematograph (Certification) Rules, 2024

- **Terms of office:** A member of the Board shall hold office during the pleasure of the Central Government.
- **Representation of women:** It stipulates that 1/3<sup>rd</sup> of the members in the Board shall be women and preferably half shall be women.
- **Constitution of advisory panels:** The Central Government shall constitute an advisory panel at each of the regional offices of the Board.
- **Improved efficiency:** By reducing timelines for the processing of film certification and adopting complete digital processes for eliminating all transactional time.
- **Further classification of UA:** Sub-division of the existing UA (Unrestricted with Caution) category into three more age-based categories (See infographic).
  - It will ensure young viewers are exposed to age-appropriate content. It would be voluntary.
- **Provision for priority screening:** For expediting the screening of film for certification, in case of any urgency felt by filmmaker(s) due to their prior commitments to release the film.
- **Change of Category of Film for Television:** Recertification of the edited film for Television broadcast, as only Unrestricted Public Exhibition category films can be shown on television.

Category	Certified Audience
U	Universal and without restrictions
UA category into three age-based categories: <ul style="list-style-type: none"> <li>• Seven years (UA 7+)</li> <li>• Thirteen years (UA 13+)</li> <li>• Sixteen years (UA 16+), instead of twelve years.</li> </ul>	Without restrictions, but subject to guidance of parents or guardians.
A	Only for adults
S	Only to members of any profession or class of persons.

- **Perpetual validity of certificates:** Restriction of 10 years on the validity of the **certificate has been removed** and will be given **perpetual validity**.

**Related news**

- The Ministry of Information & Broadcasting (MIB) recently **introduced guidelines aimed at enhancing accessibility standards for persons with hearing and visual impairments** in the public exhibition of feature films in cinema theatres.
- This initiative **aligns with the Rights of Persons with Disabilities Act, 2016** (RPwD Act), which mandates government action to promote universal access and inclusion in information and communication, including access to films.

To know more about the *Cinematograph (Amendment) Act*, kindly refer to **Article 6.3 Cinematograph (Amendment) Act, 2023** in the *PT 365 Polity 2024*.

**1.5.5. OTHER IMPORTANT NEWS**

<p><b>Prevention of Damage to Public Property</b></p>	<ul style="list-style-type: none"> <li>• Recently, 22<sup>nd</sup> Law Commission submitted 284<sup>th</sup> Report titled “Prevention of Damage to Public Property”.</li> <li>• <b>Constitutional and Legal Provisions for Prevention of Damage to Public Property</b> <ul style="list-style-type: none"> <li>○ <b>Fundamental Rights</b> under <b>Article 19(1)(a) [right to freedom of speech and expression]</b> and <b>19(1)(b) [to assemble peaceably and without arms]</b> implicitly contains the Right to protest.           <ul style="list-style-type: none"> <li>✓ However, demonstration which creates nuisance and disturbances are not covered under it.</li> </ul> </li> <li>○ <b>Fundamental Duties, Article 51 A</b> (duty of every citizen to safeguard public property and to abjure violence).</li> <li>○ <b>Prevention of Damage to Public Property (PDPP) Act, 1984</b> contains provisions dealing with <b>mischiefs</b> resulting in damage of public property.</li> <li>○ Sections 425 to 440 of the <b>Indian Penal Code (IPC)</b> deal with it.</li> </ul> </li> </ul>
<p><b>Public Examination (Prevention of Unfair Means) Act, 2024</b></p>	<ul style="list-style-type: none"> <li>• Recently, Parliament enacted the Public Examinations (Prevention of Unfair Means) Act, 2024.</li> <li>• <b>Key Features of the Act</b> <ul style="list-style-type: none"> <li>○ <b>Coverage:</b> Examinations held by the Union Public Service Commission, the Staff Selection Commission, Railways, National Testing Agency etc.</li> <li>○ <b>Offences:</b> Will be cognizable, non-bailable and non-compoundable (involved parties cannot compromise).</li> <li>○ <b>Provisions for Punishment-</b> <ul style="list-style-type: none"> <li>✓ Minimum of <b>3 to 5 years of imprisonment</b> and with a fine up to ten lakh rupees.               <ul style="list-style-type: none"> <li>▪ Organized crime groups will face <b>5 to 10 years of imprisonment</b> and a <b>minimum fine of Rs 1 crore</b>.</li> </ul> </li> </ul> </li> <li>○ <b>Union Ministry of Personnel, Public Grievances and Pensions</b> has also decided to set up a <b>High level National Technical Committee on Public Examinations</b>.</li> </ul> </li> </ul>

**1.6. IMPORTANT ASPECTS OF GOVERNANCE**

**1.6.1. REVAMPED SCHEME FOR ADMINISTRATIVE REFORMS**

**Why in the News?**

The government has approved funds for the revamped Scheme for Administrative Reforms of the **Department of Administrative Reforms and Public Grievances (DARPG)**.

**About the revamped Scheme for Administrative Reforms**

- **Ministry:** Ministry of Personnel, Public Grievances & Pensions.
- **Period:** The scheme is to be implemented in **next two years (2024-25 and 2025-26)** of 15th Finance Commission Cycle.

- **2 Verticals:** Comprehensive System for Redressal of Public Grievances and Administrative Reforms.
  - **Scheme for Comprehensive System for Redressal of Public Grievances**
    - ✓ **Quality Redressal: Taking forward the 10-Step CPGRAMS reforms** (refer to infographics) aimed at improving the quality of grievance redressal.
    - ✓ **AI-Assisted Redressal: Reducing timelines** by developing an AI-assisted **Public Grievance Redressal System (CPGRAMS)**.
    - ✓ **Unified Grievance Redressal:** The project will **integrate all other grievance** portals, thus making CPGRAMS the single largest interface for public grievances.
    - ✓ **Capacity building: Deeper technology adoption,** capacity building of **grievance redressal officers**, etc.
  - **Scheme for Administrative Reforms:**
    - ✓ **Strategic Allocation:** The scheme seeks to utilize resources for **International Exchange and Cooperation activities, the National e-Governance Awards Scheme** etc.
- **Grievance Redressal Mechanism (GRM)**
  - **2 Nodal agencies handling public grievances:**
    - ✓ **DARPG**, Ministry of Personnel, Public Grievances and Pensions.
    - ✓ **Directorate of Public Grievances** under Cabinet Secretariat.

#### About Centralised Public Grievance Redress and Monitoring System (CPGRAMS)

- DARPG has put in place CPGRAMS since 2007
  - It is an **online platform available** to the citizens 24x7 to lodge their grievances to the public authorities on any subject related to service delivery.
- It is a **single portal** connected to all Ministries/Departments of Government of India and States.
- **Issues that are not taken for redress:**
  - RTI Matters.
  - Court related matters.
  - Religious matters, etc.
- **DARPG has developed a framework called 'Sevottam', which essentially means Excellence in Public Service.**
  - **Sevottam framework has three components.**
    - ✓ Citizen's Charter
    - ✓ Grievance Redress Mechanism
    - ✓ Service Delivery Capability
- In 2022, Government implemented the **10-Step reforms of CPGRAMS**

### 10-step reforms of CPGRAMS

- Universalisation of CPGRAMS 7.0:** Auto-routing of grievances to the last mile.
- Technological Enhancements:** Automatic flagging of urgent grievances leveraging AI/ML
- Language Translation:** Portal in 22 scheduled languages along with English
- Grievance Redressal Index:** Ranking of Ministries/ Departments on their performance.
- Feedback Call Centre:** 50-seater call centre to collect feedback directly from citizens.
- One Nation-One Portal:** Integration of State Portal and other GoI portals with CPGRAMS.
- Inclusivity and Outreach:** Empowering the remotest citizen to file grievances.
- Training and Capacity building:** Conducted via ISTM and SEVOTTAM scheme enabling effective grievance resolution.
- Monitoring Process:** Monthly Reports for both the Central Ministries/Departments and States/UTs.
- Data Strategy Unit:** Established at DARPG for insightful data analytics.

## 1.6.2. OTHER IMPORTANT NEWS

<b>Social Audit Advisory Board (SAAB)</b>	<ul style="list-style-type: none"> <li>Recently, first meeting of the Social Audit Advisory Body (SAAB) was held.</li> <li><b>SAAB is a first of its kind</b> advisory body set up in the <b>National Institute of Social Defence (NISD)</b> to <b>Ministry</b> in <b>institutionalizing social audits</b> for its various schemes.             <ul style="list-style-type: none"> <li>NISD functions under the <b>Department of Social Justice &amp; Empowerment (DoSJE), Ministry of Social Justice and Empowerment.</b></li> </ul> </li> <li><b>Social Audit (SA)</b> is a process of <b>examination and assessment</b> of a programme/scheme conducted with <b>the active involvement of people</b> and <b>comparing official records with actual ground realities.</b></li> <li><b>Implementation of SA</b> <ul style="list-style-type: none"> <li>Union Government introduced the provision of <b>SA in many flagship programmes</b>, such as MGNREGA.</li> <li>DoSJE has established <b>National Resource Cell for Social Audit (NRCSA)</b> to ensure SA through <b>dedicated Social Audit Units</b> at the state level.</li> <li><b>Meghalaya</b> is the <b>first state to operationalize a social audit law.</b></li> </ul> </li> </ul>
<b>Portals for a 'Modernized Media Landscape'</b>	<ul style="list-style-type: none"> <li>Union Ministry of Information and Broadcasting launched 4 new media-related portals to streamline media-related services under its umbrella.</li> <li><b>Four new portals</b> <ul style="list-style-type: none"> <li><b>Press Sewa Portal:</b> for automation of the process for newspaper registration.</li> <li><b>NaViGate Bharat Portal:</b> single platform with an interactive user interface for government videos</li> <li><b>National Register for Local Cable Operators:</b> To streamline regulatory processes in the cable television sector</li> <li><b>Transparent Empanelment Media Planning and eBilling System for Central Bureau of Communication:</b> enhance efficiency in media planning transparency.</li> </ul> </li> </ul>
<b>Corruption Perceptions Index (CPI), 2023</b>	<ul style="list-style-type: none"> <li><b>India was ranked 93 out of 180 countries on Corruption Perceptions Index 2023.</b> <ul style="list-style-type: none"> <li>India was ranked <b>85 in 2022.</b></li> </ul> </li> <li><b>About CPI</b> <ul style="list-style-type: none"> <li><b>Released by:</b> Transparency International</li> <li>Ranks countries and territories by their <b>perceived levels of public sector corruption, on a scale of 0 (highly corrupt) to 100 (very clean).</b></li> <li><b>In 2023, Denmark ranked first</b>, followed by Finland, New Zealand, and Norway.</li> </ul> </li> </ul>
<b>Pandaram Lands</b>	<ul style="list-style-type: none"> <li><b>Lakshadweep</b> administration continues to number trees on <b>Pandaram lands.</b></li> <li>Laccadive Minicoy and Amini Islands Land Revenue and Tenancy Regulation, 1965 defines <b>Pandaram lands as</b> <ul style="list-style-type: none"> <li>land in which <b>Government has, a proprietary right</b> immediately before the commencement of this Regulation and</li> <li>includes <b>any land in which government may acquire such rights</b> under this <b>Regulation or under any other law.</b></li> <li><b>Land other than pandaram land</b> over which a person has proprietary rights under the customary law of the Islands are defined as "<b>jenmam land</b>" under the 1965 regulation</li> </ul> </li> </ul>
<b>NITI for States' Platform</b>	<ul style="list-style-type: none"> <li>Government has launched the '<b>NITI for States' platform.</b> <ul style="list-style-type: none"> <li>It is a <b>comprehensive digital initiative</b> designed to empower States/UTs in their pursuit of national development goals.</li> </ul> </li> <li><b>Key Features of Platform:</b> <ul style="list-style-type: none"> <li>It offers a <b>centralised repository of valuable resources</b>, including best practices, policy documents, datasets, and NITI Aayog publications.</li> <li><b>Multilingual:</b> It will be available in <b>22 major Indian languages</b> and 7 foreign languages.</li> </ul> </li> </ul>



	<ul style="list-style-type: none"> <li>○ <b>Capacity Building:</b> Tailored digital training modules for officials at various levels (block, district, and state).</li> <li>○ <b>Expert Help:</b> Specialized guidance through partnerships with leading institutions to address specific challenges.</li> </ul>
<b>PIB Fact Check Unit</b>	<ul style="list-style-type: none"> <li>● The government of India <b>notified the Fact Check Unit (FCU)</b> under the Press Information Bureau (PIB) of the Ministry of Information and Broadcasting (MIB) as the fact check unit of the Central Government. <ul style="list-style-type: none"> <li>○ Ministry of Electronics and Information Technology (MeitY) notified the PIB FCU under the <b>Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 (IT Rules 2021)</b>.</li> <li>○ MIB and MeitY have been working closely on the subject to address the challenge of fake news, especially on social media.</li> </ul> </li> <li>● Fact Check Unit under PIB was established in November 2019 with a stated objective of acting as a <b>deterrent to creators and disseminators of fake news and misinformation</b>. <ul style="list-style-type: none"> <li>○ It also provides people with an easy avenue to report suspicious and questionable information pertaining to the Government of India.</li> </ul> </li> <li>● PIB is the nodal agency of the government to <b>disseminate information on government policies, programmes, initiatives, and achievements</b>.</li> </ul>
<b>Prasar Bharti - Shared Audio Visuals for Broadcast and Dissemination (PB-SHABD)</b>	<ul style="list-style-type: none"> <li>● Ministry of Information &amp; Broadcasting launched <b>PB-SHABD, websites of DD News and Akashvani News</b> and updated News on Air mobile app.</li> <li>● <b>About PB- SHABD</b> <ul style="list-style-type: none"> <li>○ A news sharing service from <b>Prasar Bharati</b>.</li> <li>○ Platform is <b>designed to provide daily news feeds</b> in video, audio, text, photo and other formats to the subscribers from media landscape.</li> <li>○ Service is offered <b>free of cost for the first year</b> and will provide news stories in <b>all major Indian languages across fifty categories</b>.</li> </ul> </li> </ul>

## 1.7. ERRATA

### PT 365 Polity (April 2023 to December 2023)

- **Article 1.4. Preventive Detention**, Under Infographics ‘Constitutional provisions related to preventive detention’ Article 22 (1), Article 22 (2), Article 22 (3), Article 22 (4) and Article 22(7) are related to preventive detention.
  - Clarification
    - ✓ Article 22 (1) and Article 22 (2) are primarily related to arbitrary arrest while Article 22 (3), Article 22 (4) and Article 22(7) are related to preventive detention.
- **Article 2.2. Parliamentary Privileges of Lawmakers**, under Privileges based on five sources, 2<sup>nd</sup> provision was incorrectly mentioned that
  - **Laws made by Parliament**
    - ✓ **Freedom from Arrest:** Code of Civil Procedure, 1908 provides legislators freedom from arrest in **any civil case 40 days before and after the adjournment of the house** and also **during the session of the house**.
      - However, an MP **doesn’t enjoy any such immunity in a criminal case**.
    - Instead of ‘**Laws made by the Parliament**’, the subheading should be ‘**Statutory Provisions**’. Presently, Parliament has not made any law on the Parliamentary Privileges.
- **Article 2.4. Ordinance Making Power of President and Governor**, under infographics ‘Judicial pronouncement related to Ordinance’ it was mentioned that

- **RC Cooper vs Union of India (1970):** Apex court held that the President's decision could be challenged on the grounds that immediate action was not required. And ordinance had been passed primarily to bypass debate and discussion in the legislature.
- The correct information is
  - ✓ **In RC Cooper vs Union of India (1970):** The Supreme Court in the R.C. Cooper case did not express any opinion on the extent of the jurisdiction of the Court to examine whether the condition relating to the satisfaction of the President was fulfilled.
  - ✓ The ordinance questioned by the petitioners had already been repealed by Act 22 of 1969.
- **Article 4.4. Model Prisons Act 2023,** it was incorrectly mentioned that
  - It is based on recommendations of the "Prison Discipline Committee" appointed by Lord Macaulay (1936)
  - The correct information is
    - ✓ In 1835, **Lord Macaulay** recommended that a committee be appointed to suggest measures to improve discipline in prisons.
    - ✓ Consequently, on **2nd January 1836, a Prison Discipline Committee was constituted by Lord William Bantick** under the Chairmanship of H Shakespeare.
      - Lord Macaulay was one of the members.
    - ✓ The committee submitted their report in 1838 to Lord Auckland.

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## 2. INTERNATIONAL RELATIONS

### 2.1. MULTILATERAL ORGANISATIONS

#### 2.1.1. QUAD

##### Why in the news?

US House of Representatives has passed ‘**Strengthen US-Australia-India-Japan Cooperation**’ or **Strengthening the Quad Act**.

##### Key highlights of the Act

The act aims to strengthen joint cooperation between Quad’s four members, to promote a free, open, inclusive, resilient and healthy Indo-Pacific. Under the act:

- **Quad Intra-Parliamentary Working Group:** Established to facilitate closer cooperation between the US, Australia, India and Japan in the Indo-Pacific region.
- US Secretary of State to submit a **status update on Quad’s activities** and a **strategy for bolstering cooperation**.

##### About QUAD

- **About:** Quad, formally **Quadrilateral Security Dialogue** is a plurilateral framework comprising **India, Australia, Japan, and the USA**.
- **Purpose:** It brings together these four countries with a shared commitment to work as a **force for global good** and to support an **open, free, and inclusive Indo-Pacific** that is **prosperous and resilient**.
- **Working:** Practical work of the Quad is taken forward through **six Leader level Working Groups** (refer to the infographic).

### Key initiatives by QUAD



**Six Leader level Working Groups** are established for Climate, Critical and Emerging Technologies, Cyber, Health Security Partnership, Infrastructure and Space.



**Launched Vision Statement in 2023** which is centred around theme ‘Enduring Partners for the Indo-Pacific’.



**Quad Debt Management Resource Portal** to address challenges of unsustainable debt financing.



**Quad Investors’ Network (QUIN)** as a private sector-led platform to facilitate investments in strategic technologies.



**Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP), 2022** to enhance climate and clean energy cooperation.



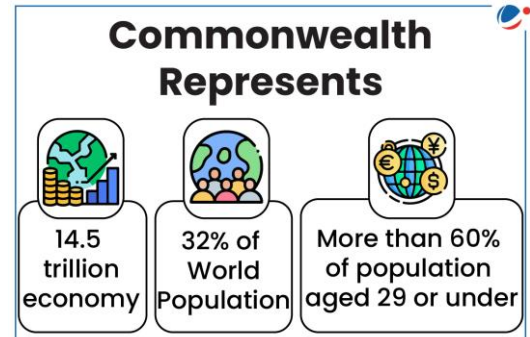
## 2.1.2. THE COMMONWEALTH

### Why in news?

The year 2024 marks 75 years since the creation of the **modern Commonwealth**, with the signing of the **London Declaration**.

### About Commonwealth

- **About:** It is a **voluntary association of countries**, most of which are formerly British colonies, collaborating on democracy, trade, and climate change.
- **Genesis:**
  - **The British Commonwealth of Nations:** At the **1926 imperial conference**, Britain and the Dominions (semi-independent countries) agreed as **equal members of a community within the British Empire**. They owed allegiance to the British monarch, but the UK didn't rule over them.
  - **India's Independence (1947):** India desired to become a republic, but it also wanted to stay a member of the Commonwealth.
  - **Adoption of London Declaration (1949):** Declared that republics and other countries could be part of the Commonwealth. Henceforth, the **Modern Commonwealth of Nations was established**.
    - ✓ Initially it comprised **eight members including India**.
- **Current Members: 56 members (including India)**
  - Nauru is the smallest member country and India is the most populous amongst its members.
  - The 4 countries to join it, Mozambique, Rwanda, Gabon and Togo, have no historical ties to the British Empire.
- **Working:** Commonwealth Heads of Government (CHOGM) **meet every two years (latest being in Rwanda in 2022)** to discuss pertinent issues and release a summit communiqué.
- **Organizational Structure:**



Organisations	Objective	HQ
The Commonwealth Secretariat (CS)	Supports members in achieving the organization's goals.	London
The Commonwealth Foundation (CF)	Promotes people's participation in democracy and development.	London
The Commonwealth of Learning (COL)	Advocates for open learning and distance education.	Burnaby, Canada

- **Other Key Information**
  - The Commonwealth has **no charter, treaty or constitution**.
  - All members are considered **equal**, and decisions are made by **consensus**.
  - **Member countries choose the Head** of the Commonwealth.
  - **Suspension of members** can occur following **breaches of human rights**, as seen in cases such as Fiji, Pakistan, Zimbabwe, Nigeria, and the Maldives.
  - Commonwealth Games are quadrennial international multisport event contested by athletes from the Commonwealth of Nations.
  - **Evolving Membership:** Newer members, including non-former British colonies such as Togo and Gabon indicate the Commonwealth's attractiveness as a forum for cooperation and dialogue.

### India's relations with the Commonwealth

- India is the **largest member state of the Commonwealth**, with nearly 60% of the total population of the association.

- It is the **fourth largest contributor** to the Commonwealth. It additionally contributes to CFTC, CF, CYP and COL.
- India hosted the **Commonwealth Summit (CHOGM)** and **Commonwealth Games (CWG)** in **1983 and 2010 respectively in New Delhi**.
- Commonwealth Sub Window** (US\$ 50 Million over 5 years) under the **India-UN Development Fund** was **established in 2018** to provide grant-in-aid assistance to Commonwealth members for projects related to **SDG implementation and Climate Action**.

### 2.1.3. SOUTH ASIA SUB REGIONAL ECONOMIC COOPERATION (SASEC)

#### Why in the news?

PM laid the foundation stone of multiple projects in Assam as part of the SASEC corridor connectivity.

#### About SASEC

- Established:** In **2001** in response to Bangladesh, Bhutan, India and Nepal's request from ADB.
  - ADB serves as **SASEC secretariat**.
- Objective:** **Project based** partnership to promote regional prosperity, improve economic opportunities, and build a better quality of life.
- Vision:** **Boost intra-regional trade and cooperation in South Asia through Myanmar to the People's Republic of China, and the global market.**
- Members:** **Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal and Sri Lanka.**



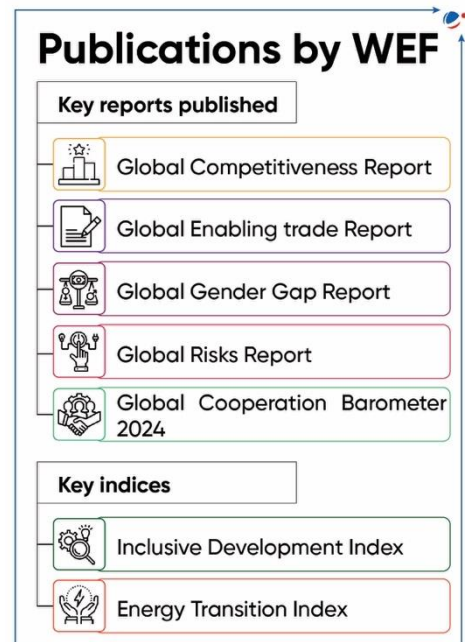
### 2.1.4. WORLD ECONOMIC FORUM

#### Why in the news?

Multiple reports have been released by the World Economic Forum (WEF).

#### About WEF:

- Genesis:** Established in 1971 as a not-for-profit foundation.
- About:** WEF is the International Organization for Public-Private Cooperation.
- Objective:** To demonstrate entrepreneurship in the global public interest while upholding the highest standards of governance.
- Headquarters:** **Cologny (Geneva), Switzerland**
- Annual Meeting:** Held in **Davos, Switzerland**.
- Institutional framework:** The Forum's work on facilitating progress on systemic challenges is taken forward through its **10** centres such as **Centre for cyber security, Centre for Nature and Climate, etc.**



#### Key initiatives

- The Reskilling Revolution** aims to provide 1 billion people with better education and skills by 2030
- EDISON Alliance** - The Essential Digital Infrastructure and Services Network Alliance which will work with governments and industries to accelerate digital inclusion.

- **The First Movers Coalition** is a global coalition of companies working to scale the innovative technologies needed to decarbonize the world's heavy-emitting sectors – from shipping, trucking and aviation, etc.
- **Net-Zero Industry Tracker**, the world's first standardized cross-sectoral framework, is to monitor progress on hard-to-abate sectors' decarbonization.
- **The Global Alliance for Trade Facilitation** is a public private partnership for trade-led growth, supporting governments in developing and least developed countries (LDCs) in implementing the World Trade Organization's Trade Facilitation Agreement.

## 2.1.5. OTHER IMPORTANT ORGANISATIONS IN NEWS

### 2.1.5.1. UNITING FOR CONSENSUS (UFC) MODEL

- India criticized the Uniting for Consensus (UfC) Model at the United Nations for its opposition to Security Council reforms.
- **About Uniting for Consensus (UfC)**
  - Group created in 1990's, also known as **Coffee Club**.
  - **Objective:**
    - ✓ **Expand non-permanent seats** for regional inclusivity.
    - ✓ **Avoid new permanent seats and limit veto power.**
  - **Members:** It comprises 12 countries and 2 observers including a P5 country. Italy, Turkey, Pakistan etc. are part of it.

### 2.1.5.2. COLLECTIVE SECURITY TREATY ORGANISATION (CSTO)

- Armenia has withdrawn its participation from Russia-led security bloc CSTO.
- **About CSTO (HQ: Moscow)**
  - Originates from **treaty signed in 1992 in Tashkent, Uzbekistan**.
  - Subsequently, **Azerbaijan, Georgia and Belarus joined it**. Treaty **came into force in 1994**.
  - **Six Current Members:** Armenia, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Belarus.
  - In 2023, **Belarus presided in CSTO**.
  - It is an **intergovernmental military alliance** between Russia and other former Soviet republics.
  - **Objectives of CSTO** include provision of national and collective security, intensive politico-military cooperation, foreign policy coordination on international and regional security issues, establishment of multilateral cooperation mechanisms etc.

### 2.1.5.3. SHANGHAI COOPERATION ORGANISATION (SCO) STARTUP FORUM

- 4th edition of the SCO Startup Forum was organized in New Delhi.
- The initiative focused on broadening
  - **startup interactions among the SCO Member States**,
  - fostering an environment conducive to **innovation**,
  - **promoting job creation**, and inspiring young talent to develop innovative solutions.
- The creation of a **Special Working Group for Startups and Innovation (SWG)** at the Summit of SCO Heads of State in Samarkand (**Uzbekistan**), in September 2022, was a **key step in the development of the SCO Startup Forum**.
  - ✓ The SWG is **permanently chaired by India**.
  - ✓ It is created with the vision of **promoting collaboration among SCO Member States** and accelerating regional economic development.

### 2.1.5.4. ECONOMIC COMMUNITY OF WEST AFRICAN STATES (ECOWAS)

- Burkina Faso, Mali and Niger announced their immediate withdrawal from West African bloc ECOWAS.
- **About ECOWAS** (HQ: Abuja, Nigeria)

- **Regional group of 15 members** (including Burkina Faso, Mali, Niger) established in **1975 through Treaty of Lagos**.
  - ✓ **Other members:** Benin, Cabo Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Nigeria, Sierra Leone, Sénégal and Togo.
- **Aim:** Promote co-operation and integration, leading to establishment of an economic union in West Africa to **raise living standards of its people, enhance economic stability, foster relations-among Member States** and, contribute to progress and development of African continent.

### 2.1.5.5. AFRICA CLUB

- African Union established **Africa Club** [also known as **Alliance of African Multilateral Financial Institutions (AAMFI)**] at its 37th Summit.
- **About Africa Club**
  - **Coalition of African Multilateral Financial Institutions (AMFIs)** to address shortcomings in global and continental financial architecture.
  - Seeks to **introduce innovative financial instruments** and provide a venue for debt management discussions.
  - **Core membership:** African Export Import Bank, Trade and Development Bank, Africa Finance Corporation, African Reinsurance Corporation, etc.
  - Membership will be open to all African Multilateral Financial Institutions.

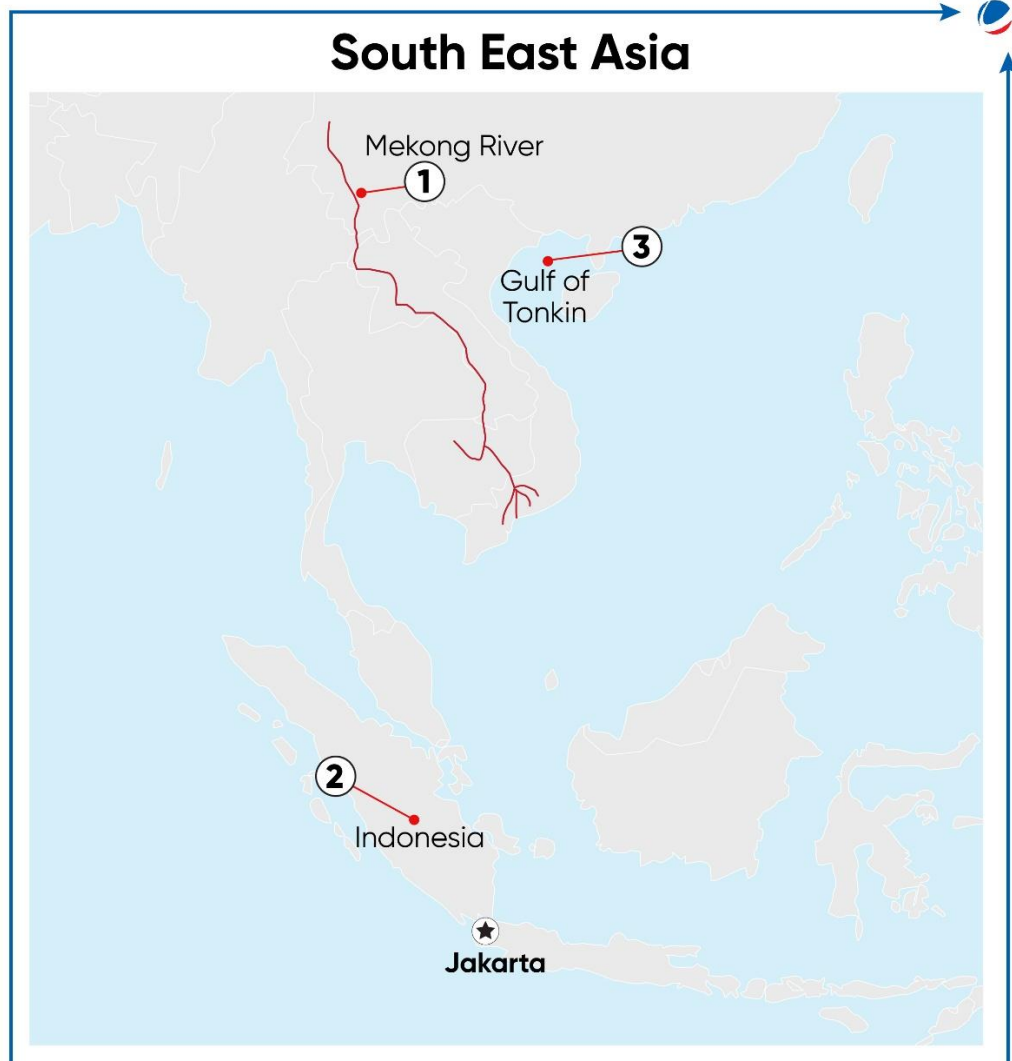
## 2.2. PLACES IN NEWS

### 2.2.1. INDIA AND ITS NEIGHBORHOOD

1	<p><b>Kaladan Multi-Modal Transit Transport (KMTT) Project</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Myanmar rebel's capture of Paletwa town adversely impacts KMTT project.</li> <li>• <b>About KMTT Project</b> <ul style="list-style-type: none"> <li>○ Aims to provide <b>connectivity between India and Myanmar from Ports on India's eastern seaport to Myanmar's Sittwe Port</b>, and further to <b>North East India</b>.</li> <li>○ <b>4 stages –</b> <ul style="list-style-type: none"> <li>✓ Kolkata to Sittwe port via Bay of Bengal.</li> <li>✓ Sittwe to Paletwa inland (River Kaladan).</li> <li>✓ Paletwa to India-Myanmar border post in Mizoram.</li> <li>✓ Border to Lawngtlai in Mizoram (NH 54).</li> </ul> </li> </ul> </li> </ul>	<p><b>Kaladan Multi-Modal Transit Transport (KMTT) Project</b></p> <p>The map illustrates the project's route between India and Myanmar. Key locations and distances are marked:</p> <ul style="list-style-type: none"> <li><b>INDIA:</b> Kolkata, Hooghly River.</li> <li><b>Sea Route:</b> 539 km from Kolkata to Sittwe via the Bay of Bengal.</li> <li><b>MYANMAR:</b> Sittwe, Paletwa, Zorinpui Border Crossing, Aizawl.</li> <li><b>Distances:</b> <ul style="list-style-type: none"> <li>Highway 100km from Aizawl to Zorinpui Border Crossing.</li> <li>Highway 62km from Zorinpui Border Crossing to Paletwa.</li> <li>Kaladan River Jetty 158km from Paletwa to Sittwe.</li> </ul> </li> </ul>
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## 2.2.2. SOUTH EAST ASIA



### 1 Mekong River

- **Contexts:**

- Vietnam faces crop losses as saltwater seeps into the Mekong Delta region, known as “**Vietnam’s rice bowl**”.
- **Town of Luang Prabang in Laos**, a **UNESCO World Heritage Site**, is facing the threat of losing its UNESCO status due to a dam project on Mekong river.

- **Mekong river:**

- **Trans-boundary river** in Southeast Asia originating in **Glaciers of Tibet** and drains in **South China Sea**.
- River flows through **China, Myanmar, Laos, Thailand, Cambodia and Vietnam**.



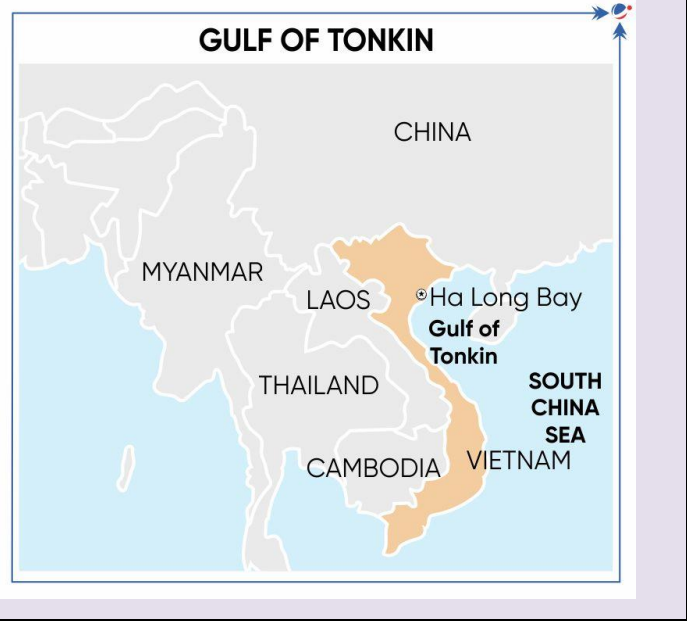
**2 Indonesia (Capital: Jakarta)**

- **Context:** Recently, India and Indonesia commemorated the 75th anniversary of establishing their diplomatic relations.
- **Land Borders:** Malaysia, Papua New Guinea and East Timor.
- **Water bodies:** An archipelago, located off the coast of mainland Southeast Asia in the Indian and Pacific oceans.
  - **Maritime Neighbours:** Singapore, Philippines, Australia, and India.
- **Other Facts**
  - **Five main islands:** Sumatra, Java, Kalimantan (two-thirds of the island of Borneo), Sulawesi and Papua.
  - Positioned in boundary zone of **3 major tectonic plates:** Indian-Australian, Eurasian and Pacific.
  - **Java Trench** is the **deepest point** of the **Indian Ocean**.
  - **Highest Peak:** Puncak Jaya



**3 Gulf of Tonkin**

- **Context:** China has delineated the **baseline in the Gulf of Tonkin**, known in Chinese as **Beibu Gulf**.
  - Baselines, under UNCLOS 1982, are used to **determine limits to territorial waters** and **Exclusive Economic Zones**.
- **Land borders:** Gulf of Tonkin is located **off the coast of Northern Vietnam and Southern China**.
  - Until now both countries have maintained **friendlier relations in this Gulf despite their overlapping claims in South China Sea**.
- **Water bodies:** The **Red River** (which flows across China and Vietnam) **empties** into this gulf.



# FAST TRACK COURSE 2024

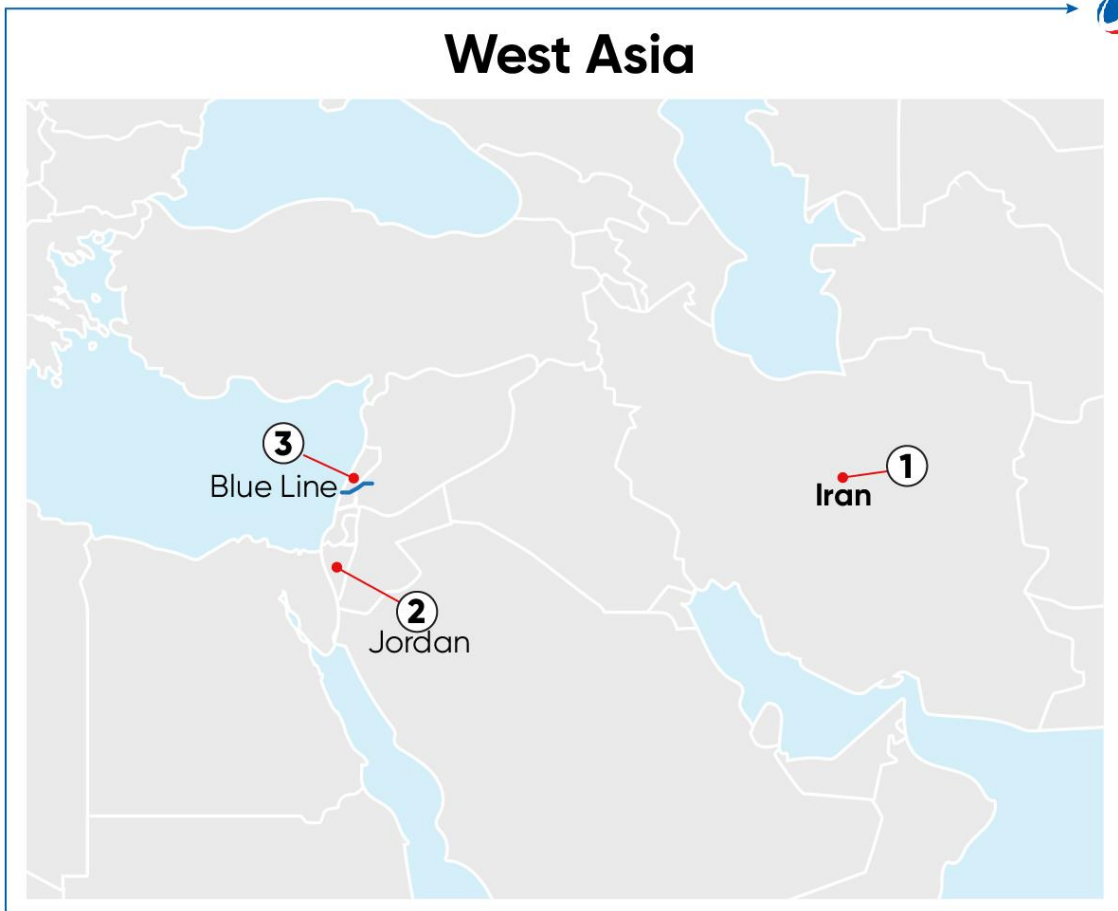
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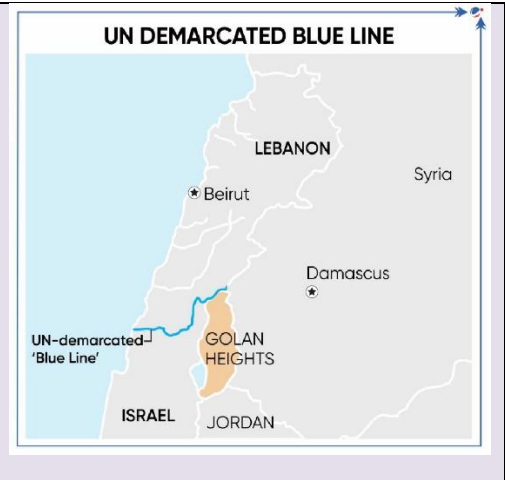
2.2.3. WEST ASIA



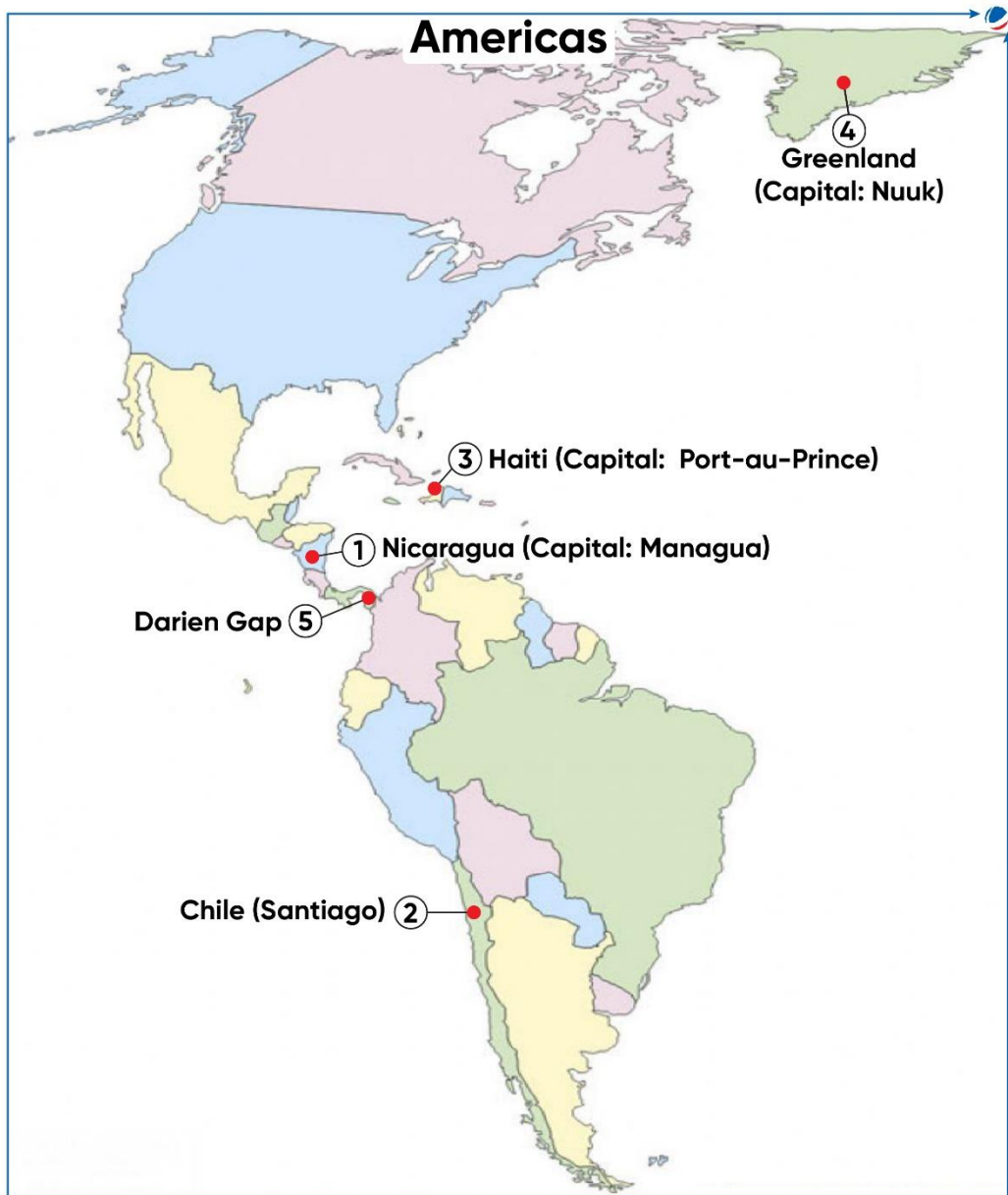
1	<p><b>Iran (Capital: Tehran)</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> India condemned the twin explosions that took place in <b>Kerman city</b> of Iran.</li> <li>• <b>Land borders:</b> Afghanistan, Pakistan, Turkmenistan, Azerbaijan, Armenia, Turkey, Iraq.</li> <li>• <b>Water bodies:</b> Caspian Sea, Gulf of Oman and Persian Gulf.</li> <li>• <b>Other facts: Major mountain ranges</b> are Zagros, Elburz, Caucasus.             <ul style="list-style-type: none"> <li>○ <b>Highest Point:</b> Mount Damavand</li> </ul> </li> </ul>
2	<p><b>Jordan (Capital: Amman)</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Recently, there was a drone strike on American troops in northeast Jordan near Syrian border.</li> <li>• <b>Land borders:</b> <b>Syria</b> (north), <b>Iraq</b> (east), <b>Saudi Arabia</b> (southeast and south), and <b>Israel</b> (west).</li> <li>• <b>Other Facts</b> <ul style="list-style-type: none"> <li>○ <b>Major Rivers:</b> Jordan; Yarmouk, Zarqa</li> <li>○ <b>Al- Aqabah, port town,</b> is located in southwestern part of Jordan along coasts of Gulf of Aqaba.</li> </ul> </li> </ul>



- 3 **Blue Line**
- **Context:** US envoy to Lebanon emphasised situation along the **blue line** has to change to guarantee peace and security.
  - **About Blue line:**
    - **Israel and Lebanon have no official border** separating them, except the Blue Line.
    - It was **set by the United Nations in 2000**. It is made of blue barrels and runs from the Mediterranean to the Golan Heights to the east.
    - Its purpose was to **confirm the withdrawal of Israeli forces from the south of Lebanon**.
- Note:** Blue Line is also a **learning ecosystem** created by the **UN System Staff College**.



### 2.2.4. AMERICAS





<p><b>1 Nicaragua (Capital: Managua)</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Recently a <b>Nicaragua-bound plane</b> carrying Indians was <b>grounded in France</b> over concerns of "<b>human trafficking</b>".</li> <li>• <b>Land Borders:</b> <b>Honduras</b> (north) and <b>Costa Rica</b> (south).</li> <li>• <b>Bordering water bodies:</b> <b>Caribbean Sea</b> (east) and <b>Pacific Ocean</b> (west).</li> <li>• <b>Other Facts:</b> <ul style="list-style-type: none"> <li>○ It is a country in <b>Central America</b>.</li> </ul> </li> </ul>	
<p><b>2 Chile (Santiago)</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Chile records its deadliest wildfire.</li> <li>• <b>Land borders:</b> <b>Peru</b> and <b>Bolivia</b> (north), <b>Argentina</b> (east)</li> <li>• <b>Water bodies:</b> <b>Pacific Ocean</b> (west).</li> <li>• <b>Other Facts</b> <ul style="list-style-type: none"> <li>○ <b>Major Mountain Range:</b> Andes.</li> <li>○ <b>Highest peak:</b> Ojos del Salado.</li> </ul> </li> </ul>	
<p><b>3 Haiti (Capital: Port-au-Prince)</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Haiti is experiencing a <b>surge in Gang violence</b> as gangs demand for resignation of the Prime Minister.</li> <li>• <b>Land Border:</b> Dominican Republic (East)</li> <li>• <b>Water bodies:</b> <b>Caribbean Sea</b> (South and West) and <b>Atlantic Ocean</b> (North), <b>Gulf of Gonave</b> (western coast of Haiti)</li> <li>• <b>Other Facts</b> <ul style="list-style-type: none"> <li>○ Haiti is a <b>Caribbean Island on the western part of the island of Hispaniola</b></li> <li>○ <b>4 Mountain ranges:</b> Cordillera Septentrional, Northern Massif, Matheux Mountains, Massif de la Selle.</li> </ul> </li> </ul>	

**4 Greenland (Capital: Nuuk)**

- **Context:** According to a research, Climate change has accelerated rate of Greenland's ice sheet loss.
- **Neighbours:** **Canada** and **Iceland** (separated by **Denmark Strait**).
- **Other Facts:**
  - It is a part of the **Denmark**; however, the island's home-rule government is responsible for most domestic affairs.
  - **Two-thirds** of the **island** lies within the **Arctic Circle**, in the North Atlantic Ocean.
  - It is the **world's largest island, and has vast tundra Biome**.
  - **It has massive ice sheet, which is second only to Antarctica's in size.**



**5 Darien Gap**

- Darien Gap has emerged as one of the **world's most dangerous and fastest-growing border crossings** for illegal immigration.
  - This route is taken when people **migrate from South America to North America**.
- **About Darien Gap**
  - Connects **northern Colombia** and **southern Panama**.
  - Part of the **Isthmus of Panama**.
    - ✓ **Isthmus** is a narrow piece of land, with water on each side, that joins two larger pieces of land.
    - ✓ It is a hot, humid area marked by tropical rainforests, mangrove swamps, and low mountain ranges with **cloud forest vegetation** (tropical mountainous regions).



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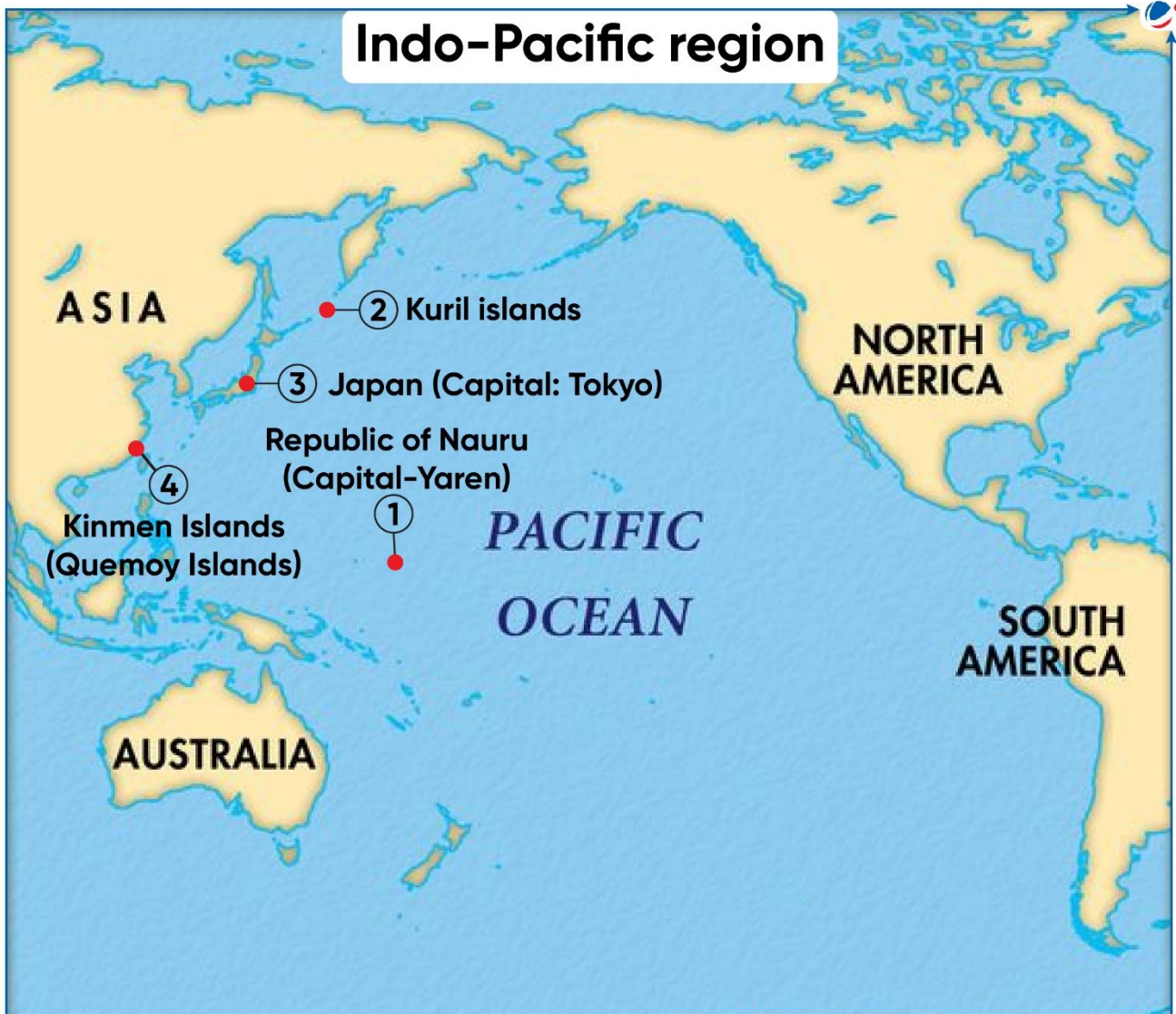
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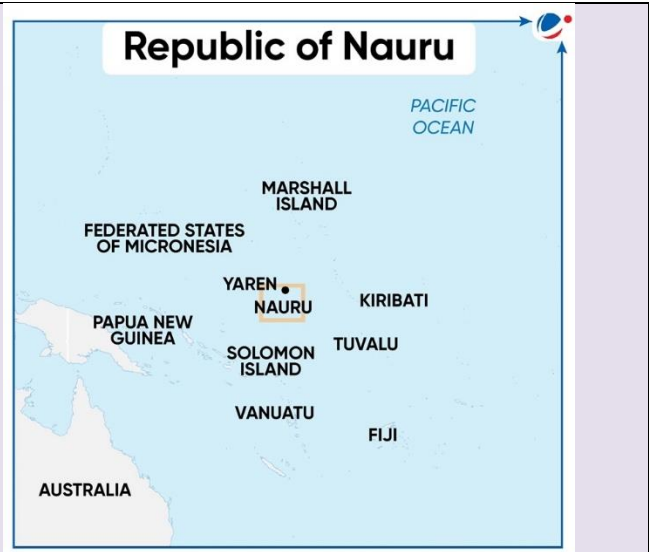


2.2.5. INDO-PACIFIC REGION



1 Republic of Nauru (Capital-Yaren)

- **Context:** Nauru announced to recognise the People’s Republic of China under **one-China principle**, breaks the diplomatic ties with the Taiwan authorities.
  - As per **one-China principle**, Taiwan is an inalienable part of China, and the Government of the People’s Republic of China is the sole legal government.
- **Water Bodies:** It is an island country in the southwestern **Pacific Ocean**, lying **north-east of Australia**.
- **Other Facts:** It is a **Coral island** with a central plateau which is largely composed of **rock phosphate** (leached from guano or bird droppings).





	<ul style="list-style-type: none"> <li>○ Part of <b>Micronesia</b> (group of Islands).</li> <li>○ It lies <b>south of the equator</b>.</li> </ul>	
<p><b>2 Kuril islands</b></p>	<ul style="list-style-type: none"> <li>● <b>Context:</b> Earthquake of magnitude 6.3 on the Richter scale occurred in Kuril Islands.</li> <li>● <b>Kuril Islands</b> is an archipelago that extends from <b>Kamchatka Peninsula (Russia) to Hokkaido Island (Japan)</b>.</li> <li>● It separates the <b>Sea of Okhotsk from Pacific Ocean</b>.</li> <li>● <b>Other facts:</b> <ul style="list-style-type: none"> <li>○ Many of its islands are <b>geologically active</b>.</li> <li>○ <b>Russia and Japan both assert sovereignty over four islands</b> (referred to as the Northern Territories in Japan and South Kurils in Russia).</li> </ul> </li> </ul>	
<p><b>3 Japan (Capital: Tokyo)</b></p>	<ul style="list-style-type: none"> <li>● <b>Context:</b> Japan starts 4th discharge of nuclear-contaminated water despite backlash.</li> <li>● <b>Water bodies:</b> <b>Sea of Okhotsk</b> (north) to <b>East China Sea</b> (south).</li> <li>● <b>Maritime borders:</b> PR China, North Korea, South Korea, Philippines, Russia, Northern Mariana Islands (US), and Republic of China (Taiwan).</li> <li>● <b>Other Facts</b> <ul style="list-style-type: none"> <li>○ Located at <b>Circum-Pacific "ring of fire"</b></li> <li>○ <b>Highest mountain:</b> Mount Fuji</li> <li>○ <b>Longest river:</b> Shinano River</li> </ul> </li> </ul>	
<p><b>4 Kinmen Islands (Quemoy Islands)</b></p>	<ul style="list-style-type: none"> <li>● Taiwan urged China <b>not to change the status quo</b> around waters near Kinmen islands.</li> <li>● Kinmen is the principal island of a <b>group of 12 Kinmen Islands</b>. <ul style="list-style-type: none"> <li>○ It is <b>under the jurisdiction of Taiwan</b> and is located <b>in the Taiwan Strait</b> at the <b>mouth of mainland China</b>.</li> <li>○ The Island is <b>hilly</b>, with both tableland and rocky areas and the <b>climate is monsoonal subtropical</b>.</li> <li>○ It was the site of the battle between <b>Communist and Nationalist parties</b> when the latter withdrew from the mainland in 1949.</li> </ul> </li> </ul> <p>Map-Link:  <a href="https://eng.taiwan.net.tw/m1.aspx?sNo=0002126">https://eng.taiwan.net.tw/m1.aspx?sNo=0002126</a></p>	

2.2.6. EUROPE



- 1 Denmark (Capital: Copenhagen)**
- **Context:** Denmark's Queen Margrethe II, Europe's longest-reigning living monarch, announced plans to abdicate after 52 years.
  - **Land borders:** Germany, Sweden and Norway.
  - **Water bodies:** North Sea and Baltic Sea.
  - **Other Facts:** Country in **Northern Europe**, made up of **Jutland peninsula** and more than 400 islands in North Sea.



<p>2</p>	<p><b>Switzerland (Capital: Bern)</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Switzerland and India have reached consensus on Free-Trade Agreement after 16 years of negotiation.</li> <li>• <b>Land Borders:</b> France (west), Germany (north), Austria and Liechtenstein (east), and Italy (south).</li> <li>• <b>Other Facts</b> <ul style="list-style-type: none"> <li>○ <b>Landlocked</b> country of central Europe.</li> <li>○ <b>Major Rivers:</b> River Rhine, Rhone</li> <li>○ <b>Major mountain ranges:</b> Alps, Jura.</li> </ul> </li> </ul>	
<p>3</p>	<p><b>Greece (Capital-Athens)</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> India and Greece agree to expand cooperation in diverse areas.</li> <li>• <b>Land borders:</b> Albania, Bulgaria, Turkey (east), Republic of Macedonia.</li> <li>• <b>Water bodies:</b> Aegean Sea (east), Mediterranean Sea (south), and Ionian Sea (west).</li> <li>• <b>Other Facts</b> <ul style="list-style-type: none"> <li>○ Southernmost of countries of <b>Balkan Peninsula</b>.</li> </ul> </li> </ul>	
<p>4</p>	<p><b>Iceland (Capital: Reykjavik)</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Recently, a volcano erupted in Iceland.</li> <li>• <b>Water bodies:</b> An island country, located in North Atlantic Ocean.</li> <li>• <b>Maritime Neighbours:</b> Greenland Sea (North); Norwegian Sea (East); Atlantic Ocean (South and west); Denmark Strait (Northwest).</li> <li>• <b>Other Facts</b> <ul style="list-style-type: none"> <li>○ Part of the <b>Nordic Countries</b>. <ul style="list-style-type: none"> <li>✓ Other Nordic countries are Denmark, Finland, Norway, and Sweden.</li> </ul> </li> <li>○ It is underlain by <b>basalt</b>, a dark rock of igneous origin.</li> <li>○ Lies on the <b>Mid Atlantic Ridge</b>.</li> </ul> </li> </ul>	



<p>5</p>	<p><b>Catalonia (Capital: Barcelona)</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Catalonia has declared a state of emergency as it faces its worst drought on record.</li> <li>• Land borders: <b>France</b> and <b>Andorra</b> (North)</li> <li>• Water bodies: <b>Mediterranean Sea</b> (East).</li> <li>• <b>Other Facts</b> <ul style="list-style-type: none"> <li>○ An autonomous region of <b>Spain</b>.</li> <li>○ Located in north east of <b>Iberian Peninsula</b>.</li> <li>○ The <b>Pyrenees mountain range</b> separates Catalonia from France.</li> <li>○ <b>Major River:</b> Ebro River</li> </ul> </li> </ul>	
<p>6</p>	<p><b>Baltic sea</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Russia accused Ukraine of an attack on a gas terminal at the Baltic port of Ust-Luga.</li> <li>• <b>Land Borders:</b> Baltic Sea encompasses the marine basins between <b>Sweden, Finland, and the Central European mainland</b>.</li> <li>• <b>Water bodies:</b> It receives the <b>Vistula and Oder rivers</b></li> <li>• <b>Other Facts:</b> <ul style="list-style-type: none"> <li>○ It is the <b>youngest sea on the planet</b>, almost enclosed, experiencing <b>near-arctic conditions</b> and is one of the <b>world's largest brackish waters</b>.</li> <li>○ Threats to its biodiversity include <b>eutrophication, destructive fishing, invasive species, etc.</b></li> </ul> </li> </ul>	
<p>7</p>	<p><b>Hungary (Capital: Budapest)</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Hungary's parliament approved Sweden's NATO accession.</li> <li>• <b>Land borders:</b> Shares border with <b>Slovakia, Ukraine, Romania, Serbia, Croatia, Slovenia, and Austria</b>.</li> <li>• <b>Other Facts</b> <ul style="list-style-type: none"> <li>○ <b>Landlocked country</b> in central Europe.</li> <li>○ Relief is <b>dominated by great lowland expanses including Little Alfold</b> (Little Hungarian Plain) in Northwest and <b>Great Alfold</b> from southwest to northeast</li> </ul> </li> </ul>	



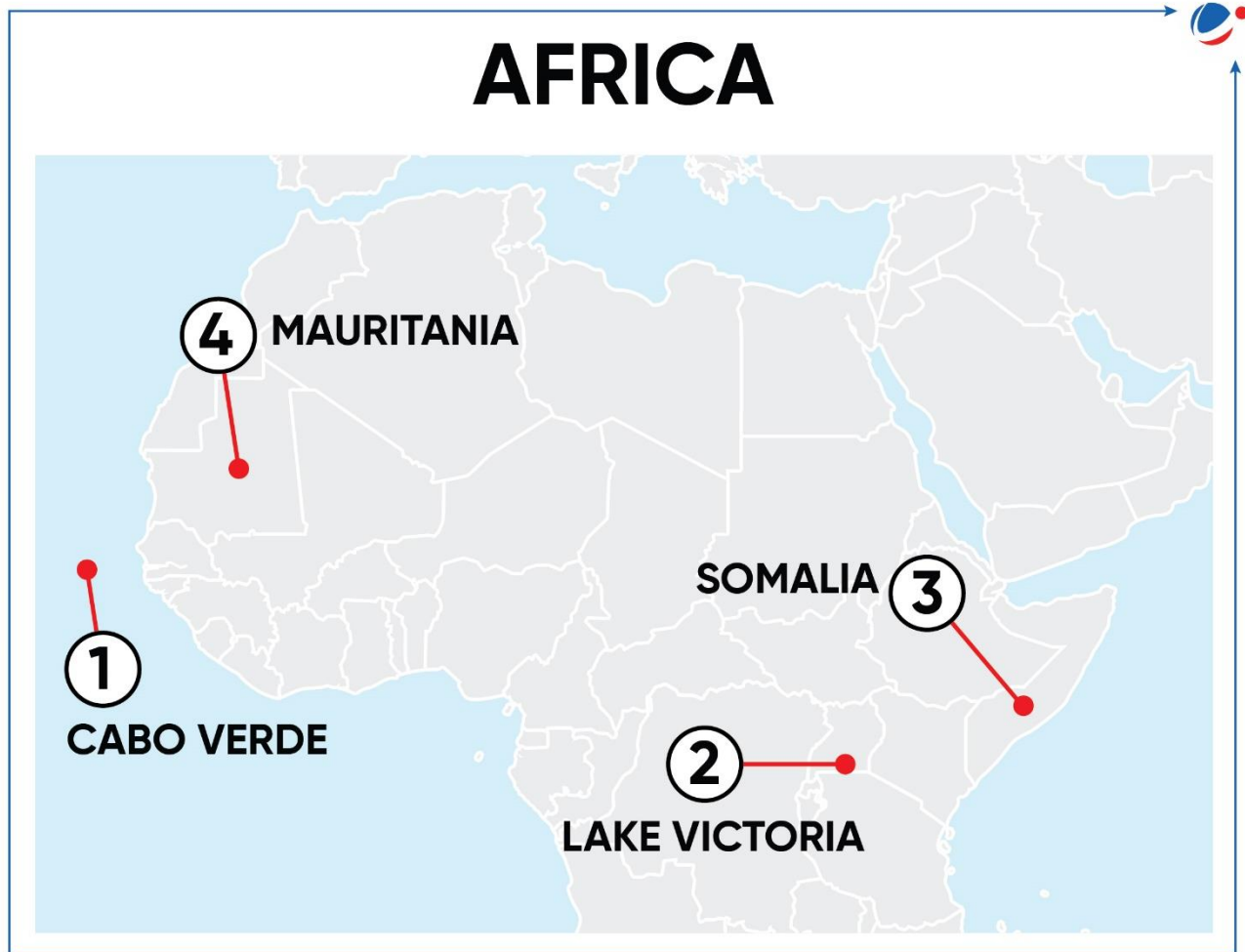
<p><b>8</b></p>	<p><b>Sweden (Capital: Stockholm)</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Sweden is set to join North Atlantic Treaty Organization (NATO).</li> <li>• <b>Land borders:</b> Finland and Norway.</li> <li>• <b>Maritime borders:</b> Denmark, Germany, Poland, Russia, Lithuania, Latvia and Estonia.</li> <li>• <b>Water bodies:</b> Baltic Sea, Gulf of Bothnia, Kattegat, Skagerrak, and Öresund straits.</li> <li>• <b>Other Facts</b> <ul style="list-style-type: none"> <li>○ Located on <b>Scandinavian Peninsula in northern Europe.</b></li> <li>○ <b>Natural resources:</b> Iron ore, Copper, Lead, Zinc, Gold, Silver, Tungsten, Uranium, etc.</li> </ul> </li> </ul>	
<p><b>9</b></p>	<p><b>Belarus (Capital: Minsk)</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Foreign Minister of Belarus paid official visit to India.</li> <li>• <b>Land borders:</b> Lithuania and Latvia (northwest), Russia (north and east), Ukraine (south), and Poland (west).</li> <li>• <b>Water bodies:</b> Pripet, Dnieper, and Neman rivers</li> <li>• <b>Other Facts</b> <ul style="list-style-type: none"> <li>○ Landlocked country of <b>Eastern Europe.</b></li> <li>○ Much of the country consists of flat lowlands separated by low level-topped hills and uplands.</li> <li>○ <b>Highest Point:</b> Dzyarzhynskaya Hill</li> </ul> </li> </ul>	
<p><b>10</b></p>	<p><b>Bulgaria (Capital: Sofia)</b></p> <ul style="list-style-type: none"> <li>• Recently, the Indian navy rescued hijacked Bulgarian ship “Ruen” and its crew.</li> <li>• <b>Bordering Countries:</b> Turkey and Greece (South), North Macedonia and Serbia (West), Romania (North).</li> <li>• <b>Water body:</b> Black Sea.</li> <li>• <b>Other Facts:</b> <ul style="list-style-type: none"> <li>○ Located in <b>Balkan Peninsula</b> of Southeastern Europe and a <b>member of European Union.</b></li> <li>○ <b>Major Rivers:</b> Danube, Maritsa, Struma, Iskar</li> <li>○ <b>Mountain Ranges:</b> Balkan Mountains, Rila, Pirin, Rhodopes</li> </ul> </li> </ul>	

**11 Albania (Capital: Tirana)**

- **Context:** Albania has announced to open an Embassy in India.
- **Land borders:** Montenegro (North West), Kosovo (North East), North Macedonia (East), and Greece (South and South East).
- **Water Bodies:** Adriatic Sea (West) and Ionian seas (South West)
- **Other Facts:**
  - Located in **Southeastern Europe** in the Balkan Peninsula.



**2.2.7. AFRICA**



<p><b>1 Cabo Verde (Capital: Praia )</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Cabo Verde has been certified as <b>malaria-free by WHO</b>, becoming <b>third African country</b> to achieve this status after <b>Mauritius and Algeria</b>.</li> <li>• <b>Water bodies:</b> The archipelago <b>lies around 500km off the west coast</b> of Africa in the <b>Atlantic Ocean</b>.</li> <li>• <b>Other facts:</b> <ul style="list-style-type: none"> <li>○ <b>The former Portuguese colony</b> comprises <b>10 islands and five islets</b>.</li> <li>○ The archipelago is <b>volcanic in origin</b>.</li> </ul> </li> </ul>	
<p><b>2 Lake Victoria</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Centre for Science and Environment in association with Tanzania is working to restore Lake Victoria.</li> <li>• <b>About Lake Victoria</b> <ul style="list-style-type: none"> <li>○ It is the largest <b>freshwater lake in Africa</b> and world's second-largest (first is <b>Lake Superior in North America</b>).</li> <li>○ It is the chief reservoir of <b>River Nile</b>, and its <b>basin is shared by Kenya, Uganda, Tanzania, Rwanda, and Burundi</b>.</li> <li>✓ <b>Approximately 80% of its water</b> comes from <b>rainfall</b>.</li> </ul> </li> </ul>	
<p><b>3 Somalia (Capital: Mogadishu)</b></p> <ul style="list-style-type: none"> <li>• <b>Context:</b> Indian Navy foils further attempts of <b>Somali pirates</b> using hijacked MV Ruen.</li> <li>• <b>Land border:</b> <b>Kenya and Ethiopia</b> (west), and <b>Djibouti</b> (northwest).</li> <li>• <b>Water bodies:</b> <b>Gulf of Aden</b> (north), <b>Indian Ocean</b> (east).</li> <li>• <b>Other Facts</b> <ul style="list-style-type: none"> <li>○ <b>Easternmost country of Africa</b>, on Horn of Africa.</li> <li>○ <b>Highest peak:</b> Mount Shimbiris (Mount Surud Cad).</li> <li>○ <b>Major rivers:</b> Juba and Scebeli.</li> </ul> </li> </ul>	

**4 Mauritania (Capital: Nouakchott)**

- **Context:** India and Mauritania held their first **Foreign Office Consultations (FOC)** in Nouakchott.
- **Bordering Countries/Territories:** Western Sahara territory (most of which is occupied by Morocco), Algeria, Mali, and Senegal.
  - **Water bodies:** Atlantic Ocean, **Senegal River** (forms its border with Senegal).
- **Other Facts:**
  - Much of Mauritania encompasses **part of the Sahara Desert**.
  - Topography include **Inselbergs (isolated steep sided rock hills or small mountains)**, of which the highest is **Mount Ijill**.



## 2.3. BILATERAL RELATIONS

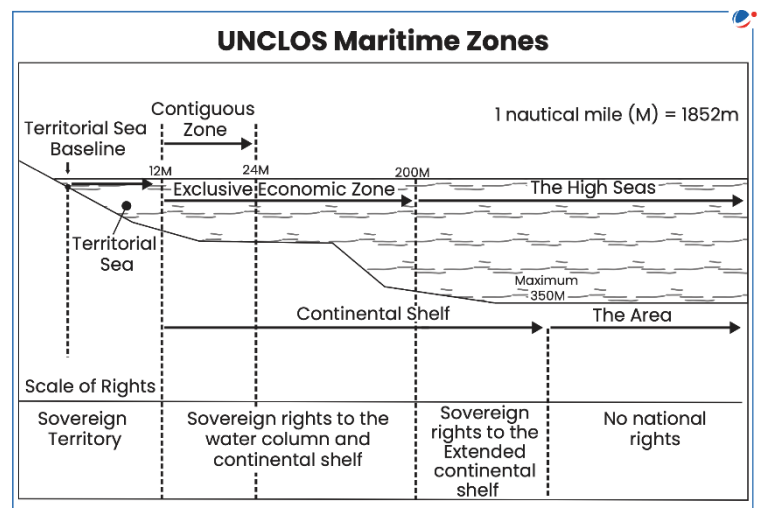
### 2.3.1. INTERNATIONAL MARITIME BOUNDARY LINE AND THE KATCHATHEEVU ISLAND ISSUE

#### Why in the news?

Sri Lankan fishermen protested against their Indian counterparts for their alleged poaching in the Sri Lankan waters by sailing to the International Maritime Boundary Line (IMBL).

#### About International Maritime Boundary Line (IMBL)

- The India-Sri Lanka IMBL was **delineated by the 1974 Maritime boundary agreement** demarcating it in the Palk Strait.
- It was determined based on principles under United Nations Convention on the Law of the Sea (UNCLOS).
- According to UNCLOS, Maritime boundaries are often defined by the **equidistance principle**, which asserts that a nation's marine boundary should follow **a medial line equidistant from the coastal areas of two neighbouring countries**.
  - This boundary is established to define each country's exclusive economic zones, territorial waters, and other maritime zones, helping **to prevent disputes and conflicts over maritime jurisdiction**.

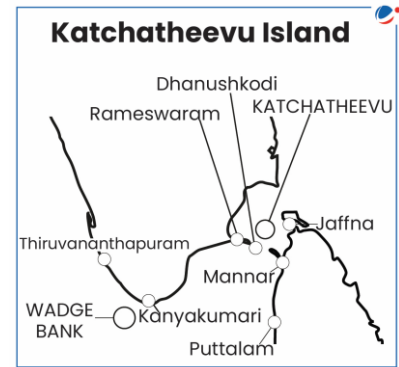


#### The Katchatheevu Island Issue

- **About Katchatheevu and Wadge Bank**
  - Katchatheevu is a **285-acre patch** in the sea within the maritime boundary line of Sri Lanka.
  - It is **located to the northeast of Rameswaram** and southwest of Sri Lanka's **Delft Island**.
  - It was created by a 14th-century **volcanic eruption**, is 1.6 km in length and just 300 metres wide at its widest point.
  - **Wadge Bank** is **one of the world's richest fishing grounds** and in a much **more strategic part of the sea than Katchatheevu Island**.



- **Article 15 of UNCLOS** allowed exemptions from using the median line to determine maritime boundaries, acknowledging adjustments agreed upon by the contracting nations.
- **1974 Agreement between India and Sri Lanka** established an adjusted equidistant line under this exemption. As a result, Katchatheevu Island fell within Sri Lanka's maritime boundaries.
  - Indian fishermen were given access to Katchatheevu for rest, for drying of nets and for the annual St. Anthony Church festival.
- **Later, the 1976 agreement between the countries** settled the maritime boundary between by giving sovereign rights to India over **Wadge Bank** near Kanyakumari.
- **Sri Lankan fishing vessels were prohibited from fishing** in the Wadge Bank, except for a limited number under specific conditions.



### 2.3.2. INDIA-BHUTAN RELATIONS

#### Why in news?

During his visit to Bhutan, the Prime Minister of India was conferred the "**Order of the Druk Gyalpo**", the highest civilian honor in Bhutan.

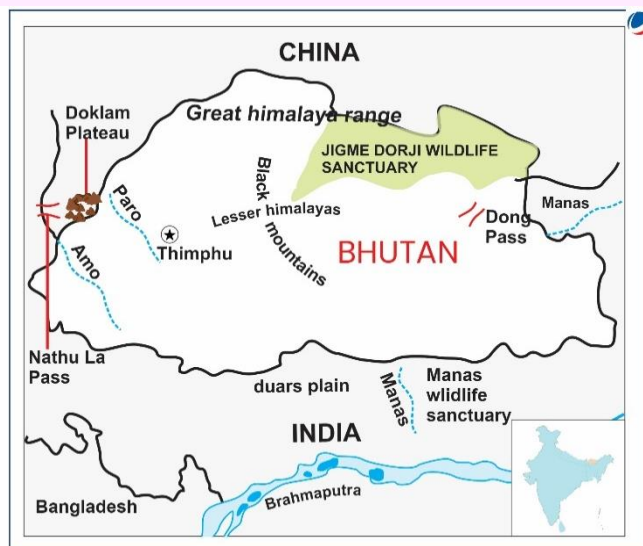
#### More on News

- The "**Order of the Druk Gyalpo**" award recognizes Indian Prime Minister's contribution to strengthening India-Bhutan friendship and his people centric leadership.
- It also honors India's rise as a global power.
- Indian PM is the **first foreign leader to be given this prestigious award.**
- **Other key developments during the visit:**
  - India will provide **Rs.10,000 crore as financial support to Bhutan over next five years** to bolster cooperation in areas like energy, space etc.
  - **MoUs to establish two rail links** including Kokrajhar-Gelephu and Banarhat-Samtse to improve connectivity.
  - Both sides look forward to **commissioning of 1020 MW Punatsangchhu-II hydropower project** in 2024.

#### Areas of Cooperation between India and Bhutan

- **Diplomacy:** The basic framework of the relationship is the **Treaty of Friendship and Cooperation signed in 1949**, which was renewed in **2007**.
- **Trade:**
  - India is **Bhutan's top trade partner with the balance of trade in India's favour.**
  - **Trade, Commerce, and Transit Agreement (2016)** establishes a **free trade regime** between the countries.
- **Development Partnership:**
  - Bhutan has been the **biggest beneficiary of India's external aid** in the budget for 2023-24.

#### About the country- Bhutan (Capital: Thimpu)



- **Political Features:**
  - **Landlocked country** between India and China in Eastern Himalayas.
  - Shares an **open border of 699 kms with four Indian states** (Assam, Arunachal Pradesh, West Bengal and Sikkim).
- **Other Facts: All the rivers** flow southward and **join the Brahmaputra River** in India.
- **Other Key Facts:**
  - Bhutan is the **world's first carbon negative country**
  - Bhutan is **best known for its philosophy of promoting Gross National Happiness (GNH)** over GDP.

- **Connectivity:** Bhutan is planning to build an international city- **Gelephu Mindfulness City**- that will connect its border with Assam.
- **Hydropower:** India constructed four major hydroelectric projects in Bhutan which are supplying electricity to India- **Kurichhu, Tala, Chukha and Mangdechhu**.
- **Security:**
  - **The Indian Military Training Team (MTRAT)** is permanently based in western Bhutan and assists and trains the Royal Bhutan Army.
  - India's Border Road Organisation (BRO) has built the majority of roads in Bhutan under **project 'DANTAK'**.
- **New initiatives of Cooperation:**
  - Launch of **RuPay, and BHIM app** in Bhutan, collaborating on a number of technology initiatives such as **'Digital Drukyl'**.
  - **'India-Bhutan SAT'**, launched by ISRO.

**India-Bhutan-China Triangle**  
**China's rising influence in Bhutan**

- **Territorial assertiveness:** Chinese assertive claim on territories of **Jakarlung and Pasamlung in north Bhutan** and the **Doklam plateau in west Bhutan** highlights Bhutan's vulnerability to external pressures.
  - China has built a **new village known as Pangda near Doklam**.
  - In 2020, China began claiming 650 sq. km of the **Sakteng Wildlife Sanctuary** in Bhutan's eastern district of Trashigang.

**2.3.3. INDIA-RUSSIA RELATIONS**

**Why in the news?**

Recently, India and Russia signed three documents including a **Protocol on consultations** during the External Affairs Minister's official visit to Russia in December 2023.

**Major Areas of India-Russia Cooperation and Its Significance**

- **Political:** Strategic Partnership was elevated to level of **"Special and Privileged Strategic Partnership" in 2010**.
  - Inaugural **2+2 Dialogue** (chaired by Defence Ministers and Foreign Ministers) was held in December 2021.
- Russia is a **major supplier of defense items:** **Bilateral** projects include the **supply of S-400, licensed production of T-90 tanks and Su-30 MKI, production of Ak-203 rifles in India and BrahMos missiles** among others.
- Cooperation is guided by the **Agreement on the Programme for Military-Technical Cooperation for 2021-2031**.

**About the country: Russia (Capital: Moscow)**



- **Political boundaries:**
  - **Martime Boundary:** Russia is bounded to the north and east by the Arctic and Pacific oceans.
  - It has small frontages in the northwest on the Baltic Sea at St. Petersburg and at the detached Russian oblast (region) of Kaliningrad which also abuts Poland and Lithuania.
  - **Neighbors:** To the south Russia borders North Korea, China, Mongolia, and Kazakhstan, Azerbaijan, and Georgia.
  - To the southwest and west it borders Ukraine, Belarus, Latvia, and Estonia, as well as Finland and Norway.
- **Other key Facts:**
  - Russia has a maximum east-west extent.
  - Russia also is home to the world's deepest lake, Baikal.
  - The Highest Point: Mt. Elbrus

- **INDRA** as a tri-service bilateral military exercise.
- **Space Cooperation:** Russia has supported India's space programme since its early days. E.g. Russia is supporting India's 1<sup>st</sup> **manned space mission 'Gaganyaan'**.
- **Science and Technology:** India-Russia relationship extends to the field of basic sciences as well including **Russian-Indian Network (RIN) of Universities, Arctic and Antarctic research** etc.
- India, Russia ink pacts on construction of future power units of **Kudankulam nuclear power plant (KNPP)**

## 2.4. OTHER IMPORTANT NEWS

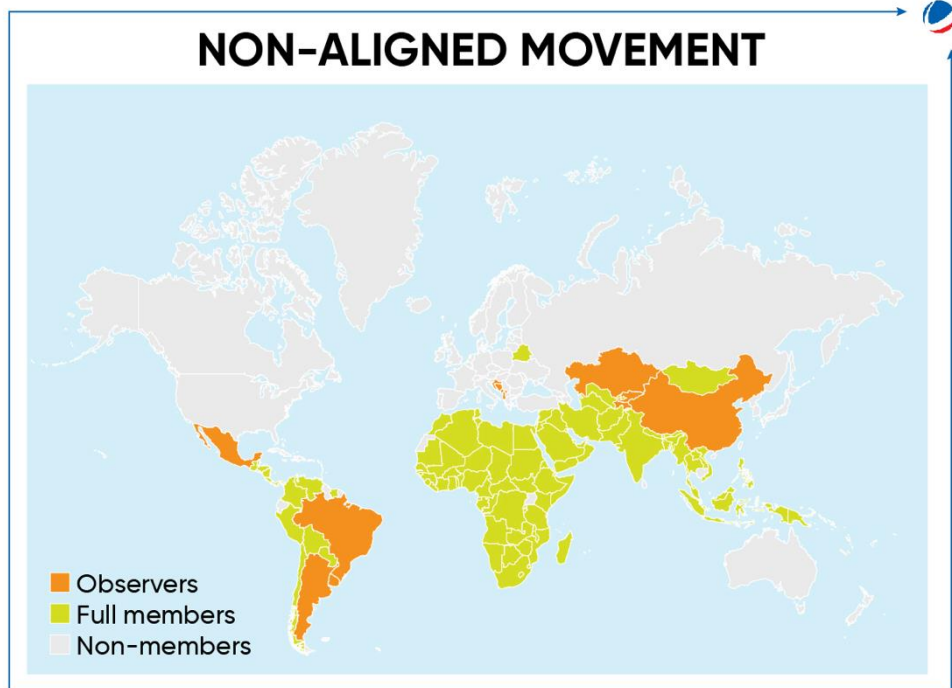
### 2.4.1. NON-ALIGNED MOVEMENT (NAM)

#### Why in the news?

Recently, **19th Summit of the Non-Aligned Movement (NAM)** was held in Kampala, Uganda.

#### Key Highlights of the 19<sup>th</sup> Summit:

- **Theme of the summit:** 'Deepening Cooperation for Shared Global Affluence'
- **Kampala declaration** was adopted at the summit.
- **South Sudan became the new member(121<sup>st</sup>) of NAM**



#### About Non-Aligned Movement (NAM)

- **Genesis:** Asia-Africa Conference held in Bandung, Indonesia in 1955.
- **About:** NAM was **created during the independence struggles** of Africa, Asia, Latin America and other regions of the world at the height of the **Cold War**.
- **Led by** leaders like **Jawaharlal Nehru (India), Sukarno (Indonesia), Josip Broz Tito (Yugoslavia), Gamal Abdel Nasser (Egypt) and Kwame Nkrumah (Ghana)**, it played an important role in the **decolonization process**.
- **Principles:** "**Ten Principles of Bandung**" proclaimed during Bandung Conference were later adopted as the main goals/principles of NAM.
- **NAM's first conference** - The Belgrade Conference in 1961.
- **Membership:** It has **121 members (including India)** comprising 53 countries from Africa, 39 from Asia, 26 from Latin America and the Caribbean and 2 from Europe.
  - **18 countries** and **10 international organizations** are **observers** at NAM.
- **Other Key information:**
  - The policy of NAM was **based on the 5 principles of Panchsheel** (principles for the conduct of international relations, signed between India and China in 1954).
  - The NAM does not have a formal founding charter or treaty, nor does it have a permanent secretariat.

## 2.4.2. GENOCIDE CONVENTION

### Why in the news?

The International Court of Justice (ICJ) gave its **interim ruling** on South Africa's genocide case against Israel.

### More on news

- **South Africa vs. Israel case in ICJ:** South Africa argued that the manner in which Israel was conducting its **military operations in Gaza violated the Genocide Convention**.
- **ICJ ruled that Israel must take all measures to prevent genocidal acts in Gaza (Palestine)**. However, it did not order ceasefire and did not find Israel guilty yet.

### About Genocide convention

- **Name:** Officially known as **Convention on the Prevention and Punishment of the Crime of Genocide, 1948**.
  - It codified the crime of genocide for the first time.
  - It was also the **first human rights treaty** adopted by the UN General Assembly.
- **Definition of Genocide:** The crime of genocide is defined in Article II of the Genocide Convention.
  - Genocide is defined as **acts committed with the intent to destroy, in whole or in part, a national, ethnic, racial, or religious group**.
  - According to the convention, genocide is a crime that **can take place both in time of war as well as in time of peace**.
- **Membership:** The Genocide Convention has been ratified by 153 States. **India has signed** the treaty in 1949 and **ratified in 1959**.
  - However, **India did not enact any legislation on the subject**.
  - **Jurisdiction:** ICJ hears cases related to the interpretation and application of the convention.

### About International Court of Justice (ICJ)

- **Genesis:** It is a principal judicial organ of the United Nations (UN) established in 1945.
- **HQ:** The Peace Palace in The Hague (Netherlands)
  - It is the **only principal organ** of the UN which is **not located in New York**.
- **Role:** To settle legal disputes as per international law and to provide advisory opinions.
  - Judgment is binding on the parties to a case and without appeal.
- **Composition:** **15 judges** (Currently India serves one Judge), who are elected for nine years by the UN General Assembly and the Security Council.
- **Official languages:** English and French.
- **Jurisdiction:** **Only States are eligible to appear before the Court** in contentious cases. It has no jurisdiction over applications from individuals, non-governmental organizations, corporations or private entity.

### About International Criminal Court (ICC)

- **Genesis:** **Established** by the **Rome Statute of the International Criminal Court in 1998**.
- **HQ:** The Hague (Netherlands)
- **About:** It is an **international court to investigate and prosecute individuals** accused of serious international crimes: **genocide, crimes against humanity, war crimes, and aggression**.
- **Members:** 123 countries are party to Rome Statute. **India is not a member**.
- **Jurisdiction:**
  - It has **jurisdiction only over crimes committed** after **July 1, 2002**, when the Rome Statute entered into force.
- **Other Key information:**
  - Its **judgments are final without appeal and binding** upon the parties concerned.
  - The Court **does not have its own police force and relies on State cooperation, to the arrest and surrender of suspects**.



**Comparison with ICC:** ICJ hears disputes between nations over matters of law, unlike the International Criminal Court (ICC) which holds **individuals criminally responsible for offences** and crimes against humanity.

### 2.4.3. OTHER RECENT DEVELOPMENTS

#### 2.4.3.1. SUMMIT FOR DEMOCRACY

- Prime Minister addressed the third edition of Summit for Democracy.
- **Summit for Democracy**
  - **Genesis:** Launched by the US in 2021, the summit has emerged as an important **platform where democracies share experiences** and learn from each other.
  - **Aim:** To **strengthen democratic institutions, protect human rights**, and accelerate the **fight against corruption** globally.
  - **Presidential Initiative for Democratic Renewal:** It was launched in the 1st summit and supports initiatives for **advancing technology** for democracy, defending **free and fair elections, independent media**, etc.
  - **US also provides financial aid** to this initiative.

#### 2.4.3.2. MISSION ASPIDES

- **European Union** launches 'Mission Aspides to **protect Red Sea vessels from Iran-backed Houthi attacks**.
  - It aims to **preserve freedom of navigation**, provide **maritime situational awareness**, accompany ships and protect them from possible multimodal attacks at sea.
  - Its **area of operation** will include **Bab Al Mandeb** and **Strait of Hormuz**, as well as international waters in **Red Sea, Gulf of Aden, Arabian Sea, Gulf of Oman** and **Arabian Gulf**.

#### 2.4.3.3. THE WEIMAR TRIANGLE

- Foreign Ministers of Germany, Poland, and France **have met recently to revive the Weimar Triangle**.
- **Weimar Triangle** is a regional group **created in 1991, to develop a shared vision for Europe** and **forge closer ties between these three countries' societies**.
  - The Triangle was initially the **key forum for supporting German-Polish reconciliation after World War II**.
  - The group takes its name from the city of Weimar, Germany, where the initial meeting took place.

#### 2.4.3.4. REGIONAL SECURITY DIALOGUE ON AFGHANISTAN

- **6th** regional dialogue of officials of security councils and National Security Advisers on Afghanistan was held in **Bishkek (Kyrgyzstan)**.
  - Key participants include **India, Iran, Kazakhstan, Kyrgyz, Russia, Tajikistan, Turkmenistan and Uzbekistan**.
- The regional dialogue of security officials has emerged as an important mechanism for **assessing the situation in Afghanistan after the takeover of Kabul by the Taliban** in 2021.
- India hosted the 3rd regional security dialogue in New Delhi in November 2021.

#### 2.4.3.5. OPERATION INDRAVATI

- India launched Operation Indravati to evacuate its nationals from **Haiti to the Dominican Republic**.
- As part of the ongoing operation, 12 Indians were evacuated.
- Haiti has been under a **state of emergency** after some armed groups attacked the country's largest prison in Port-au-Prince earlier this month.

#### 2.4.3.6. HENLEY PASSPORT INDEX 2024 (HPI)

- HPI was **released by Henley & Partners**, a global leader in residence and citizenship planning.

- HPI ranks different passports according to number of destinations their holders can visit without a prior visa.
  - It covers **227 destinations** and **199 passports**.
  - Rankings are based on data provided by **International Air Transport Association**.
- **Key findings**
  - India stands at **80th rank in list of most powerful passports**. Its passport has visa-free access to 62 nations.
  - **France, Germany, Italy and Spain, Japan and Singapore** are sharing **number one spot**.

## 2.5. ISSUES RELATED TO SECURITY

### 2.5.1. FREE MOVEMENT REGIME

#### Why in the news?

Union Ministry of Home Affairs has decided to scrap Free Movement Regime (FMR) between India and Myanmar and also to fence the Indo-Myanmar border.

#### FMR between India and Myanmar

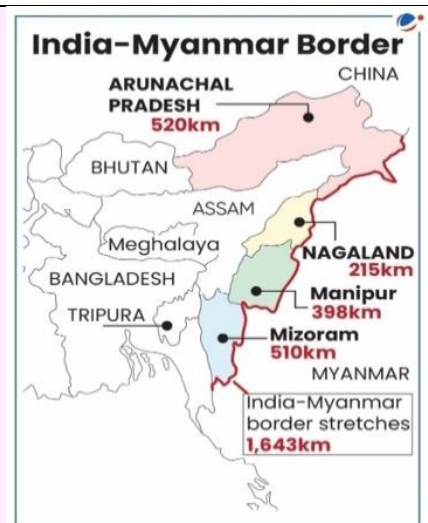
- It permitted individuals residing within a 16 km radius of the border to traverse freely, without requirements of a visa or other documentation.
- It was **formalized in 2018** as part of **India's Act East Policy**.
- **Reasons for FMR: Strong ethnic and familial ties across the border**; was vital for the sustenance of local livelihoods.

#### Reasons for Scrapping FMR

- Uncontrolled immigration of Chin people from Myanmar.
- Meitei community attributed tensions to the perceived illegal migration of tribal Kuki-Chin communities.
- Exodus of junta soldiers seeking sanctuary in Mizoram which has serious security implications.
- A report by UN Office on Drugs and Crime (UNODC) linked Myanmar's political turmoil under military junta to surge in flow of narcotics in the region.
- Move is aimed to **ensure internal security of the country** and **maintain demographic structure** of India's North-eastern States bordering Myanmar.

#### Myanmar (Capital: Nay Pyi Taw)

- **Land borders:** China (north and northeast), Laos (east), Thailand (southeast), Bangladesh (west), and India (northwest).
- **Maritime boundaries:** Andaman Sea and Bay of Bengal to south and southwest.
- **Water bodies: Irrawaddy** (rises and flows wholly within Myanmar), and **Salween** (rises in China).



#### India-Myanmar relations

- Bilateral Investment Promotion Agreement (BIPA) and Double Taxation Avoidance Agreement (DTAA) signed in 2008.
- Cooperation under **Kaladan Multi-Modal Project**, India-Myanmar-Thailand Trilateral Highway, etc.
- Both countries are **members of BIMSTEC and Mekong-Ganga** Cooperation. Myanmar was given status of **observer in SAARC in 2008**.
- Joint military exercise named **India-Myanmar Bilateral Army Exercise (IMBAX)**.

## 2.5.2. GREY-ZONE WARFARE

### Why in the News?

India's **Chief of Defence Staff** highlighted issue of Grey-zone warfare during the discussion over informal wars at the 9<sup>th</sup> edition of **Raisina Dialogue**.

### More about News

- **Chief of Defence Staff said this is being used in the South China Sea** and along India's northern borders.
- Also, **as per reports, China is using grey-zone warfare tactics against Taiwan**.
- Experts from US and European have characterised certain Russian and Chinese actions of late as examples of grey zone warfare.

### About Grey-zone Warfare

- Grey-zone Warfare involves the use of **unconventional tactics** and **strategies** that fall below the threshold of **traditional warfare**.
  - It aims to harm an adversary **without** them **feeling threatened** or realising they are under attack.
  - E.g. **Salami slicing** practice of China. It is a strategy that involves **taking over territory in a very gradual manner**, testing the opponent's limits of threshold.
    - ✓ It has been allegedly used by China for territorial expansion in the South China Sea.
- In Grey Zone Warfare, activities are generally **unseen** and insidious.
  - There are no rules and the front line is everywhere.
- The dividend of the **grey-zone warfare action may be available only after a long time**.
- It tends to escalate in **multiple dimensions** and leads to **unintended over-escalation**.

### Why Grey-zone Warfare is preferred over other methods?

- The cost of **conventional conflict in the nuclear era has grown too steep**, and the risk of escalation too profound. Therefore nations use it to promote their national objectives through it.
- Nations **which do not have access to massive resources or power, prefer this type of warfare**.

### Raisina Dialogue

- It is India's premier conference on **geopolitics** and **geo-economics** committed to addressing the most challenging issues facing the global community.
- It is hosted by the **Observer Research Foundation** in partnership with the **Ministry of External Affairs**.
- The theme of the 2024 edition is **Chaturanga: Conflict, Contest, Cooperate, Create**.

## 2.5.3. ACING DEVELOPMENT OF INNOVATIVE TECHNOLOGIES WITH IDEX (ADITI) SCHEME

### Why in News?

Recently, the Acing Development of Innovative Technologies with iDEX (ADITI) scheme launched under iDEX framework

- **Key highlights of the scheme**
  - **Ministry:** Ministry of Defence
  - **Purpose:** To develop **about 30 deep-tech critical and strategic technologies** in the proposed timeframe.
  - **Financial support:** Grant up to **50% of the product development budget** with a cap of **Rs. 25 Crore**.
  - **Technologies covered:** Technologies which are **critically required for national security** and where the **country does not have existing capabilities**.
    - ✓ Such technologies **shall have core Defence applications** and **may also have export potential**.
  - **Eligibility**
    - ✓ **Startups**, as defined and recognized by the Department for Promotion of Industry and Internal Trade (DPIIT).
    - ✓ Any **Indian company** incorporated under the **Companies Act 1956/2013**, primarily an **MSME** as defined in the MSME Act, 2006.

- ✓ **Individual innovators** (research & academic institutions can use this category to apply) registered as **Startup/MSME**.
- **Technology Watch Tool:** It is envisaged to be developed to **bridge the gap** between the **expectations and requirements** of the modern Armed Forces and the capabilities of the defence innovation ecosystem.
- **Tenure:** 2023-24 to 2025-26

**About iDEX (Innovations for Defence Excellence)**

- iDEX is the **operational framework of the Defence Innovation Organization (DIO)** which is DIO is a **Section 8 (of Companies Act 2013) company**.
  - DIO is formed jointly by **Hindustan Aeronautics Limited (HAL) and Bharat Electronics Limited (BEL)**.
- iDEX-DIO provides the winner (start-ups/ individuals) of the **Defence India Startup Challenge (DISC)** funding up to **Rs 1.5 crores** (depending upon the costing of the project and matching contribution).
- To motivate young innovators, **iDEX was expanded to iDEX Prime**, with the **assistance increasing from Rs 1.5 crore to Rs 10 crore**.

**Related News:**

**Defence Industrial Corridors (DICs)**

- First private sector facilities for the manufacture of ammunition and missiles opened in Kanpur (UP)
- It is opened in the **DICs of UP**.
  - the other defence corridor is in **Tamil Nadu**.
- The Defence Industry sector was opened up to **100% for Indian private sector participation in 2001**.
- **Government steps for promotion of indigenous Defence Production:**
  - Priority to the **procurement of capital items** from **domestic sources** under **Defence Acquisition Procedure (DAP)-2020**.
  - **Liberalization of Foreign Direct Investment (FDI) policy** by allowing **74% FDI under automatic route**.
  - The launch of the **Innovations for Defence Excellence (iDEX) scheme**.
  - **The SRIJAN portal** to facilitate **indigenisation by Indian Industry** including MSMEs.

**2.5.4. IMPORTANT DEVELOPMENTS IN CYBER SECURITY**

<p><b>Citizen Financial Cyber Fraud Reporting and Management System (CFCFRMS)</b></p>	<p>Citizen Financial Cyber Fraud Reporting and Management System (CFCFRMS) registered around 1.1 million financial cyber fraud cases in 2023</p> <ul style="list-style-type: none"> <li>• CFCFRMS has been setup under the <b>Indian Cyber Crime Coordination Centre (I4C)</b> for <b>immediate reporting</b> of financial frauds and to stop siphoning off funds by the fraudsters.           <ul style="list-style-type: none"> <li>○ I4C has been established by <b>Ministry of Home Affairs</b> to provide an ecosystem for Law Enforcement Agencies for dealing with Cybercrime and <b>act as a nodal point</b>.</li> </ul> </li> <li>• <b>Financial Cyber Frauds</b> are intentional and illegal act of deception to deprive someone of their money using the digital means.           <ul style="list-style-type: none"> <li>○ These involve debit/credit card frauds, internet banking and UPI related frauds, and ransomware attacks etc.</li> </ul> </li> </ul>
<p><b>Digital Criminal Case Management System (CCMS) Platform</b></p>	<p>Ministry of Home Affairs (MHA) launches unique Digital Criminal Case Management System (CCMS) Platform</p> <ul style="list-style-type: none"> <li>• Newly developed Digital CCMS was <b>designed by National Investigation Agency (NIA)</b>.           <ul style="list-style-type: none"> <li>○ It is a <b>user-friendly</b> and <b>easy-to-deploy, customizable, browser-based software</b> to help State Police forces in their investigations and prosecution.</li> </ul> </li> <li>• Additionally, <b>MHA launched Sankalan app</b> – A compendium of New Criminal Laws by National Crime Records Bureau.           <ul style="list-style-type: none"> <li>○ It is designed for <b>navigating through new criminal laws</b> as a bridge between old and new criminal laws.</li> </ul> </li> </ul>



	<ul style="list-style-type: none"><li>○ It will <b>work in offline mode as well</b> and its availability has been ensured in far-flung areas.</li></ul>
<b>Juice Jacking</b>	<ul style="list-style-type: none"><li>● The <b>Reserve Bank of India (RBI)</b> warned users against charging mobile phones using public ports amidst the rising incidents of juice jacking.</li><li>● <b>About juice jacking</b><ul style="list-style-type: none"><li>○ It is a form of <b>cyberattack</b> where hackers load malware with public USB charging stations to maliciously access electronic devices.</li><li>○ It can lock a <b>device, export personal data</b> and <b>passwords</b> to the cyber criminals.<ul style="list-style-type: none"><li>✓ These kinds of attacks are mainly reported from public spaces such as airports, hotels, and shopping centres.</li></ul></li></ul></li></ul>

## 2.5.5. OTHER IMPORTANT DEVELOPMENTS

### 2.5.5.1. TRENDS IN INTERNATIONAL ARMS TRANSFERS, 2023

- The report is released by the **Stockholm International Peace Research Institute (an independent international institute)**
- **Key highlights**
  - **Export**
    - ✓ USA is the largest arms exporter and its share of total **global arms exports rose to 42%**.
    - ✓ France, for the first time, was the **second biggest arms exporter, just ahead of Russia**.
  - **Import**
    - ✓ India was the world's top arms importer.
      - Its arms imports increased by 4.7% between 2014–18 and 2019–23.
      - Russia remained India's main arms supplier (accounting for 36% of its arms imports).
      - Ukraine emerged as the largest European arms importer in 2019–23.

### 2.5.5.2. DIANA INITIATIVE

- **DIANA (Defence Innovation Accelerator for the North Atlantic)** Initiative board approved a proposal to establish an accelerator and two test centers in Finland.
- **About DIANA initiative**
  - Established by North Atlantic Treaty Organization (NATO) to find and accelerate **dual-use innovation capacity** across the Alliance.
  - It provides companies with the resources, networks and guidance to develop deep technologies.
  - It aims to **solve critical defence and security challenges**, from operating in denied environments to tackling threats to our collective resilience.
  - **All NATO nations** are **members** of **DIANA**.

### 2.5.5.3. INS JATAYU

- **Naval Detachment Minicoy** has been **commissioned in Indian Navy** as **INS Jatayu**.
  - Minicoy is **southernmost island of Lakshadweep**.
- **About INS Jatayu**
  - **India's second naval base in Lakshadweep** after **INS Dweep** in **Kavaratti**.
  - **Significance:** Facilitate Indian Navy's operational effort towards Anti-Piracy and Anti-Narcotics Operations in Western Arabian Sea
  - It will also augment **Indian Navy's capability as the first responder in the India Ocean region** and augment **connectivity with the mainland**.

### 2.5.5.4. INS SANDHAYAK

- **INS Sandhyak, first Survey Vessel Large (SVL) Ship**, commissioned into Indian Navy in Visakhapatnam.
- **About INS Sandhayak**
  - **First** in a series of **four SVL ships**.

- Equipped with **state-of-the-art hydrographic equipment** including Deep & Shallow Water Multi-Beam Echo-Sounders, Autonomous Underwater Vehicle, etc.
- Can offer **limited defence capabilities** and serve as **hospital ship** during wartime or emergencies.
- Has an **indigenous content** of over **80% by cost**.

#### 2.5.5.5. STEAG (SIGNALS TECHNOLOGY EVALUATION AND ADAPTATION GROUP)

- **Indian Army (IA)** establishes specialized technology unit 'STEAG' for Future Warfare.
- **About STEAG**
- It's first of its kind unit to undertake research and evaluation in futuristic communication technologies such as AI, electronic warfare systems, 6G networks, etc.
- It is part of the IA's "On Path to Transformation" initiative and is in line with making 2024 as the year of technology absorption for the IA.
- **Objective:** To identify and implement most suitable technologies to enhance IA's communication infrastructure and nurture technologies across wired and wireless systems.
- **Need of STEAG:** Changing Nature of Warfare:
  - **Precision and automation:** Drones, laser weapons, etc., used for targeted strikes.
  - **Advanced Intelligence gathering:** Networks of sensors, satellites, and AI-powered data tools for real-time battlefield awareness and heritage of potential threats.

#### 2.5.5.7. OPERATION SANKALP

- Launched by Indian navy in December 2023, it completed 100 days.
- It operates across **three key areas:** Gulf of Aden and adjoining regions, Arabian Sea, and off East Coast of Somalia.
- **Objective:** safeguarding India's maritime interests, countering maritime threats, thwarting resurgence of piracy and significantly denting narcotics trade in Indian Ocean Region.

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**ENGLISH 2024 : 5 MAY**

**हिन्दी 2024: 5 मई**

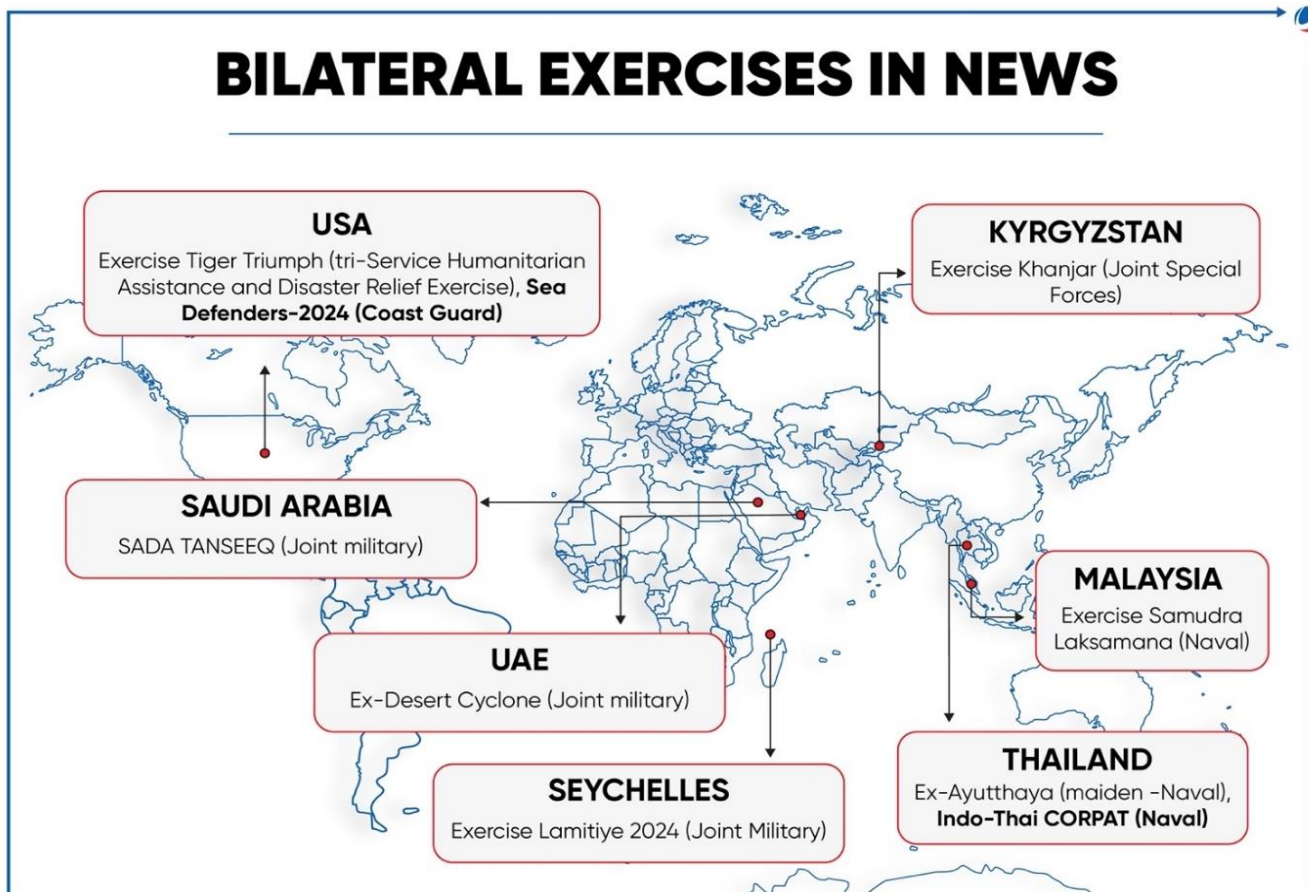
**ENGLISH 2025 : 5 MAY**

**हिन्दी 2025: 5 मई**



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## 2.6. EXERCISES IN NEWS



### 2.6.1. OTHER MILITARY EXERCISES IN NEWS

<b>Domestic Exercise</b>	
<b>Operation Sarvashakti</b>	<ul style="list-style-type: none"> <li>Indian Army has launched Operation Sarvashakti to counter Pakistan's attempts to increase terrorist activities in Jammu and Kashmir.               <ul style="list-style-type: none"> <li>Earlier in <b>2003</b>, Indian forces launched <b>Operation Sarpvishash</b> to <b>flush out terrorists</b>.</li> </ul> </li> </ul>
<b>Bharat Shakti</b>	<ul style="list-style-type: none"> <li><b>Tri-Services Firing and Manoeuvre Exercise</b> – Bharat Shakti – was demonstrated in Pokharan, Rajasthan.               <ul style="list-style-type: none"> <li>It will simulate realistic, synergised, multi-domain operations displaying integrated operational capabilities of the Indian Armed Forces to counter threats across land, air, sea, cyber, and space domains.</li> </ul> </li> </ul>
<b>Trilateral Exercises</b>	
<b>Exercise Desert Knight</b>	<ul style="list-style-type: none"> <li><b>Indian Air Force</b> conducted Exercise Desert Knight along with <b>French Air and Space Force</b> and <b>UAE Air Force</b>.</li> </ul>
<b>IMT TRILAT-2024</b>	<ul style="list-style-type: none"> <li>India Mozambique Tanzania (IMT) Tri Lateral (TRILAT) is a joint maritime exercise.               <ul style="list-style-type: none"> <li><b>First edition of IMT TRILAT</b> exercise was conducted on Oct 2022.</li> </ul> </li> </ul>
<b>Exercise 'DOSTI-16'</b>	<ul style="list-style-type: none"> <li>16th biennial trilateral coast guard exercise between <b>India, the Maldives, and Sri Lanka started</b>. <b>Bangladesh</b> is participating as an observer.</li> </ul>
<b>Multinational Exercises</b>	
<b>Exercise Sea Dragon</b>	<ul style="list-style-type: none"> <li>It is a <b>multinational maritime exercise</b> to enhance interoperability between <b>Indian Navy</b> and participating navies from <b>US, Australia, South Korea and Japan</b>.</li> </ul>



<b>MILAN 24 Exercise</b>	<ul style="list-style-type: none"> <li>It is a <b>biennial multi-national naval exercise</b>. <ul style="list-style-type: none"> <li>It was first conceived by <b>Indian Navy in 1995 at Andaman and Nicobar Command</b> with participation of <b>four countries</b> (Indonesia, Singapore, Sri Lanka and Thailand).</li> </ul> </li> </ul>
<b>Exercise Cutlass Express</b>	<ul style="list-style-type: none"> <li><b>Indian navy</b> participated in <b>U.S. Naval Forces led multinational maritime Exercise Cutlass Express</b> in <b>Seychelles</b>. <ul style="list-style-type: none"> <li>It is a cornerstone of maritime security and cooperation in the strategic waters of the <b>East African coast and the Western Indian Ocean</b>.</li> </ul> </li> </ul>
<b>Exercise Steadfast Defender 24</b>	<ul style="list-style-type: none"> <li><b>NATO</b> started its <b>largest military exercise</b> since the Cold War called <b>Steadfast Defender 2024</b>.</li> </ul>

## 2.7. ERRATA

- In PT 365 International Relations, **Article 4.5. GENEVA CONVENTIONS AND RUSSIA-UKRAINE WAR's** related news, there is a Black Sea Map given, which depicts littoral states of Black sea. In the map, Greece is incorrectly given as a state that shares maritime border with Black sea. The region marked is part of Türkiye.





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# 3. ECONOMY

## 3.1. GROWTH AND DEVELOPMENT

### 3.1.1. HUMAN DEVELOPMENT REPORT (HDR) 2023-2024

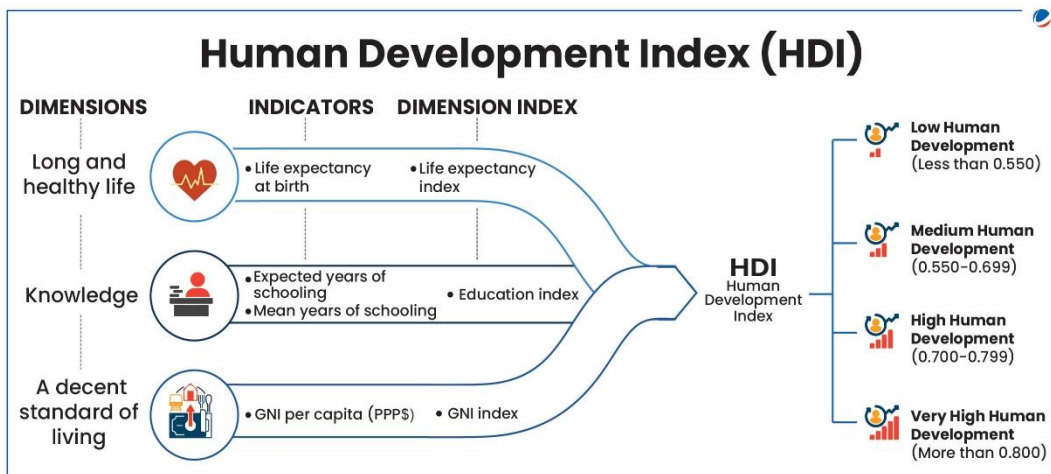
#### Why in the news?

United Nations Development Programme (UNDP) released the **Human Development Report (HDR) 2023-2024** titled “**Breaking the Gridlock: Reimagining cooperation in a polarised world**”.

#### Human Development Index (HDI)

- **Part of HDR:** HDI published since 1990, **forms** the core of the HDR.
- **About:** It is a statistical measure used to quantify a country's achievement in **3 basic dimensions** of human development - Long and healthy life, Knowledge, and a decent standard of living.
- **How HDI value is calculated?**
  - HDI value is determined by **aggregating the country's scores in 4 indicators** and these indicators are compiled into a single number between 0 and 1.0 based on dimension indices. (Refer Infographic)
- **Developed by:** Pakistani economist **Mahbub ul-Haq**.
- **Significance:** It can be used to examine the various policy choices of nations.
  - For example, if two countries have approximately the same GNI per capita, then the HDI can help to evaluate why they produce widely disparate human development outcomes.

**Limitations:**  
The HDI captures only part of what human development entails. It does not reflect on inequalities, poverty, human security, empowerment, etc.



#### Key Findings about India

- **HDI:** Rank Improved to **134 in 2022** from 135 in 2021 (and 130 in 2018).
- **HDI Value:** Increased to 0.644 from 0.633 in 2021.
  - **Life expectancy at birth:** Improved to 67.7 years (in 2022) from 67.2 (in 2021).
  - **Expected years of schooling:** Increased to 12.6 years from 11.9 years.
  - **Mean years of schooling:** Increased to 6.57 years.
  - **Gross National Income per capita:** Improved to \$6,951 from \$6,542.
- **Category:** Medium human development category.
- **Comparison with the Neighborhood:** India ranks below China (75), Sri Lanka (78), Maldives (87), Bhutan (125), and Bangladesh (129).


#### Global Findings

- **HDI:** 193 countries were ranked in 2022 of which **Switzerland ranked first**, followed by Norway and Iceland.
- **Widening Human Development Gap:** The two-decade trend of steadily reducing inequalities between wealthy and poor nations is now in reverse.

- **Rise in Trend of Democracy Paradox:** This paradox, coupled with a sense of powerlessness and a lack of control over government decisions, has **fueled political polarization and inward-looking policy approaches.**
  - Democracy Paradox means where the **population thinks positively about democracy but supports leaders who undermine democracy.**



**Other major indices measuring human development**

Index	Measures	India's Performance
<b>Gender Inequality Index (GII)</b>	• The GII measures gender inequalities in 3 key dimensions — <b>reproductive health, empowerment, and labour market.</b>	• India has jumped 14 places to <b>rank 108 in 2022, from 122 in 2021.</b>
<b>Multidimensional Poverty Index (MPI)</b>	• MPI <b>captures the multiple deprivations</b> that people in developing countries face in their health, education and standard of living.	• There are <b>more than 230 million people in Multidimensional poverty in 2021 in India.</b>
<b>Gender Development Index (GDI)</b>	• GDI measures <b>disparities on the HDI by gender.</b>	• India shows <b>absolute deviation from gender parity of more than 10 %.</b>
<b>Inequality-adjusted Human Development Index (IHDI)</b>	• IHDI contains two related measures of <b>inequality—the IHDI and the overall loss in HDI due to inequality.</b>	• India's rank <b>declined by 6 places to 140<sup>th</sup> in IDHI.</b>
<b>Planetary pressures-adjusted Human Development Index</b>	• It adjusts the <b>HDI for planetary pressures</b> in the Anthropocene to reflect a concern for intergenerational inequality.	• With <b>3% difference from HDI value, India ranks at 127<sup>th</sup>.</b>



## United Nations Development Programme (UNDP)

New York (USA)

**About:** It's a **United Nations lead agency on international development**, UNDP works in 170 countries and territories to eradicate poverty and reduce inequality.

- › In line with the 2030 agenda, UNDP is implementing **six cross-cutting approaches to development**, known as **signature solutions**.
- › UNDP also plays a central as part of the UNs Sustainable Development Group (UNSDG), a network of around 40 UN funds, programmes, specialized agencies and other bodies working to advance the 2030 Agenda.

**Genesis:** It was established in **1966** by merging of the UN expanded programme of technical assistance and the United Nations special fund.

**Mandate:**

- › UNDP's mandate is to **end poverty, build democratic governance, rule of law, and inclusive institutions.**
- › It advocates for change, and **connect countries to knowledge, experience and resources** to help people build a better life.
- › Its work is concentrated in **three focus areas:** sustainable development, democratic governance and peace building and climate and disaster resilience.

**Publications:** Human Development Report (HDR), Global Multidimensional Poverty Index etc.

**Funding:** UNDP relies entirely on voluntary contributions from UN Member States, multilateral organizations, private sector and other sources.

**3.1.2. HOUSEHOLD CONSUMPTION EXPENDITURE SURVEY (HCES) 2022-23**

**Why in the news?**

The National Sample Survey Office (NSSO) released the **HCES 2022-23**, after a gap of over 10 years since the last survey in 2011-12.


## About Household Consumption Expenditure Survey (HCES)

- **Objective:** It is designed to **collect information on the consumption of goods and services** by households.
- **Conducted by:** **NSSO** under the **Ministry of Statistics and Programme Implementation (MoSPI)** at regular intervals.
  - Initially, the NSSO conducted HCES every year (starting 1950-51). However, since its 26<sup>th</sup> round, it has been **conducted roughly every 5 years**. (2017-18 Survey was discarded by the government citing 'Data Quality' issues.)
- **Utility of HCES:** Understanding **consumption and expenditure patterns**, the **standard of living and well-being** of households.
  - It can play a key role in **reviewing critical economic indicators**, including GDP, poverty levels, and Consumer Price Inflation.


## Key Findings of HCES 2022-23

- **Overall Trend: Average** Monthly Per Capita Consumption Expenditure (MPCE) has been **increasing since 1999-2000**. It has **increased around 2.6 times in rural areas and 2.5 times in urban areas since the last survey**.
  - **Rural-urban Divide:** Average MPCE has been **Rs. 3,773 in rural India and Rs. 6,459 in urban India**.
  - **Rich-Poor Divide:** Richest 5% of rural and urban areas spend nearly 8 times and 10 times more than the bottom 5% respectively.
- **State-wise Variation:** Among the states, MPCE is the **highest in Sikkim and lowest in Chhattisgarh** and 9 states are lagging behind the national average.
- **MPCE of Agriculture Households:** Consumption expenditure of agricultural households (Rs 3,702) falls **below the rural average (Rs 3,773)** for the first time.
- **Consumption Expenditure among Disadvantaged Sections:** In rural areas, **Scheduled Tribes (ST)** reported the lowest MPCE, while in urban areas, **SCs** reported the lowest MPCE.

Please note that the HCES 2022-23 also **includes a separate provision** for the collection of information on the **quantity of consumption for several items, received and consumed by the households free of cost through various social welfare programmes**.



## National Sample Survey Office (NSSO)



**About:** NSSO is part of NSO and **subordinate office under the control of MoSPI**.

- National Statistics Office (NSO) consists of the Central Statistics Office (CSO) and NSSO.

**Purpose:** To conduct large-scale sample surveys in diverse fields on an India basis.

**Headed by:** Director General

**Genesis:** It was established in **1966** by merging of the UN expanded programme of technical assistance and the United Nations special fund.

**Functions & Responsibilities:**

- It conducts **periodic labour force survey (PLSF)**, annual survey of industries, and urban frame survey etc.
- NSSO collects **data on rural and urban prices** and plays a significant role in the improvement of crop statistics.
- It also **maintains a frame of urban area units for use in sample surveys in urban areas**.
- Besides these surveys, NSSO collects data on rural and urban prices and plays a significant role in the improvement of crop statistics.

**NSSO has four Divisions:**

- **Survey Design and Research Division (SDRD)**
- **Field Operations Division (FOD)**
- **Data Processing Division (DPD)**
- **Survey Coordination Division (SCD)**



### 3.1.3. SDG PROGRESS REPORT 2024

#### Why in the news?

The UN Economic and Social Commission for Asia and the Pacific (ESCAP) published the **SDG Progress Report, 2024**.

#### About SDG Progress Report

- Launched by the UN-ESCAP, it provides an **overview of current progress towards the 17 Sustainable Development Goals (SDGs) and their 169 targets** in the Asia-Pacific region.
- It highlights **success stories and trends, and the unique challenges** faced in the different parts of the region.

#### UN Economic and Social Commission for Asia and the Pacific (UNESCAP)

- UNESCAP is **one of the five regional commissions** of the United Nations and **headquartered in Bangkok** (Thailand).
- **United Nations Economic Commission for Asia and the Far East (ECAFE)** established in 1947 was renamed as **ESCAP in 1974**.
- It has **53 member States and 9 associate members**.
- It supports **inclusive, resilient, and sustainable development** in the region.

#### Focus Areas



Macroeconomic policy, poverty reduction and financing for development



Trade, investment and innovation



Transport



Environment and Development



Information communication technology and disaster risk reduction



Social development



Statistics



Energy

#### Key Findings of the Report

- **Slow Pace of Progress:** At the current pace, the **region will not achieve all 17 SDGs before 2062** (32-year delay). The COVID-19 pandemic has erased much of the progress made since 2015.
- **Uneven and Inadequate Progress** across various dimensions, including urbanization, education, age, and income, with divisions across countries, gender and urban-rural gap.
- **Insufficient Data: Only 133/231 SDG indicators possess sufficient data** to assess progress.
- **Other issues Persisting in Regions:** Illegal, unreported, and unregulated fishing, Greenhouse gas emissions continue to increase, water stress, pollution, scarcity, and inadequate sanitation services etc.

## 3.2. GOVERNMENT FINANCE

### 3.2.1. G-SECURITIES

#### Why in the news?

Reserve Bank of India (RBI) has permitted the lending and borrowing of G-Securities (G-Secs) by issuing RBI (Government Securities Lending) Directions, 2023.

#### Government Securities Lending (GSL)

- Under the GSL transactions, **G-Secs** issued by the Central government **excluding Treasury Bills (T-Bills)** shall be **eligible for lending/borrowing**.
  - Also, **G-sec** issued by the Central Government **including T-Bills and State Governments bonds** shall be eligible for placing as collateral under the GSL transactions.

- **Benefits of GSL**
  - It will add depth and liquidity to the G-sec market, aiding efficient price discovery.
  - It will facilitate wider participation in the securities lending market by providing investors an avenue to deploy idle securities and enhance portfolio returns.
  - It will enhance the operational efficiency of government bonds by insurers.

### G-Securities (G-Secs)

- **Definition:** G-Sec is a **tradeable instrument issued by Central or State Governments**. It acknowledges the government's debt obligation.
  - G-Secs carry practically **no risk of default** and, hence, are **called risk-free gilt-edged instruments**.
- **Treasury Bills (T-Bills):** These are **G-sec with short-term maturities of less than one year (91 days, 182 days, or 364 days)**.
  - T-bills are **zero coupon securities** and pay no interest. Instead, they are issued at a discount and redeemed at the face value at maturity.
- **Dated G-secs:** Also known as **Government bonds or dated securities**. These are G-sec with **long-term maturity of one year or more** (between 5 years and 40 years).
- **Issuers:** In India, the **Central Government issues both T bills and dated securities**, while **State Governments issue only dated securities**, which are called **State Development Loans (SDLs)**.
  - G-Secs are issued through **auctions conducted by RBI** on the electronic platform called the **E-Kuber**, the Core Banking Solution (CBS) platform of RBI.

### Benefits of G-Secs

- Low-risk investments** since they are backed by Government
- Stable source of income as they **offer fixed interest rates**
- Securities such as **State Development Loans (SDLs) and Special Securities** (Oil bonds, UDAY bonds etc) provide attractive yields.
- Integrating G-Secs in a **diversified investment portfolio** can help **reduce overall risk**
- Easily tradable in market**, which means that investors can buy and sell them quickly
- Used as collateral to borrow funds** in the repo market

### Initiatives taken for Government -Securities (G-Secs)

- **G-sec Acquisition Programme:** RBI conducts open market operations to purchase G-Secs from the market, which helps in **controlling excessive volatility**.
- **RBI Retail Direct Scheme:** Providing online access to the G-Sec market for retail investors.
- **Scheme for Non-competitive Bidding Facility in Auctions of G-Secs:** Introduced by RBI to **encourage retail participation in the primary market** for G-Secs and SDLs.

## 3.2.2. STATE GOVERNMENT GUARANTEES (SGGS)

### Why in the news?

Reserve Bank of India (RBI) released the Report of the Working Group on State Government Guarantees (SGGs).

### What is a State Government Guarantee?

- A 'guarantee' is a **legal obligation for a State to**

### Importance of Government Guarantees

**To improve viability of projects or activities** undertaken by Government entities with significant social and economic benefits

**To enable Public Sector Companies to raise resources** at lower interest charges or on more favorable terms

**Fulfill requirement in cases sovereign guarantee is a precondition for concessional loans** from bilateral/multilateral agencies

make payments and protect an investor/lender from the risk of default by a borrower.

- **Article 292 of the Constitution of India extends the executive power of the Union to the giving of guarantees** on the security of the Consolidated Fund of India.
  - Similar powers are given to **States under Article 293**.
- State Governments often issue guarantees **on behalf of various PSEs/ Cooperative Institutions/ Urban Local Bodies**, etc. for financing developmental schemes/projects.

#### Current Status of State Government Guarantees

- **Extent: Outstanding guarantees (2018-21) constituted less than 10% of the Gross state domestic product (GSDP) for the majority of the states.**
  - However, it has been rising over the years.
- **States with a relatively higher outstanding guarantee level** include Sikkim (12.0%), Telangana (12.0%), Andhra Pradesh (10.4%), and Uttar Pradesh (8.8%).
  - For several states, the **power sector accounted for the largest share of guarantees**.

#### Potential impact of rising State Government Guarantees

- **Moral hazards:** Guarantees could create **moral hazard**, leading to the guaranteed entity being **sub-optimal in performing its obligation**.
- **Fiscal Risks:** It may **burden the state finances** leading to large unanticipated cash outflows and increased debt.
- **Crowding Out Private Investment:** Excessive guarantees can discourage private lenders from directly financing projects, potentially leading to higher borrowing costs for the government.

## 3.3. BANKING

### 3.3.1. NON-PERFORMING ASSETS (NPA)

#### Why in the news?

RBI's annual **Trend and Progress of Banking in India report** for the financial year 2022-23 showed that the gross NPA ratio fell to 3.9 % in 2022-23.

#### Key highlights of the Trend and Progress of Banking in India 2022-23

- The consolidated balance sheet of **SCBs** grew by 12.2% in 2022-23, the **highest in nine years**.
- During 2022-23, the total amount of fraud reported by banks **declined to a six-year low**, while the **average amount involved in fraud was the lowest** in a decade.
- **The capital-to-risk-weighted assets ratio (CRAR)** of SCBs reached **16.8%** at the end of September 2023.

#### About Non- Performing Assets (NPA)

- **NPA:** It's a loan or advance for which the principal or interest payment remained overdue for 90 days or more.
  - **GNPAs** are the **sum of all loan assets** that are classified as **NPAs**.
- **Classification of NPA**
  - **Sub-standard Assets:** Assets that have remained non-performing for less than 12 months.
  - **Doubtful Assets:** Assets that have remained in the sub-standard category for more than 12 months.
  - **Loss Assets:** Assets where loss has been identified by the bank or internal/external auditors, but the amount has not been written off wholly.

#### Know the term

- **Capital to Risk-weighted Assets:** Also known as **Capital Adequacy Ratio (CAR)**, it's the **ratio of a bank's capital in relation to its risk-weighted assets and current liabilities**.
  - ▶ It is **decided by central banks and bank regulators** to prevent commercial banks from taking excess leverage and becoming insolvent in the process.

### Reasons for Non-Performing Assets

- **Defective Lending Process:** Improper selection, **lack of periodic review of credit profile of borrowers** and **lack of cooperation** among financial institutions.
- **Willful Defaults:** Rising cases of borrower who have access to funds to repay their loans but still choose not to, and default on the repayment of the loan.
- **Industrial sickness:** Ineffective management, **lack of adequate resources and technological changes, and changing government policies** produce industrial sickness. Therefore, banks financing these industries ultimately end up with a **low recovery rate of loans**.
- **Regulatory:** Flouting of RBI guidelines and **non-compliance with regulatory directions** by Public Sector Banks (PSBs) can lead to fraud and a rise in NPAs.

Impacts associated with Non- Performing Assets				
<b>Prevent banks</b> from lending to other productive activities	Can lead to a <b>decrease in employment opportunities</b> and <b>inflation</b>	<b>increase in interest rates,</b> thus increasing borrowing costs	Can lead to <b>reputational, operational and business risk for banks</b>	Increasing pendency of cases, with limited <b>manpower</b> to deal with high influx of debt recovery cases

### Steps taken to reduce NPA

- **Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002 (SARFAESI Act):** It allows secured creditors to take possession of collateral, against which a loan had been provided, upon a default in repayment.
- **Debt Recovery Tribunals:** Established under the Recovery of Debts and Bankruptcy Act, 1993 provide for the establishment of Tribunals for expeditious adjudication and recovery of debts.
- **Insolvency and Bankruptcy Code (IBC), 2016:** For reorganisation and insolvency resolution.
- **National Asset Reconstruction Company (NARCL):** It aims to reduce NPAs of banks, improving financial system stability and efficiency.
- **Indradhanush plan** for revamping PSBs, envisaging infusion of capital in PSBs.

### 3.3.2. UNIFIED PAYMENTS INTERFACE (UPI)

#### Why in the news?

Reserve Bank of India (RBI) has announced new rules and regulations to enhance the scope of Unified Payments Interface (UPI) payments.

#### About new rules

- **Enhancing UPI transaction limit:** For **hospitals and educational institutions transaction limit** has been hiked to **Rs 5 lakh**.
  - Transaction limit for UPI is capped at Rs. 1 lakh, **except in a few categories** like **Capital Markets Collections** (Credit card payments, Loan re-payments), **Insurance** etc. where the **transaction limit is Rs. 2 lakhs**.
- **Increased e-Mandates for Recurring Online Transactions:** Limits for execution of e-mandates **without Additional Factor of Authentication (AFA) increased from Rs 15,000 to Rs 1 lakh** for credit card bill payments, mutual fund subscriptions and insurance premiums.
- **Setting up of Fintech Repository:** Repository will be operationalised by the **Reserve Bank Innovation Hub in April 2024 or earlier**.

#### Unified Payments Interface (UPI)

- UPI powers **multiple bank accounts** into a **single mobile application** (of any participating bank), merging **several banking features** e.g., transfer of funds.
- Developed by **NPCI** in 2016 and **built over Immediate Payment Service (IMPS)** infrastructure.



- Various countries like Oman, UAE, France, Nepal, Bhutan, Sri Lanka, Mauritius etc. are using the UPI system for payment.
- **UPI 123PAY** enables UPI payment service for feature phone users without an internet connection.

#### New Features of UPI

- **Credit Line on UPI:** It enables **pre-sanctioned credit lines** from banks via **UPI**.
- **UPI Lite X:** Users can both send and receive money offline through any compatible device that supports **Near Field Communication (NFC)**.
  - NFC is a short-range wireless connectivity technology that transmits data through electromagnetic radio fields to enable two devices to communicate with each other.
- **UPI Tap & Pay:** Allows **NFC-enabled QR codes** at merchants to **complete payments, with a single tap** without entering the PIN.
- **Conversational Payments:**
  - **Hello! UPI:** Users can simply give voice commands to transfer funds.
- **BillPay Connect:** Customers can fetch and pay their bills by sending a **'Hi'** message or missed call.

### 3.3.3. CARD NETWORKS IN INDIA

#### Why in the news?

Reserve Bank of India (RBI) has ordered a certain card network to **stop “unauthorised payments” made using business cards.**

#### More on the news

- The authorised card networks **tie up with banks / non-banks** for the issuance of debit/credit/ prepaid cards and **connect banks, merchants and customers.**
  - A fee is charged to the businesses by companies that process its debit and credit card transactions (known as **Merchant Discount Rate (MDR)**).
- **Banks typically dominate the choice of card networks** that will be issued to their customers.
  - However, RBI has asked card issuers to provide customers the option to choose from multiple card networks from October 1, 2023.

#### Card Network Market in India

- **Authorised card networks in India:** Visa, Mastercard, RuPay, Diners Club, and American Express.
  - **RuPay is India's indigenous payment network** launched by NPCI to facilitate **India's entry into the global payments market.**
- **Debit card segment is dominated by RuPay** which has around **700 million cards** and a **65% market share.**
- **Visa and Mastercard dominate the credit card market,** accounting for **90 %.**

## National Payments Corporation of India



**Genesis:** NPCI is an initiative of **RBI and Indian Banks' Association (IBA)** under the provisions of the **Payments and Settlement System (PSS) Act, 2007, for creating a robust Payment & Settlement Infrastructure in India.**



**Statutory:** It has been incorporated as a **“Not for Profit” Company** under the provisions of Section 25 of Companies Act 1956 (now **Section 8 of Companies Act 2013**).



**Payment products developed by NPCI includes-** Immediate Payment Service (IMPS), National Automated Clearing House (NACH), Aadhaar enabled Payment System (AePS), Unified Payments Interface (UPI) etc.

### Regulation of Card Network Ecosystem in India

- **RBI as Primary Regulator:** RBI is responsible for overseeing and regulating payment systems in India, including card networks, under the PSS Act, 2007.
- **Governing Legislation:** PSS Act, 2007 defines a payment system as a **system that enables payment to be effected between a payer and a beneficiary**, involving clearing, payment or settlement service or all of them.
  - “Payment system” includes the systems enabling **credit card operations, debit card operations, smart card operations**, money transfer operations or similar operations.
  - ✓ Although, the definition does not include a stock exchange.

#### Payment and Settlement Act, 2007 (PSS Act, 2007)

- **Came into force:** The Act came into force with effect from 12th August 2008.
- **Objective:** It provides for the regulation and supervision of payment systems in India and designates the **Reserve Bank of India as the authority** for that purpose and all related matters.
- **Regulations made under the PSS Act, 2007:** Two Regulations have been made-
  - Board for Regulation and Supervision of Payment and Settlement Systems Regulations, 2008
  - Payment and Settlement Systems Regulations, 2008
- **Other key provisions:**
  - No person other than the Reserve Bank can operate or commence a payment system unless **authorized by the Reserve Bank**.
  - **The Act does not prohibit foreign entities from operating a payment system in India** and it does not discriminate/differentiate between foreign entities and domestic entities.

### 3.3.4. INSURANCE LANDSCAPE IN INDIA

#### Why in the news?

National Insurance Academy (NIA) released a report exploring the Indian insurance landscape.

#### Key Highlights of the Report

- **Health Protection Gap (HPG):** HPG of 73%, leaving over 40 crore (31% of the population) individuals without health insurance.
  - HPG is the difference between levels of healthcare costs which would be required to meet consumer needs, versus the amount that would be available to cover those costs.
- **Protection Gap: 87% Life Insurance Protection Gap (IPG) and Mortality Protection Gap (MPG) exceeding 90%** in 26-35 age groups across the country.
  - Insurance Protection Gap (IPG) measures the difference between optimal insurance coverage and actual coverage in every country.
  - MPG is the difference between the cover typically required by a family and the resources they have available should a wage-earner pass away suddenly.
- **Natural Catastrophe Insurance:** Almost 95% of the population does not have natural catastrophe insurance.
- **Pension and Annuity Coverage:** Only 24% enrolled in employee retirement schemes.
- **Crop Insurance:** Number of insured farmers declined from 6.1 crore to 5.2 crore in 2023.

#### Insurance sector in India

- India is the **10th largest market globally** in terms of total premium volumes.
- **As per Economic Survey 2022-23**
  - **Insurance penetration** in India increased from **2.7% in 2000 to 4.2% in 2021**.
    - ✓ **Insurance penetration** is the percentage of total premiums collected to the country's GDP.
  - **Insurance density** in India has increased from \$11.1 in 2001 to \$91 in 2021.
    - ✓ **Insurance density** is the ratio of premiums collected by insurance companies to the country's population)

## Regulation of the Insurance Sector in India

- **Insurance Act 1938:** Provides the **legislative framework** for the functioning of insurance businesses.
- **Insurance Regulatory and Development Authority of India (IRDAI): Statutory body**, established under the provisions of the IRDA Act, 1999.
  - Its functions include **regulation, promotion** and ensuring **orderly growth** of the insurance business and reinsurance business.
- **Insurance Division:** Within the Ministry of Finance is responsible for policy formulation and administration of various insurance-related legislations.
- **National Insurance Academy:** Established in 1980 for research and development in insurance pension and allied fields.

### 3.3.5. RESERVE BANK – INTEGRATED OMBUDSMAN SCHEME (RB-IOS)

#### Why in the news?

Reserve Bank of India released the Annual Report of the Ombudsman Scheme 2022-23.

#### Key Findings of Annual Report of Ombudsman Scheme 2022-23

- **Complaints:** Around 7 lakh complaints were received at ORBIOs and CRPC during FY 2022-23.
- **Mode of complaint:** Around **85.64%** of the total complaints were received through **digital modes**.
- **Disposal Rate:** Overall disposal rate for FY 2022-23 at the ORBIOs stood at about **98%**.
  - Majority of maintainable complaints disposed of by ORBIOs were resolved through **mutual settlement/conciliation/mediation**.

#### Reserve Bank – Integrated Ombudsman Scheme (RB-IOS), 2021

- **Background:** Launched in 2021 as part of the **Alternate Grievance Redress (AGR) Framework of RBI**.
- **Integration of existing schemes:** It integrated the **existing three Ombudsman schemes** of RBI:
  - Banking Ombudsman Scheme, 2006;
  - Ombudsman Scheme for Non-Banking Financial Companies, 2018; and
  - Ombudsman Scheme for Digital Transactions, 2019.
- **Objective:** It aims to provide **cost-free redress of customer complaints** involving deficiency in services rendered by entities regulated by RBI.
  - Scheme adopts the **‘One Nation One Ombudsman’ approach** by making the RBI Ombudsman mechanism jurisdiction neutral.
- **Coverage:** Scheme covers the following Regulated Entities:
  - All **commercial banks**, Regional Rural Banks, Scheduled Primary (Urban) Co-operative Banks and Non-Scheduled Primary (Urban) Co-operative Banks with deposits size of ₹50 crore and above.
  - All **Non-Banking Financial Companies** (except Housing Finance Companies), authorized to accept deposits or have customer interface, with an assets size of ₹100 crore and above.
  - All **Payment System Participants**.
  - **Credit Information Companies (CICs)**.
- **Appointment of Ombudsman:** RBI may appoint one or more of its officers as Ombudsman and Deputy Ombudsman for a tenure not exceeding three years at a time.
- **Handling of complaints:** Redressal/adjudication of complaints is presently handled by **24 Offices of the RBI Ombudsman (ORBIOs)** and the **Centralised Receipt and Processing Centre (CRPC)**.

#### Do you know ?

- > If you have a grievance against an Insurance Company/ Insurance Broker, you can lodge a complaint with the **Insurance Ombudsman**.
  - Primary legislations governing it are Insurance Ombudsman Rules, 2017 and **Insurance Ombudsman (amendment) Rules, 2023**.
- > Also, PFRDA (Redressal of Subscriber Grievance) Regulations, 2015 provides for an **Ombudsman in services associated with pensions**.

### 3.3.6. UMBRELLA ORGANISATION (UO) FOR URBAN COOPERATIVE BANKS (UCBS)

#### Why in the news?

Recently, the Ministry of Cooperation constituted the **National Urban Cooperative Finance and Development Corporation Limited (NUCFDC)**, an Umbrella Organisation (UO) for UCBS.

#### About NUCFDC

- **Background:** In 2019, RBI accorded regulatory approval to the **NAFCUB (National Federation of Urban Co-operative Banks and Credit Societies Ltd)** for the formation of NUCFDC.
- **Need**
  - UO can serve as a **gateway for resolving the issues of UCBS**.
  - UO provides an **alternative to merger of smaller UCBS**, which was earlier done in order to improve the economies of scale. (Report by RBI Expert Committee 2021).
- **Legal status**
  - **NUCFDC** is an UO registered with RBI as a **Type II -Non-Banking Financial Company-Non deposit (NBFC-ND)**.
    - ✓ **Type II** non-deposit taking NBFCs (NBFC-ND) **accept** (or intend to accept) **public funds** and/or have or intend to **have a customer interface**.
      - Contrary to this, Type I - NBFCs-ND **do not accept** (or intend to accept) **public funds** as well as **do not have or intend to have a customer interface**.
  - It will be allowed to **operate as a Self-Regulatory Organization (SRO)** for the sector.

**National Federation of Urban Co-operative Banks and Credit Societies Ltd (NAFCUB)**

**Genesis:** It is a **national co-operative society** which in 1977 got registered under the **Multi-State Cooperative Societies Act**.

**Role:** NAFCUB is an **Apex Level Promotional body of UCBS and Credit Societies Ltd** in the Country.

**Activities:**

- Training programmes,
- Research conclaves
- Core Banking Solutions (CBS) initiatives

**Members:** It is open to

- UCBS and Urban Credit Societies
- The State Federations /Association of Urban Banks and/or Credit Societies.
- National Co-operative Union of India
- Any other organization useful for the furtherance of the objects of the Federation, with the approval of the Central Registrar of Co-operative Societies

- **No individual shall be eligible for membership** of the Federation.

#### Major functions envisaged for NUCFDC

- **Offering liquidity and capital support:** To raise capital, with plans to reach a **capital base of Rs.300 crores** to support UCBS.
  - NUCFDC can also offer **fund management** and other consultancy services to UCBS.
- **Facilitate regulatory compliance:** Prepare small banks for compliance with the **Banking Regulation Act (BRA), 1949**.
- **Develop a shared technology platform:** Enabling UCBS to **widen their range of services at a relatively lower cost**.

### 3.3.7. NATIONAL BANK FOR FINANCING INFRASTRUCTURE AND DEVELOPMENT (NABFID)

#### Why in the news?

Union Minister for Finance chaired the meeting to review the performance of the National Bank for Financing Infrastructure and Development (NaBFID) in New Delhi.

#### Key highlights of the discussion

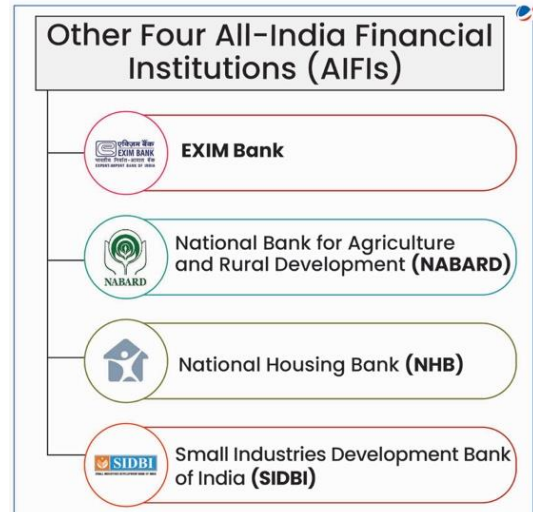
- **Long-term infrastructure financing:** To date, NaBFID has made total sanctions of more than ₹86,000 crore, with 50% of sanctioned projects of long tenure for 50 to 20 years.



- **Collaboration:** NaBFID is collaborating with many multilateral institutions to facilitate long-term credit lines, knowledge sharing, etc.
- **Advisory Services:** NaBFID has collaborated with the International Finance Corporation (IFC) to offer Transaction Advisory Services.

**About National Bank for Financing Infrastructure and Development (NaBFID)**

- **Establishment:** NaBFID was set up in 2021 by an Act of Parliament (The National Bank for Financing Infrastructure and Development Act, 2021).
  - Its head office is located in **Mumbai**.
- **Development Finance Institution (DFI):** NaBFID is a **specialised DFI** aimed at supporting **India’s infrastructure sector**.
- **Objective:**
  - Addressing the **gaps in long-term non-recourse finance for infrastructure development**.
  - Strengthening the development of bonds and derivatives markets in India.
  - Sustainably boosting the country’s economy.
- **Regulation:** It is regulated and supervised by the **Reserve Bank of India (RBI) as an All India Financial Institution (AIFI)** under sections 45L and 45N of the RBI Act, 1934, respectively.
- **Shareholding:** The entire shareholding of the Institution is **currently held by the Government of India**.
  - According to NaBFID Act, the **Central government shall hold at least 26% share** and other shares can be held by multilateral institutions, sovereign wealth funds, pension funds, insurers, financial institutions, banks, and other prescribed institutions.



**3.3.8. PENSION FUND REGULATORY AND DEVELOPMENT AUTHORITY (PFRDA)**

**Why in the news?**

The PFRDA notified the **National Pension System Trust (Second Amendment) Regulations 2023** and **Pension Fund (Amendment) Regulations 2023**.

**Key Amendments**

<p><b>Pension Fund (Amendment) Regulations 2023</b></p>	<ul style="list-style-type: none"> <li>• <b>Increased compliance requirements</b> such as the cyber security policy, outsourcing policy among others.</li> <li>• <b>Governance of the sponsor bank</b> aligned with Companies Act, 2013.</li> <li>• <b>Enhanced Disclosure by Pension Funds</b>.</li> <li>• Implementation of fraud prevention and mitigation policy by <b>Central Recordkeeping Agency (CRAs)</b>.</li> <li>• <b>Fit and Proper’ Criteria for Principal Officers of both the sponsor and the pension fund</b> similar to those prevalent under SEBI.</li> </ul>
<p><b>National Pension System Trust (Second Amendment) Regulations 2023</b></p>	<ul style="list-style-type: none"> <li>• The amendment <b>Simplifies the provisions related to appointment of Trustees</b>.                     <ul style="list-style-type: none"> <li>○ PFRDA created the NPS Trust under the <b>Indian Trusts Act of 1882</b> and assigned it as an intermediary responsible for monitoring and caring for NPS funds.</li> </ul> </li> <li>• When <b>Trustee Bank (TB)</b> proposes to change its status or constitution, it shall obtain prior approval of the PFRDA.</li> </ul> <p>* The <b>National Pension System (NPS)</b> (earlier called <b>New Pension Scheme</b>) was introduced by the Central Government w.e.f. 1<sup>st</sup> Jan 2004 and subsequently adopted by almost all State Governments for its employees.</p>

### About Pension Fund Regulatory and Development Authority (PFRDA)

- **Established:** In 2003 through a resolution by the Government of India to promote, develop and regulate the pension sector in India. The **PFRDA Act** was passed in **2013**.
- **Ministry:** It is a **statutory body** that operates under the jurisdiction of the **Ministry of Finance**.
- **Headquarters:** The PFRDA is **headquartered in New Delhi**.
- **Composition:** The Authority consists of a **Chairperson and not more than six members**, of whom at least three shall be whole-time members, to be **appointed by the Central Government**.
- **Functions of PFRDA:**
  - **Undertaking steps for educating subscribers and the public** on issues relating to pension, retirement savings and related issues and training of intermediaries.
  - **Protecting the interests of subscribers of NPS** and such other schemes as approved by the authority from time to time.
  - **Approving the schemes and laying down norms of investment guidelines** under such schemes.
  - **Registering and regulating intermediaries-** NPS Trust, Points of Presence, Central Recordkeeping Agency, Trustee Bank, Pension Funds etc.
- PFRDA regulates the **National Pension System (earlier called the New Pension Scheme) and Atal Pension Yojana**.

### 3.3.9. OTHER DEVELOPMENTS IN THE BANKING SECTOR

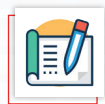
<b>Project Gaia</b>	<ul style="list-style-type: none"> <li>• Central banks unveiled <b>Project Gaia to evaluate climate financial risks</b>.</li> <li>• <b>About Project Gaia</b> <ul style="list-style-type: none"> <li>○ It is a collaboration between the <b>Bank for International Settlements Innovation Hub Eurosystem Centre, Bank of Spain, etc.</b></li> <li>○ It leverages <b>generative artificial intelligence (AI)</b> particularly <b>Large Language Models (LLMs)</b> to facilitate the analysis of climate-related risks in the financial system.</li> </ul> </li> </ul>
<b>D-SIBs</b>	<ul style="list-style-type: none"> <li>• <b>Reserve Bank of India (RBI) released the 2023 list</b> of Domestic Systemically Important Banks (D-SIBs).</li> <li>• <b>D-SIBs</b> are systemically important due to their <b>size, cross-jurisdictional activities, complexity</b> and lack of substitute and interconnection. <ul style="list-style-type: none"> <li>○ It also means that <b>the bank is too big to fail</b>.</li> </ul> </li> <li>• <b>Declaration/Regulation of D-SIBs:</b> <ul style="list-style-type: none"> <li>○ It is based on the <b>D-SIBs Framework</b> of <b>RBI</b> which was released in <b>2014</b>. <ul style="list-style-type: none"> <li>✓ This Framework is based on <b>Basel Committee on Banking Supervision’s (BCBS’s)</b> framework for dealing with <b>D-SIBs</b>.</li> </ul> </li> <li>○ Banks are placed in <b>5 buckets</b>. <ul style="list-style-type: none"> <li>✓ As per latest list, India’s <b>D-SIB’s</b> are <b>State Bank of India</b> (bucket 4) and <b>HDFC Bank</b> (bucket 2), <b>ICICI Bank</b> (bucket 1).</li> </ul> </li> </ul> </li> <li>• In case a <b>foreign bank</b> having branch presence in India is a <b>Global Systemically Important Bank (G-SIB)</b>, it has to maintain additional CET1 capital surcharge. <ul style="list-style-type: none"> <li>○ <b>Financial Stability Board (FSB)</b> releases the list of <b>G-SIBs</b>.</li> </ul> </li> </ul>
<b>Model Based Lending</b>	<ul style="list-style-type: none"> <li>• RBI governor has cautioned banks and NBFC against <b>model-based algorithmic lending</b>. <ul style="list-style-type: none"> <li>○ It is a <b>remote and automated lending process</b>.</li> <li>○ It <b>uses digital technologies for customer acquisition, credit assessment, loan approval</b>, disbursement, recovery, and associated customer service.</li> </ul> </li> <li>• <b>Benefits:</b> financial inclusion, quick processing, increased collaboration with fintechs, facilitation of innovative products.</li> <li>• <b>Concerns:</b> accuracy and information asymmetries, algorithmic biases, exclusion of various sections.</li> </ul>

# Answer Writing for **CIVIL SERVICES** **MAINS EXAMINATION**



Answer writing holds paramount importance in the UPSC Mains exam as it serves as the primary means for candidates to demonstrate their knowledge, understanding, analytical ability, and time management skills. Effective answer writing is pivotal in showcasing one's ability to synthesize information, critically evaluate diverse perspectives, and present balanced arguments concisely. Proficient answer writing is instrumental in securing high scores and distinguishing candidates in a competitive environment, ultimately determining their success in the rigorous selection process for the UPSC Mains examination.

## COMPONENTS OF AN IMPACTFUL ANSWER



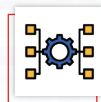
**Identification of Context:** Understanding the specific theme or topic of the question, and situating the response within its relevant context.



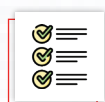
**Content Competence:** Demonstrating a comprehensive grasp of the subject matter, supported by accurate facts, relevant examples, and insightful analysis.



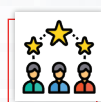
**An impactful Introduction:** Engagingly setting the stage for the answer, capturing the examiner's attention while providing a brief overview of the discussion to follow.



**Structure and Presentation:** Organizing the answer coherently with clear headings, subheadings, or bullet points, and presenting information logically and aesthetically for easy comprehension.



**Balanced Conclusion:** Summarizing key points concisely, offering insights or recommendations if applicable, and providing a satisfying closure to the argument or discussion.



**Language:** Employing precise, formal language appropriate to the context, avoiding jargon, colloquialisms, or ambiguity, and demonstrating fluency and clarity in expression.

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## 3.4. PAYMENT SYSTEM AND FINANCIAL MARKETS

### 3.4.1. BHARAT BILL PAYMENT SYSTEM (BBPS)

#### Why in the news?

The **Reserve Bank of India (RBI)** issued a revised regulatory framework of the **BBPS** in the exercise of powers conferred by the **Payment and Settlement Systems Act, of 2007**.

#### Objective

The revised framework seeks to streamline **the process of bill payments, enable greater participation, and enhance customer protection**.

#### About BBPS

An integrated online platform being developed by the **National Payments Corporation of India (NPCI)** for all kinds of bill payments.

- It intends to build an **interoperable service through a network of agents**, enabling multiple payment modes along with **instant generation of receipts of payments**.
- **Operates as a tiered structure** with NPCI Bharat Bill Pay Ltd (NBBL) as a **Central Unit (BBPCU)**, and Bharat Bill Payment Operating Units (BBPOUs) as **operational units**.
  - A BBPOU may function either as a **Biller Operating Unit (BOU)** or a **Customer Operating Unit (COU)** or both.

#### Regulatory framework of BBPS

- **Enable non-bank payment aggregators (PAs)** to participate in the system as operating units.
- BBPCU will set the **rules and regulations governing participation criteria and system operations**, in addition to the technical standards.
- COU will provide **digital or physical interface** to their customers while BOU will be **responsible for onboarding billers** to BBPS.

#### Related News

##### Payment Aggregator (PA)

- **Juspay, Zoho, and Decentro** have received final authorisation from RBI for **Payment Aggregator (PA) licences**.
  - PAs are entities that **facilitate e-commerce sites and merchants** to accept various payment instruments from the customers **without the need for merchants to create a separate payment integration system** of their own.
  - In the process, they **receive payments** from customers, **pool and transfer them** on to the merchants.
- PAs are **different from Payment Gateways** as latter only provide technology infrastructure to facilitate payment transaction without any involvement in fund handling.

### 3.4.2. DISINVESTMENT

#### Why in the news?

Centre is likely to miss its disinvestment target for the current year, as it has been able to garner only around ₹10,000 crore while it had a target of ₹51,000 crore for FY 2024.

#### What is it?

**Disinvestment** means the government, or an organisation is selling its stake in a company. There are primarily three different approaches for it:

- **Minority Disinvestment:** government retains a majority stake (~>51%).

#### Why is it done?

- **Reduction of fiscal burden** as it can be used to finance fiscal deficit.
- **Re-allocation of resources** into other productive areas such as health and education.
- **Under-utilisation of capacity** in various Public Sector Undertakings.



<ul style="list-style-type: none"> <li>• <b>Majority Disinvestment:</b> government even after disinvestment retains a minority stake in the company.</li> <li>• <b>Complete Privatisation</b> wherein 100% control of the company is passed on to the buyer and the government doesn't have any resulting control and ownership.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Withdrawal of government from non-strategic sectors</b> and idle lying public sector assets.</li> <li>• To introduce <b>competition and market discipline.</b></li> <li>• <b>To depoliticise non-essential services</b> in the long run.</li> </ul>
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<p><b>Methods for Disinvestment</b></p> <ul style="list-style-type: none"> <li>• <b>Initial Public Offering (IPO)</b> - offer of shares by an unlisted CPSE or the government out of its shareholding or a combination of both to the public for subscription for the first time. <ul style="list-style-type: none"> <li>○ <b>Central Public Sector Enterprises (CPSEs)</b> are those companies in which the direct holding of the central government is 51% or more.</li> </ul> </li> <li>• <b>Further Public Offering (FPO)</b>-offer of shares by a listed CPSE or the Government out of its shareholding or a combination of both to the public for subscription.</li> <li>• <b>Offer for sale (OFS)</b> allows auction of shares on the platform provided by the Stock Exchange (extensively used by the government since 2012).</li> <li>• <b>Strategic sale</b> is sale of substantial portion of the government shareholding up to 50%, or higher along with transfer of management control.</li> <li>• <b>Institutional Placement Program (IPP)</b> - only Institutions participate in the offering.</li> <li>• <b>CPSE Exchange Traded Fund (ETF)</b> allows simultaneous sale of government's stake in various CPSEs across diverse sectors through single offering.</li> </ul>
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<p><b>Department of Investment and Public Asset Management (DIPAM)</b></p> <ul style="list-style-type: none"> <li>• In 1999, the Indian government set up a separate <b>Department of Disinvestment</b>, which was named as DIPAM in 2016.</li> <li>• Ministry: <b>Ministry of Finance.</b></li> </ul> <p><b>Objective</b></p> <ul style="list-style-type: none"> <li>• <b>Efficient financial management</b> and operational efficiency in CPSEs.</li> <li>• Deals with matters relating to <b>sale of equity of central government</b> through offer for sale or private placement or any other mode in the erstwhile CPSEs.</li> <li>• <b>Promote people's ownership of CPSEs</b> by listing them on stock exchanges.</li> </ul>
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### 3.4.3. KEY DEVELOPMENTS ASSOCIATED WITH SEBI

<p><b>T+0 settlement</b></p>	<ul style="list-style-type: none"> <li>• In its 204<sup>th</sup> meeting, SEBI announced launch of Beta version of optional T+0 settlement for limited scrips and brokers.</li> <li>• <b>T+0 settlement allows both funds and securities transactions to be settled on same day when the trade is initiated.</b> <ul style="list-style-type: none"> <li>○ <b>Presently</b>, Indian securities market operate on <b>T+1 settlement cycle.</b></li> </ul> </li> <li>• <b>Benefits of T+0 settlement:</b> <ul style="list-style-type: none"> <li>○ Quicker access to funds allows <b>faster re-investment of money.</b></li> <li>○ Traders can <b>react to market fluctuations more quickly.</b></li> <li>○ <b>Reduces the possibility of counterparty risk.</b> As the settlement happens immediately, a buyer or seller cannot default on their obligation the next day.</li> <li>○ Prompt investors to employ more <b>active trading strategies.</b></li> </ul> </li> </ul>
<p><b>SEBI Index Providers Regulations, 2024</b></p>	<p><b>SEBI Index Providers Regulations, 2024</b></p> <ul style="list-style-type: none"> <li>• Through the 2024 regulation, SEBI has <b>mandated registration of index providers</b> managing "<b>significant indices</b>" based on <b>securities listed in India.</b> <ul style="list-style-type: none"> <li>○ 'Index Provider' means a person who <b>controls the creation, operation and administration of a Benchmark or an Index.</b></li> </ul> </li> <li>• <b>About Index</b> <ul style="list-style-type: none"> <li>○ An <b>index measures the price performance of a basket of securities</b> using a</li> </ul> </li> </ul>

	<p>standardized metric and methodology.</p> <ul style="list-style-type: none"> <li>o <b>Nifty 50 and the Nifty PSU Bank, etc.</b> are some important indices in <b>Indian markets.</b></li> </ul>
<p><b>Securities Appellate Tribunal (SAT)</b></p>	<ul style="list-style-type: none"> <li>• <b>Absence of a full bench</b> is affecting functioning of the SAT leading to delays and disruptions.</li> <li>• <b>About Securities Appellate Tribunal</b> <ul style="list-style-type: none"> <li>o It is a <b>statutory body</b> established under the provisions of Securities and Exchange Board of India (SEBI) Act, 1992.</li> <li>o It hears and disposes appeals against orders passed by           <ul style="list-style-type: none"> <li>✓ <b>SEBI</b></li> <li>✓ <b>Pension Fund Regulatory and Development Authority (PFRDA)</b></li> <li>✓ <b>Insurance Regulatory Development Authority of India (IRDAI)</b></li> </ul> </li> </ul> </li> <li>• The Presiding Officer and Judicial Members are appointed by the <b>Central Government in consultation with the Chief Justice of India</b> or his/her nominee while Technical members are appointed on recommendation of a <b>Search-cum-Selection Committee.</b></li> </ul>
<p><b>Short selling</b></p>	<ul style="list-style-type: none"> <li>• Supreme Court directed Centre and SEBI to investigate if <b>Hindenburg report on short-selling</b> caused harm to investors.</li> <li>• Short selling" involves <b>selling a stock not owned</b> at the time of trade.       <ul style="list-style-type: none"> <li>o Speculating a price decrease, <b>sellers borrow</b> stocks to <b>sell</b>, then <b>buy them back at a lower price</b>, making a profit.</li> </ul> </li> <li>• <b>SEBI permits short selling</b> for both retail and institutional investors, who <b>must deliver securities</b> during <b>settlement.</b> <ul style="list-style-type: none"> <li>o However <b>Naked short selling is illegal in India.</b> <ul style="list-style-type: none"> <li>✓ It entails <b>trading shares that are undetermined to exist</b> or have not been secured by the trader."</li> </ul> </li> </ul> </li> </ul>

# Lakshya

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### 3.5. EXTERNAL SECTOR

#### 3.5.1. WORLD TRADE ORGANIZATION (WTO)

### World Trade Organization (WTO)

**About WTO**

WTO is the **international organization** whose primary purpose is to open trade for the benefit of all. It is the only global international organization dealing with the rules of trade between nations.

 <b>Established</b> 1 January 1995	 <b>Created by</b> Uruguay Round negotiations (1986-94)	 <b>Headquarters</b> Geneva, Switzerland	 <b>Members</b> <ul style="list-style-type: none"> <li>● 166 (Including Comoros and Timor-Leste, 2024).</li> <li>● <b>India is founding member of WTO.</b></li> </ul>
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**Objective**

To help its members use trade as a means to **raise living standards, create jobs and improve people's lives.**

**Organizational Structure**

<p><b>Ministerial Conference</b></p> <p>Highest decision-making body of the WTO and usually meets every two years.</p>	<p style="text-align: center;"><b>General Council</b></p> <ul style="list-style-type: none"> <li>● WTO's decision-making body in Geneva, meeting regularly to carry out the functions of the WTO.</li> <li>● The General Council also meets, as the <b>Dispute Settlement Body</b> and as the <b>Trade Policy Review Body.</b></li> </ul>
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**Functions**

Administering WTO trade agreements	Forum for trade negotiations	Settling trade disputes	Monitoring national trade policies	Technical assistance and training for developing countries
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**Reports published by WTO**

World Trade Report	World Trade Statistical Review	Global Trade Outlook	WTO Annual Report
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**Key contemporary milestones**

Conclusion of landmark \$1.3 trillion Information Technology Agreement.

2015

<p style="text-align: center;"><b>2014</b></p> <p>The revised Agreement on Government Procurement (GPA) entered into force.</p>	<p style="text-align: center;"><b>2017</b></p> <ul style="list-style-type: none"> <li>● Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement amended to ease poor countries' access to affordable medicines.</li> <li>● WTO's Trade Facilitation Agreement entered into force.</li> </ul>	
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**Last 5 Ministerial Conferences (MC)**

MC 9-Bali, 2013	MC 10-Nairobi, 2015	MC 11-Buenos Aires, 2017	MC 12-Geneva, 2022	MC 13 Abu Dhabi, 2024 (Latest)
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**Most pressing challenges**

- **Consensus between developing and developed countries:** WTO members have not been able to agree on new rules on agricultural goods, highlighting the conflicting interests between developing and developed countries.
- **Dysfunctional Dispute Settlement System (DSS):** The Appellate Body is now inoperative and the DSS is impaired, as the US began blocking appointments in 2016.
- **US-China Trade War:** Difficult trade relations between the two largest world economies and WTO members – the US and China – also puts a strain on the WTO.

***Detailed discussion on critical issues – Food Security and Fisheries Subsidies has been done in the subsequent articles.***

### 3.5.1.1. AGRICULTURE AND FOOD SECURITY

#### Why in the news?

WTO's 13<sup>th</sup> Ministerial Conference (MC13), Abu Dhabi concluded without a permanent solution to the public stockholding (PSH) issue, a demand raised prominently by India.

#### About PSH Policy

- **Objective:** The PSH makes it possible for the government to procure crops from farmers at MSP, and store and distribute these food grains to the poor.
- **DE MINIMIS limits:** Under global trade norms, a country's subsidy bill should not breach the limit of 10 % (for developing countries) and 5 % (for developed countries) of the value of production (**calculated at the reference price for 1986-88**).

#### Global Divide over PSH

- **Developing Countries:** Apart from increasing DE MINIMIS limit, India and developing countries have asked for amendments in the formula to calculate the price support subsidies given to farmers for government procurement.
- **Developed Countries:** Most developed countries claim PSH as market-distorting and push for no export restrictions.

#### Peace Clause & India's Stand

- **Peace Clause:** WTO at the Ninth Ministerial Conference (MC9) in Bali agreed to a "peace clause" as an interim solution for PSH for food security.
  - It was agreed that the "peace clause" would remain in force till MC 11. However, it was extended due to non-consensus among the members.
- **India's Demand:** India is pressing for a permanent solution to the issue of public stockholding (PSH) including measures like amendments in the formula to calculate the food subsidy cap.

#### Related news

##### G-33

- G-33 calls for progress on agricultural trade ahead of 13<sup>th</sup> **WTO Ministerial Conference (MC-13)**.
- **About G-33**
  - Comprises **47 countries** and also called "**Friends of Special Products**" in agriculture.
  - **Coalition of developing nations** advocating for **flexibility to undertake limited market opening in agriculture, with India, China, and Indonesia among its members.**
  - **Key demands:** Recognize Special Safeguard Mechanism (SSM), importance of public stockholding for food security purposes, etc.

### 3.5.1.2. FISHERIES SUBSIDIES AGREEMENT

#### Why in the news?

WTO's 13<sup>th</sup> ministerial conference ended with no decision on finding a permanent solution curbing fisheries subsidies that lead to over-capacity and over-fishing.

#### WTO Agreement on Fisheries Subsidies

- **Geneva Package:** It was adopted during the 12<sup>th</sup> Ministerial Conference of WTO in 2022 held in Geneva, Switzerland under the 'Geneva Package'.
- **Aim:** To curb harmful subsidies, which are seen as a key factor in the widespread depletion of the world's fish stocks.
- **Not in effect:** Acceptance from two-thirds of WTO members is needed for the Agreement to come into effect.
  - **India is not part of the agreement.**





- **Benefits:** It will have positive effects on the sustainability of marine fish stocks and fisheries –
  - By curbing subsidies to illegal, unreported and unregulated fishing
  - By prohibiting subsidies to fishing on overfished stocks
  - By prohibiting subsidies to fishing on the unregulated high seas
- **Special and Differential Treatment (S&DT):** Under S&DT, Developing Countries and Least Developed Countries (LDCs) have been allowed a transition period of 2 years from the date of entry into force of this Agreement.

#### India's Demands

- **PPP and CBDR-RC:** Countries that have historically provided huge subsidies and are responsible for the depletion of fish stocks, should take more obligations based on the '**polluter pay principle**' (PPP) and '**Common But Differentiated Responsibilities and Respective Capabilities**' (CBDR-RC).
- **Moratorium on Distant Water Fishing Nations:** India urged the Members to introduce a moratorium on subsidies by Distant Water Fishing Nations for fishing or fishing related activities beyond their EEZs for a period of at least 25 years.
- **Exception for Developing countries and small economies:** They should be free to provide subsidies for the fisheries sector.

#### Related Information

##### Draft Ministerial Declaration on Cross-border remittances

- It is a joint communication from 4 countries (India, Bangladesh, Nepal & Sri Lanka) to the Committee on Trade in Financial Services (CTFS).
- **Committee on Trade in Financial Services (CTFS)**
  - It is a subsidiary body under the **Council for Trade in Services (CTS)** under the **World Trade Organization (WTO)**.
- CTS is responsible for facilitating the **operation of the General Agreement on Trade in Services (GATS)** and for furthering its objectives.

### 3.5.2. OECD

#### Why in the news?

OECD recently published a report - Breaking the Vicious Circles of Informal Employment and Low-Paying Work.

#### Findings of the Report

- **Majority** of the world's employed **population works in informal settings.**
- In households where **all family members are informally employed, children inherit their parents' vulnerabilities in the workplace.**
- **Policy Recommendation**
  - **Alleviating the Double Burden** through Skill Development Initiatives, Education Enhancement, Social Protection, and Recognition of Essential Low-Paid Jobs.
  - **Encouraging Formalization** through Standard Formalization Policies, Ensuring Adequate Coverage and Enforcement of Compliance.



## Organisation for Economic Co-operation and Development (OECD)



(HQ - Paris, France)



**Genesis:** Founded in **1961**.



**Members:** Total Membership is 38. (India is not a member ❌)

- ▶ Member countries describe themselves as committed to **democracy and the market economy**.
- ▶ Brazil, China, **India**, Indonesia, and South Africa are **OECD's Key Partners**.
- ▶ OECD countries and Key Partners represent **about 80% of world trade and investment**.



**Purpose:** Stated Goal is to **shape policies that foster prosperity, equality, opportunity and well-being for all**.

- ▶ **The OECD publishes reports** on varied issues such as 'LiFE Lessons from India', 'Migration in Asia - What skills for the future?' etc.

### 3.6. AGRICULTURE

#### 3.6.1. NUTRIENT BASED SUBSIDY (NBS) POLICY

##### Why in the news?

Ministry of Chemicals and Fertilizers issued guidelines regarding the **reasonableness of Maximum Retail Prices (MRPs) of Phosphatic and Potassic (P&K) fertilizers under the Nutrient Based Subsidy (NBS) policy**.

##### Key provisions of the guidelines

Through these guidelines, the government has **brought P&K fertilizers** under the NBS support **under reasonable pricing** controls.

- **Implementation:** These guidelines will be **effective retrospectively** from April 1, 2023.
- **Profit percentage: Different profit percentages** will be allowed for P&K fertilizer companies based on their category.
- **Basis of evaluation:** Basis of evaluation of the reasonableness of MRPs will be the **total cost of sales**.
  - **GST will be excluded** from the evaluation of the reasonableness of MRPs.
- **Applicability: All fertilizer grades for which subsidy is received** by companies under the NBS scheme.
- **Assessment:** Companies will self-assess unreasonable profit earned by them and refund unreasonable profit to the Department of Fertilizers.

##### About Nutrient Based Subsidy (NBS) Policy

- **Objective:** Introduced in 2010 with an aim to provide fertilizers to the **farmers at subsidized prices**.
  - It has been approved for implementation up to **FY 2025-26**.
- **Basis:** It has been framed under the **Fertilizer (Control) Order (FCO), 1985** issued under the **Essential Commodities Act, 1955**.
- **Eligibility:** NBS is applicable for **25 grades of P&K fertilizers** namely, Di Ammonium Phosphate (DAP), Muriate of Potash (MOP), Mono Ammonium Phosphate (MAP), Triple Super Phosphate (TSP) etc.
  - **Fertilizer grade** refers to the guaranteed minimum percentage of N, P and K contained in fertilizer material.
- **Mechanism:** NBS fertilisers — unlike urea, whose MRP is fixed by the government — are **technically decontrolled**.

- Under the NBS scheme, their **MRPs are supposed to be market-determined** and set by the individual companies selling them.
- **Subsidy on urea is paid on dispatch** whereas **NBS is paid on quantities sold**.

### 3.6.2. PRIMARY AGRICULTURAL CREDIT SOCIETIES (PACS)

#### Why in the news?

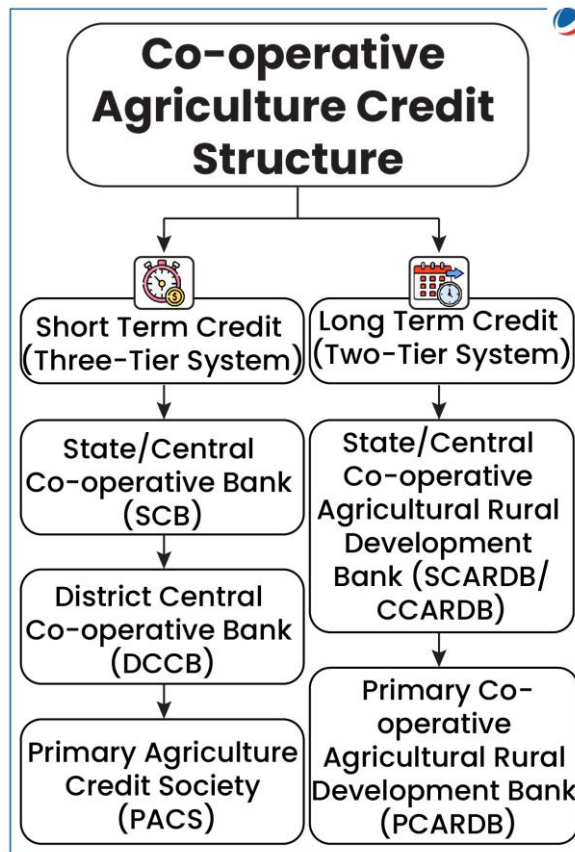
Various initiatives have been taken for the expansion and modernisation of PACS.

#### More on the news

- **Initiative for expansion:** Foundation stone for an **additional 500 PACS** for the construction of godowns & other agri-infrastructure was laid down.
- **Initiatives for modernisation of PACS:**
  - **Project for computerisation in 18,000 PACS across the country** was inaugurated.
    - ✓ Under the ‘centrally sponsored project for computerisation of PACS’ scheme, the government aims to **computerise 63,000 functional PACS**.
  - Ministry of Cooperation inaugurated **the National Cooperative Database (NCD)** which provides **all information about the cooperative sector**.

#### About PACS

- **Definition:** PACS are the **grassroots-level arms of short-term cooperative credit structure** (refer to infographics).
- **Regulation:**
  - PACS are registered under the **Cooperative Societies Act** and are administered by the concerned **State Registrar of Cooperative Societies (RCS)**.
    - ✓ **SCBs/DCCBs** are also registered under provisions of the **State Cooperative Societies Act** of the State concerned and **are regulated by RBI**.
    - ✓ However, PACS are **outside the purview of the Banking Regulation Act, 1949** and are **not regulated by RBI**.
- **Refinancing:** They are refinanced **by NABARD through DCCBs and SCBs**.
- **Functions:** Provide **short-term credit loans** and other **input services**, like seed, fertilizer, and pesticide distribution **to member farmers**.
- **Significance:** PACS play a key role in financial inclusion.
  - **PACS account for 41 % of the Kisan Credit Card (KCC) loans** given by all entities in the Country and **95 % of these KCC loans** through PACS are to the **Small and Marginal farmers** (2022).



### 3.6.3. INDIA'S GRAIN STORAGE SYSTEM

#### Why in the news?

The Prime Minister inaugurated the pilot project of '**World's Largest Grain Storage Plan in Cooperative Sector**', for 11 Primary Agricultural Credit Societies (PACS) across 11 States.

#### About the World's Largest Grain Storage Plan in the Cooperative Sector

- **Ministry:** Ministry of Cooperation (MoC).

- **Purpose:** To establish **decentralized storage facilities at the PACS level**, alongside other **agricultural infrastructure**, like, warehouses, custom hiring centers, processing units etc.
- **Benefits to PACS:** PACS can avail **subsidies and interest subvention** benefits for construction of godowns/storage facilities and setting up of other agri infrastructure.
- **Convergence of various schemes** (refer to infographics).
- **Major implementing agencies:**
  - **FCI** (Food Corporation of India),
  - **CWC** (Central Warehousing Corporation),
  - **NCDC** (National Cooperative Development Corporation) with support of **NABARD**,
  - **NABARD** Consultancy Services (**NABCONS**),
  - **NBCC** (National Buildings Construction Corporation).

### Grain storage system in India

- **Storage by small farmers:** Around 60-70%, of food grain produced is stored at household level using various indigenous **traditional storage** structures like Morai, Mud Kothi, etc.
- **Government storage agencies:**
  - **Food Corporation of India (FCI):** Established by an Act of Parliament in 1965, FCI is the main agency for storage of food grain in the country.
  - **Central Warehousing Corporations (CWC):** Established under the **Warehousing Corporations Act, 1962** for warehousing of agricultural produce and other notified commodities.
  - **State Warehousing Corporations:** Established under respective state warehousing Acts to regulate warehousing of certain goods in the states.
- **Private agencies:** FCI hires storage capacity from **private owners**.
- **Other stakeholders:** Warehouse Development Regulatory Authority (WDRA), Railways, and civil supply departments of states are involved in grain management.

## Schemes Identified for Convergence



### Ministry of Agriculture and Farmer Welfare

- Agriculture Infrastructure Fund (AIF)
- Agricultural Marketing Infrastructure Scheme (AMI)
- Mission for Integrated Development of Horticulture (MIDH)
- Sub Mission on Agricultural Mechanization (SMAM)



### Ministry of Food Processing Industries

- Pradhan Mantri Formalization of Micro Food Processing Enterprises Scheme (PMFME)
- Pradhan Mantri Kisan Sampada Yojana (PMKSY)



### Ministry of Consumer Affairs, food, and public Distribution

- Allocation of food grains under the National Food Security Act, 2013
- Procurement operations at Minimum Support Price

### 3.6.4. KRISHI VIGYAN KENDRAS (KVKS)

#### Why in the News?

The **Indian Council of Agricultural Research (ICAR)** celebrated the **Golden jubilee year** of the establishment of the **Krishi Vigyan Kendra (KVK)**.

#### About Krishi Vigyan Kendra (KVK)


- KVKs aim at the assessment of **location-specific technology modules in agriculture and allied enterprises**.
  - They are an **integral part of the National Agricultural Research System (NARS)**.
    - ✓ NARS in India comprises of Indian Council of Agricultural Research (ICAR) at the national level and the State Agricultural Universities (SAUs) at the state level.



- KVKs have been functioning as a **Knowledge and Resource Centre of agricultural technology** and linking the NARS with agricultural extension systems (also known as agricultural advisory services) and farmers.
- Currently, there are **around 731 KVKs in the country**, established under **eleven** Agricultural Technology Application Research Institute (**ATARI**) zones.
- **Financing:** KVKs are 100% financed by the Centre.
- **Other information:**
  - **Dr. Mohan Singh Mehta committee** appointed in **1973**, mooted the idea of the establishment of a Farm Science Centre (Krishi Vigyan Kendra) in the Country.
  - The **first KVK was established in 1974 at Puducherry** under the **Tamil Nadu Agricultural University (TNAU), Coimbatore**.

#### Role of KVKs in Agricultural Extension Services (AES)

- **On-Farm Testing:** KVKs conduct field trials to assess the adaptability of new agricultural technologies under different farming systems.
- **Frontline Demonstrations:** Demonstration of the latest agricultural technologies to expedite the technology adoption.
- **Advisory Services:** They provide necessary information and advisory services to farmers on cropping patterns, pest control, post-harvest technology etc.
- **Seed and Planting Material Production:** For distribution to the farmers.
- **Acts as Resource and Knowledge Centre:** Supporting public, private, and voluntary sector initiatives in agriculture.



**Indian Council of  
Agricultural Research  
(ICAR)**

HQ  
New Delhi

**Genesis:** Established in **1929** as a registered society under **The Societies Registration Act, 1860**.

- It was formerly known as **Imperial Council of Agricultural Research**.

**Ministry:** Autonomous organisation under **Ministry of Agriculture and Farmers Welfare**.

**Function:** Apex body for coordinating, guiding and managing research and education in agriculture including horticulture, fisheries and animal sciences.

### 3.6.5. CODEX COMMITTEE ON SPICES AND CULINARY HERBS (CCSCH)

#### Why in the news?

In its 7<sup>th</sup> session held in Kochi, CCSCH finalized **quality standards** for **5 spices - small cardamom, turmeric, juniper berry, allpice and star anise**. It also forwarded the same to CAC for adoption as full-fledged **Codex standards**.

#### About CCSCH

- **Establishment:** **CCSCH** was established as one of the **Commodity Committees** under **CAC** in 2013.
- **Host:** **India has hosted CCSCH** since the beginning and **Spices Board India** (under **Ministry of Commerce and Industry**) serves as the **Secretariat organization**.
- **Objectives:**
  - **To elaborate worldwide standards** for spices and culinary herbs in their **dried and dehydrated state**.
  - **Consult with international organizations** in the **standards development process** to avoid duplication.

#### Codex Standards

- **About:** These are **international food texts**, i.e., **standards, codes of practice, codes of hygienic practice, guidelines, and other recommendations**.
- **Nature:** **Codex texts are voluntary** and **do not have a binding effect** on national food legislation.
- **Codex and WTO:** **WTO Agreements** on **Sanitary and Phyto-sanitary Measures (SPS Agreement)** and on **Technical Barriers to Trade (TBT Agreement)** encouraged **WTO members to harmonize national regulations** with international standards.



## Codex Alimentarius Commission (CAC)



HQ - Rome (Italy)



**Genesis:** An international food standards body established jointly by Food and Agriculture organization (FAO) and **World Health Organization (WHO)** in **1963**.



**Objective:** Protecting consumer's health and ensuring fair practices in food trade.



**Members:** **189** Members. (India is also a member ✓)



**Functioning:** CAC conducts its work through various Codex committees, including **Codex Committee on Spices and Culinary Herbs (CCSCH)**, hosted by different member countries.



**Standards:** Codex standards are **voluntary** and can be general or specific and are also recognised by **WTO Agreements** as reference standards.

### 3.7. SERVICES SECTOR

#### 3.7.1. FINTECH IN INDIA

##### Why in the news?

World Economic Forum's (WEF) report "The Future of Global FinTech: Towards Resilient and Inclusive Growth" mentioned **India** as one of the **most significant countries** for hosting a thriving cluster or **fintech headquarters**.

##### About FinTech (Financial Technology)

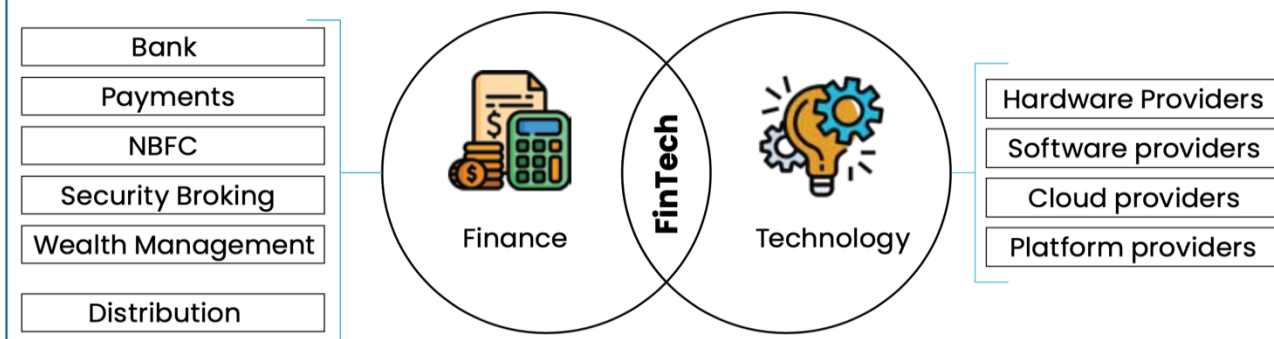
- **Definition:** A broad category of software applications and different digital technologies deployed by the intermediaries that provide **automated and improved financial services** competing with traditional financial services.
- **Major FinTech products and services currently used:** Peer to Peer (P2P) lending platforms, crowdfunding, blockchain-based technologies, Big Data, smart contracts, Robo advisors, E-aggregators, etc.

#### Do you know ?

##### > TechFin is different form FinTech.

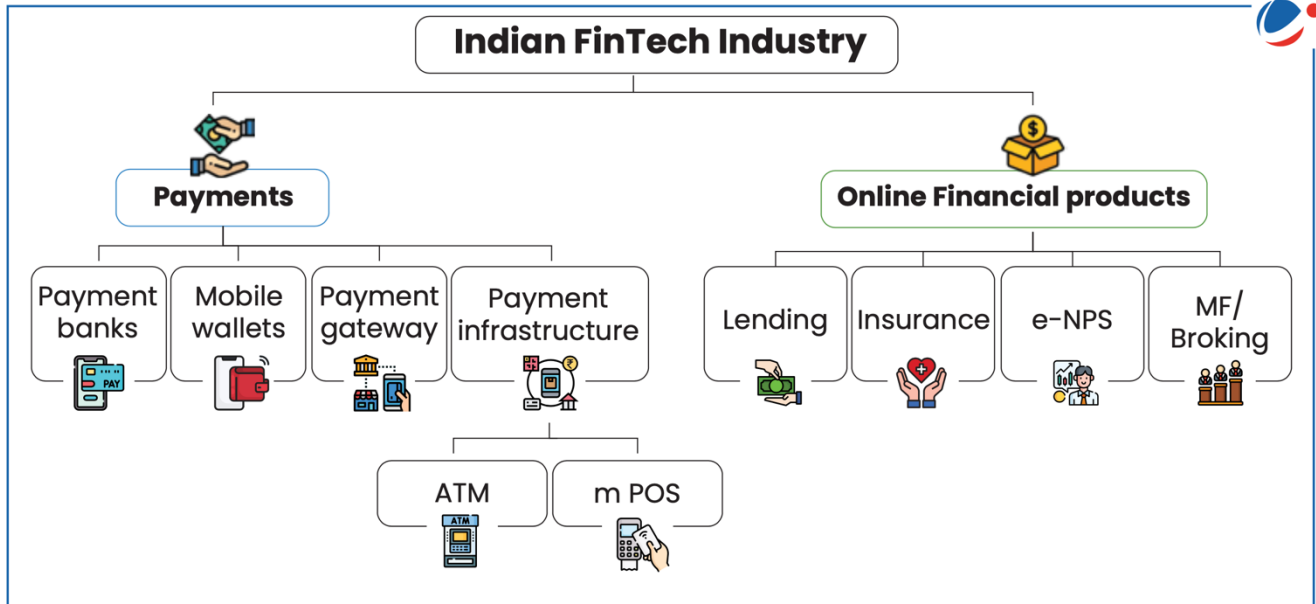
- As opposed to **FinTech** where **traditional financial services** are delivered by use of **technology**, **TechFin** is where an **entity** that has been delivering technology solutions **launches new way to deliver financial services**.
- In other words, FinTech takes the original financial system and improves its technology, **TechFin is to rebuild the system with technology**.

#### FinTech - Convergence of Financial services and Technology



## Fintech in India

- **3rd largest fintech** ecosystem globally.
- India accounted for **46% of all real-time transactions worldwide** in 2022.
- As per the Ministry of Electronics & IT, **India has highest FinTech adoption rate at 87%** as opposed to the world average of 67%.
- **Over 3000 fintech startups are registered** (including around 17 unicorns) by the Department for Promotion of Industry and Internal Trade (DPIIT) in India.



### Initiatives taken to promote Fintech

- **ONDC (Open Network for Digital Commerce):** Promoting open networks for all aspects of exchange of goods and services over digital or electronic networks.
- **Expansion of Scope of TReDS:** TReDS is a **digital platform** for MSMEs to **auction their trade receivables** at competitive rates through online bidding by Financiers i.e., Banks. RBI has expanded its scope to insurance companies.
- **DIGIDHAN Mission:** Set under the **Ministry of Electronics and Information Technology (MeitY)** to enable digital payment infrastructure throughout the country.
- **Global Fintech Fest:** India's biggest fintech conference which is a joint effort by the National Payments Corporation of India (NPCI), Payments Council of India (PCI), Fintech Convergence Council (FCC).

## 3.7.2. UNIFORM CODE FOR PHARMACEUTICAL MARKETING PRACTICES (UCPMP) 2024

### Why in the news?

Recently, the Uniform Code for Pharmaceutical Marketing Practices (UCPMP) 2024 was released.

### More on the news

- UCPMP 2024 has been issued by the **Union Ministry of Chemicals and Fertilizers**.
- **Key highlights of the UCPMP 2024**
  - Information about drugs must be balanced, up-to-date, verifiable, and must not mislead either directly or by implication.
  - **Claims and comparison:** Brand names of products of other companies must not be used without prior consent.
    - ✓ Comparisons of drugs must be **factual, fair, and capable of substantiation**.
  - **Textual and Audio-Visual Promotion:** Promotional material such as mailings and journal advertisements must not be designed to disguise their real nature.



- **Continuing Medical Education:** Should only be allowed through a **well-defined, transparent, and verifiable set of guidelines.**
- **Relationship with healthcare professionals:** No gifts, monetary grants, pecuniary advantage, etc., should be offered.

### 3.8. INDUSTRY AND INFRASTRUCTURE

#### 3.8.1. KEY DEVELOPMENTS ON INDUSTRY AND INFRASTRUCTURE

<p><b>Annual Survey of Industries (ASI)</b></p>	<ul style="list-style-type: none"> <li>• Annual Survey of Industries (ASI) released by the <b>Ministry of Statistics and Programme Implementation (MoSPI).</b></li> <li>• <b>ASI</b> is the principal source of Industrial Statistics in India. <ul style="list-style-type: none"> <li>○ It is conducted under the <b>Collection of Statistics (COS) Act, 2008.</b></li> <li>○ It covers all factories registered under the <b>Factories Act, 1948.</b> <ul style="list-style-type: none"> <li>✓ Also, covers units under the <b>Bidi and Cigar Workers (Conditions of Employment) Act 1966</b> etc.</li> <li>✓ However, defence establishments, oil storage and distribution depots, etc. are not covered under it.</li> </ul> </li> </ul> </li> <li>• <b>Key Highlights</b> <ul style="list-style-type: none"> <li>○ In terms of <b>Gross Value Addition</b>, <b>Gujarat</b> remained at the top, followed by Maharashtra, Tamil Nadu, Karnataka and Uttar Pradesh</li> <li>○ The top five states in terms of <b>employment</b> are Tamil Nadu, Gujarat, Maharashtra, Uttar Pradesh, and Haryana.</li> <li>○ <b>Manufacturing sector</b> showed <b>resilience</b> even after the disruption caused by the pandemic.</li> </ul> </li> </ul>
<p><b>Sabroom Land Port (SLP)</b></p>	<ul style="list-style-type: none"> <li>• PM inaugurated <b>Sabroom Landport in Tripura</b> located <b>along India-Bangladesh international border.</b></li> <li>• <b>About SLP</b> <ul style="list-style-type: none"> <li>○ It is <b>connected to Chittagong port</b> of Bangladesh through <b>Maitree Bridge on River Feni.</b></li> <li>○ It will facilitate <b>movement of passengers and cargo between India and Bangladesh.</b></li> </ul> </li> <li>• <b>Land Ports</b> <ul style="list-style-type: none"> <li>○ These are <b>areas on international border</b> including portions of national highways, State highways, etc., <b>notified as land customs station or immigration check post</b>, with <b>facilities for clearance and transport of passengers and goods</b> across the borders.</li> <li>○ Currently, there are <b>11 Land Ports operational in India</b> (excluding SLP).</li> </ul> </li> </ul>
<p><b>Sudarshan Setu</b></p>	<ul style="list-style-type: none"> <li>• Prime Minister has inaugurated <b>Sudarshan Setu in Gulf of Kutch.</b></li> <li>• <b>About Sudarshan Setu (Signature Bridge)</b> <ul style="list-style-type: none"> <li>○ India's <b>longest cable-stayed bridge</b> with <b>solar panels installed</b> on upper portions of the footpath, <b>generating one megawatt</b> of electricity.</li> <li>○ <b>Four-lane bridge</b> connects <b>Okha mainland and Beyt Dwarka island in Gujarat.</b></li> </ul> </li> </ul>
<p><b>Sela Tunnel</b></p>	<ul style="list-style-type: none"> <li>• Prime Minister inaugurated <b>strategically important Sela tunnel in Arunachal Pradesh.</b></li> <li>• <b>About Sela tunnel</b> <ul style="list-style-type: none"> <li>○ Constructed on road connecting <b>Tezpur in Assam to Tawang in Arunachal Pradesh</b> by Border Road Organization'.</li> <li>○ Constructed using <b>New Austrian Tunnelling Method (NATM).</b></li> </ul> </li> </ul>



	<ul style="list-style-type: none"> <li>✓ NATM is a support method to stabilize tunnel perimeter with the help of sprayed concrete and other support and uses regular monitoring to control stability of tunnel.</li> <li>○ World's <b>longest bi-lane tunnel (~1.5 kms)</b> to provide all-weather connectivity at an altitude above 13,000 ft.</li> </ul>
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### 3.9. ENERGY

#### 3.9.1. PETROLEUM EXPLORATION & PRODUCTION

##### Why in the news?

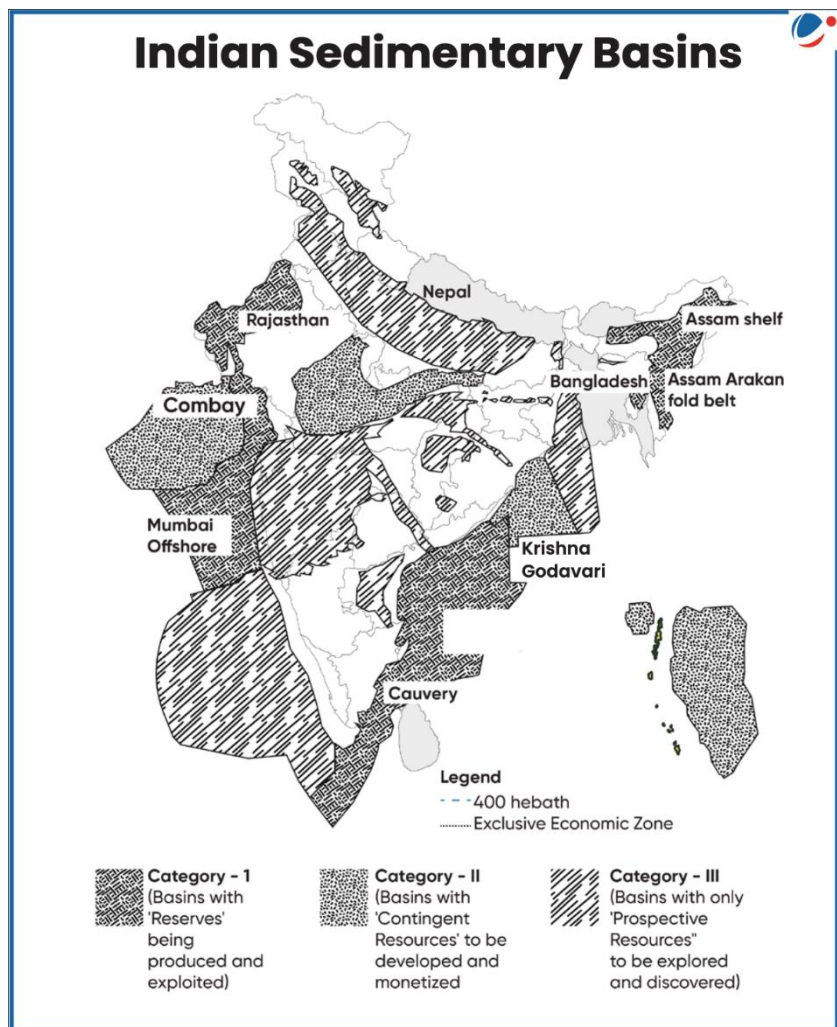
Oil and Natural Gas Corporation (ONGC) has started the first crude **oil production** from its Cluster-2 deep-sea project in the **Krishna-Godavari (KG) basin in the Bay of Bengal**.

##### Petroleum Basin in India

- **Petroleum Basin:** Includes a **diverse collection of rocks and sediments**, but **most importantly it contains source rocks (shale formations home to oil and gas)**.
- **26 sedimentary basins in India:** Covering a total area of 3.4 million square kilometers.
  - Of the total sedimentary area, **49% is located on land**, **12% is in shallow water** and **39% in deep water area** (farther up to **Exclusive Economic Zone or EEZ**).
- **Three Categories:** These basins are also divided into **3 categories (refer map) based on the maturity of hydrocarbon resources**.
- **Methods of Extracting Crude Oil:**
  - **Offshore drilling:** In marine environments, offshore basins like **Arabian Sea or Bay of Bengal**.
  - **Onshore drilling:** **On land**, covering various sedimentary basins across the country.
- **ONGC is India's largest oil and gas producer** contributing 72% of the country's hydrocarbon production.

##### Significance of Indigenous Petroleum Exploration and Production

- **Reduction in Import Bill:** India imports 85.7% oil and 48.2% of natural gas of requirement.
- **Strategic Importance:** Reduces vulnerability to geopolitical uncertainties, supply disruptions and price fluctuations in the global market.
  - **India is 3<sup>rd</sup> largest energy and oil consumer** in world.
- **Revenue Generation:** Through taxes, royalties and profit-sharing agreements.
- **Employment Generation:** In a range of activities including exploration, production, refining and disruptions.



### Unconventional Petroleum Resources

- **Oil and natural gas trapped in less permeable rocks** is referred to as an unconventional resource because it **cannot be explored, developed and produced by conventional processes**.
  - **“Conventional resources”** is a term referring to **oil and natural gas trapped in rock that is porous and permeable**.
- **These include deposits like:**
  - **Coalbed Methane (CBM) or Coal Seam Gas (CSG):** Refers to **methane rich gas naturally in coal seams** typically comprising 80% to 90% methane with lower proportions of ethane, propane, nitrogen, and carbon dioxide.
  - **Shale gas/oil:** It is a form of **natural gas/oil that remain unexpelled, unmigrated, and entrapped** within the pore space and fractures of a source rock (commonly, shale).
    - ✓ The shale gas/oil is produced commercially when sufficient **fracture conductivity is induced by hydraulic fracturing**.
  - **Gas hydrates:** These are naturally occurring **ice-like solids** (clathrates) in which **water molecules trap gas molecules in deep-sea sediments** and in and below the permafrost soils of the polar regions.

### 3.9.2. IMPORT OF CRUDE OIL

#### Why in the news?

Recently, the Standing Committee on Petroleum and Natural Gas (PNG) submitted its report on the Review of Policy on Import of Crude Oil.

#### About Crude Oil

- Crude oil, often referred to as **“black gold,”** is a **naturally occurring, unrefined petroleum product** composed of **hydrocarbon** (mainly carbon and hydrogen) **deposits and other organic materials**.
  - **Other elements** (nitrogen, sulfur, oxygen), and **metals** (iron, nickel, and copper) can also be mixed in with hydrocarbons in small amounts.
  - Crude oil is **extracted from the earth in liquid raw material and later refined into products** such as gasoline, kerosene, diesel, jet fuel, waxes, asphalt, lubricating oil, and a wide variety of other consumer goods.
    - ✓ It **differs in terms of physical properties** like colour, viscosity, relative weight and composition.
    - ✓ Some crude oil blends are considered superior to others. For example, **blends with lesser amounts of sulfur** are characterized as **sweet** while a **blend with higher sulfur content** is known as **sour**.
  - **Crude oil is used** in transportation, industrial, residential, commercial, and electric power.

#### Do you know?

- > India is the **third largest consumer of oil** after the United States and China in **2021**.
- > Diesel was the **most-used oil product in India**, accounting for **35%** of petroleum product consumption in **2021**.
- > **Major suppliers of Crude oil:** Russia, Iraq, Saudi Arabia, United Arab Emirates, etc.

#### Factors affecting the price of crude oil

- Demand and Supply of oil
- Natural disasters like Hurricanes
- Changes in import/export policy
- Geopolitical tensions such as Russia and Ukraine war
- Sanctions on any oil producing country

#### Crude Oil Benchmarks

- Crude oil benchmarks are **reference points for various kinds of oil blends** that are available in market.
- **Major Crude oil price benchmarks**
  - **Brent:** Most widely used globally (primarily in **Europe**).
  - **West Texas Intermediate (WTI):** Used primarily in **US**.
  - **Dubai/Oman:** Dubai and Oman crude oil benchmarks are the primary pricing references for physical crude oil delivered from the **Middle East Gulf, Russia, US Gulf Coast, Mexico** and other parts of the world to refiners.

- **Indian Crude Oil Basket**
  - The Indian basket of Crude Oil represents a derived basket comprising of **Sour grade** (Oman & Dubai average) and **Sweet grade** (Brent Dated) of Crude oil processed in Indian refineries in the ratio of 75.62 : 24.38 .
  - **Since Middle East crude** generally **cost more** due to **levy of Asian premium** by Middle East countries, the **Indian crude basket is higher**.
    - ✓ **Asian premium** is an extra amount levied by the **Organization of the Petroleum Exporting Countries (OPEC)** from Asian countries above the actual selling price of crude oil.
    - ✓ Asian premium pricing mechanism is **applicable on crude oil only**.

**Initiatives taken to reduce crude oil import**

- **Strategic Petroleum Reserves Programme (SPRs):** Under Phase-I of the SPR program, facilities at **Vishakhapatnam (Andhra Pradesh), Mangaluru and Padur (Karnataka)** were established.
  - Under phase- 2, SPRs at **Chandikhol in Odisha** and **additional capacity at Padur** will be established.
  - They have been established by **Indian Strategic Petroleum Reserve Limited**, a Special Purpose Vehicle under the **Ministry of Petroleum and Natural Gas (MoPNG)**.
- **Ethanol Blended Petrol (EBP) Programme:** It aims to reduce **import dependence on fuel, save in foreign exchange**, and provide a boost to the domestic agriculture sector and for associated environmental benefits.
- **National Policy on Biofuel, 2018:** Later amended in 2022, it **envisages an indicative target of 20% blending of ethanol in petrol by 2025-26** and **5% biodiesel in diesel by 2030**.
- **Discovered Small Field (DSF) Policy, 2015:** Marginal Field Policy renamed as DSF aimed at **monetizing hydrocarbon resources locked in for years in a time-bound manner** to boost domestic production of Oil and Gas.
- **Sustainable Alternative Towards Affordable Transportation (SATAT) initiative:** Under it, MoPNG is **promoting the use of Compressed Biogas as an alternative green transport fuel**, which is purified and compressed biogas.

**3.9.3. ELECTRICITY (AMENDMENT) RULES, 2024 NOTIFIED**

**Why in the news?**

Ministry of Power notified Electricity (Amendment) Rules, 2024 to amend Electricity Rules, 2005.

**More on the news**

- In the exercise of powers conferred by **Section 176 of the Electricity Act 2003**, the government has prescribed new rules for-
  - **promoting ease of doing business** by industries like Green Hydrogen manufacturers, **facilitating energy transition** and energy security.

**Key highlights of the rules**

Parameters	Rules	Significance
<b>Transmission Lines</b>	<ul style="list-style-type: none"> <li>• Consumers having more than specified load and Energy Storage Systems are allowed to <b>establish, operate and maintain dedicated transmission lines themselves without the requirement of licence</b>.</li> </ul>	<ul style="list-style-type: none"> <li>• New bulk consumers will benefit with <b>affordable electricity</b> and <b>improved grid reliability</b>.</li> <li>• Faster <b>industrial growth</b> and <b>more job creation</b>.</li> </ul>
<b>Open Access (OA)</b>	<ul style="list-style-type: none"> <li>• Provide <b>methodologies for determining various OA charges</b> like wheeling charges, state transmission charges and additional surcharge.</li> <li>• <b>Additional surcharge on OA shall be linearly reduced</b> and get eliminated within four years.</li> </ul>	<ul style="list-style-type: none"> <li>• Rationalisation of OA charges will lead to <b>faster adoption of renewable energy by industry</b>, thus <b>reducing emission</b>.</li> </ul>



		<ul style="list-style-type: none"> <li>• <b>Facilitate</b> industries in <b>getting electricity</b> through OA at <b>competitive rates</b>.</li> </ul>
<b>Power Tariff</b>	<ul style="list-style-type: none"> <li>• Tariff shall be <b>cost reflective</b> and there shall <b>not be any revenue gap</b> between approved Annual Revenue Requirement and estimated annual revenue from approved tariff except under natural calamity conditions.</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure <b>financial sustainability</b> of power sector.</li> </ul>

### 3.10. INNOVATION AND ENTREPRENEURSHIP

#### 3.10.1. PATENTS

##### Why in the News?

**Patents (Amendment) Rules, 2024** have been notified by the Department for Promotion of Industry and Internal Trade, **Ministry of Commerce and Industry**.

##### More about the news

- **Patents (Amendment) Rules, 2024** have been notified by the central government under the **Patents Act, 1970**.
- **Patents (Amendment) Rules, 2024** have amended the **Patents Rules, 2003**.
  - Its objective is to **foster innovation** by creating a conducive environment for inventors and creators.

##### Key Provisions of the Patents (Amendment) Rules, 2024

- **Certificate of Inventorship:** Introduced to acknowledge the contribution of inventors in the patented invention.
- **Time limit:** For filing request for examination, time limit has been reduced from 48 months to 31 months.
- **Renewal fee:** It has been reduced by 10% if paid in advance through electronic mode for a period of at least 4 years.

##### About Patents and their governance

- **Definition:** A patent is an exclusive **Intellectual Property Right (IPR)** granted for an invention, which is a product or a process that provides a new way of doing something or offers a new technical solution to a problem.
- **Patent protection:** It means that the invention cannot be commercially made, used, distributed, imported or sold by others without the patent owner's consent.
- **Applicability:** Patents are **territorial rights**, only applicable in the country or region in which a patent has been filed and granted.
- **Criteria for an invention to be patentable:**
  - It should be **novel**.
  - Must involve an **inventive step**.
  - Capable of **industrial application**.

#### Data Bank

- **Over 1 lakh Patents** were granted by the Patent office (March, 2023 to March, 2024)
- **7th** position in terms of Resident Patent Filing activity in the world (WIPO Report 2022)

##### Conventions/Treaties Related with the Patents

- **Paris Convention (1883):** The **first major international agreement** relating to the protection of industrial property rights, including patents.
- **Patent Cooperation Treaty (1970):** A treaty establishing an **international patent filing system**.
- **Budapest Treaty (1977):** A treaty prescribing deposits of microorganisms at any international depositary authority, to be recognized for the purposes of patent procedure.
- **India** is part of all of the above.

**World Intellectual Property Organization (WIPO)**  
Geneva, Switzerland

**Genesis:** Established in 1967 through the **WIPO Convention**.

**About:** It is a self-funding agency of the United Nations. It is the global forum for intellectual property (IP) services, policy, information and cooperation.

**Membership:** 193 member states (including India)

**Key information:**

- Governs treaties related to IPR such as **Berne Convention** for the Protection of Literary and Artistic Works.
- It releases the **Global Innovation Index (GII)** along with **Cornell University** and **INSEAD**
- It releases reports like **World Intellectual Property Report**.



- It should **not fall under the categories of inventions that are excluded from patentability** under the concerned jurisdiction.

## Regulation of Patents

### Global

- **World Intellectual Property Organization (WIPO)** administers conventions and Treaties related to patents and other IPR (refer box).
- Regulated under **Trade-Related Aspects of Intellectual Property Rights (TRIPS)**, an agreement of the **World Trade Organisation (WTO)** signed in **1994**.

### India

- Regulated by the **Patents Act, 1970**, which repealed the Indian Patents and Designs Act, 1911 and is **compliant with the WTO TRIPS Agreement**.
  - As per the Act, the **time Period** of patent will be 20 years.
  - Also, the act **excludes certain things from being patented in India** such as plants and animals in whole or any part including seeds, varieties and species and essentially biological processes for production or propagation of plants and animals etc.

#### Related News

##### International Intellectual Property (IP) Index

- **US Chamber of Commerce** released **12<sup>th</sup> edition** of its International IP Index.
  - **Top countries** on the index are **USA, UK and France**.
  - **India's position** remained unchanged at **42 out of 55 economies**.
- IP Index is different from the **Global Innovation Index (GII)**.
  - **GII** is co-published by **World Intellectual Property Organization (WIPO), Cornell University, and INSEAD**.
  - **GII** ranks India at **40<sup>th</sup> position** out of 132 economies.

##### Trade Secrets and Economic Espionage

- Law Commission published its 289<sup>th</sup> Report on Trade Secrets and Economic Espionage.
- **Trade Secrets (TS):** Encompass **confidential business information** which may be sold or licensed. It is a relatively new entrant within the domain of Intellectual Property Rights (IPR).
- **Economic espionage (EE):** Act of deliberate acquisition of confidential information from domestic companies and government entities to benefit a foreign State. It can be **economic, industrial, or commercial**.
- **Need to enact Law on TS and EE**
  - To enable **transfer of technology** and cooperation among industries across borders.
  - To protect **creative resources and intellectual capital** of MSMEs and Startups.
  - To protect **critical technologies and sectors** such as defence, nuclear, telecom, etc., from EE.

## 3.10.2. DIGITAL MONOPOLIES AND REGULATION OF DIGITAL ECOSYSTEM

### Why in the news?

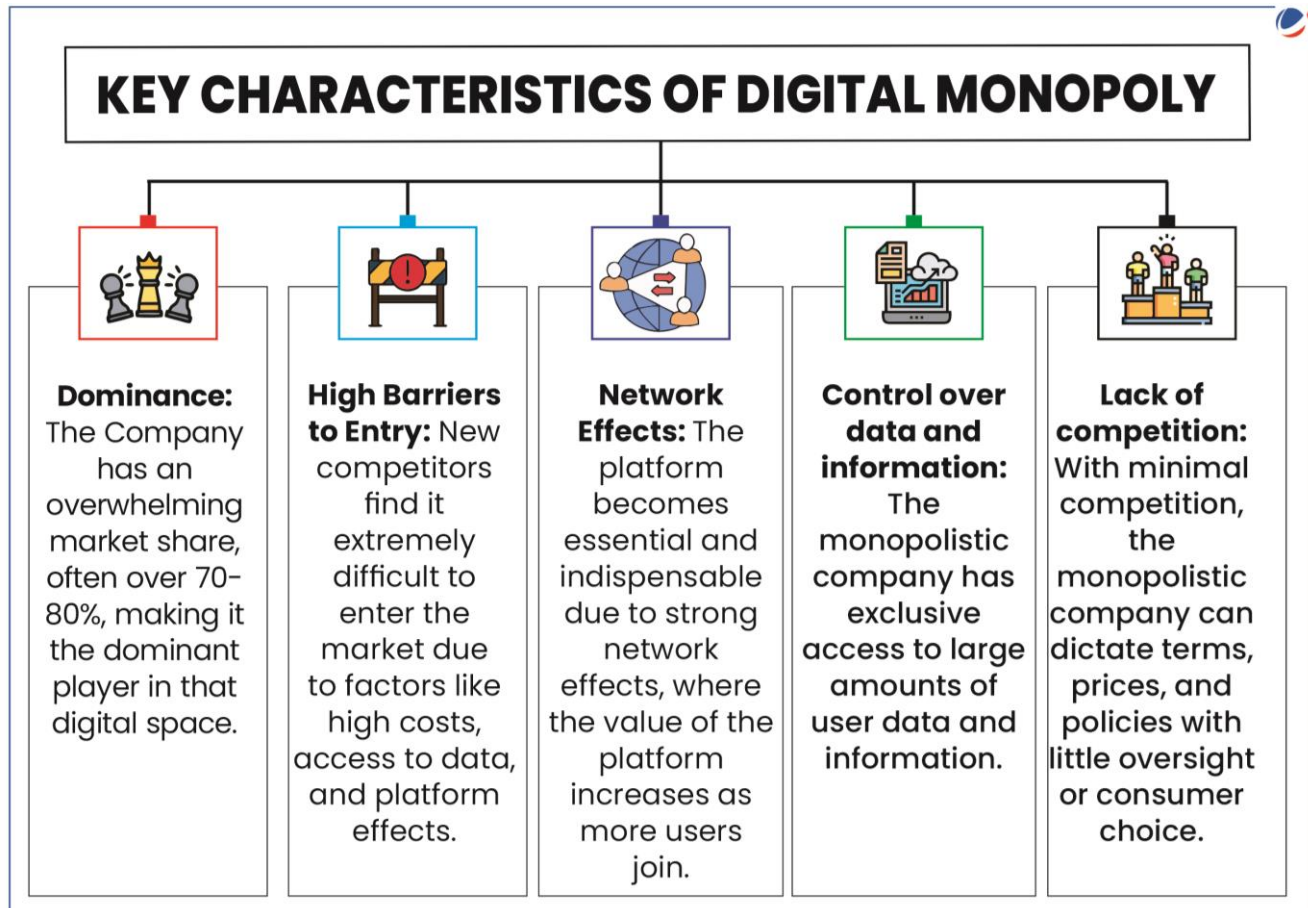
The Ministry of Electronics and Information Technology (MeitY) has expressed strong opposition to Google's delisting of certain applications from the Play Store.

### More about the news

- Google's parent company Alphabet Inc. removed (delisted) some apps from the Play Store for non-payment of Google app marketplace fee.
- MeitY said it will not permit the de-listing of apps, flagging the concerns around **abuse and misuse of dominant position** by Google and **creating digital monopolies**.

## What is Digital Monopoly?

- **Digital Monopoly:** Refers to a situation where a **single company or platform holds significant control** over their respective digital ecosystems and markets.
  - **Examples:** Big tech companies like Google, Amazon, Facebook, Apple, and Microsoft.



## What are the threats posed by digital monopolies?

Digital monopolies can engage in **Anti-Competitive Practices (“ACPs”)**, affecting competition in the market and subsequently overall consumer choice and well-being. Following are some of the **major anti-competitive practices-**

- **Anti-steering:** Exclusionary behavior that hinders business users and consumers from switching to third-party service providers. E.g., App stores mandating use of their own payments systems.
- **Platform neutrality / Self-preferencing:** A digital enterprise according favorable treatment to its own products on its own platform, thus creating a conflict of interest.
- **Adjacency / Bundling and tying:** Combining or bundling core or essential services with complementary offerings, thus forcing users to buy related services.
- **Data usage:** Using personal data for consumer profiling to offer targeted online services and products, thus raising data privacy concerns.
- **Pricing / Deep discounting:** Predatory pricing strategies, or intentionally setting prices below cost price to exclude competitors.
- **Exclusive tie-ups:** Exclusive agreements with business users or sellers, thus preventing them from dealing with other enterprises. E.g., Apple restricts installation of third-party applications on iPhones.

## Regulation of Digital Ecosystem in India

- **Competition Act, 2002:** It aims to promote and sustain competition in markets and protect the interests of consumers among others. The Competition Act follows two approaches to regulation-

- **Ex-post approach** where anti-competitive agreements and abuse of dominance are **scrutinised after such contraventions have occurred.**
- **Ex-ante approach** where parties intending to enter into a combination are required to **notify and seek approval** from the Competition Commission of India (CCI) **before consummation of the transaction.**
- **Information Technology Act, 2000:** Primary legislation in India that governs various aspects of the digital ecosystem.
  - However, it was enacted in the inception period of the Internet and may not address contemporary challenges.
  - **Sector-Specific Rules:** The government issues regulations for specific sectors like digital media (IT Rules 2021) and e-commerce (Consumer Protection Rules) to address emerging issues.

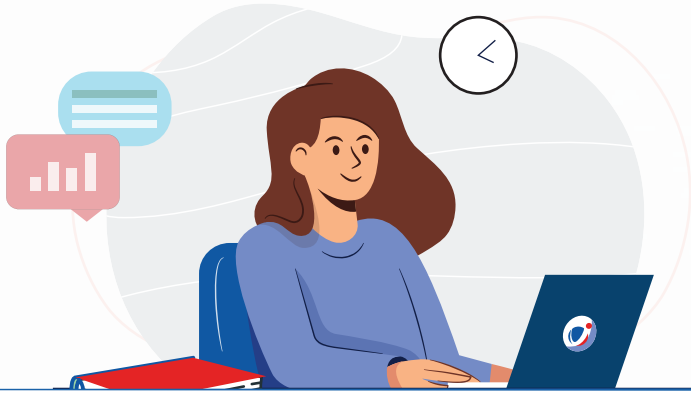
### 3.10.3. KEY DEVELOPMENTS IN THE STARTUP ECOSYSTEM

<b>Fund of Funds Scheme (FFS)</b>	<ul style="list-style-type: none"> <li>● Crisil assessment report called <b>PRABHAAV (Powering a Resilient &amp; Agile Bharat for the Advancement of Visionary Startups)</b> was launched by Small Industries Development Bank of India (SIDBI).           <ul style="list-style-type: none"> <li>○ As per this, Rs 17,534 crore invested in 938 startups under FFS.</li> </ul> </li> <li>● <b>About FFS:</b> <ul style="list-style-type: none"> <li>○ Established in 2016 with corpus of Rs 10,000 crore to <b>boost Indian startup ecosystem</b> and enable <b>access to domestic capital.</b></li> <li>○ <b>Monitoring agency:</b> Department for Promotion of Industry and Internal Trade.</li> <li>○ <b>Operating agency:</b> SIDBI.</li> <li>○ <b>Provides capital to Securities and Exchange Board of India (SEBI)-registered Alternative Investment Funds</b>, which invests money in startups.</li> </ul> </li> </ul>
<b>StartupShala</b>	<ul style="list-style-type: none"> <li>● <b>Department for Promotion of Industry and Internal Trade (DPIIT)</b> launched <b>'StartupShala' - Startup India's flagship accelerator program.</b> <ul style="list-style-type: none"> <li>○ Launched in 2016, <b>Startup India</b> is a flagship initiative of DPIIT to support entrepreneurs and build a <b>robust startup ecosystem in India.</b></li> </ul> </li> <li>● <b>About StartupShala</b> <ul style="list-style-type: none"> <li>○ <b>Sector-specific initiative</b> for <b>existing entrepreneurs</b> to provide them access to knowledge, network, funds, and guidance required to scale up.</li> <li>○ <b>Three-month long</b> accelerator program.</li> <li>○ 2 Cohorts - <b>Clean Technology and Deep Technology.</b></li> <li>○ 20 startups will be selected from each cohort.</li> </ul> </li> </ul>

### 3.11. ERRATA

#### PT 365 Economy (April 2023 to December 2023)

- **Article 2.5 GOODS AND SERVICES TAX (GST)**, it was incorrectly mentioned that-
  - "CGST revenue is shared equally between Centre and the States" and "SGST revenue is shared equally between the Centre and the State".
  - The correct statement alternatives for the same are-
    - ✓ **Central GST (CGST):** It is collected by the Central Government on an intra-state sale. Part of the CGST is devolved to the States as per the accepted recommendations of the Finance Commission.
    - ✓ **State GST (SGST):** It is collected by the state government on an intra-state sale. SGST is credited to the Consolidated Funds of respective States.
    - ✓ **Interstate GST (IGST):** It is collected by the Central Government for an inter-state sale. The Centre shares the IGST revenue with states based on the destination of goods.
- **Article 4.1 INCREMENTAL CASH RESERVE RATIO (ICRR)**, it was incorrectly mentioned that-
  - The interest rate charged would be different from CRR. (The term interest rate was inaccurately used.)
  - The correct information is:
    - ✓ The proportion set aside would be different from CRR.



# Mastering CSAT:

## *A Strategic Roadmap for*

# UPSC Prelims Examination

The UPSC Prelims is the initial, highly competitive stage of the Civil Services Examination, consisting of two objective-type papers: General Studies and the Civil Services Aptitude Test (CSAT). These papers assess a candidate's knowledge, understanding, and aptitude.

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## Strategic Framework for CSAT Preparation



**Initial Self-Assessment:** Begin with a self-evaluation using the previous year's CSAT papers to identify strengths and areas for improvement.



**Study Plan:** Develop a structured study plan, focusing on high yielding areas and selecting reliable study sources.



**Regular Practice and Post-Test Analysis:** Solving and analyzing previous year papers and mock tests to familiarize with the exam format and question types, ensuring a strategic approach to covering the comprehensive syllabus effectively.



**Seeking Personalized Mentorship:** Engage with mentors to receive customized strategies for improvement. Alongside essential stress management guidance, ensuring a focused and balanced preparation journey.



**Reasoning:** Sharpen your logical and analytical reasoning by practicing diverse question types from Clocks, Calendars, Series & Progression, Direction, Blood Relation, Coding-Decoding, Syllogism, and so on.

Focus on understanding patterns and building a step-by-step approach to solving problems.



**Maths and Basic Numeracy:** Strengthen foundational mathematics by revisiting basic concepts and practicing regularly.

Utilize shortcuts and mental math techniques for quicker calculations.



**Comprehension:** Improve your reading speed and comprehension by regularly reading newspapers.

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# 4. ENVIRONMENT

## 4.1. CLIMATE CHANGE

### 4.1.1. GREEN CREDIT PROGRAM

#### Why in the News?

Ministry of Environment, Forests and Climate Change notified methodology for Calculation of Green Credits (GC) for Tree Plantation Activity" Green Credit Program (GCP) 2023 rules under Green Credit Program (GCP).

#### About GC

- A unit of an incentive provided for a specified activity, delivering a **positive impact on the environment**.
- Can be traded on a dedicated exchange, similar to carbon credits.**

#### About Green Credit Rules

- Forest Departments of States/UTs are required to **identify degraded land parcels under their control to enhance green cover**.
- Identified land parcels must be **free from encumbrances and should be at least 5 hectares in size**.
- Indian Council of Forestry Research and Education (ICFRE) instructs Forest Departments to conduct tree plantation within two years**.
- Green Credits (GCs) are issued by ICFRE**, with one GC awarded for each grown tree, subject to a minimum **density of 1100 trees**

Green Credit	Carbon Credit
<ul style="list-style-type: none"> <li>Under the <b>Green Credit Program (GCP)</b> operating under <b>The Environment (Protection) Act, 1986</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Under the <b>Carbon Credit Trading Scheme</b> operating under <b>The Energy Conservation Act, 2001</b>.</li> </ul>
<ul style="list-style-type: none"> <li>Provides advantages to <b>individuals and communities</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Primarily benefit <b>industries and corporations</b>.</li> </ul>
<p>Green credits are <b>more wider in scope</b> and include a variety of environment positive actions. It <b>may qualify for carbon credits</b>, leading to <b>climate co-benefits</b> like carbon emissions reduction, <b>but not vice versa</b>.</p>	

#### About Green Credit Program (GCP)

- A **market-based mechanism to incentivise environment positive actions by different stakeholders** such as Industries/institutions, State governments, philanthropies.
  - The participation is **voluntary in nature**.
- Aim:** Aligned with the **'LiFE'-'Lifestyle for Environment' initiative** and promotes **sustainable living, environmental conservation etc.**
- Established:** Under **"The Environment (Protection) Act, 1986"** with **MoEFCC as Nodal Agency**.
- Governance Structure**
  - Supported by an **inter-ministerial Steering Committee**.
  - The Indian Council of Forestry Research and Education (ICFRE) serve as the GCP Administrator and is responsible for program implementation, management, monitoring, and operation.**
  - GCP has established a user-friendly digital platform to streamline **Project Registration, Verification and Issuance of Green Credits**.

### Focus Areas of GCP

**Areas which will be part of the credit system**

- Tree Plantation
- Water
- Sustainable agriculture
- Waste management
- Air pollution reduction
- Mangrove conservation and restoration
- Ecomark
- Sustainable building and infrastructure

### 4.1.2. UN ENVIRONMENT ASSEMBLY- 6

#### Why in the news?

The **Sixth session of the UN Environment Assembly (UNEA-6)** got concluded recently at the UN Environment Programme (UNEP) headquarters in **Nairobi, Kenya**.

#### About UNEA-6

- **Theme: “Effective, inclusive and sustainable multilateral actions to tackle climate change, biodiversity loss and pollution”**
- The **UNEA-7** is scheduled to be held in **December 2025 at Nairobi**.

#### Key Outcomes of UNEA-6

- **Re-affirmed commitment to tackle triple planetary crisis through the adopted Ministerial Declaration**
  - **Triple planetary crisis** refers to the three interlinked issues threatening humanity which includes **climate change, nature and biodiversity loss, and pollution and waste**.
- The **first Multilateral Environmental Agreements Day (28<sup>th</sup> Feb 2024)** dedicated to the international agreements on major environmental issues was observed.
- **Passage of Draft resolutions** on Combating sand and dust storms, management of chemicals and waste, Cooperation on air pollution, Promotion of Sustainable lifestyle etc.

#### Other reports released and Awards announced in UNEA 6

Report/Award released	Details
<b>Global Resource Outlook 2024</b>	<ul style="list-style-type: none"> <li>• <b>Without concerted action</b> to reduce global consumption, <b>the extraction of natural resources could rise by 60%</b> from 2020 levels by 2060.</li> <li>• The extraction would also <b>increase the climate damage and risks to biodiversity</b> and human health.</li> </ul>
<b>Global Waste Management Outlook 2024</b>	<ul style="list-style-type: none"> <li>• <b>Municipal solid waste generation is predicted to grow</b> from 2.3 (2023) to 3.8 billion tonnes by 2050.</li> <li>• <b>Direct cost of waste management would almost double</b> by 2050 from an estimated \$ 252 bn in 2020.</li> </ul>
<b>Young Champions of the Earth Award</b>	<ul style="list-style-type: none"> <li>• <b>Introduced in 2017</b>, It is a <b>flagship youth engagement initiative</b> of the UNEP.</li> <li>• <b>Young people (Aged between 18-30 years) are selected from every region</b> of the globe and be named UNEP Young Champions of the Earth.</li> </ul>

#### About United Nations Environment Assembly (UNEA)

- **Established in 2012**, at the United Nations Conference on Sustainable Development.
- **World’s highest-level decision-making body** on the environment.
- **Roles and Functions:** Sets the global environmental agenda; provide overarching policy guidance and define policy responses to address emerging environmental challenges in the world; set the strategic guidance on the future direction of UNEP; foster partnerships for achieving environmental goals and resource mobilization etc.
- **Organisational Structure:** President, 8 Vice Presidents and a rapporteur from among its members (forming the UNEA Bureau)
- **Membership:** Consists of all the **193 Members of the United Nations**.

### 4.1.3. CLIMATE AND CLEAN AIR CONFERENCE 2024

#### Why in the News?

The Climate and Clean Air Coalition's (CCAC) annual meeting was held on the margins of the **Sixth Session of the United Nations Environment Assembly (UNEA-6)** in Nairobi, Kenya.

#### Key outcomes

- **Objective:** Highlighting ways to further scale up implementation of the **Global Methane Pledge, Clean Air Flagship and Kigali Amendment.**
- **Launch of Clean Air Flagship:** To save lives and slow climate change through cooperation and emission reduction.
- **'Used Heavy Duty Vehicles (HDVs) and the Environment'** Report, launched by UNEP & the CCAC.
- **CCAC Technology and Economic Assessment Panel:** To help close the gap between technologies and finance by focusing on how to overcome barriers to scale up climate finance.
- **Launched a major cost of inaction study that** supports economic case to act on **Short-Lived Climate Pollutants (SLCPs)** to limit global warming and climate disasters.

#### About Climate and Clean Air Coalition

- **Only global alliance** dedicated **exclusively to the reduction of short-lived climate pollutants (SLCPs).**
- **Genesis:** Founded in **2012** and convened within **United Nations Environment Programme (UNEP).**
- **Membership: Voluntary partnership** of over **160 governments, intergovernmental organizations, and non-governmental organizations.**
  - **India** joined in **2019.**
- **Other Key information:** Provides secretariat functions of the **Global Methane Pledge (GMP)**, and the coordination group of the **Lowering Organic Waste Methane Initiative.**
  - GMP was launched at COP26 by the European Union and the United States with the aim to reduce global methane emissions at least 30% from 2020 levels by 2030.

#### About SLCPs

- Powerful climate forcers that **remain in the atmosphere for a much shorter period of time than CO<sub>2</sub>**, yet their **potential to warm the atmosphere can be many times greater** (refer info graphic)
- Most important contributors to anthropogenic global warming after carbon dioxide, responsible for up to **45% of current global warming.**
- **Impact of SLCPs include** Global warming, Inflammation of lungs, asthma, influences cloud formation, accelerates ice melts etc.

Short-lived climate pollutants (SLCPs)		
Substance	Anthropogenic Sources	Lifetime in atmosphere
<b>Black carbon (soot)</b>	Fossil Fuels, Industrial Production, Agricultural and Waste Burning	4-12 days
<b>Methane (CH<sub>4</sub>)</b>	Agriculture, Fossil fuels, landfills, open dumps, and wastewater.	12 years
<b>Tropospheric (or ground-level) ozone (O<sub>3</sub>)</b>	<b>Secondary pollutant</b> formed by the interaction of sunlight with volatile organic compounds (VOCs) and nitrogen oxides (NOX)	few hours to a few weeks
<b>Hydrofluorocarbons (HFCs)</b>	Refrigeration, air-conditioning, insulating foams and aerosol propellants	15 years

### 4.1.4. GREENWASHING

#### Why in the News?

Central Consumer Protection Authority (CCPA) has sought public comments on the proposed **Draft Guidelines on Prevention and Regulation of Greenwashing** issued under **Consumer Protection Act, 2019.**

## More on the News

- Green washing involves **making a product or policy seem more environmentally friendly** or less damaging than it is in reality.
- **Key highlights of the draft guidelines**
  - **Defines** and also **prohibits** greenwashing.
  - **Applicability: Applies to all advertisements, service providers, advertisers, endorsers, etc.** whose service is availed for the advertisement.
  - Prohibits selective presenting of data and calls for **fully disclosing environmental claims** including vague terms like 'green', 'eco-friendly', 'eco-consciousness' used in advertisements.
  - Requires substantiating environmental claims with **credible certification, reliable scientific evidence, and independent third-party verification.**
  - Mandates making of **futuristic environmental claims only when clear and actionable plans** have been **developed** for achievement of objectives.



## Initiatives taken to prevent Greenwashing

- **India**
  - **Bureau of Indian Standards (BIS)** has developed a standard for eco-labelling of products and services called IS/ISO 14024:1999.
  - **Consumer Protection Act, 2019** establishes **Central Consumer Protection Authority (CCPA)** to regulate matters relating to **false or misleading advertisements.**
  - **Advertising Standards Council of India (ASCI)** guidelines requires that advertisements making environmental/green claims be specific.
  - **Green Rating Project (GRP)** of the **Centre for Science and Environment (CSE)** rates industrial units within a specific sector on the basis of their environmental friendliness.
  - **Indian Green Building Council (IGBC)** a **nonprofit organization** that has developed a **rating system for green buildings.**
- **Global**
  - **UN's High-Level Expert Group on Net-Zero Emissions Commitments of Non-State Entities:** It was established in 2022 by the UN Secretary-General.
  - **Greenwashing TechSprint** was organized by the **Global financial innovation network** to **develop a tool to help regulators** more effectively tackle greenwashing in financial services.
    - ✓ **Reserve Bank of India** was also one of the participants.

### Other related terms

- **Bluwashing:** A deceptive marketing tactic that makes consumers believe a company is promoting sustainability in food systems and water conservation.
- **Greenwashing:** Refers to organizations expressing a desire to be more environmentally responsible without taking concrete actions to achieve those goals.

## 4.1.5. GREEN CLIMATE FUND

### Why in the News?

Avaana Sustainability Fund (ASF) of Small Industries Development Bank of India (SIDBI) was approved by Green Climate Fund (GCF).



### About GCF

- **World's largest** dedicated climate fund, established under the **Cancún Agreements** in **2010**.
- **Mandate:** To foster a paradigm shift towards low emission, climate-resilient development pathways in developing countries.
- It is the main **Operating entity of the financial mechanism** of the United Nations Framework Convention on Climate Change (UNFCCC).
  - It is accountable to the **United Nations**.
  - Secretariat is located in Incheon- South Korea.
- **Key features**
  - **Country-driven approach** i.e., developing countries lead GCF programming and implementation.
  - **Balanced allocation** i.e., GCF is mandated to **invest 50% of its resources to mitigation and 50% to adaptation in grant equivalent**.
  - Provide **financial support through flexible combination of grant, concessional debt**, guarantees or equity instrument.

### About ASF

- A **venture Capital fund** and the first anchored fund of the **Small Industries Development Bank of India (SIDBI)**.
- **Aim:** To invest in early-stage climate technology companies
- **Project Value:** \$120 million
- **ASF's strategies include:** Investing in low-carbon and climate-resilient businesses, Adding value for **climate and sustainability leaders** etc.

#### Other important Funds for Climate Finance:

- **Global Environment Facility (GEF):** It was established in **1992** Rio Earth Summit.
  - The GEF Trust Fund was established to help tackle our planet's most pressing environmental problems.
- **Adaptation Fund:** Established in **2001**, aims to finance concrete adaptation projects and programmes in developing country Parties to the **Kyoto Protocol**
- **Climate Investment Funds (CIFs):** Established in **2008**, a multilateral climate fund.

### 4.1.6. OTHER CLIMATE RELATED NEWS

News	Details
<b>City-Specific Zero Carbon Buildings Action Plan (ZCBAP)</b>	<ul style="list-style-type: none"> <li>• India's First City-Specific Zero Carbon Buildings Action Plan (ZCBAP) launched in Nagpur.</li> <li>• Nagpur's ZCBAP aims at developing <b>all buildings to be net zero carbon by 2050</b>.                             <ul style="list-style-type: none"> <li>○ Zero carbon buildings are buildings that <b>improve their lifecycle environmental performance</b> through measures that <b>reduce embodied, operational and end-of-life GHG emissions</b> without compromising visual and thermal comforts.</li> </ul> </li> <li>• ZCBAP in Nagpur has been developed jointly with implementing partners of <b>Zero Carbon Building Accelerator (ZCBA)</b> project.                             <ul style="list-style-type: none"> <li>○ ZCBA project was launched by <b>World Resources Institute (WRI)</b> in 2021 along with its global partners.</li> <li>○ Nagpur is <b>one of six global cities</b> (other in Kenya, Costa Rica, Turkey, and Colombia) where ZCBA project is being implemented.</li> </ul> </li> </ul>

### 4.1.7. REPORTS AND INDICES

Report	Details
<b>Trade Policy Tools for Climate Action</b>	<ul style="list-style-type: none"> <li>• <b>Released by:</b> World Trade Organization (WTO)</li> <li>• <b>Covers ten trade policy areas</b> that governments could consider to support <b>UNFCCC-COP28's climate mitigation efforts</b>.</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Key findings</b> <ul style="list-style-type: none"> <li>○ <b>20-30 % of total CO<sub>2</sub> emissions</b> are estimated to be associated with <b>international trade</b>.</li> <li>○ <b>Energy and transportation</b> sectors account for <b>&gt;75% of GHG emissions in trade</b>.</li> </ul> </li> </ul>
<b>State of the Global Climate 2023 report</b>	<ul style="list-style-type: none"> <li>• <b>Released by: World Meteorological Organization (WMO)</b></li> <li>• <b>Key Highlights</b> <ul style="list-style-type: none"> <li>○ <b>Climate flows nearly doubled in 2021-22 compared to 2019-20 levels</b> and reached <b>\$ 1.3 trillion</b>.               <ul style="list-style-type: none"> <li>✓ <b>China, the USA, Europe, Brazil, Japan, and India</b> together <b>received 90% of the increase in funds</b>.</li> </ul> </li> <li>○ Climate finance investments <b>need to grow more than six times</b>, by 2030 for a 1.5°C pathway.</li> </ul> </li> </ul>

## 4.2. POLLUTION

### 4.2.1. NATIONAL CLEAN AIR PROGRAMME (NCAP)

#### Why in the News?

The **Ministry of Environment, Forest and Climate Change (MoEFCC)** commemorated the 5 years of NCAP.

#### About NCAP

- Aims to improve **air quality in 131 cities** (non-attainment cities (NAC) and Million Plus Cities) in 24 States by engaging all stakeholders.
  - Cities which are exceeding the **National Ambient Air Quality Standards (NAAQS)** for 5 consecutive years are identified as NAC by Central Pollution Control Board (CPCB).
- **Target:** To achieve reductions up to **40% of Particulate Matter (PM10 and PM2.5) concentrations by 2025-26**, base year **2017**.
- **Implementation:** CPCB at the national level.
  - Under it, **City Action Plan's (CAPs)** are implemented by state government and its agencies at state and city level (Municipal bodies).
- **PRANA** (Portal for Regulation of Air-pollution in NAC) has been also launched monitor the implementation of NCAP.
- **NCAP's progress** so far.
  - **PM2.5: 27 cities recorded improvements** out of 49.
  - **PM10: 24 cities saw an improvement** out of 46.
  - **Varanasi achieved a significant reduction in PM2.5 and PM10 levels**, along with Agra and Jodhpur.

### 4.2.2. THE WATER (PREVENTION AND CONTROL OF POLLUTION) AMENDMENT ACT, 2024

#### Why in the news?

The Parliament passed the **Water (Prevention and Control of Pollution) Amendment Act, 2024**.

#### About Water (Prevention and Control of Pollution) Amendment Act, 2024

- Amended the **Water (Prevention and Control of Pollution) Act 1974**.
- **Application:** Will apply to **Himachal Pradesh, Rajasthan** (both passed resolution to amend the Act) **and the Union territories**.
- Though **Water is a state subject**, **Article 252** allows **Parliament to legislate** on matters lacking legislation's.
  - Such Act by the Parliament **shall apply to States passing such resolution** and to any other State by which it is adopted.

- **Amendments or repeals can only be made by Parliament.**

#### Key Amendments in Water Amendment Act 2024

- **Central government to prescribe** the manner of nomination, terms and conditions of service of **State Pollution Control Boards (SPCB)** chairman,
  - Earlier the Chairman of SPCB was **nominated by the State government.**
- **Centre, in consultation with the CPCB, may exempt certain categories of industrial plants** from obtaining consent for establishment.
  - Earlier this exempt power was with the respective states.
  - **Centre may also issue guidelines** for the grant, refusal, or cancellation of consent granted by the SPCB.
- **Decriminalises several violations**, and instead **imposes penalties** between ₹10,000 and ₹15 lakh.
  - Earlier the violations were punishable with imprisonment of up to 6 years.
- **Head of Govt. department will be required to pay penalty equal to one month of their basic salary** if the department violates any provision of the Act.
  - Earlier the head of the department was deemed to be guilty of such offences committed.
- **Knowingly altering or interfering** with monitoring devices such as water meter or gauges incurs a **penalty ranging from ₹10,000 to ₹15 lakh.**
- **Centre can appoint adjudication officers** (level of a Joint Secretary to Centre or Secretary to State) to determine penalties under the Act.
  - Penalties imposed by the adjudicating officer will be **credited to the Environment Protection Fund** established under the **Environment (Protection) Act, 1986.**
  - **Appeals against adjudicating orders** may be made before the **National Green Tribunal**, after depositing 10% of the penalty levied.

#### About Water (Prevention and Control of Pollution) Act 1974

- Provides for the **prevention and control of water pollution**, and for the **maintaining or restoring of wholesomeness of water** in the country.
- Original Act is **applicable in 25 States.**
- Amended twice in **1988 and 2003.**
- **Regulatory bodies:** Creation of the **Central Pollution Control Boards (CPCB)** and **State Pollution Control Boards (SPCB).**
- **Approval:** Mandatory for industrial units to get **permission from their respective State boards** before setting up factories.

#### 4.2.3. NATIONAL MISSION FOR CLEAN GANGA (NMCG)

##### Why in the news?

**The National Mission for Clean Ganga (NMCG)** under the **Ministry of Jal Shakti**, issued a notification to amend the **River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016.**

##### More about the news

- The amendment allows NMCG to **discharge the treated effluent with prescribed standards into the river Ganga** after exploring the options for its direct reuse.
  - Earlier **the provisions were against the discharge of untreated or treated sewage** into the river by anyone.
- The move is **aimed at ensuring more water flow into the river** thereby improving its biodiversity.

##### About NMCG

- **Registered as a society in 2011** under **Societies Registration Act 1860** and functions under the aegis of **Ministry of Jal Shakti.**
- **Aim & Objective**

- **Abatement of pollution and rejuvenation of river Ganga** by adopting a river basin approach.
- **Maintain minimum ecological flows in the river** to ensure its water quality.
- Acted as the **implementation arm of National Ganga River Basin Authority (NGRBA)**.
  - NGRBA has been **dissolved in 2016**, consequent to **constitution of National Council for Rejuvenation, Protection and Management of River Ganga (referred as National Ganga Council)**.
- Consists of a **two tier management structure** and comprises
  - **Governing Council and Executive Committee both headed by Director General, NMCG.**

#### About Namami Gange Program

- The Programme was **launched in 2014 to rejuvenate River Ganga and its tributaries by 2021**.
- Currently it is **extended up to 2026**.
- Its **pillars (8) include** sewage treatment, River-Front development, River surface cleaning, Afforestation, Biodiversity, Public Awareness, Effluent management and Ganga Gram.

### 4.2.4. PLASTIC WASTE MANAGEMENT (AMENDMENT) RULES, 2024

#### Why in the news?

The Centre notified the **Plastic Waste Management (Amendment) Rules, 2024 (PMW Rules 2024)** following the Public Accounts Committee (PAC) report titled "**Pollution caused by Plastic**".

#### More on the news

- The Centre amended various provisions of PWMR, 2016 exercising the **powers conferred** to it under Sections 3, 6, and 25 of the **Environment (Protection) Act 1986**.

#### PWM Rules, 2016 (as amended till 2024)

- Notified for **effective and scientific management** of Plastic waste in India.
- Rules apply to every **Waste Generator, Local Body, Gram Panchayat, Manufacturer, Importer, Producer and Brand Owner**.
- **Increase minimum thickness of plastic carry bags** from **50 to 75 microns** from 30th September, 2021 and to **120 microns** with effect from 31st December, 2022.
- **Prohibits identified Single Use Plastic (SUP) items**, which have low utility and high littering potential.
- Introduced '**Extended Producers Responsibility (EPR)**' system.

#### Key provisions of PWMR, 2024

- **New responsibilities of Local bodies:**
  - **Mandated to conduct annual assessment of plastic waste** and estimate the **quantity of plastic waste to be generated** in following **five-year period**.
  - **Developing infrastructure** for waste segregation, collection, storage, transportation, processing, and disposal either on its **own or by engaging agencies (but not producers)**.
    - ✓ **Stakeholders of compostable or biodegradable plastics can engage** with the local body on a **voluntary basis**.
  - Mandated to **assess plastic waste management infrastructure** and report the same annually to the SPCB and PCC (Pollution Control Committee).
  - **Take necessary measures** to prevent stocking, distribution, sale and usage of prohibited **SUP items** and submit annual report.
- **Manufacturers of compostable or biodegradable plastics mandated to report the quantity of commodities** introduced in the market and pre-consumer waste generated to **CPCB**.
- **Online Centralized Portal for Registration** for Producers, Importers, Brand-Owners and manufacturers of commodities made from compostable plastic or biodegradable plastic.
  - **Default registration** when the registration is **not granted within a period of thirty days**.
- **Expansion of scope of EPR with responsibility of collection of such plastic packaging on-**
  - **Producers, Importers and Brand Owners** who introduce any **plastic packaging** in the market.



- **Producers, Importers, Brand Owners** and manufacturers of commodities made from **compostable or biodegradable plastics**.
- **Removal of specific prescription for modalities** to be developed by these stakeholders for waste collection system.
- **Report submission to SPCB and PCC is mandated by**
  - **manufacturer and importer** (on quarterly basis),
  - **person engaged in recycling or processing of plastic waste** (on annual basis),
  - **person engaged in sale of plastic raw material** or an intermediate material used for manufacture of plastic packaging (on annual basis).
- **Institutional mechanism to facilitate effective monitoring** (see image).
- **Changes in Definitions of Importer, Seller, Producer etc.**
- **Precise definition of Biodegradable plastics.**
- **Certificate from FSSAI** mandatory for **manufacture of compostable or biodegradable plastics** (in addition to CPCB).
- **Precise direction for labeling for-**
  - **Recycled:** Specify **Percentage of recycled plastic used**.
  - **Compostable:** bear a 'label —compostable only under industrial composting'.
  - **Biodegradable:** Mention **number of days and type of environment** (soil, landfill, water etc.) under which it could be biodegraded.

### Online reporting mechanism under PWM, 2024

**Report by local bodies**

- Local bodies are required to **annually submit reports online** to both the **Urban (or Rural) Development Department** and the SPCB and PCC.
- SPCB and PCC shall audit these reports and publish the annual **report on their websites**.

**Reports by SPCB and PCC**

- **SPCB and PCC shall submit online an annual report to the Central Pollution Control Board (CPCB)** on the implementation of these rules.

**Report by CPCB**

- **CPCB shall prepare a consolidated annual report** on the implementation of these rules and **submit to the Central Government along with its recommendations**.

#### 4.2.5. BATTERY WASTE MANAGEMENT (AMENDMENT) RULES, 2024

##### Why in the News?

The **Ministry of Environment, Forest, and Climate Change** has recently made revisions to the Battery Waste Management Rules, 2022.

##### Key changes introduced by the New Rules as compared to 2022 rules

Particulars	Battery Waste Management Rules, 2022	Battery Waste Management (Amendment) Rules, 2024
<b>Provision of Certificate for Waste Battery</b>	<ul style="list-style-type: none"> <li>● <b>Extended Producer Responsibility (EPR)</b> certificates to be generated by Central Pollution Control Board (CPCB) through the <b>centralised online portal</b> based on the <b>recycled or refurbished</b> quantities and assigned to recyclers or refurbishes.               <ul style="list-style-type: none"> <li>○ They can sell the assigned <b>EPR</b> certificates to Producer in exchange of waste batteries.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● <b>CPCB to fix the highest and the lowest price for EPR certificates.</b> <ul style="list-style-type: none"> <li>○ It shall be equal to <b>100% and 30%</b>, respectively of the environmental compensation leviable on the <b>obligated entities</b> for non-fulfilment of <b>EPR obligations</b>.</li> </ul> </li> <li>● The exchange price of <b>EPR certificate</b> between <b>registered entities</b> through the portal shall be between the highest and the lowest prices.</li> </ul>
<b>Action on violations and imposition of</b>	<ul style="list-style-type: none"> <li>● <b>Committee for Implementation</b> constituted by <b>CPCB</b> to prepare and recommend <b>guidelines</b> for imposition</li> </ul>	<ul style="list-style-type: none"> <li>● <b>CPCB to prepare and recommend these guidelines.</b></li> </ul>

<b>Environmental Compensation</b>	<p>and collection of <b>Environmental Compensation</b> from producers and entities involved in recycling of waste battery, for non-compliance.</p> <ul style="list-style-type: none"> <li>Recommended guidelines to be submitted to <b>Ministry of Environment, Forest and Climate Change</b>.</li> </ul>	<ul style="list-style-type: none"> <li><b>CPCB</b> may consult the Committee for Implementation for the same.</li> <li>The recommended guidelines shall be submitted to the <b>MoEFCC</b>.</li> </ul>
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<b>About Battery Waste Management Rules, 2022</b>	
<ul style="list-style-type: none"> <li>Aim to ensure environmentally sound management of waste batteries <b>under the Environment (Protection) Act 1986</b>. <ul style="list-style-type: none"> <li><b>Replaced the Batteries (Management and Handling) Rules, 2001</b>.</li> <li>Also amended in 2023.</li> </ul> </li> <li><b>Key Provisions</b> <ul style="list-style-type: none"> <li><b>EPR:</b> Producers (including importers) of batteries responsible for collection and recycling/refurbishment of waste batteries and use of recovered materials from wastes into new batteries.</li> <li><b>Centralized online portal:</b> for exchange of EPR certificates between producers and recyclers/refurbishes.</li> <li><b>Mandatory recovery:</b> Minimum percentage of recovery of materials from waste batteries.</li> <li><b>Polluter Pays Principle:</b> Environmental compensation will be imposed for non-fulfilment of EPR target. <ul style="list-style-type: none"> <li>✓ Funds collected utilised in collection and refurbishing or recycling of uncollected and non-recycled waste batteries.</li> </ul> </li> </ul> </li> </ul>	

#### 4.2.6. REPORTS AND INDICES

Report	Details
<b>Air Quality Report 2023</b>	<ul style="list-style-type: none"> <li><b>Released by:</b> Swiss organisation IQAir.</li> <li><b>Key Findings:</b> <ul style="list-style-type: none"> <li><b>India had the third worst air quality</b> after Bangladesh and Pakistan.</li> <li>New Delhi has been ranked as the <b>World's most Polluted Capital City</b>.</li> <li><b>Bihar's Begusarai</b> has emerged as the <b>world's most polluted metropolitan area</b>.</li> <li>More than 1 billion people in India experience PM2.5 concentrations exceeding the WHO's recommended levels of 5 µg/m<sup>3</sup>.</li> <li>Only Seven countries met the WHO annual PM 2.5 guideline.</li> </ul> </li> </ul>
<b>United Nations World Water Development Report</b>	<ul style="list-style-type: none"> <li><b>Released by:</b> UNESCO World Water Assessment Programme (WWAP) on behalf of the <b>UN-Water</b> <ul style="list-style-type: none"> <li><b>UN-Water is a 'coordination mechanism'</b>, which comprises of United Nations members and international organizations working on water and sanitation issues.</li> <li>It is comprised of <b>United Nations entities (Members) and international organizations (Partners)</b> working on water and sanitation issues.</li> </ul> </li> <li>It is <b>United Nation's annual flagship report on water</b>.</li> </ul>
<b>Fourth Global E-waste Monitor (GEM) 2024 Report</b>	<ul style="list-style-type: none"> <li>Prepared in partnership of the <b>UNITAR's Sustainable Cycles (SCYCLE) Programme, ITU (International Telecommunication Union) and Fondation Carmignac</b>. <ul style="list-style-type: none"> <li>UNITAR (United Nations Institute for Training and Research) provides <b>innovative learning solutions to individuals, organizations and institutions</b> to enhance</li> </ul> </li> </ul>

	<p>global decision-making and support country-level action for shaping a better future.</p> <ul style="list-style-type: none"> <li>• <b>Key Findings:</b> <ul style="list-style-type: none"> <li>○ 62 million tonnes of e-waste produced in <b>2022, up 82% from 2010.</b></li> <li>○ <b>Only 1% of rare earth element</b> demand is met by <b>e-waste recycling.</b></li> </ul> </li> </ul>
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### 4.3. BIODIVERSITY

#### 4.3.1. COP 14 CONSERVATION OF MIGRATORY SPECIES (CMS)

##### Why in the News?

The **Fourteenth Meeting of the Conference of the Parties to the Convention on the Conservation of Migratory Species of Wild Animals (CMS COP 14)** was held in Samarkand, Uzbekistan.









##### Key-outcomes of CMS COP 14

- **Slogan:** "Nature knows no borders"
- **Addition of 14 species** to Conservation of Migratory Species (CMS) **Appendices** including Eurasian Lynx, Pallas's Cat etc.
- **New Concerted Actions:** For **six** species, including Chimpanzee, Straw-colored Fruit Bat, and Blue Shark etc.
- **Single Species Action Plans (SSAPs):** for aquatic species, such as the Atlantic Humpback Dolphin, the Hawksbill Turtle etc.
- **Agreement on Central Asian Flyway (CAF):** Spanning 30 Range States of migratory birds. Includes the establishment of a **coordinating unit** in India.
- **Launch of Global Partnership on Ecological Connectivity (GPEC):** Aims to ensure that ecological connectivity is maintained, enhanced, and restored in critical areas for **migratory species.**

##### About CMS or Bonn Convention

- **Intergovernmental treaty** under the **United Nations Environment Programme (UNEP).**
- Serves as a **global platform** for the **conservation and sustainable use of migratory animals** and their habitats.
- Introduced in **1979** and came into force in **1983.**
- **Membership: 133** Parties from Africa, Central and South America, Asia, Europe and Oceania.
  - **India is a member** (since **1983**).
  - USA, Canada, China, Russia are non-parties to the convention.
- **CMS Appendices:**
  - **Appendix I:** Lists migratory species that are considered **endangered** (facing a very high risk of extinction in the wild in the near future).
    - ✓ E.g. Indian Elephant, Eastern Gorilla, Bowhead Whale, Oriental Stork etc.
  - **Appendix II:** Lists migratory species which have an **unfavourable conservation status** and require **international agreements** for their conservation and management.
    - ✓ E.g. African bush and forest elephant, dugong, Lion etc.
- **Conference of Parties (COP) to CMS:**
  - **Principal decision-making body** of the Convention.
  - Meets once **every 3 years** and sets the budget and priorities of the following three years.
  - Decides on the **amendment of the Appendices** and considers reports submitted by the Parties.

#### Important Migratory species in India

	<b>Amur Falcons</b> ■ IUCN: Least Concern ■ CMS: Appendix II
	<b>Bar-headed Geese</b> ■ IUCN: Least Concern ■ CMS: Appendix II
	<b>Black-necked cranes</b> ■ IUCN: Near Threatened ■ CMS: Appendix I
	<b>Humpbacked Whales</b> ■ IUCN: Least Concern ■ CMS: Appendix I
	<b>Asian elephant</b> ■ IUCN: Endangered ■ CMS: Appendix I
	<b>Great Indian bustard</b> ■ IUCN: Critically Endangered ■ CMS: Appendix I
	<b>Bengal florican</b> ■ IUCN: Critically Endangered ■ CMS: Appendix I
	<b>Snow Leopard</b> ■ IUCN: Vulnerable ■ CMS: Appendix I

### India and CMS

- Signed a **non-legally binding** Memorandum of Understanding (MoU) with CMS on conservation and management of **Siberian Cranes** (1998), **Marine Turtles** (2007), **Dugongs** (2008), and **Raptors** (2016).
- Hosted **COP-13** of **CMS** in 2020 at Gandhinagar (Gujarat).
- Part of 2 of the Special Species Initiatives of CMS- **Central Asian Flyway** and **Central Asian Mammals Initiative**.
- **Zoological Survey of India (ZSI)** for the first time compiled the **list of migratory species** of India under the CMS before the Conference of Parties (**COP 13**).

#### Related News: State of the World’s Migratory Species

- **Under CMS COP 14:** the **first-ever** “State of the World’s Migratory Species” report launched.
- **Key-findings:**
  - **Decline:** Nearly **44% of migratory species** listed under **CMS** are showing population **declines**.
  - **Extinction:** More than **22%** of CMS-listed species are threatened with extinction.
  - **Fish:** Nearly **97 %** of CMS-listed **fish** are threatened with extinction.
  - **Lack of coverage:** Globally, **399** migratory species that are **threatened or near threatened** with extinction are **not currently** listed under CMS.

### 4.3.2. RAMSAR CONVENTION

#### Why in the news?

India’s Ramsar Sites rose to **80**, as 5 wetlands were added to the Global List of Wetlands of International Importance under Ramsar Convention.

#### About Ramsar Convention

- An **intergovernmental treaty** under **UNESCO**, adopted in 1971.
- Provides the framework for the **conservation and wise use of wetlands and their resources**.
- A wetland must meet at **least 1 of 9 criteria** such as regularly supporting 20,000 or more water birds, or conserving biological diversity etc.
- **India ratified this convention in 1982** (Tamil Nadu has maximum number of Ramsar sites).

### New Wetlands in Ramsar Convention

#### Aghanashini Estuary

- Formed **at the confluence of Aghanashini River with Arabian sea**.
- **Traditional fish farming** in the estuarine rice fields (locally known as **Gazni rice fields**).

#### Ankasamudra Bird Conservation Reserve

- **Human made Village Irrigation Tank** built centuries back.
- Home to **Painted Stork** and **Black-headed Ibis**.

#### Magadi Kere Conservation Reserve

- **Human-made wetland** constructed **to store rainwater** for irrigation purposes.
- One of the **largest wintering grounds** for the **Bar-headed goose** in **Southern India**.

#### Karaivetti Bird sanctuary

- Migratory species that visit: **Pin-tailed duck, Garganey, Northern Shoveler, Common Pochard, Eurasian Wigeon, Common teal** and **Cotton teal**.

#### Longwood Shola Reserve Forest

- **Forested wetlands** serve as habitats for **Black-chinned Nilgiri Laughing thrush, Nilgiri Blue Robin, Nilgiri Wood-pigeon**.

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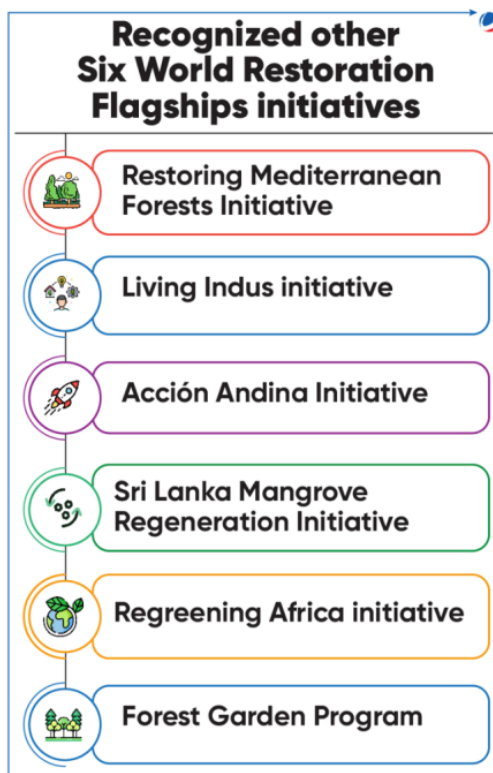
### 4.3.3. UNITED NATION WORLD RESTORATION FLAGSHIP

#### Why in news?

Terai Arc Landscape (TAL) recognized as the **United Nation World Restoration Flagship**.

#### About World Restoration Flagship (commenced in 2022)

- Recognized under the **UN Decade on Ecosystem Restoration (2021-30)**.
- Led by **UN Environment Programme (UNEP)** and the **Food and Agriculture Organisation (FAO)** and other partner organisation.
- Objective:** Prevent, halt, and reverse the degradation of ecosystems on every continent and in every ocean.
- Selection Criteria:** On the basis of Geographic and probability of success criteria.
- Progress is monitored through the **Framework for Ecosystem Restoration Monitoring**.
- 6 other initiatives have been recognised** (refer to infographics).
  - Recognized initiatives will be eligible for technical and financial UN support.
  - In 2022, **Namami Gange initiative** was also recognized.



#### About Terai Arc Landscape (TAL)

- A Trans-boundary biodiversity hotspot, launched in 2001.
- Critical habitats** for **tigers**, rhinos, elephants, etc.
- Aims to conserve ecosystems of the **Terai** and **Churia hills**.
- Covers several protected areas such as Corbett Tiger Reserve, Rajaji National Park etc.
- Extend over 900 km from the **Bagmati River (Nepal)** in the **east** to the **Yamuna River (India)** in the **west**.

### 4.3.4. NEW RULES NOTIFIED UNDER THE WILD LIFE (PROTECTION) AMENDMENT ACT (WPA), 2022

#### Why in news?

Ministry of Environment Forest and Climate Change (MoEFCC) has notified several new rules after the Wild life (Protection) Amendment Act (WPA), 2022.

Rule	Details
<b>Wildlife (Protection) Licensing (Additional Matters for Consideration) Rules, 2024</b>	<ul style="list-style-type: none"> <li>Replaced the <b>Wildlife (Protection) Licensing (Additional Matters for Consideration) Rules, 1983</b>.</li> <li><b>Key highlights</b> <ul style="list-style-type: none"> <li><b>No licence shall be granted for wildlife trade if it relates to any wild animal specified in Schedule I to the Act</b>, except with previous consultation of Central Government.                             <ul style="list-style-type: none"> <li>✓ Earlier the <b>1983 rules prohibited the licence issue</b> to animal categorised under <b>Schedule I or Part II of Schedule II under Wildlife Protection Act (WPA) 1972</b>.</li> </ul> </li> <li><b>Chief Wildlife Warden or an Authorised Officer</b> issues the licence <b>based on parameters</b> like existing licences and implications of licence on hunting or trade of wild animals concerned etc.</li> </ul> </li> </ul>

<p><b>Living Animal Species (Reporting and Registration) Rules, 2024</b></p>	<ul style="list-style-type: none"> <li>Notified under <b>Section 63 of Wild Life (Protection) Act (WPA), 1972</b> for the purpose of <b>Section 49M of the WPA, 1972.</b> <ul style="list-style-type: none"> <li><b>Section 49 M</b> provides for <b>registration of possession, transfer, and birth and reporting of death of living scheduled animal species</b> which are listed in <b>Appendices of CITES</b> or <b>Schedule IV of WPA, 1972.</b></li> <li>Section 49M was added through <b>Wildlife (Protection) Amendment Act, 2022.</b></li> </ul> </li> <li><b>Key highlights</b> <ul style="list-style-type: none"> <li><b>Mandatory electronic registration for any possession</b> of any animal species within 6 months.</li> <li><b>Report birth of an offspring of animal species</b> and apply for registration within a period of 7 days.</li> <li><b>Reporting and registration of transfer</b> within 15 days.</li> <li><b>Maintenance of stock for people involved in captive breeding</b> through regular health check-up of animals, inform any escape of the animal species, etc.</li> </ul> </li> </ul>
<p><b>Captive Elephant (Transfer or Transport) Rules, 2024</b></p>	<ul style="list-style-type: none"> <li><b>Application for transfer of captive elephants</b> shall be made to <b>Deputy Conservator of Forests (DCF)</b> having jurisdiction over area where elephant is registered.</li> <li>On receipt of application, DCF shall             <ul style="list-style-type: none"> <li><b>obtain a certificate of a veterinary practitioner;</b></li> <li><b>conduct inquiry and physical verification of facility</b> where elephant is presently and proposed to be housed;</li> <li>forward application/report to <b>Chief Wildlife Warden (CWW)</b> within <b>fifteen days.</b></li> </ul> </li> <li><b>Transfer within state:</b> After report examination, CWW <b>permits or reject transfer of captive elephants within seven days.</b></li> <li><b>Transfer outside of states:</b> CWW of donor state shall <b>forward application to CWW of recipient state</b> within <b>fifteen days.</b></li> <li><b>Terms and conditions for transfer:</b> Owner is no longer able to maintain elephant; No transfer unless genetic profile of animal has been entered in electronic monitoring application of MoEFCC; etc.</li> <li><b>Validity:</b> Elephant <b>transfer shall be effected</b> within a <b>period not exceeding three months</b> from date of grant of permission. <b>Transport permit shall not be more than one month.</b></li> </ul>

To know more about the Wild life (Protection) Amendment Act (WPA), 2022, kindly refer to Article 3.2.2. **The Wild life (Protection) Amendment Act (WPA), 2022** in Environment PT 365 (April-Dec) of VisionIAS.

#### 4.3.5. DEFINITION OF FOREST

##### Why in the news?

The Supreme Court (SC) directed the Government to follow the definition of "forest" as laid down in judgment of **T.N Godavarman Thirumalpad v. Union of India (1996)**

##### Background of Definition of Forest

- T.N Godavarman Thirumalpad v. Union of India (1996):** Definition of “forest “was expanded to include:
  - All areas recorded as “forest” in any government (Union and State) record, irrespective of ownership, recognition, and classification.
  - All areas that conformed to the “dictionary” meaning of forest.
  - Areas that are **identified as “forest” by expert committees** set up by the State governments following the 1996 order.



- **Forest Conservation (Amendment) (FCA) Act, 2023:** Specified forest land as-
  - **Land declared/notified as a forest under the Indian Forest Act, 1927** or other laws.
  - **Land recorded in Government as forest**, as on or after 1980.
    - ✓ This does not include land which has been officially changed from forest use to use for non-forest purposes on or before 1996.
- **Van (Sanrakshan Evam Samvardhan) Rules, 2023:** As per rule 16, State Governments/UT Administrations, within a period of one year, have to prepare a consolidated record of such lands on which the provisions of the Forest Conservation (Amendment) (FCA) Act, 2023, apply.
  - This includes forest-like **areas identified by the Expert Committee constituted for this purpose**, unclassified forest lands or community forest lands.

#### Directions of the Supreme Court

- **Principles of TN Godavarman judgment to be continued to be observed** until the exercise by State Governments and Union Territories administrations has been completed under **rule 16 of Van (Sanrakshan Evam Samvardhan) Rules, 2023**.
- **State Governments and UT administrations must ensure compliance with the ambit of expression "forest" as explained in the decision in TN Godavarman but can include lands which are worthy of protection.**
- **Other Key directions**
  - State/UTs should **submit a "consolidated record" of all the lands recorded as 'forest'** by the expert committees to the Central Government.
    - ✓ These records are to be **maintained and digitised** by MoEFCC, and **made available on the official website** by April 2024.
  - **Prior approval of the court is needed before giving final approval** for the establishment of zoos or safari by any government or authority.
    - ✓ FCA Act 2023 **excluded the establishment of zoos or safaris** in forest areas other than protected areas **from the definition of non-forest purposes**.

#### Other Key provision of the Forest Conservation Amendment Act (2023)

- **New name:** 'Van (Sanrakshan Evam Samvardhan) Adhiniyam' (Forest (Conservation and Augmentation) Act), 1980.
- **Addition of Preamble:** It encompasses India's Nationality Determined Contribution and other National targets.
- **Activities excluded from the definition of non-forest purposes:**
  - Establishment of **zoos and safaris under the Wild Life (Protection) Act, 1972**, in forest areas other than protected areas;
  - **Eco-tourism facilities** included in plans of the area;
  - **Silvicultural operations**, including regeneration operations; and
  - Any other purposes specified **by the Central Government**.
- **Specifies exempted Categories of Land** such as connectivity to a habitation, or to a rail, Projects of national importance and concerning national security.
- State governments require **prior approval of the central government before assigning of forest land by way of lease or otherwise** to government entities (earlier needed for only private entities).

### 4.3.6. BIODIVERSITY HERITAGE SITE

#### Why in news?

**Gupteswar Forest in Odisha's Koraput district** has been declared as the **fourth Biodiversity-Heritage Site (BHS)** of the state.

#### About Gupteswar forest

- Spread over 350 hectares of demarcated area and located adjacent to **Gupteswar Shiva temple** (a natural limestone cave shrine).

- Present in **Southernmost region of Odisha** and a **part of Eastern Ghats**.
- **Culturally significant due to its sacred groves**.
- **Key faunal species:** Muggar crocodile, Kanger valley rock gecko, and avifauna like common Hill myna, White-bellied Woodpecker, etc.
- **Key floral species:** Threatened **medicinal plants** such as Indian trumpet tree, Indian snakeroot, Cumbi gum tree, Garlic pear tree, etc.

#### About Biodiversity-Heritage Site (BHS)

- **Well defined areas that are unique, ecologically fragile ecosystems** - terrestrial, coastal and inland waters and, marine having rich biodiversity comprising some specific components (refer image).
- Under Section 37 of **Biological Diversity Act, 2002**, **State Government in consultation with local bodies may notify** areas of biodiversity importance as BHS.
  - Also, **State Government in consultation with Central Government** may frame **rules for management and conservation** of BHS.
- **National Biodiversity Authority (NBA)** advises the State Government in the selection and management of heritage sites under section 37.
  - NBA is an **Autonomous and Statutory Body of MoEFCC**.
  - NBA (Headquartered in Chennai) was **established in 2003** by Central Government to **implement India's Biological Diversity Act, 2002**.
- As per **NBA**, India has a **total of 45 BHS** as of February 2024.
- **Management of BHS:**
  - **Biodiversity Management Committee (BMC)** or other appropriate institution as determined by relevant local body in absence of BMCs may manage each BHS.
    - ✓ Wherever **BHS extends to more than one local bodies**, management of BHS shall be the **responsibility of BHS Management Committee constituted by BMC** or other relevant local institutions linked to local bodies in case BMC does not exist, and approved by State Biodiversity Boards (SBB).
  - Responsibility of **BMC/BHS Management Committee to prepare and implement a management plan for BHS** which should cover a period of **five to ten years**.
  - Generally, **no restriction is to be placed on the community on prevailing practices and the utilization of resources** from the proposed BHS.

#### Criteria for identification of BHS



**Natural, semi-natural, and man-made habitats**, which together contain significant diversity of life forms.



Areas that contain **domesticated biodiversity component and /or representative agro-ecosystems with ongoing agricultural practices**.



**Important cultural spaces** such as **sacred groves/trees and sites, or other large community conserved areas**.



Areas **that provide refuge or corridors for threatened and endemic fauna and flora**, such as community conserved areas or urban greens and wetlands



**All kinds of legal land uses** whether government, community or private land.



Sites which are **not covered under Protected Area network under Wildlife Protection Act 1972** as amended



**Habitats for seasonal migrant species** for feeding and breeding.



Areas that are **maintained as preservation plots by research wing** of Forest department.



**Medicinal Plant Conservation Areas**.

#### About Biodiversity Management Committee (BMC)

- Under **Section 41(1) of the Biological Diversity Act, 2002**, every local body in the State shall constitute a Biodiversity Management Committee within its area of jurisdiction.



- **Composition:** BMC is a **7-member committee** which is elected in the general body meeting of that local body.
  - Must include least **at least 1/3rd women** and **at least 18% Scheduled Castes/Scheduled Tribes**.
- **Roles:**
  - **Prepare a Peoples' Biodiversity Register (PBR)** in consultation with local people.
  - **Facilitate access and benefit sharing** in line with the provisions of the Nagoya Protocol.
  - levy charges, by way of collection fees from any person, for accessing/ collecting any biological resource within its jurisdiction.

## Biodiversity heritage sites in India

### Himachal Pradesh

- Sacred Grove at Bhatoti Monastery
- High Altitude Meadow
- Birch Pine Forest Patch

### Madhya Pradesh

- Naro Hills
- Amarkantak
- Patalkot

### Maharashtra

- Glory of Allapalli
- Landorkhori
- Ganeshkhind Garden
- Schistura Hiranyakeshi
- Bambarde Myristica Swamps

### Goa

- Purvatali Rai

### Karnataka

- University of Agricultural Sciences, GKVK Campus
- Nallur Tamarind Grove
- Hogrekan, Chikmagalur
- Ambaraguda, Shimoga

### Kerala

- Asramam

### Uttar Pradesh

- Ghariyal Rehabilitation Centre

### Sikkim

- Tungkyong Dho

### Assam

- Borjuli Wild Rice Site
- Hajong Tortoise Lake
- Majuli

### Meghalaya

- Khlaw Kur Syiem

### Manipur

- Dialong Village

### Tripura

- Unakoti
- Baramura Waterfall
- Silachari Caves
- Debbari or Chabimura
- Betlingshib

### Odisha

- Mahendragiri Hill
- Mandasaru
- Gandhamardan Hill
- Gupteshwar Forest

### West Bengal

- Chilkigarh Kanak Durga
- Baneshwar Shiva Dighi
- Tonglu
- Dhotrey
- State Horticulture R&D Station
- Namthing Pokhari
- Char Balidanga
- Amkhoi Wood Fossil Park
- Haldir Char Island
- Birampur-Baguran Jalpai

### Tamil Nadu

- Arittapatti

### Telangana

- Ameenpur Lake

### 4.3.7. STATUS OF SNOW LEOPARDS IN INDIA

#### Why in news?

MoEFCC released the report on **Status of Snow leopards in India.**

#### About the report

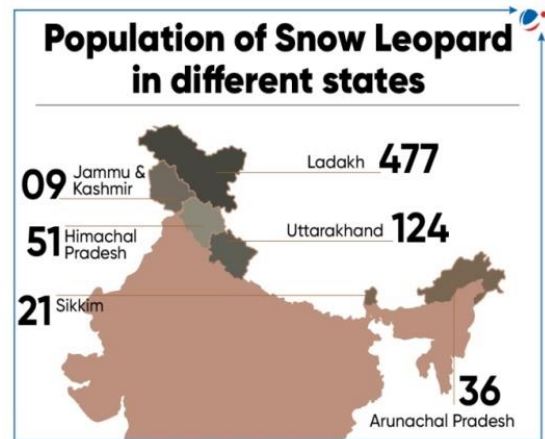
- Report is result of **Snow Leopard Population Assessment in India (SPAI)** programme which was carried out between 2019 and 2023.
- The **first-ever scientific exercise** estimating snow leopard population.
- **Wildlife Institute of India (WII)** is the **National Coordinator** for this exercise along with Nature Conservation Foundation, Mysuru and World Wildlife Fund (WWF)-India.

#### Key findings of report

- **70% of land** used by snow leopards is still **unprotected.**
- **Challenges in counting Snow Leopard**
  - Majority of their **habitat (which is between altitudes of 10,500 to 17,000 feet) remains inaccessible.**
  - Unlike tigers, zebras or even leopards, **snow leopards evade detection by artificial intelligence software.**

#### About Snow Leopard Population Assessment in India (SPAI)

- **Launched by MoEFCC in 2019** as part of **Global Snow Leopard and Ecosystem Protection Program (GSLEP)** called Population Assessment of World's Snow Leopards (PAWS).
  - Endorsed in **2013 Bishkek Declaration**, GSLEP is an **alliance of all 12 snow leopard range countries** and non-governmental partners.
- Covered over **70% of potential snow leopard range in country across trans-Himalayan region**, including Union Territories of Ladakh and J&K, and states like Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh.



#### About Snow Leopard (Panthera Uncia)

- **Characteristics**
  - Considered **medium-sized cats** and weighing around **30-55kg.**
  - They have **short forelimbs and long hind limbs** for moving through rugged environments.
  - They **cannot roar unlike other big cats** and make a call described as "Piercing yowl".
  - Smoky-grey fur is patterned with **dark grey to black rosettes** which helps to camouflage them against rocky slopes.
- **Habitat: 12 snow leopard range countries** (Afghanistan, Bhutan, China, India, Kazakhstan, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russia, Tajikistan, and Uzbekistan).
- **Conservation Measures**
  - **Three landscapes under GSLEP: Hemis-Spiti** across Ladakh and Himachal Pradesh, **Nanda Devi-Gangotri** in Uttarakhand, and **Khangchendzonga Tawang** across Sikkim and Arunachal Pradesh are identified for restoration of the species.
  - **Project Snow Leopard.**
  - **International Snow Leopard Day:** Established in 2014, it is **celebrated on October 23 every year.**
  - **Snow Leopard Breeding Project** at **Padmaja Naidu Himalayan Zoological Park, Darjeeling.**
  - Declared **State animal of Ladakh and Himachal Pradesh**

#### Protection Status of Snow Leopard

WPA, 1972  
**Schedule I**

Among 22  
species covered  
under **Species  
Recovery  
Programme**

### 4.3.8. STATUS OF LEOPARDS IN INDIA

#### Why in news?

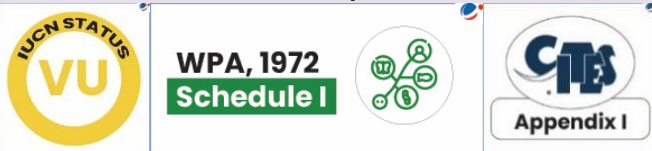
MoEFCC released the 'Status of Leopards in India, 2022' Report.

#### About the report

- **The Fifth cycle leopard population estimation (2022)** was carried out by **National Tiger Conservation Authority (NTCA)** and **Wildlife Institute of India (WII)**.
  - It was in collaboration with State Forest Departments, as part of quadrennial “**Monitoring of Tiger, Co-predators, prey and their habitat**” exercise in tiger range States.
- **Key findings**
  - **Leopard population: 13,874** with a **1.08% per annum growth** compared to 2018.
  - **Central India and Eastern Ghats** registered largest growth, while **Shivaliks and Gangetic plains registered decline** in leopard population.
  - **Madhya Pradesh houses the largest population** followed by Maharashtra, Karnataka and Tamil Nadu.
  - **Tiger Reserves with highest population:** Nagarajunasagar Srisailam (Andhra Pradesh and Telangana) followed by Panna and Satpura (Madhya Pradesh) tiger reserves.

#### About Indian Leopards (*Panthera pardus fusca*)

- Occupy a prominent position in **trophic pyramid alongside tigers, lions and dholes** exhibiting adaptability in habitat and dietary preferences.
- **Protection status of Leopard**



- **Characteristics:**
  - The smallest of the Big Cat family and can adapt to variety of habitats.
  - Are solitary, elusive and nocturnal in nature.
  - Melanism is a common occurrence and melanistic leopards are called a black panther.
- **Habitat:** India, Nepal, Bhutan, and parts of Pakistan, excluding mangrove forests and deserts.
- **Conservation Measures:** **International Big Cat Alliance (IBCA); SECURE Himalaya project-** a joint project of MoEFCC and **United Nations Development Programme (UNDP)**, funded by **Global Environment Facility (GEF)**.

### 4.3.9. INDIA'S FIRST NATIONAL DOLPHIN RESEARCH CENTRE (NDRC)

#### Why in the news?

India's first **National Dolphin Research Centre (NDRC)** was recently inaugurated in Patna, Bihar, aimed at conserving the endangered Gangetic River dolphin.


#### More on the news


- **NDRC** will **facilitate in-depth studies conducted by scientists and researchers** regarding the dolphin species and offers **training to fishermen** on effective dolphin conservation methods.

#### About Ganga River Dolphin (*Platanista gangetica*)


- **Characteristics:**
  - **Endemic** to the **Indian sub-continent**.

**PROTECTION STATUS OF GANGA RIVER DOLPHIN**






**EN**




Appendix I

**WPA, 1972**

**Schedule I**



In list of 22 species covered under Species Recovery Programme? ✔

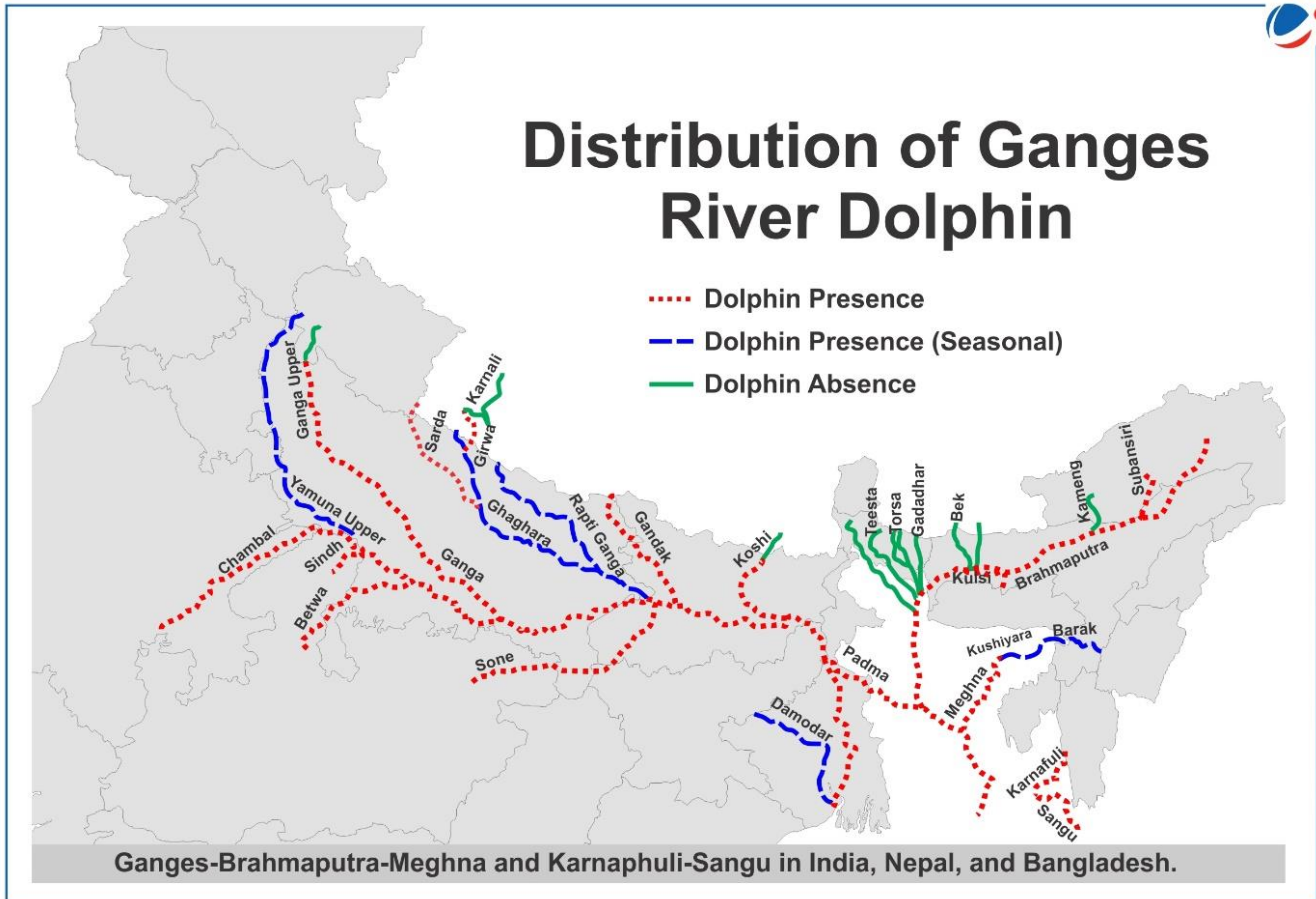


**CMS**

Under Convention on Migratory Species



- ✓ Also known as the **Tiger of the Ganga**.
- Long **thin snout, rounded belly, stocky body, and large flippers**.
- **Slit similar to a blowhole** on top of its head, acting as a nostril.
- **Females are larger than males** and give birth to one calf every two to three years.
- **Calves have chocolate brown skin at birth**, while adults have grey-brown smooth, hairless skin.
- **Restricted to freshwater, use ultrasonic waves** for hunting and navigating through 'echolocation'.
- Their **unique swimming behaviour aids in finding food**, and they emit the '**Susu**' sound while **surfacing to breathe, thus are commonly known as Susu**.
- Prefer water that **is at least 5-8 feet deep**.
- Usually found in **turbulent waters**, where there are enough fish for them to feed on.



- **Major Threats:** Unintentional killing, overexploitation of prey due to fishing gear entanglement, poaching for dolphin oil, Habitat destruction from water projects, pollution, and fragmented populations from dams.
- **Initiatives for Dolphin Protection:**
  - **Vikramshila Gangetic Dolphin Wildlife Sanctuary, Bihar:** India's sole dolphin sanctuary.
  - **Project Dolphin: Modelled after Project Tiger**, focusing on special conservation measures for Gangetic River Dolphins, as **they are umbrella species**.
    - ✓ To conserve both **the marine and riverine dolphins** as well as associated Cetaceans.
    - ✓ It is funded by **the Ministry of Environment, Forests and Climate Change, India**
  - **National Aquatic Animal:** It was declared the **national aquatic animal on 5th October 2009, which is celebrated as National Ganga River Dolphin Day**.








# Smart and Effective Notes Making for UPSC CSE Principles and Strategies



## Why Notes Making?

Note-making for the UPSC exam is a strategic tool that significantly enhances an aspirant's ability to understand, retain, and revise the vast curriculum effectively. This personalized study aid helps in breaking down complex topics into digestible pieces, facilitating easier recollection and efficient last-minute revisions.







## Principles of Notes Making

-  **Personalize Notes:** Understand your learning style for effective customization which should be prepared in an integrated manner for both Prelims and Mains examination.
-  **Format Choice:** Opt for digital, handwritten, or a hybrid approach based on learning ease.
-  **Summarization and Organization:** Condense passages, use bullet points for clear organization.
-  **Current Affairs Integration:** Enhance note relevance by integrating current affairs with static topics.
-  **Language Precision:** Emphasize keywords, concepts, and examples; avoid complete sentences.



Scan to access  
Essential Learning  
Resources.






## Smart Strategies for Effective Notes Making

-  **Reliable Sources**  
Choose reputable sources that meet the demands of the examination.
-  **Summarize and Organize**  
Highlight or underline important points while reading, then summarize these in your own words.
-  **Link to the UPSC Syllabus**  
To ensure easy referencing of subject, topic, and subtopic for efficient exam preparation.
-  **Integrate Visual Aids**  
Use diagrams, flowcharts, and mind maps to visualize complex relationships between topics.
-  **Current Affairs**  
Create a dedicated section and link it to corresponding static topics for a comprehensive understanding.
-  **Regular Revision**  
Frequently revisit your notes to reinforce your memory and improve your retention.

 **Use bullet points, headings, and subheadings to structure your notes clearly.**

## VisionIAS Smart Quality Content

Designed and developed for smooth understanding, learning, retention, and reproduction of content in the UPSC Examination. Further, it also facilitates smart and efficient note-making.

-  **Simplified Complex Topics:** Makes tough subjects easier and more digestible for better understanding.
-  **Up-to-date Information:** Offers latest, relevant study materials aligned with current exam requirements.
-  **Analytical Skills Development:** Boosts essential critical and analytical thinking through quizzes.
-  **Resource Optimization:** Uses infographics & smart presentations for more efficient time and resource utilization.
-  **Enriched Presentation:** Utilizes thematic colors and tables for fast information identification and recall.




Scan to know more,  
explore, and integrate  
the Smart Quality  
Content in your learning.

4.3.10. PROTECTED AREAS IN NEWS



Protected Area	Details
<b>Arunachal Pradesh</b>	
<b>Eaglenest Wildlife Sanctuary</b>	<ul style="list-style-type: none"> <li>IISc study in EWS has revealed the migration of birds uphill amid rising temperatures.</li> <li><b>Geographical location and other important features</b> <ul style="list-style-type: none"> <li><b>Location:</b> Himalayan foothills in west kameng district in Arunachal Pradesh</li> <li>Falls in the <b>Eastern Himalayan Biodiversity Hotspot</b>.</li> <li>Conjoins <b>Sessa Orchid Sanctuary to the northeast</b> and <b>Pakhui/Pakke Tiger Reserve</b>.</li> </ul> </li> <li><b>River:</b> Kameng River and its tributaries (Tipi and Sessa).</li> <li><b>Forest Type:</b> <ul style="list-style-type: none"> <li><b>Coniferous Temperate and Subtropical Forest</b></li> <li><b>Broadleaf Subtropical Forest</b></li> <li><b>Tropical Wet Evergreen and Semi-evergreen Forest</b></li> </ul> </li> <li><b>Flora and Fauna:</b> Blyth's Tragopan, Rufous-necked Hornbill, Rusty-bellied Shortwing, Bugun Liocichla (Critically endangered)etc.</li> </ul>
<b>Assam</b>	
<b>Pobitora Wildlife Sanctuary</b>	<ul style="list-style-type: none"> <li>Assam Cabinet has decided to de-notify prime rhino habitat PWS.</li> <li><b>Geographical location and other important features</b> <ul style="list-style-type: none"> <li><b>Location:</b> Suburbs of Guwahati, Assam.</li> <li>Consists of <b>Rajamayong Reserve Forest</b> and <b>Pobitora Reserve Forest</b></li> <li>An <b>important Bird area</b>.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Under Indian Rhinoceros Vision, 2020 (IRV), Eight Rhinos were translocated from here to Manas National Park.</li> <li>● <b>River:</b> Brahmaputra</li> <li>● <b>Forest type:</b> Tropical moist deciduous forest and grasslands</li> <li>● <b>Flora and Fauna:</b> <b>Great one horned rhino (highest density)</b> Wild Water Buffalo, Wild Boar, Leopard, Capped Langur, Porcupine, Pangolin, etc.</li> </ul>
<b>Himachal Pradesh</b>	
<b>Pong Dam Wildlife Sanctuary (PDWS)</b>	<ul style="list-style-type: none"> <li>● MoEFCC issued draft notification declaring <b>one-kilometre area around PDWS</b> as an <b>Eco-Sensitive Zone</b>.</li> <li>● <b>Geographical location and other important features</b> <ul style="list-style-type: none"> <li>○ <b>Location:</b> Kangra district, Himachal Pradesh</li> <li>○ Designated as <b>Ramsar site in 2002</b></li> <li>○ Acts a <b>Vulture Café</b></li> </ul> </li> <li>● <b>Associated waterbodies:</b> Pong Dam Lake (<b>Maharana Pratap Sagar</b>) is a <b>manmade reservoir</b> created in 1975 on <b>Beas River</b>. <ul style="list-style-type: none"> <li>○ <b>In 1983</b>, reservoir was declared as <b>Wildlife Sanctuary</b>.</li> </ul> </li> <li>● <b>Flora and Fauna:</b> Leopard, Sambher, Wild Boar, Porcupine etc.</li> </ul>
<b>Madhya Pradesh</b>	
<b>Kuno National Park (KNP)</b>	<ul style="list-style-type: none"> <li>● Recently, a <b>Namibian cheetah</b> translocated to <b>KNP</b> under <b>Project Cheetah</b>, gave birth to 4 cubs.</li> <li>● <b>Geographical location and other important features</b> <ul style="list-style-type: none"> <li>○ <b>Location:</b> Madhya Pradesh</li> <li>○ Part of <b>Central Indian Vindhyan Hills</b>.</li> </ul> </li> <li>● <b>River:</b> Kuno river</li> <li>● <b>Forest type:</b> Dry Deciduous</li> <li>● <b>Flora and Fauna:</b> Kardhai, Salai, Khair trees, along with vast grasslands and consists of Spotted deer, Chousingha, Nilgai, Black buck, Leopard, Dhole, etc.</li> </ul>
<b>National Chambal Sanctuary (NCS)</b>	<ul style="list-style-type: none"> <li>● Recently, <b>Indian grey wolf</b> was sighted in NCS, which is its first confirmed sighting in the <b>region in about two decades</b>.</li> <li>● <b>Geographical location and other important features</b> <ul style="list-style-type: none"> <li>○ <b>Location:</b> Tri-state protected area (Rajasthan, Madhya Pradesh and Uttar Pradesh).</li> <li>○ Set up in 1979 as a <b>riverine sanctuary</b> along <b>Chambal River</b> (tributary of <b>Yamuna River</b>).</li> <li>○ An <b>Important Bird Area (IBA)</b></li> </ul> </li> <li>● <b>Forest type:</b> Dry deciduous</li> <li>● <b>Flora and Fauna:</b> Home to <b>Gharial, red-crowned roof turtle</b> (both critically endangered) and <b>Ganges River dolphin</b> (endangered) - <b>National Aquatic Animal</b>.</li> </ul>
<b>Pench Tiger Reserve (PTR)</b>	<ul style="list-style-type: none"> <li>● <b>PTR</b> becomes <b>India's first international Dark Sky Park</b> for protecting night sky, preventing light pollution and promote astronomy.</li> <li>● <b>Geographical location and other important features</b> <ul style="list-style-type: none"> <li>○ <b>Location:</b> Satpura hills in Madhya Pradesh</li> <li>○ <b>Continues in Nagpur district in Maharashtra</b> as a separate Sanctuary.</li> <li>○ <b>One of the major Protected Areas of Satpura-Maikal ranges</b> of Central Highlands.</li> <li>○ The area is described in Ain-i-akbari and 'The Jungle Book'.</li> </ul> </li> <li>● <b>Rivers:</b> Pench river divides it into two halves.</li> <li>● <b>Forest type:</b> <b>Tropical dry deciduous</b> with dominance of <b>teak trees</b>.</li> <li>● <b>Flora and Fauna:</b> Tiger, Leopard, Jackal, Wolf, Deer, Hyena etc.</li> </ul> <div style="text-align: right;">  </div>








Tamil Nadu	
<b>Mudumalai Tiger Reserve (MTR)</b>	<ul style="list-style-type: none"> <li>• The first ever <b>herpetofaunal</b> (reptiles and amphibians) survey has been conducted in the Core Area of the MTR.</li> <li>• <b>Geographical location and other important features</b> <ul style="list-style-type: none"> <li>○ <b>Location: Tamil Nadu</b></li> <li>○ Part of Nilgiri biosphere reserve (first Biosphere Reserve established in 1986 in India)</li> <li>○ Has <b>common boundary with Wayanad Wildlife Sanctuary (Kerala)</b> on West, <b>Bandipur Tiger Reserve (Karnataka)</b> on North, and the Nilgiris Division on the South and East and Gudalur Forest Division on the South West.</li> </ul> </li> <li>• <b>Rivers: Moyar River</b> serves as boundary between Mudumalai and Bandipur Sanctuary.</li> <li>• <b>Forest Type:</b> Ranging from <b>tropical evergreen forest, moist deciduous forest, moist teak forest</b>, dry teak forest, grasslands and swamps.</li> <li>• <b>Flora and Fauna:</b> Tiger, Elephant, Indian Gaur, Panther, Barking Deer, Mouse Deer, etc.</li> </ul>
	
Telangana	
<b>Kawal Tiger Reserve</b>	<ul style="list-style-type: none"> <li>• Telangana approved the corridor area between <b>Tadoba-Andhari Tiger Reserve</b> (Maharashtra) and <b>Kawal Tiger Reserve</b> (Telangana) as a <b>Conservation Reserve</b>.</li> <li>• <b>About Conservation Reserve</b> <ul style="list-style-type: none"> <li>○ Protected area under the '<b>Wildlife (Protection) Act (WPA), 1972</b>' (added through the WPA Act of 2002).</li> <li>○ Acts as <b>buffer zone</b> to or <b>connectors</b> and migration corridors between protected areas.</li> <li>○ Declared by the <b>State Government</b>, after consulting with the central government and the local communities.</li> <li>○ Administered with the help of the <b>Conservation Reserve Management Committee</b></li> </ul> </li> <li>• <b>Geographical location and other important features</b> <ul style="list-style-type: none"> <li>○ <b>Location:</b> Sahyadri Mountain ranges</li> <li>○ Acts as linkages with Tadoba-Andhari (Maharashtra) and Indravati (Chhattisgarh) tiger reserves.</li> </ul> </li> <li>• <b>Rivers: Godavari River</b> and rivulets like <b>Peddavagu</b> and <b>Kadam</b>.</li> <li>• <b>Forest type:</b> Southern Tropical <b>dry-deciduous</b>, predominantly <b>teak and bamboo</b>.</li> <li>• <b>Flora and Fauna:</b> Nilgai, Chinkara, Black buck, Sambar, Spotted deer, Tiger, Leopard etc.</li> </ul>
Uttarakhand	
<b>Corbett Tiger Reserve</b>	<ul style="list-style-type: none"> <li>• Supreme Court has directed to constitute a committee to assess the damage caused in the Corbett Tiger Reserve due to Tiger Safaris.</li> <li>• <b>Geographical location and other important features</b> <ul style="list-style-type: none"> <li>○ <b>Location:</b> Spread over Bhabar and lower Shivalik region.</li> <li>○ <b>First national park</b> to be established in mainland Asia.</li> <li>○ An '<b>Important Bird Area</b>' (IBA)</li> <li>○ Its local grasslands are known as <b>Chaur</b>.</li> </ul> </li> <li>• <b>Rivers:</b> Ramganga, Pallaen and Sonanadi.</li> <li>• <b>Forest type:</b> Tropical dry and moist deciduous forest.</li> <li>• <b>Flora and Fauna:</b> Tiger (highest tiger density), elephant, leopard, sambar, hog deer etc.</li> </ul>



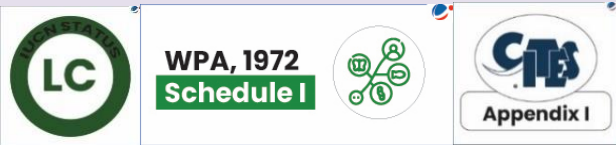

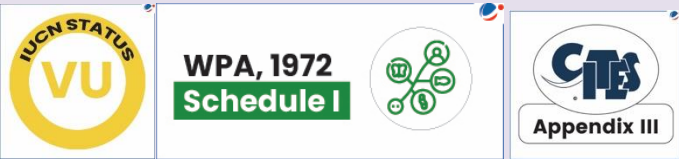




West Bengal	
<b>Neora Valley National Park</b>	<ul style="list-style-type: none"> <li>• <b>Presence of Tigers above 10,000 feet was confirmed by the recent spotting of a Tiger at the Neora Valley National Park</b></li> <li>• <b>Geographical location and other important features</b> <ul style="list-style-type: none"> <li>○ Links the <b>Pangolakha Wildlife Sanctuary</b> (Sikkim) and the <b>Toorsa Strict Reserve</b> (Bhutan).</li> <li>○ Part of a <b>global biodiversity hotspot</b> (Eastern Himalayas) and an <b>Important Bird Area</b></li> </ul> </li> <li>• <b>Rivers:</b> Neora River</li> <li>• <b>Forest Type:</b> Subtropical Mixed Broadleaf Forest, Lower Temperate Evergreen Forest, Upper Temperate Mixed Broadleaf Forest and Rhododendron Forest.</li> <li>• <b>Flora and Fauna:</b> Red Panda, Himalayan Tahr, Himalayan Black Bear, etc.</li> </ul>

#### 4.3.11. SPECIES IN NEWS






**Note:** As per the amendments made under the 'Wild life (Protection) Amendment Act, 2022', species that are covered under Appendices of CITES are listed under Schedule IV of the Act.

Species	Details
<b>Terrestrial Species</b>	
<b>Himalayan Wolf</b> 	<ul style="list-style-type: none"> <li>• <b>First-ever IUCN assessment</b> of the Himalayan Wolf published.</li> <li>• <b>Findings of the Study</b> <ul style="list-style-type: none"> <li>○ There is a continuing decline in the area, extent and/or quality of habitat' of Himalayan wolves.</li> <li>○ Estimated <b>population range is from 2,275–3,792</b> of which <b>227–378 are in India</b></li> </ul> </li> </ul> <p><b>Protection status</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p><b>Characteristics</b></p> <ul style="list-style-type: none"> <li>• Thick fur with brown coloration on the back and tail with paler yellows on the face, limbs, and underside.</li> <li>• <b>Larger than the Indian and European wolves.</b></li> <li>• Prefer wild over domestic prey.</li> <li>• Possess genetic <b>adaptations to cope with hypoxic conditions.</b></li> </ul> <p><b>Habitat</b></p> <ul style="list-style-type: none"> <li>• <b>High altitude</b> (above 3,900m) in the Himalayas (<b>Nepal and India</b>) and the <b>Tibetan Plateau.</b></li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Indian wolf</b> was recently sighted at <b>National Chambal Sanctuary, Madhya Pradesh</b> after 2 decades.</li> </ul> <p><b>Protection status</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p><b>Characteristics</b></p> <ul style="list-style-type: none"> <li>• <b>Social carnivores</b> as they reflect collective behaviors such as coordinated hunting through packs.</li> <li>• <b>Howling</b> is a key form of long-distance communication for wolves.</li> </ul>


<p><b>Indian Wolf (Canis lupus pallipes)</b></p> 	<ul style="list-style-type: none"> <li>Indian Wolves have a history of <b>preying on children</b>, a phenomenon called as “<b>Child Lifting</b>”.</li> <li><b>Biocontrol agents</b> that keep the population of wild herbivores like Nilgai and Wild boars under control.</li> </ul> <p><b>Habitat</b></p> <ul style="list-style-type: none"> <li>Grasslands, scrub forest, thorn and dry deciduous forest</li> <li>In eastern states like Odisha, Bihar, they are known to inhabit moister low density forested habitats</li> </ul> <p><b>Conservational Measures</b></p> <ul style="list-style-type: none"> <li><b>Operation Bhediya</b> was launched to find out the population of wolves.</li> <li>The <b>Central Zoo Authority (CZA)</b> initiated a <b>conservation breeding program</b> for threatened species in Indian zoos which includes Indian wolf.</li> </ul>
<p><b>Tibetan Brown Bear</b></p> 	<ul style="list-style-type: none"> <li>India has recorded its first-ever confirmed sighting of a rare Tibetan brown bear in Sikkim</li> </ul> <p><b>Protection status</b></p>  <p><b>Characteristics</b></p> <ul style="list-style-type: none"> <li>Also known as the Tibetan blue bear.</li> <li>An omnivore (eat and survive on both plant and animal matter)</li> <li>Has a distinctive ‘V’ shaped white chest mark</li> <li>Lifespan is around <b>20 to 30 years</b>.</li> <li>Sense of smell is greater than its hearing and sight.</li> </ul> <p><b>Habitat</b></p> <ul style="list-style-type: none"> <li>Inhabits alpine forests, meadows, and steppe, at elevations from 2,000 to 4,500 metres.</li> <li>Mainly found in <b>Nepal, Bhutan and the Tibetan plateau</b></li> </ul>
<p><b>Binturong</b></p> 	<ul style="list-style-type: none"> <li><b>The new mammalian species</b> was added to list of fauna in <b>Assam’s Kaziranga National Park</b></li> </ul> <p><b>Protection status</b></p>  <p><b>Characteristics</b></p> <ul style="list-style-type: none"> <li>Also referred as <b>Bearcat, Asian Bearcat and Asian Civet</b></li> <li><b>Solitary</b> and <b>nocturnal</b> in nature</li> <li>Life span of 18 years and grows upto 2.8 ft.</li> </ul> <p><b>Habitat</b></p> <ul style="list-style-type: none"> <li>Found in dense forests of India (Meghalaya, Sikkim), Indonesia, Thailand, Malaysia, etc.</li> </ul>
	<ul style="list-style-type: none"> <li><b>The new mammalian species</b> was added to list of fauna in <b>Assam’s Kaziranga National Park</b></li> </ul>

<p><b>Small-clawed otter</b></p> 	<p><b>Protection status</b></p>  <p><b>Characteristics</b></p> <ul style="list-style-type: none"> <li>• <b>Smallest otter species</b> in the world.</li> <li>• Possess <b>partially webbed feet</b> with short claws for efficient aquatic hunting.</li> <li>• <b>Highly social animals</b> and live in family groups</li> </ul> <p><b>Habitat</b></p> <ul style="list-style-type: none"> <li>• Primarily <b>found in freshwater habitats</b>.</li> <li>• India (West Bengal, Assam, Arunachal Pradesh, Karnataka, Tamil Nadu, and Kerala), Southeast Asia and Southern China.</li> </ul>
<p><b>Hog deer</b></p> 	<p>• <b>Hog deer</b> are spotted for the first time in <b>Rajaji Tiger Reserve (Uttarakhand)</b>.</p> <p><b>Protection status</b></p>  <p><b>Characteristics</b></p> <ul style="list-style-type: none"> <li>• Small deer with rounded ears and older animals tend to become light-coloured in the face and neck.</li> <li>• <b>Herbivore</b> and feed on riverine grass and shoot.</li> <li>• <b>Females</b> are <b>slightly smaller than males</b> and <b>lack antlers</b>.</li> </ul> <p><b>Habitat:</b></p> <ul style="list-style-type: none"> <li>• <b>Riverine flooded grasslands</b> with tall grasses or dense vegetation.</li> <li>• Found in <b>tropical or subtropical climates</b> of India, Pakistan and South East Asia.</li> </ul>
<p><b>Punganur Cow</b></p> 	<ul style="list-style-type: none"> <li>• PM feeds Punganur cows on the occasion Makar Sankranti.</li> </ul> <p><b>Characteristics</b></p> <ul style="list-style-type: none"> <li>• <b>Size:</b> 70-90 cm tall and weighing around 115-200 kg.</li> <li>• Referred as <b>Dwarf cattle</b> and are the <b>world's shortest humped breed</b> of cattle.</li> <li>• They have <b>small, crescent-shaped horns which are longer in females than in males</b>.</li> <li>• <b>Milk production:</b> Average milk yield of the breed is 546 Kg per lactation with 5% average milk fat.</li> </ul> <p><b>Habitat</b></p> <ul style="list-style-type: none"> <li>• Native to <b>Punganur village</b> in Chittoor district of Andhra Pradesh.</li> <li>• <b>Adaptability:</b> Hot and dry climate</li> </ul>
	<ul style="list-style-type: none"> <li>• According to latest survey, <b>there are around 7,396 Golden langurs</b> in India.</li> </ul> <p><b>Protection Status:</b></p> 



<p><b>Golden Langur</b></p> 	<p><b>Characteristics:</b></p> <ul style="list-style-type: none"> <li>• Belong to a large <b>group of Old World monkeys</b> called the <b>colobines</b> (leaf-eating primates having a ruminant-like multi-chambered stomach).</li> <li>• <b>Coat colour varies seasonally</b> becoming cream colored in summer and dark golden in winter.</li> <li>• <b>Diurnal</b> and <b>arboreal</b> in nature and live in troops (3-15)</li> </ul> <p><b>Habitat</b> Endemic to subtropical and temperate broadleaf forests in <b>Assam (Brahmaputra River Valley) and Bhutan</b></p>
<p><b>Avian Species</b></p>	
<p><b>Indian Skimmers</b></p> 	<ul style="list-style-type: none"> <li>• India and Bangladesh submit a joint proposal to list Indian skimmers (also known as Indian scissors bill) under the <b>Convention on Migratory Species</b>.</li> </ul> <p><b>Protection status</b></p>  <p><b>Characteristics</b></p> <ul style="list-style-type: none"> <li>• Also referred as <b>Indian Scissor bill</b>.</li> <li>• <b>Breeds colonially</b> on large, exposed sand-bars and islands.</li> <li>• <b>Feeds on</b> surface-dwelling <b>fish, small crustaceans and insect larvae</b></li> <li>• Has a <b>long and thick bill</b> which is bright orange with a yellow tip.</li> </ul> <p><b>Habitat</b></p> <ul style="list-style-type: none"> <li>• Found in the coastal estuaries of western and eastern India. It occurs primarily on <b>larger, sandy, lowland rivers, around lakes and adjacent marshes, estuaries and coasts</b>.</li> </ul>
<p><b>Invasive Species</b></p>	
<p><b>Lantana Camara (Lantana)</b></p> 	<ul style="list-style-type: none"> <li>• The plant species threatens around 40% of India's tiger range.</li> <li>• Lantana is one of the <b>worst invasive species</b> in the world.</li> <li>• It is a <b>tropical American shrub</b>, introduced in India as an <b>ornamental plant by the British in the 1800s</b>.</li> <li>• Eradicating lantana is <b>difficult due to its rapid spread, infestation intensity, allelopathy, and resistance to cutting and burning</b>.</li> <li>• They <b>form dense thickets that alter the structure of habitats</b> and microhabitat conditions and also <b>impede the movement of animals</b>.</li> <li>• They can also be used in wound healing, fever treatment, stomach ache etc.</li> </ul>
<p><b>Newly discovered species</b></p>	
<p><b>Melanochlamys droupadi (M. droupadi)</b></p> 	<ul style="list-style-type: none"> <li>• Named after President of India, by Zoological Survey of India <i>M. droupadi</i> is a new <b>marine species of head-shield sea slug</b> discovered from <b>West Bengal and Odisha coast</b>.</li> <li>• It shares habitat with <b>Melanochlamys bengalensis</b> which discovered in 2022 but differs morphologically.             <ul style="list-style-type: none"> <li>○ <i>M. droupadi</i> is <b>smaller and has mottled brown to black colouration with a ruby red spot on the posterior shield</b>.</li> </ul> </li> <li>• The <b>sea slugs are rapid hunters</b>.             <ul style="list-style-type: none"> <li>○ They <b>feed upon mobile prey</b> such as other shelled and unshelled sea slugs, roundworms, marine worms and small fishes.</li> <li>○ Sea slug is a common name for <b>marine gastropods</b> that that <b>do not have an external shell</b>.</li> </ul> </li> </ul>



<p><b>Parhyale' odian</b></p> 	<ul style="list-style-type: none"> <li>• Researchers have discovered a <b>new species</b> of <b>marine amphipod</b> in <b>Odisha's Chilika Lake</b> (Asia's biggest brackish water lagoon).             <ul style="list-style-type: none"> <li>○ The species, named as '<b>Parhyale' odian</b>, is brown, has 13 pairs of legs, and uses the first pair for capturing prey.</li> </ul> </li> <li>• Amphipods are <b>crustacea</b>.</li> <li>• Crustaceans are a very <b>large group of Arthropods</b> which include crabs, lobsters, crayfish, shrimp, krill, etc.             <ul style="list-style-type: none"> <li>○ They are <b>invertebrates with a hard exoskeleton and a segmented body that is bilaterally symmetrical</b>.</li> <li>○ They are mostly <b>free-living freshwater or marine animals</b>, but some are terrestrial (e.g. woodlice).</li> </ul> </li> </ul>
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**4.3.12. OTHER RELATED NEWS**

News	Details
<b>International Big Cat Alliance (IBCA)</b>	<ul style="list-style-type: none"> <li>• The Union Cabinet recently approved the establishment of the <b>International Big Cat Alliance (IBCA) with headquarters in India</b>.</li> <li>• Centre will <b>provide initial budgetary</b> support of Rs. 150 crores for a period of five years, from 2023-24 to 2027-28.</li> <li>• <b>16 countries</b>, including <b>Brazil, Nepal, Bangladesh, and Malaysia</b>, have <b>officially joined the IBCA</b> led by India.             <ul style="list-style-type: none"> <li>○ Additionally, <b>nine international organizations</b>, including the <b>International Union for Conservation of Nature (IUCN) and the World Wildlife Fund (WWF) International</b>, have given consent to join the IBCA.</li> </ul> </li> </ul> <p><i>To know more about the International Big Cat Alliance (IBCA), kindly refer to Article 3.2.3. Tiger Conversation in India in Environment PT 365 (April-Dec) of VisionIAS.</i></p>
<b>Transmission Lines Through Great Indian Bustard (GIB) Habitats</b>	<ul style="list-style-type: none"> <li>• <b>Supreme Court is relooking its earlier directions and</b> is considering lifting ban on transmission lines through Great Indian Bustard (GIB) habitats.</li> <li>• SC constituted an <b>expert committee</b> to examine <b>feasibility</b> and extent of installing <b>overhead and underground powerlines</b> in <b>GIB habitats</b>.             <ul style="list-style-type: none"> <li>○ In April, 2021, <b>SC had ordered power companies in Rajasthan and Gujarat to make the high-tension power lines underground</b> so that GIB do not get caught in the web.</li> </ul> </li> <li>• Committee is headed by <b>Director, Wildlife Institute of India (WII), Dehradun</b> and is required to submit its report to Court on or before July 31, 2024.</li> <li>• <b>Reasons for reconsidering the earlier direction:</b> Areas are critical to protection of GIB but are also crucial for development of solar energy sector and undergrounding power lines is difficult.</li> </ul> <p><i>To know more about the Great Indian Bustard (GIB), kindly refer to Article 3.2.13. Species in News in Environment PT 365 (April-Dec) of VisionIAS.</i></p>
<b>Biodiversity Beyond National Jurisdiction (BBNJ) Treaty</b>	<ul style="list-style-type: none"> <li>• Blue Leaders High-Level Event on BBNJ <b>urged nations to ratify BBNJ Treaty</b></li> <li>• <b>India is yet to sign the treaty.</b></li> </ul> <p><i>To know more about the BBNJ Treaty, kindly refer to Article 3.4.1. First International Treaty to Protect the High Seas in Environment PT 365 (April-Dec) of VisionIAS.</i></p>
<b>Species Threat Abatement and Restoration (STAR) Metric</b>	<ul style="list-style-type: none"> <li>• STAR metric unveiled in 2021 for terrestrial area, <b>by International Union for Conservation of Nature (IUCN)</b> in partnership with other organizations has been expanded for use in marine areas.</li> <li>• <b>The STAR metric</b> utilizes existing data from <b>IUCN Red List of Threatened Species</b> to quantify extinction risks and threats faced by species.</li> </ul>



	<ul style="list-style-type: none"> <li>○ STAR assesses the <b>potential of specific actions at specific locations to contribute to international conservation targets.</b></li> <li>○ STAR estimates the contribution of two kinds of action – <b>threat abatement and habitat restoration.</b></li> </ul>									
<b>Biodiversity Credit Alliance (BCA)</b>	<ul style="list-style-type: none"> <li>● BCA is increasingly <b>pushing for use of biodiversity credits (biocredits)</b> for financing targets under <b>Kunming-Montreal Global Biodiversity Framework (KMGBF).</b> <ul style="list-style-type: none"> <li>○ Biocredits provide a potential <b>mechanism to finance conservation, restoration and interventions addressing drivers of biodiversity loss,</b> such as habitat degradation.</li> </ul> </li> <li>● BCA is a <b>voluntary international alliance</b> that brings together diverse stakeholders to support <b>the KMGBF.</b> <ul style="list-style-type: none"> <li>○ Launched at 15th Conference of Parties (COP15) to the <b>UN Convention on Biological Diversity (CBD)</b> in 2022.</li> <li>○ It aims to develop <b>voluntary bio credit</b> market by building a framework of high-level, science-based principles.</li> </ul> </li> </ul>									
<b>Wetland City Accreditation (WCA)</b>	<ul style="list-style-type: none"> <li>● MoEFCC has submitted its first proposals for <b>Wetland City Accreditation (WCA) under the Ramsar Convention</b> for the cities of Indore, Bhopal and Udaipur.</li> <li>● <b>WCA is a voluntary accreditation system</b> to recognize the importance of <b>wetlands in urban and peri-urban environments.</b></li> <li>● It was <b>approved</b> in the <b>COP12 of Ramsar Convention (2015).</b></li> <li>● <b>Objective:</b> Promote the conservation and wise use of wetlands, as well as sustainable socio-economic benefits for local populations.</li> <li>● <b>Criteria:</b> Accreditation is <b>based on 6 criteria</b> which include <b>presence of Ramsar sites</b> in the city, or other wetland conservation sites etc.</li> <li>● Once granted it is <b>valid for 6 years.</b></li> </ul>									
<b>Coral Bleaching</b>	<ul style="list-style-type: none"> <li>● 5th Mass bleaching event hits Great Barrier Reef (GBR) in 8 years</li> <li>● <b>About GBR</b> <ul style="list-style-type: none"> <li>○ <b>Location:</b> Along the <b>northeast coast of Australia</b> in Pacific Ocean.</li> <li>○ <b>World's largest coral reef complex.</b></li> <li>○ Declared a <b>World Heritage Area in 1981.</b></li> </ul> </li> <li>● <b>Bleaching occurs</b> when healthy corals become <b>stressed by spikes in ocean temperatures,</b> causing them to expel algae living in their tissues, <b>which drains them of their vibrant colours.</b></li> <li>● <b>Causes of Mass Bleaching events:</b> Climate change induced warming, Rising frequency of El Nino, Lack of wind and currents and Other causes like Extremely low tides, Pollution, Overexposure to sunlight etc.</li> </ul>									
<b>Deep-Sea Coral Reef</b>	<ul style="list-style-type: none"> <li>● Scientists have mapped largest deep-sea coral reef off the US Atlantic coast.</li> <li>● Deep-sea corals are <b>colonies of small animals</b> that build a <b>common skeleton, which grows into many shapes and colors.</b> They provide habitat for sharks, swordfish, shrimp, fish etc.</li> </ul> <p><b>Difference between Deep Sea Corals and Shallow Water Corals</b></p> <table border="1"> <thead> <tr> <th>Specifications</th> <th>Deep Sea Coral</th> <th>Shallow-water corals</th> </tr> </thead> <tbody> <tr> <td><b>Diversity of corals</b></td> <td>Rely either by <b>feeding on organic material</b> falling from surface or by <b>feeding on small plankton</b></td> <td>Rely on <b>photosynthetic algae</b> (tiny single-celled plants, known as <b>zooxanthellae</b>) that live within corals and provide their hosts with nutrition</td> </tr> <tr> <td><b>Appearance</b></td> <td><b>White</b> in coloration</td> <td><b>Brown and green</b> colors due to algae</td> </tr> </tbody> </table>	Specifications	Deep Sea Coral	Shallow-water corals	<b>Diversity of corals</b>	Rely either by <b>feeding on organic material</b> falling from surface or by <b>feeding on small plankton</b>	Rely on <b>photosynthetic algae</b> (tiny single-celled plants, known as <b>zooxanthellae</b> ) that live within corals and provide their hosts with nutrition	<b>Appearance</b>	<b>White</b> in coloration	<b>Brown and green</b> colors due to algae
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	<b>Structure formed</b>	Groves in form of tree, feather, column, or fan shapes, etc.	Rock-like reefs
<b>Kumki Elephants</b>	<ul style="list-style-type: none"> <li>The <b>Odisha government requested the deployment of kumki elephants from Tamil Nadu</b> to address escalating human-elephant conflicts.</li> <li><b>Kumkis, trained captive elephants</b>, excel in trapping, rescuing, and tranquilizing wild elephants.               <ul style="list-style-type: none"> <li>Their strategic deployment aims to <b>mitigate damage to crops, human settlements, and minimize the risk</b> to both human and elephant lives.</li> <li>Additionally, kumki elephants prove valuable for <b>forest patrolling and rescue operations</b>.</li> <li><b>Tamil Nadu has used Kumkis successfully</b>.</li> </ul> </li> </ul> <p><i>To know more about the Elephants, kindly refer to <b>Article 3.2.5. Project Elephant in Environment PT 365 (April-Dec) of VisionIAS.</b></i></p>		

## 4.4. SUSTAINABLE DEVELOPMENT

### 4.4.1. SOLAR ROOFTOP POWER

#### Why in news?

Recently, Union Cabinet has approved - **PM Surya Ghar Muft Bijli Yojana** for installing Rooftop Solar in one crore households nationwide.

#### About PM Surya Ghar Muft Bijli Yojana

- Key Highlights of Scheme**

- Ministry:** Ministry of New & Renewable Energy.
- Aim:** To provide **free electricity up to 300 units every month for one crore households**.
- Subsidy structure:** Central Financial Assistance for Residential Rooftop Solar (RTS) up to:

Rooftop Solar Plant Capacity	Subsidy Support
1 – 2 kW	Rs 30,000 to Rs 60,000/-
2 – 3 kW	Rs 60,000 to Rs 78,000/-
Above 3 kW	Rs 78,000/-

- Households can access **collateral-free low-interest loan** products of around **7% for installation of RTS systems up to 3 kW**.

- Other features of the scheme**

- Model Solar Village:** It will be developed in each district.
- Incentives to Local Bodies** for promoting RTS.
- National Portal** to facilitate household to **apply for subsidies** and **select a suitable vendor**.
- Component for payment security for Renewable Energy Service Company (RESCO)** based models as well as a fund for innovative projects in RTS.

#### About Solar Rooftop System

- Rooftop solar panels are the **photovoltaic panels installed on the roof of a building** which is connected to the **main power supply unit**.
- Typically consists of **solar modules, solar inverter(s) and other electrical components** like meter(s), cables etc.
- India’s Current Rooftop Solar Capacity**
  - Installed 11 GW of rooftop solar capacity**, of which **2.7 GW is in the residential sector**.
  - Gujarat is the leader in RTS installations (82%)**, followed by Maharashtra and Rajasthan.
- Challenges for scaling up Solar Rooftop System:** Grid integration, High cost, Low DISCOMs participation, Low net metering, Lack of awareness.

PT 365 - Updated Classroom Study Material

#### 4.4.2. OTHER ALTERNATIVE ENERGY SOURCES IN NEWS

Energy source	Details
<b>Liquefied Natural Gas (LNG)</b>	<ul style="list-style-type: none"> <li>NITI Aayog released ‘LNG as a Transportation Fuel in Medium and Heavy Commercial Vehicle (M&amp;HCV)’ report.               <ul style="list-style-type: none"> <li>It is the outcome of <b>NITI Ayog and the Embassy of Netherlands</b> bilateral cooperation for energy transition and decarbonizing agenda.</li> </ul> </li> <li>Liquefied Natural Gas (LNG) is a <b>clear, colourless, non-toxic liquid</b> that forms when <b>natural gas is cooled to the liquid state</b>, at about <b>-162 degrees Celsius for shipping and storage</b>.</li> <li><b>Challenges in the adoption of LNG:</b> high initial cost compared to traditional diesel trucks, lack of availability of LNG retail outlets, hesitancy in the market, etc.</li> </ul>
<b>Biofuel</b>	<ul style="list-style-type: none"> <li>International Energy Agency (IEA) Renewables 2023 Report highlights increase in Biofuel Demand.</li> <li><b>As per IEA report</b>, Biofuel demand is set to <b>expand 38 billion litres over 2023-2028</b>, a near <b>30% increase</b> from last five-year period. This surge is predominantly driven by <b>emerging economies like Brazil, Indonesia, and India</b>.</li> <li>Biofuels are <b>renewable energy fuels derived from biomass</b> like crop stubble, plant waste and municipal solid waste.               <ul style="list-style-type: none"> <li>Biofuels are <b>used in place of or in blend with, diesel, petrol</b> for applications like transportation etc. This includes <b>Ethanol, Compressed Bio Gas (CBG)</b> etc.</li> </ul> </li> <li><b>Significance of Biofuels:</b> Decarbonising transport; Reduce dependence on import of crude oil etc.</li> <li><b>Challenges in adoption:</b> Higher production cost; <b>Negative impact on food security and water quality; etc.</b></li> </ul>
<b>Ethanol 100</b>	<ul style="list-style-type: none"> <li>Ethanol 100 fuel was launched by the <b>Ministry of Petroleum and Natural Gas</b>.</li> <li>A cleaner and greener alternative to gasoline</li> <li>It is a blend of <b>92% to 94% ethanol, 4% to 5% motor spirit</b> to provide colour to flame and <b>1.5% Co-solvent</b> higher saturated alcohol.</li> <li><b>Significance:</b> Lower emissions of greenhouse gases; High-octane rating makes it suitable for high-performance engines; etc.</li> </ul>
<b>E- fuel</b>	<ul style="list-style-type: none"> <li>The Role of E-fuels in Decarbonising Transport”, report released by IEA.</li> <li>E-fuels, like <b>e-methane, e-kerosene and e-methanol</b>, are all fuels in gas or liquid form that are produced from <b>renewable or decarbonised electricity</b>.</li> <li>E-fuels are <b>low-emission fuels</b> since their hydrogen is produced using <b>low-emission electricity</b> and carbon inputs are obtained in way that leads to <b>low life-cycle greenhouse gas emissions</b>.</li> <li><b>Possible Benefits:</b> Reduced emissions; Diversification of decarbonization options.; Decreased demand for critical minerals needed for battery manufacturing.</li> </ul>
<b>Soil-based microbial fuel cell (MFC)</b>	<ul style="list-style-type: none"> <li>Researchers have developed an advanced Soil-based microbial fuel cell (MFC).               <ul style="list-style-type: none"> <li>In it, they improved design so that it can efficiently work in dry conditions.</li> </ul> </li> <li><b>Soil-based MFC</b> generates bioelectricity with the help of <b>microbes</b> (such as <b>bacteria</b>) instead of chemicals.</li> <li>It consists of an <b>anode, a cathode and electrolyte</b>.</li> <li><b>Microbes</b> naturally give out electrons to nearby conductors. These electrons from anode to cathode create an electric circuit.</li> <li><b>Applications:</b> Can be used to fuel underground sensors used in <b>green infrastructure and precision agriculture</b>.</li> </ul>



### 4.4.3. SCHEME TO PROMOTE MANUFACTURING OF ELECTRIC PASSENGER CARS IN INDIA

#### Why in the news?

Government approved Scheme to Promote Manufacturing of Electric Passenger Cars in India.

#### Key Highlights of Scheme

- **Ministry:** Ministry of Heavy Industries (MHI).
- **Implementation: Project Management Agency (PMA)** will be responsible for **providing secretarial, managerial and implementation support** and carrying out other responsibilities as assigned by Government of India (GoI).
- **Eligibility Criteria**
  - **Minimum Investment required during 3 year window** is Rs 4150 Crore (~USD 500 million). No limit on maximum Investment.
  - **Domestic Value Addition (DVA) criteria during manufacturing: 25%** within a period of **3 years**, and **50% within 5 years** from date of issuance of approval letter by MHI/ PMA.
- **Bank guarantee** will be returned **only when 50% DVA is attained** and **investment of at least Rs 4,150 crore has been made**, or to the extent of **duty foregone in 5 years**, whichever is higher.
- **Performance Criteria:** All electric passenger vehicles shall meet the performance criteria of Production Linked Incentive (PLI) Auto scheme.
- **Tenure:** 5 years or as notified by GoI.

### 4.4.4. ELECTRIC MOBILITY PROMOTION SCHEME (EMPS), 2024

#### Why in the news?

Ministry of Heavy Industries (MHI) launched EMPS, 2024 to **implement after end of tenure of Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME-II)** on 31st March 2024.

#### Key highlights of EMPS, 2024

- **Nodal Ministry:** Ministry of Heavy Industries (MHI)
- **Aim:** Faster adoption of **electric two wheeler (e-2W)** and **three wheeler (e-3W)** to provide impetus to green mobility and development of Electric Vehicle (EV) manufacturing ecosystem in country.
- **Tenure:** 4 months (1st April 2024 till 31st July 2024).
- **Components of Scheme**
  - **Subsidies:** Demand incentives for **e-2W and e-3W**.
  - **Administration of Scheme** including IEC (Information, Education & Communication) activities and fee for Project Management Agency.
- **Conditions to avail Demand Incentives:**
  - **Original Equipment Manufacturer** is required to be **registered with MHI** and each of their EV models will need to be approved by MHI.
  - Each vehicle model needs to **satisfy minimum technical eligibility criteria** with regard to vehicles efficiency.
- **Eligibility:** Vehicles which are **registered as Motor Vehicle as per Central Motor Vehicle Rules** as well as Vehicles **fitted with only advanced batteries**.
- **Project Implementation and Sanctioning Committee** headed by **Secretary** (Heavy Industries) constituted for **overall monitoring, sanctioning and implementation** of EMPS.

### 4.4.5. UREA GOLD

#### Why in the news?

Cabinet Committee on Economic Affairs (CCEA) approved launch of Urea Gold.

### About Urea gold

- A **Sulphur-Coated Urea (SCU)**.
- **Non-organic slow-release fertilizer** and is generally prepared by coating preheated urea granules with molten sulphur.
- **Benefits:**
  - **Sulphur coating** ensures a more **gradual release** of **nitrogen**.
  - **Prolongs** the urea action, helping plants to stay greener for longer time.
  - **Increase efficiency and reduce frequent application of fertilizer**, thus enhancing soil health.
- As per **Indian Council of Agricultural Research (ICAR)** study, use of SCU leads to **reduction in urea consumption** by 25%.
- It will support the other initiative of government in the sphere of **Environmentally Friendly Fertilizers (EFFs)**.
  - **EFFs** are fertilizers that can reduce **environmental pollution** from nutrient loss by retarding, or even controlling, the release of nutrients into soil.
  - EFFs also include organic fertilizers such as Biocompost, Vermicompost, etc.
- **Initiatives for EFFs in India:**
  - **PM PRANAM** (Programme for Restoration, Awareness, Nourishment, and Amelioration of Mother Earth) Scheme
  - Development of **Nano Urea** and **Neem Coated Urea**
    - ✓ **Pradhan Mantri Kisan Samruddhi Kendras (PMKSK)** will facilitate these fertilizers.
    - ✓ **GOBARDhan** (Galvanizing Organic Bio-Agro Resources Dhan), helps in preparing organic manure.



### 4.4.6. PRITHVI VIGYAN (PRITHVI)

#### Why in the News?

Union Cabinet approved “PRITHvi Vlgyan (PRITHVI)” scheme under the Ministry of Earth Sciences

#### Key highlights of the scheme

- **Tenure:** 2021-26
- **Purpose:** Holistically address all the aspects relating to the **Earth System Science**.
  - Earth System Sciences deal with **all the five components of the earth system** (atmosphere, hydrosphere, geosphere, cryosphere, and biosphere) and their **complex interactions**.
- **Components:** Encompasses five **ongoing sub-schemes**:
  - **Atmosphere & Climate Research-Modelling Observing Systems & Services (ACROSS):** For Research and Development (R&D) of **dynamical models** and providing the **forecast services**.
    - ✓ **Ocean Services, Modelling Application, Resources and Technology (O-SMART):** For technology development for oceanic applications, services (forecast and advisories) and R&D activities in the marine and coastal environment.
    - ✓ **Polar Science and Cryosphere Research (PACER):** Comprising the Antarctic program, Indian Arctic program, Southern Ocean program and Cryosphere and Climate program.
    - ✓ **Seismology and Geosciences (SAGE):** Encompasses **6 activities** including Seismological monitoring and micro-zonation, and Setting up a facility for geochronology.
    - ✓ **Research, Education, Training and Outreach (REACHOUT):** Incorporating **R&D** in Earth System Science (RDESS), **developing Skilled manpower** in Earth System Sciences, etc.

### 4.4.7. OTHER RELATED NEWS

News	Details
<b>Algiers Declaration</b>	<ul style="list-style-type: none"> <li>• 7th Gas Exporting Countries Forum (GECF) summit concluded with the adoption of <b>Algiers declaration</b>.</li> </ul>

	<ul style="list-style-type: none"> <li>○ The declaration aims to “<b>promote natural gas as an affordable, reliable energy source, and harness sustainable natural gas technologies</b>”.</li> <li>● <b>About GECF:</b> <ul style="list-style-type: none"> <li>○ Headquartered in Doha, (Qatar), GECF is an <b>intergovernmental organisation, consisting of the world's leading gas exporting countries.</b></li> <li>○ <b>Members:</b> Algeria, Bolivia, Egypt, Equatorial Guinea, Iran, Libya, Nigeria, Qatar, Russia, Trinidad, UAE, Venezuela. <ul style="list-style-type: none"> <li>✓ <b>India is neither a member nor an Observer.</b></li> </ul> </li> </ul> </li> <li>● It seeks to build a mechanism for <b>a meaningful dialogue between gas producers and consumers</b> to improve the stability of gas markets around the world.</li> </ul>
<p><b>Financing Agrochemical Reduction and Management (FARM) Programme</b></p>	<ul style="list-style-type: none"> <li>● <b>Global Environment Facility (GEF)-funded</b> Financing Agrochemical Reduction and Management (FARM) Programme launched.</li> <li>● <b>About FARM:</b> A <b>\$379 million initiative</b> that will <b>realign financial incentives</b> to: <ul style="list-style-type: none"> <li>○ <b>Prevent the use</b> of harmful inputs in food production.</li> <li>○ <b>Encourage the adoption</b> of <b>low and non-chemical alternatives.</b></li> </ul> </li> <li>● <b>Tenure:</b> 5 Years <ul style="list-style-type: none"> <li>○ <b>It will support:</b> <ul style="list-style-type: none"> <li>✓ <b>Government regulation</b> to <b>phase out Persistent Organic Pollutants (POPs)</b> -containing agrochemicals and agri-plastics and adopt <b>better management standards.</b></li> <li>✓ <b>Strengthening banking, insurance and investment criteria</b> to improve the availability of effective pest control, production alternatives and trade in sustainable produce.</li> </ul> </li> </ul> </li> <li>● <b>Members:</b> India, Ecuador, Kenya, Lao PDR, the Philippines, Uruguay and Vietnam.</li> <li>● <b>Implementing Agencies:</b> Led by <b>UNEP</b> and implemented by the ADB, UNDP, and UNIDO with execution carried out in-country by FAO.</li> </ul>
<p><b>Energy Charter Treaty</b></p>	<ul style="list-style-type: none"> <li>● The UK to leave 'Outdated' Fossil Fuel Friendly Treaty ie. The Energy Charter Treaty.</li> <li>● <b>Energy Charter Treaty</b> provides a <b>multilateral framework for energy cooperation</b> that is unique under international law.</li> <li>● It entered into legal force in April 1998.</li> <li>● Designed to <b>promote energy security</b> through the operation of more <b>open and competitive energy markets</b> while respecting the principles of sustainable development and sovereignty over energy resources.</li> <li>● Currently, there are <b>53 Signatories</b> and Contracting Parties to the Treaty. <ul style="list-style-type: none"> <li>○ <b>India is not a party.</b></li> </ul> </li> </ul>
<p><b>Green Fuels Alliance India (GFAI)</b></p>	<ul style="list-style-type: none"> <li>● Denmark announced Green Fuels Alliance India (GFAI) initiative.</li> <li>● <b>GFAI</b> is part of <b>Green Strategic Partnership (GSP) signed in 2020 between India and Denmark.</b></li> <li>● Its <b>primary objective</b> is to <b>promote sustainable energy growth in India</b> by encouraging collaboration among businesses, government entities, research institutions, etc. from both countries.</li> <li>● It is inspired by initiatives like <b>India-Denmark Energy Partnership</b>, and joint R&amp;D efforts on Green Fuels, etc.</li> </ul> <div style="border: 1px solid black; padding: 5px;"> <p><b>Other Similar Partnership Initiatives By India</b></p> <ul style="list-style-type: none"> <li>○ U.S.-India Strategic Clean Energy Partnership</li> <li>○ MoU on Green / Clean Hydrogen Between India and Saudi Arabia</li> <li>○ India-Australia Green Hydrogen Taskforce</li> <li>○ Global Biofuels Alliance forged by Brazil, India, and United States</li> <li>○ Quad's Climate Working Group for clean energy</li> </ul> </div>



<p><b>Investment Forum for Advancing Climate Resilient Agrifood Systems in India</b></p>	<ul style="list-style-type: none"> <li>Investment Forum for Advancing Climate Resilient Agrifood Systems in India was launched.</li> <li>It is a joint initiative of <b>NITI Aayog, Ministry of Agriculture</b> and Farmers' Welfare, and Food and Agriculture Organization (<b>FAO</b>) of the <b>United Nations</b>.</li> <li><b>Aim:</b> To develop an <b>investment and partnership strategy</b> to advance <b>climate resilient agrifood systems</b> among government, private sectors, and farmers' organizations and financial institutions in India.</li> <li><b>Significance of Investment Forum:</b> Diversifying Investments, Addressing Climate Change Challenges, Enhanced Food Security, Empowering Farmers.</li> </ul>
<p><b>State Energy Efficiency Index (SEEI)</b></p>	<ul style="list-style-type: none"> <li>State Energy Efficiency Index (SEEI) 2023 released.</li> <li><b>SEEI developed by:</b> BEE in collaboration with <b>Alliance for an Energy Efficient Economy (AEEE)</b> to track Energy Efficiency (EE) initiatives in the states and UTs. <ul style="list-style-type: none"> <li><b>Assesses the performance of 36 states and UTs in Energy Efficiency (EE) implementation using 65 indicators</b> distributed across <b>seven demand sectors:</b> <ul style="list-style-type: none"> <li>✓ Buildings, Industry, Municipal services, Transport, Agriculture, Distribution Company (DISCOM), and Cross-Sector Initiatives.</li> </ul> </li> <li>States and UTs are categorized as <b>Front Runner, Achiever, Contender, and Aspirant</b> based on their total scores.</li> </ul> </li> <li><b>Key Outcomes of SEEI-2023:</b> <ul style="list-style-type: none"> <li><b>Top Performers:</b> Karnataka (<b>only state with active "Energy Conservation and Energy Efficiency Policy"</b>) followed by Andhra Pradesh.</li> <li><b>15 states improved scores</b> compared to SEEI 2021-22 with Maharashtra and Haryana showing most improvement.</li> </ul> </li> </ul>
<p><b>Clean &amp; Green Villages</b></p>	<ul style="list-style-type: none"> <li>Ministry of Panchayati Raj (MoPR) to prioritise 'Clean &amp; Green Villages' for solar power expansion.</li> <li>It is the <b>fifth theme adopted by the MoPR</b> under the Gram Panchayat Development Plan (GPDP).</li> <li><b>Aim:</b> Leverage the <b>circular economy</b> in the rural ecosystem, Create <b>sustainable villages</b>, and Achieve the objectives of the <b>UN's Sustainable Development Goals (SDG) like SDG-7</b> (affordable and clean energy) and <b>SDG-13</b> (climate action) among others.</li> <li><b>areas of action which among others include:</b> <ul style="list-style-type: none"> <li>Open Defecation Free Village</li> <li>Clean and Green School</li> <li>Clean and Green Anganwadi</li> <li><b>Promotion of Organic Farming &amp; Progressive Reduction of Chemicals</b></li> <li><b>Strengthening Local Committee &amp; Enhance Larger Participation</b></li> </ul> </li> <li>Ministry of Jal <b>Shakti, Ministry of Agriculture and Farmers Welfare, Ministry of Fisheries</b>, etc. have also joined the movement.</li> </ul>
<p><b>Small Scale Liquefied Natural Gas (SSLNG) unit</b></p>	<ul style="list-style-type: none"> <li>GAIL (India) Limited sets up India's first Small Scale Liquefied Natural Gas (SSLNG) unit at Vijaipur, Madhya</li> <li><b>SSLNG</b> generally refers to supplying gas in its <b>liquid or super-chilled form – LNG</b> – to industrial and commercial consumers through <b>specialised trucks and small vessels</b> in regions not having pipeline connectivity. <ul style="list-style-type: none"> <li>Traditionally, <b>LNG is regasified</b> and supplied through gas pipelines.</li> </ul> </li> <li><b>Major use cases</b> for SSLNG include marine fuel, power generation in off-grid locations, transport fuel etc.</li> </ul>
<p><b>Harit Nauka initiative</b></p>	<ul style="list-style-type: none"> <li>The Prime Minister launched <b>India's first indigenous green hydrogen fuel cell inland waterway vessel as part of the Harit Nauka initiative</b>.</li> <li><b>Cochin Shipyard</b> manufactured the vessel.</li> </ul>



- **Harit Nauka Initiative** aims to transform the maritime landscape by adopting green vessels & establish operationalization of green ecosystem.
  - Also aims to embrace low/zero emission sources of fuel & attain 100% green vessels in the Indian waters by 2047.

## 4.5. DISASTER MANAGEMENT

### 4.5.1. INDIA METEOROLOGICAL DEPARTMENT (IMD)

#### Why in the News?

India Meteorological Department (IMD) celebrated the **150<sup>th</sup> Year of its establishment** and **service** to India.

#### About IMD

- **Established** in 1875, it is the National Meteorological Service of the country.
  - Also, it is one of the **six Regional Specialized Meteorological Centres** of the WMO.
- Works under **the Ministry of Earth Sciences**.
- **Headquartered** at **New Delhi** and has **6 Regional Meteorological Centres**.
- **Achievements in Weather Forecasting:** In recent time, quality of **its predictions** has improved with the increase of number of **Doppler Weather Radars (DWRs)**.
  - **Received appreciations from the United Nations** for early warning services provided by IMD during **Super Cyclone Amphan in 2020 and Cyclone MOCHA in 2023**.

#### Recent Initiatives launched by IMD

- **National Framework of Climate Services (NFCS):** Premised on the **Global Framework for Climate Services (GFCS)** launched by the **World Meteorological Organization (WMO)**.
  - NFCS aims to set up a platform that will provide **climate information and services helpful for agriculture, energy, disaster management, health and water sectors**.
- **Indigenously Developed Decision Support System:** A Web-GIS-based integrated **Decision Support System (DSS)** known as **Weather Analysis and Forecast Enabling System (WAFES)**.
  - **Target Areas:** It provides real-time information for various sectors such as **Urban, Power, Hydrology, Health, Energy, Agriculture, Transport and Tourism** under the "**UPHHEATT**" initiative (**for the cause of welfare**).
- **Other initiatives**
  - **Panchayat Mausam Sewa Portal:** To help **farmers** in planning their agricultural activities.
  - **IMD's Mobile App:** IMD launched an **integrated GIS-based interactive** mobile app **MAUSAM** for all weather-related services.

### 4.5.2. INDIAN LANDSLIDE SUSCEPTIBILITY MAP

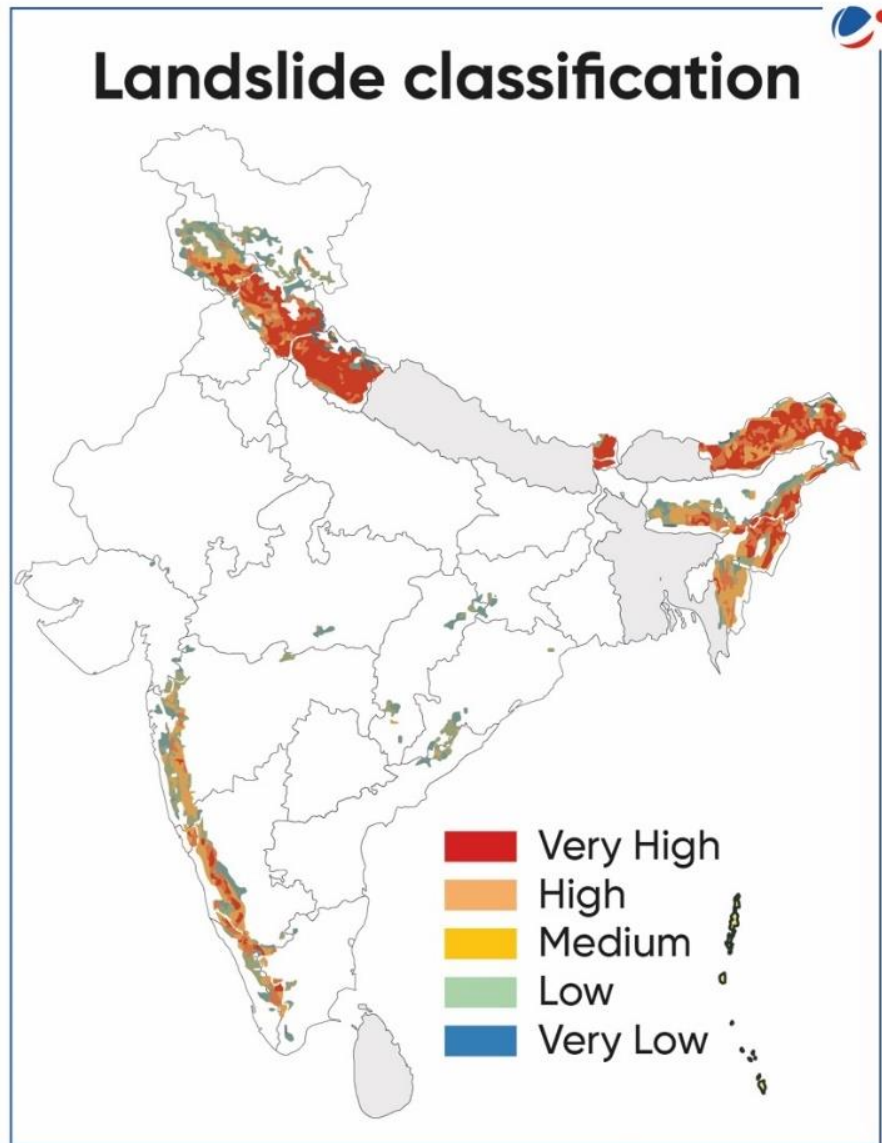
#### Why in the News?

IIT Delhi created the first hi-resolution **Indian Landslide Susceptibility Map (ILSM)**.

#### About Indian Landslide Susceptibility Map (ILSM)

- Divides the **terrain into zones** based on the likelihood of landslide occurrence.
- **Key Feature**
  - **Incorporates 16 landslide conditioning factors** such as height, slope, soil composition, road distance, river proximity, vegetation cover, precipitation, etc.
- Spatial resolution of **100 metres with over 95% accuracy**.

- Divides India into **Five Vulnerability Classes** (refer to map).
- **Key Findings of ILSM**
  - **13.17%** of India's geographical area as susceptible to landslides.
  - **4.75%** of the area is categorized as "very highly susceptible."
  - ✓ **Geological Survey of India** estimates a slightly lower figure at **12.6% (2016)**.
  - **Sikkim** has the **highest percentage of land area (57.6 %)** susceptible to landslides.
  - **Arunachal Pradesh** has the highest absolute area susceptible to landslides.
  - **Kerala**, among the **non-Himalayan** regions, exhibits the **highest area susceptible** to landslides.



### 4.5.3. OTHER RELATED NEWS

News	Details
<b>Weather Information Network and Data System (WINDS)</b>	<ul style="list-style-type: none"> <li>• <b>Ministry of Agriculture &amp; Farmers Welfare</b> have initiated the <b>Weather Information Network and Data System (WINDS)</b> to generate long-term, hyper-local weather data.</li> <li>• <b>About WINDS</b> set up a robust mechanism to <b>integrate</b> weather data, pooled from <b>different weather observation systems</b> in the country, into a <b>single national level WINDS</b> portal.               <ul style="list-style-type: none"> <li>○ Under this programme, more than <b>2 lakhs ground stations</b> will be installed.</li> </ul> </li> <li>• Hyperlocal weather forecasting provides <b>granular</b> and <b>localized weather predictions</b>,               <ul style="list-style-type: none"> <li>○ It enables farmers to make <b>informed decisions</b> about <b>planting, irrigation, and harvesting</b> based on real-time weather data specific to their location.</li> <li>○ This approach utilizes advanced technology, such as <b>high-resolution weather models, weather sensors, and data analytics</b>.</li> </ul> </li> </ul>

<b>Flood Management and Border Areas Programme (FMBAP)</b>	<ul style="list-style-type: none"> <li>• Union Cabinet approves continuation of Flood Management and Border Areas Programme (FMBAP)</li> <li>• <b>FMBAP</b> continuation has been approved for period of 5 years from 2021-22 to 2025-26.             <ul style="list-style-type: none"> <li>○ It was initially launched during Eleventh Five Year Plan (2007–2012).</li> </ul> </li> <li>• <b>Key Features of Scheme:</b> <ul style="list-style-type: none"> <li>○ <b>Type:</b> Centrally sponsored Scheme</li> <li>○ <b>Ministry:</b> Ministry of Jal Shakti</li> <li>○ <b>Sub-components:</b> <ul style="list-style-type: none"> <li>✓ <b>Flood Management Programme (FMP)</b> <ul style="list-style-type: none"> <li>▪ Covers critical works related to flood control, anti-erosion, drainage development and anti-sea erosion, etc.</li> <li>▪ <b>Funding Pattern:</b> 90%:10% between Centre and 8 North-Easter States and Hilly States (For rest state 60%:40 %).</li> <li>▪ 427 projects have been completed under it which have benefitted 4.99 mha of land and provided protection to 53.57 million people.</li> </ul> </li> <li>✓ <b>River Management and Border Areas (RMBA):</b> <ul style="list-style-type: none"> <li>▪ Covers <b>flood control</b> and <b>anti-erosion</b> works on common border rivers with neighbouring countries.</li> <li>▪ Hydrological observations and flood forecasting.</li> <li>▪ Investigation &amp; pre-construction activities of <b>joint water resources projects</b> (with neighbouring countries) on common border rivers.</li> <li>▪ <b>Funding Pattern:</b> 100% central assistance.</li> </ul> </li> </ul> </li> </ul> </li> </ul>
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## 4.6. GEOGRAPHY

### 4.6.1. TRIPLE DIP LA-NINA

#### Why in the News?

A recent study has revealed that the unprecedented **triple dip La-Niña** had peculiar impact on air quality in peninsular as well as North India.

#### More on News

- During the **winter of 2022–23** that coincided with **retreating phase** of the **triple dip La-Niña**, India experienced a **peculiar trend in Air Quality:**
  - **Poor Air quality in peninsular India**
  - **Improved Air quality in North India**

#### About Triple dip La Niña

- A triple-dip La Niña is a **rare event** that occurs when the **La Niña effect lasts three years in a row.**
- La Niña is a phase of the **El Niño Southern Oscillation (ENSO).**
- **Factors responsible for the uniqueness of the triple-dip La Niña of 2020–2023**
  - The 2020–2023 triple-dip La Niña was **distinct as it did not follow a strong El Niño.**
  - So far, it was believed that **strong El Niños** cause a **significant loss of heat from the equatorial Pacific Ocean to the atmosphere** and to **higher latitudes.**
    - ✓ This creates a **large ocean heat deficit** that can **take years to recover.**
- **Possible explanation for 2020-23 Triple dip La Niña**
  - **Inter-basin interaction of ENSO** involving the **Indian and Atlantic Oceans.**
  - **Influences from the North and South Pacific Ocean.**
  - **Bush fire in Australia**
  - **Climate change**

To know more about the El Niño Southern Oscillation (ENSO), kindly refer to **Article 6.1. El Niño Southern Oscillation (ENSO)** in Environment PT 365 (April-Dec) of VisionIAS.

### 4.6.2. SUBDUCTION ZONE

#### Why in the News?

Portuguese scientists have predicted that the subduction zone beneath the Gibraltar Strait may lead to the Atlantic Ocean's closure in **20 million years**, reshaping the planet's geological landscape.

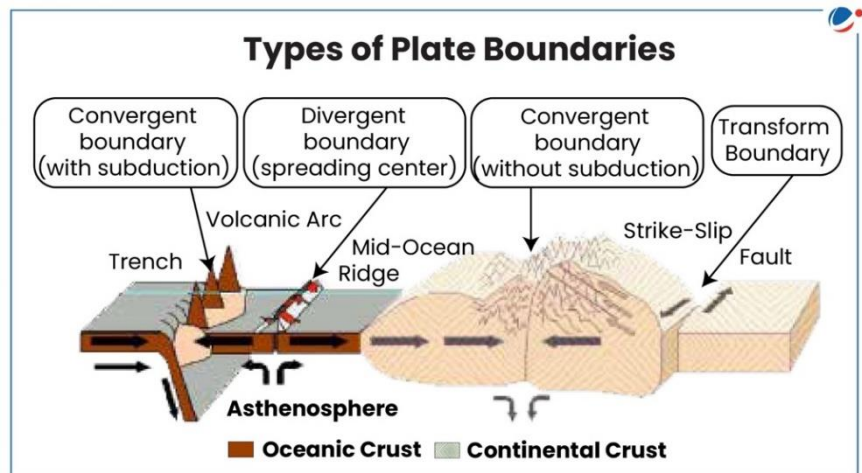
#### More on the news

- The Atlantic Ocean already has two subduction zones, the **Lesser Antilles and the Scotia arcs**.
  - The third zone, **Gibraltar Arc**, is another place where a subduction zone is invading the Atlantic, although its activity is debated.



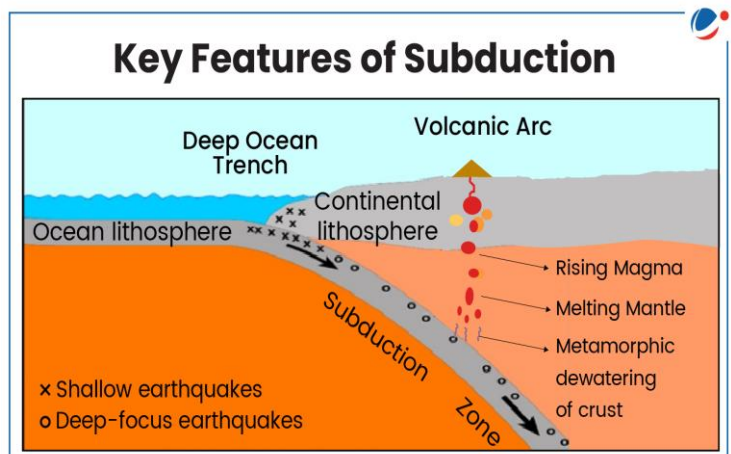
#### Key-Findings of the Study

- **Gibraltar subduction** is still active, and it will propagate further into the Atlantic after a period of inactivity.
- Despite the slow **movement of the subduction zone beneath the strait, it could grow and extend into other parts of the ocean, a phenomenon known as 'subduction invasion'**.
- The subduction zone will progress westwards through the Gibraltar Strait, forming a **new Atlantic subduction system referred to as the 'Ring of Fire'**.
  - This is a cornerstone of the **Wilson cycle** (repetitive opening and closing of ocean basins due to the seafloor spreading and subduction respectively).



#### About Subduction Zone

- According to the **Plate Tectonics theory**, the Earth is made up of number of lithospheric plates (~100 km thick) those float on the hot and ductile **asthenosphere**.
  - These plates are classified into three plate boundary types respectively (see infographic)
- **Subduction Zone**
  - When two plates **converge** towards each other, one plate which is heavier in density **subducts** (subducting plate) below the lighter plate and is **consumed or destroyed** in the mantle.
  - The zone where subduction occurs is called as **Benioff Zone**.







- For e.g., **Subduction zones** occur in a horseshoe shape around the edge of the **Pacific Ocean**.
- ✓ Called the "**Pacific Ring of Fire**," these subduction zones comprise "**the most seismically and volcanically active zone in the world**," responsible for more than **80%** of the world's biggest earthquakes and most of the planet's active volcanoes.

### 4.6.3. OTHER RELATED NEWS

News	Details
<b>Humboldt's Enigma</b>	<ul style="list-style-type: none"> <li>• It was proposed by <b>Alexander von Humboldt</b> stating that <b>mountain regions generally display higher diversity</b> than tropical regions.</li> <li>• While the <b>conventional belief</b> is that the world's <b>tropical areas have greater productivity and diversity</b>.</li> <li>• The proponents of <b>Humboldt's enigma hold that many areas outside the tropics are also highly biodiverse</b>. i.e., the Mountains</li> </ul>
<b>Antarctic Circumpolar Current (ACC)</b>	<ul style="list-style-type: none"> <li>• Scientists have discovered an <b>ancient underwater mountain range hidden within the world's strongest ocean current</b>, the ACC.</li> <li>• It was observed in the area of <b>the Southern Ocean</b>.</li> <li>• <b>ACC</b> is the only current to flow clear around the globe without being diverted by any landmass.</li> <li>• It <b>encircles the Antarctic continent and flows eastward through</b> the southern portions of the Atlantic, Indian, and Pacific Oceans.</li> <li>• <b>Source of Rich Mineral:</b> Zinc, Gold, Silver, Copper, Dolomite, Marble etc.</li> </ul>
<b>Rip Currents</b>	<ul style="list-style-type: none"> <li>• Indian National Centre for Ocean Information Services (INCOIS) and ISRO to monitor and issue operational forecast alerts of rip currents.</li> <li>• Rip Current is a <b>strong flow of water running from a beach back to open ocean</b>, sea, or lake.</li> <li>• They can be <b>as narrow as 10 or 20 feet in width</b> though they may be <b>up to ten times wider</b>.</li> <li>• <b>Prevalent along East, Gulf, and West coasts of U.S.</b>, as well as along shores of Great Lakes.</li> <li>• They <b>do not pull people under water</b> rather they pull people away from shore.</li> </ul>
<b>Planetary Boundaries Framework</b>	<ul style="list-style-type: none"> <li>• The <b>2024 Tyler Prize for Environmental Achievement</b> awarded to <b>Johan Rockstrom</b> for his work on the Planetary Boundaries framework.</li> <li>• First published in 2009, the Planetary Boundaries integrate <b>nine systems</b> that determine the <b>functioning and the state of the planet</b>.</li> <li>• <b>Nine planetary boundaries</b> include Climate Change, Biosphere Integrity, Land-System Change, Freshwater Change, Biogeochemical Flows, Novel Entities, Stratospheric Ozone Depletion, Atmospheric Aerosol Loading, and Ocean Acidification.</li> <li>• They provide <b>life-support to humans</b> and humanity is well <b>outside of safe operating space on first six</b> planetary boundaries.</li> </ul>
<b>Star Dunes</b>	<ul style="list-style-type: none"> <li>• Scientists unveiled the <b>first in-depth study of Earth's magnificent desert star dunes</b> revealing the internal structure.               <ul style="list-style-type: none"> <li>○ The study focused on a star dune in Erg Chebbi (eastern <b>Morocco</b>) called <b>Lala Lallia</b>, meaning "<b>highest sacred point</b>".</li> </ul> </li> <li>• Star Dunes are formed in <b>areas with complex wind regimes</b>, which means winds blowing from different directions.</li> <li>• They <b>make up just under 10% of the dunes</b> in Earth's deserts and are the tallest ones.</li> <li>• <b>Earth's largest star dunes</b> are found in the <b>Badain Jaran desert (China)</b>.</li> <li>• They also have been <b>spotted on Mars and Saturn's moon Titan</b>.</li> </ul>

<b>Anthropocene Epoch (Human Epoch)</b>	<ul style="list-style-type: none"> <li>International Commission on Stratigraphy rejected <b>proposal to declare</b> the start of the Anthropocene Epoch in geologic time.</li> <li><b>Anthropocene Epoch</b> is an <b>unofficial unit of geologic time</b>.</li> <li>It describes the most recent period in Earth's history when <b>human activity started to have a significant impact</b> on Earth's climate and ecosystems, particularly since <b>industrialization</b>.</li> <li><b>Current epoch</b> is called the <b>Holocene</b> which began 11,700 years ago after the last major ice age. <ul style="list-style-type: none"> <li>Currently, on geological time scale, we are living in the <b>Phanerozoic Eon, Cenozoic Era, Quaternary Period, Holocene Epoch, and the Meghalayan Age</b>.</li> </ul> </li> </ul>
<b>Atmospheric Research Testbed in Central India (ART-CI)</b>	<ul style="list-style-type: none"> <li>Ministry of Earth Sciences (MoES) inaugurated the <b>first phase of ART-CI in Madhya Pradesh</b>.</li> <li><b>Aim:</b> Advancing weather research for <b>better understanding on processes governing monsoon convection</b> and land-atmosphere interactions over core monsoon zone.</li> <li>Spearheaded by the Pune-based <b>Indian Institute of Tropical Meteorology</b>.</li> <li>Established under <b>Atmosphere &amp; Climate Research-Modelling Observing Systems &amp; Services (ACROSS) umbrella scheme</b> of MoES.</li> <li>ART-CI will have <b>remote-sensing and in-situ instruments</b> providing continuous observations of <b>convection, clouds, precipitation, soil moisture, radiation</b> etc.</li> </ul>
<b>Ionosphere</b>	<ul style="list-style-type: none"> <li>Ionospheric observations at <b>Bharati station, Antarctica</b>, found a <b>substantial seasonal variation</b> in ionospheric density.</li> <li><b>Ionosphere</b> is a <b>part of Earth's upper atmosphere</b>, which is partially ionized extending from 80-400 km.</li> <li>Extreme Ultraviolet (EUV) and x-ray <b>solar radiation ionizes the atoms</b> and molecules thus creating a layer of electrons here.</li> <li><b>Significance:</b> It <b>reflects and modifies radio waves</b> (used for communication and navigation).</li> <li>In polar regions, it is highly dynamic and acts as a <b>major energy sink for space weather events</b> e.g. Geomagnetic storms, Solar flares, etc.</li> </ul>



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### 4.6.4. PLACES IN NEWS

#### 4.6.4.1. GEOGRAPHICAL FEATURES (INDIA)

## Places and rivers in News: INDIA

#### Chenab River

- Its **successful diversion** achieved at **Ratle Hydro Electric Project** in Jammu & Kashmir.
- Formed by **Chandra and Bhaga** (join near **Keylong** in Himachal Pradesh)
- A.k.a. **Chandrabhaga**.
- Enters into Pakistan.
- **Largest tributary** of Indus.

#### Shinkun La Pass

- **Border Road Organisation** connected **strategically important** road through the pass from **Manali (Himachal Pradesh) to Leh (Ladakh)** through **Darcha and Nimmu**.
- **Connects Lahaul and Spiti** in Himachal Pradesh with **Zaskar Valley** in Kargil, Ladakh.

#### Char Areas

- Chief Minister of Assam announced that land within **char areas** would be surveyed under **Mission Basundhara 4.0**.
- **Char/ Chapori** is local name for **riverine areas (island)** of the river Brahmaputra.

#### Kshipra River

- As per performance audit by CAG, it **continues to remain polluted** despite interventions.
- **Origin: Vindhya Range (Kokri Bardi hill)**
- Flows **northerly** across the **Malwa Plateau** to join **Chambal River**.
- **Ujjain** situated on its bank.
- **Main tributaries:** Kahn and Gambhir

#### Aravalli Hills

- **Supreme Court** passed an **interim order** to **stop mining activities** in Aravalli range
- One of the **oldest fold mountains** of world.
- Highest peak is **Guru Shikhar**, near **Mount Abu Rajasthan**.
- **Rivers: Banas and Sahibi** (tributaries of Yamuna) and **Luni River**.
- Acts as **water divide** between **Indus and Ganga Basins**.

#### Wadge Bank Ecosystem

- May be impacted by proposed **exploration and development** of oil and gas blocks.
- Part of **Indian continental shelf** and one of the world's most **productive coastal areas**

#### Imphal River

- Heavy fuel from **Leimakhong Power Station, Manipur** spilled into a stream which joins the River.
- **Origin:** Northern hills of **Karong, Manipur**
- Joined by **Iril River**
- Creates **Loktak Lake**

#### Koderma district, Jharkhand

- 'Vulture Restaurant' established to **address adverse impact of diclofenac** on vultures.
- Other such restaurants in **Raigad, Gadchiroli** and **Nashik** district in **Maharashtra** and **Kangra** district in **Himachal Pradesh**.

#### Dibang river

- PM laid **foundation stone** for **Dibang multipurpose Hydroelectric project**.
- **Origin:** Southern slopes of **AdzonChhu** peak, **Arunachal Pradesh**
- Joins **Dihang** and **Lohit** river
- A tributary of **Brahmaputra**
- **Tributaries:** Dri, Mathun, Talon, Eme, Ahi, Emra and Aw

#### 4.6.4.2. GEOGRAPHICAL FEATURES (INTERNATIONAL)

## Places in News: International

#### Great Lakes

- Recorded **significantly below-average ice cover** for the second consecutive year.
- Great Lakes – **Superior, Michigan, Huron, Erie and Ontario** – form the **largest fresh surface water system** on Earth.
- **Except for Lake Michigan**, the lakes provide a natural border between **Canada and United States**.

#### Panama Canal

- Hit by a severe **drought**
- Connects **Atlantic (Caribbean Sea) and Pacific Oceans**.
- Initially, from its **opening in 1914**, the canal was controlled solely by **USA (which built it)** but in **1999**, **control was transferred to Panama**.

#### Lake Retba / Lac Rose/ Pink Lake, Senegal

- On the verge of **disappearing** due to sudden **increase in nitrate levels**.
- **Pink coloration** is due to the **presence of algae**.



## 4.6.4.3. COUNTRIES IN NEWS

# Countries in News

## Cambodia (Capital: Phnom Penh)

- India signed an MoU with Cambodia on biodiversity conservation with special focus on tiger reintroduction in Cambodia.



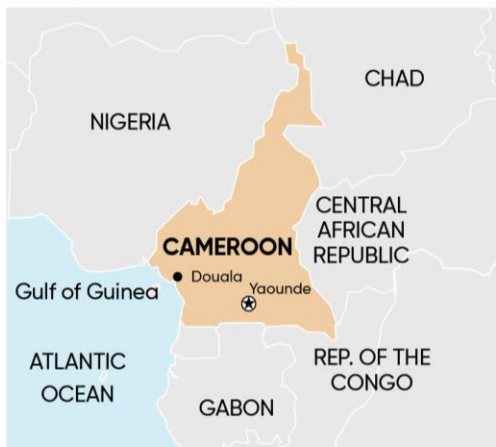
## Mexico (Capital: Mexico city)

- Mexico city is running towards day Zero.



## Cameroon

- Adopted the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization.



## Belgium

- 1st country in Europe to recognize 'ecocide' as a national and international crime.
- Ecocide:** deliberate environmental harm.
- Term invented by **American Biologist Arthur Galston in 1970.**





## 4.7. ERRATA

PT 365 Environment (April 2023 to December 2023)

- **3.2.6. State of the Rhino 2023 Report:** In the infographic on Page 60, the IUCN status of White Rhino is mentioned as 'Near Threatened'. The correct information is that the **Southern white rhino subspecies is categorized as 'Near threatened'** under IUCN's red list, while the **Northern White rhino subspecies is categorized as 'Critically endangered'**.
- **3.4.3. Lakes and Wetlands in News:**
  - In the table located on Page 85-
    - ✓ **Chilika Lake, Odisha** has been incorrectly mentioned as 'World's 2nd largest coastal lagoon'. The correct information is that Chilika Lake is '**one of the world's largest coastal lagoon**'.
    - ✓ **Pulicat Lake** has been incorrectly mentioned as a Ramsar site. The correct information is that it is not a Ramsar Site.
  - In the table located on Page 86-
    - ✓ Sundarbans, West Bengal has been incorrectly mentioned as a 'Cultural UNESCO World Heritage Site'. The correct information is that Sundarbans is a '**Natural UNESCO World Heritage Site**'.

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In a world facing unprecedented environmental challenges, staying informed and empowered is more crucial than ever. VisionIAS brings you 'The Planet Vision', a simplified, informative, and interactive magazine to delve into the complexities of the environment.

With the belief, that individual efforts and awareness are the key to a sustainable future, the magazine seeks to inspire and educate people to develop a deeper understanding and appreciation for the environment, nature & planet.



## Objectives of 'The Planet Vision'



**Sensitise the young generation:** Highlighting pressing environmental issues and their multifaceted impacts.



**Inspire Action and Promote Sustainable Lifestyle:** Inspiring stories and case studies to motivate readers to make environmentally conscious choices.



**Bridge Environmental Science and Public Understanding:** Presenting complex scientific concepts in a simple and interactive manner.



**Showcase Solutions:** Spotlight innovative technologies, projects, and initiatives that offer solutions to environmental challenges.



**Highlight Local Efforts:** Showcase local conservation efforts, community initiatives, and grassroots projects that make a positive impact on the environment.

## Who is the magazine for?

The Magazine is designed for students, eco-conscious individuals, educators, environmentalists, and anyone who cares about the health of our planet.

## Key elements of the 'The Planet Vision'



**Cover Stories:** Thought-provoking articles about a critical ongoing environmental issue, along with the mitigation strategies adopted at the national and international levels.



**Briefing and Developments:** Stay informed about the latest environmental news, trends, and solutions.



**Protect and Preserve:** Inspirational stories of local conservation efforts.



**Environment and You:** Illustrating ways to make environmentally conscious choices in everyday life.



**Green Tech:** New and emerging technologies in the field of environment.



**Interactive elements:**

✓ **Snapshot:** Telling a story through capturing images.

✓ **Quizzes and crosswords:** To test your understanding and knowledge as a reader.

“

Look deep into nature, and then you will understand everything better. ”

—Albert Einstein



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## 5. SOCIAL ISSUES

### 5.1. DECLINING TOTAL FERTILITY RATE (TFR) IN INDIA

#### Why in the news?

Recently, Global Burden of Disease Study 2021 published in Lancet highlighted that **India's Total Fertility Rate (TFR) is projected to fall to 1.29 and 1.04 in 2050 and 2100 respectively.**

#### What is the Total Fertility Rate?

- TFR may be defined as **average number of children that would be born to a woman** if she experiences the current fertility pattern throughout her reproductive span (15-49 years).
  - A TFR of 2.1 i.e., **two children per woman is considered the replacement rate for a population**, resulting in relative stability in terms of total population numbers.
  - India's TFR of 1.91 in 2021 is far **lower than the replacement rate of 2.1** indicating **depleting working-age population.**
  - In India, **Live births** are projected to **fall to 1.3 crore in 2050.**

#### Reasons for declining Total Fertility Rate



Increased education of women and **contraception** use



**Family Planning initiatives** enable couples to decide on child number



**Delayed marriage** led to drop of average age of first pregnancy



**Lifestyle factors** like obesity, stress, smoking, increased pollution etc.



**Declined child mortality** rates with improvements in child health services

#### Impact of declining Total Fertility Rate

##### Positive impact

- Resource mobilisation:** A falling fertility rate will lead to **lower pressure on land, water and other resources** and would contribute to achieving environmental goals.
- Educational Efficiency:** Declining TFR could **improve educational outcomes without additional resources being spent** by the state, as the number of enrolling children will decrease in schools. Example, Kerala.

##### Negative impact

- Increase in dependency ratio:** It is the **ratio of persons in 'dependent' age groups (under 15 years and plus 65 years and above)** per 100 persons to **those in the 'economically productive' age group (15-64 years).**
- Fiscal challenges:** Increased pressure on fiscal resources due to **decreased working-age population and increased spending on social security.**
- Migration Patterns:** Ageing nations draw immigrants to offset labour deficits, fostering diversity and immigration policy tensions.

### 5.2. INTERNAL FEMALE MIGRATION IN INDIA

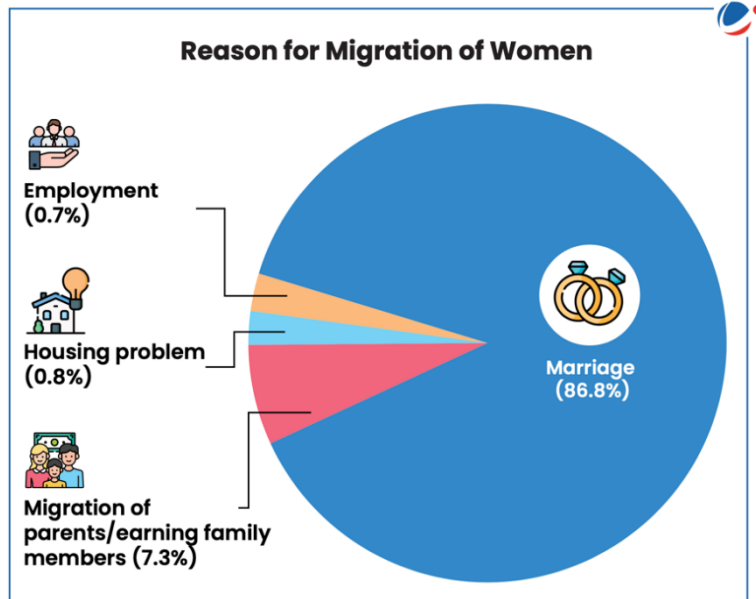
#### Why in the news?

Report on Migration in India, 2020-21, based on the Periodic Labour Force Survey (PLFS) has highlighted that the **female migration rate is 47.9%** compared to 10.7% for males.



### Status of Internal Female Migration in India

- **Migrant estimation:** Migration rate (percentage of migrants in the population) in India is estimated to be 28.9%.
- **Intra and inter-state trends:** Females are the **major migrant population in intra-state migration** and males are the major migrant population in inter-state migration.
  - **Marriage** accounts for about **33% of the intra-state migrant population** which is 51% for female intra-state migrants.
- **Rural and urban trends:** In the **rural-to-urban** interstate stream, **males** are most prominent, while **female migration** was prominent in the **rural-to-rural stream**.



## 5.3. SENIOR CARE REFORMS IN INDIA

### Why in the News?

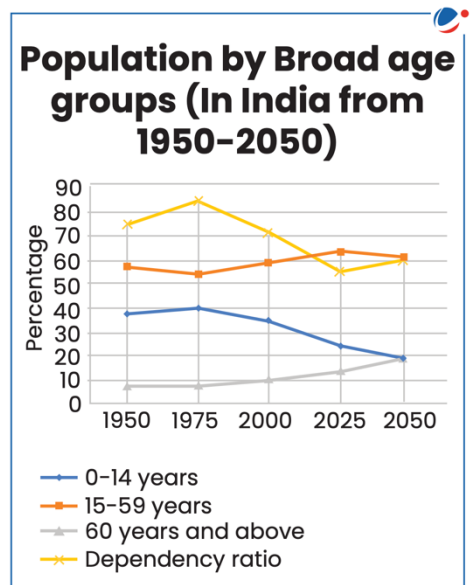
NITI Aayog released a position paper titled “Senior Care Reforms in India: Reimagining the Senior Care Paradigm”.

### Senior care – An overview

- **Demography-specific:** In India, senior citizens, i.e. people aged 60 years and above, currently **comprise a little over 10% of population, i.e. about 104 million**.
- **Health:** 75% of the elderly have one or more chronic diseases.
- **Pension:** 78% of the elderly population survives without a pension.
- **Diet:** Food insecurity is increasing among India’s elderly.

### Senior Care Support Framework in India

- **Constitutional Provisions:**
  - **Article 41:** The state shall **make effective provisions for securing the right to work, education, and public assistance** in cases of unemployment, old age, sickness, and disablement, etc.
  - **7th Schedule:** Item **No. 9 of the State List** and items **20, 23 & 24 of the Concurrent List** relate to **old age pension, social security and social insurance, and economic and social planning**.
- **Legal Measures:**
  - **Section 20 of the Hindu Adoption and Maintenance Act, 1956** makes it an obligation to maintain an aged parent.
  - **Income Tax Act** allows senior citizens to claim a discount in tax.
  - **Maintenance and Welfare of Parents and Senior Citizens Act, 2007.**



### Policy Support for Senior Care

- ➔ **National Policy for Older Persons (NPOP).**
- ➔ **National Social Assistance Program (NSAP):** Indira Gandhi Old Age Pension Scheme (IGNOAPS) and Indira Gandhi National Disability Pension Scheme (IGNDPS).
- ➔ **Atal Vayo Abhyudaya Yojana (AVYAY)** Integrated Program for Senior Citizens.



- **NALSA (Legal Services to Senior Citizens) Scheme, 2016.**
- **Welfare Schemes & Programmes:**
  - **Senior Able Citizens for Re-Employment in Dignity (SACRED) portal:** To connect senior citizens with job providers in the private sector.
  - **Senior Ageing Growth Engine (SAGE) initiative:** Launched by Ministry of Social Justice and Empowerment government to promote and incentivize senior care products and services.
  - **Other Welfare Measures:** Senior Citizens' Welfare Fund; Vayoshreshtha Samman; Accessible India Campaign (Sugamya Bharat Abhiyaan), Rashtriya Vayoshri Yojana etc.

## 5.4. STREET VENDORS (PROTECTION OF LIVELIHOOD AND REGULATION OF STREET VENDING) ACT, 2014

### Why in the news?

Recently, the **Union Minister of Housing and Urban Affairs** highlighted the slow pace of implementation of provisions of **Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014.**

### Street Vendors in India

- A street vendor is "a person engaged in vending of articles/goods in a street or any other public place or private area, from a temporary **built-up structure** or by moving from place to place."

### Key features of Street Vendors Act, 2014

- **Rights of street vendors:** Every street vendor shall have the right to carry on the business of street vending activities as per the terms and conditions mentioned in the certificate of vending.
- **Town Vending Committees (TVC):** They are to be established in each Local Authority. These committees are in charge of enumerating, identifying, and allocating vending zones in a city.
  - **TVCs are to be heterogeneously constituted** with at least **40% of its elected members being street vendors**, of which **one-third** are to be women.
- **Survey of Street Vendors:** At least once **every five years** for the issuance of a Certificate of Vending (CoV) to the vendors identified.
- **Ceiling limit on number of vendors:** It is set at **2.5% of the population of the ward or zone or town or city** for accommodating the vendors in the respective vending zones.
- **Grievance redressal Committees:** They are to be set up by the States under the **chairmanship of a retired judicial officer** to maintain impartiality towards grievances of street vendors.
- **Period for the release of seized goods:** For **non-perishable goods**, the goods are to be **released within two working days** and in the case of **perishable goods**, the goods shall be **released the same day** of claim.

**Note:** The act does not apply to any land, premises and trains owned and controlled by the Railways.

## 5.5. EDUCATION IN REGIONAL LANGUAGES

### Why in the news?

**Ministry of Education** directed **schools and higher education regulators** to make study material available **digitally in Indian languages** included in the **8<sup>th</sup> Schedule of the Constitution.**

### Policy Framework for Education in Regional Languages

- **National Education Policy (NEP) 2020:** Calls for **multilingualism** in education **at every level.**
  - It provides that wherever possible, the **medium of instruction** until at least Grade 5, but preferably till Grade 8 and beyond, will be the mother tongue/ regional language.
  - It states that **three language formula** will continue to be implemented.
  - It provides for making available **high-quality textbooks in the home language/mother tongue** and encourages teachers to use a bilingual approach while teaching.

- **Right to Education Act 2009:** As far as possible the **medium of instruction** in education should be in the mother tongue.
- **Article 350A of the Constitution:** Article provides for **instruction in the mother tongue** at the primary stage of education to children belonging to **linguistic minority groups**.

## Initiatives for Education in Regional Language



**Anuvadini (AI-based App):** Translation of Engineering, Medical, Law, UG, PG and Skill books.



**e-KUMBH Portal:** Launched by the AICTE to provide **free access to technical education books** in different Indian languages.



**DIKSHA Portal:** Provides **study material** for school education in over 30 Indian languages.



**Natural Language Translation Mission:** To facilitate **access to teaching and research material** across all regional languages.



**Competitive exams** like JEE, NEET, and CUET are being held in **13 Indian languages**.

## 5.6. ANNUAL STATUS OF EDUCATION REPORT (ASER) 2023

### Why in the news?

NGO Pratham releases its 'Annual Status of Education Report (ASER) 2023: Beyond basics.

### About ASER Report

- ASER, initiated in 2005, is a **citizen-led survey offering insights into rural India's children's education**.
- **'Basic' ASER survey** collects information about **enrollment in pre-school and school for children in age group of 3 to 16**.
- **'Beyond Basics' survey**, focuses on **activities, awareness, abilities and aspirations of youth aged 14 to 18**.

### Key findings of ASER 2023 report

- For **14-18 year-olds** rural youth
  - **Enrollment patterns:** **86.8%** are **enrolled** in either school or college. **84%** of young people have completed **8 or more years of schooling** against 81% in 2017.
    - ✓ 56.4% and 31.3% are pursuing Humanities and Science beyond Standard X, while a **mere 0.7%** reported studying agriculture.
  - **Learning levels:** About **25%** still **cannot read a Standard II level text fluently** in their regional language.
    - ✓ **Females outperform males in reading text in regional language** while **males perform better** in arithmetic and English reading.
  - **Other Activities:** **Only 5.6%** of youth are taking **vocational training** or other related courses currently.
    - ✓ **Most youth** who are working in activities other than household work **tend to be working on family farms**.
  - **Digital access:** Males are over **twice as likely to own smartphones than females**.

**All India Survey on Higher Education (AISHE) 2021-2022**

- Ministry of Education (MoE) released AISHE 2021-2022.
  - MoE has endeavoured to conduct an **annual web-based AISHE since 2010-11** to portray the status of higher education in the country.
  - Indicators of educational development like Institution Density, Gross enrollment ratio, Pupil-teacher ratio, Gender Parity Index, and per-student expenditure will be calculated from data collected through AISHE.
- **Key findings**
  - **Total enrolment in higher education has increased** to nearly 4.33 crore in 2021-22.
    - ✓ **Female enrolment in Higher Education increases** to 2.07 crore (32% increase since 2014-15).
    - ✓ **Top 6 States in terms of Student enrollment** are Uttar Pradesh, Maharashtra, Tamil Nadu, Madhya Pradesh, West Bengal and Rajasthan.
  - **Gross Enrolment Ratio (GER)** in higher education for the **age group 18- 23 years has increased** to 28.4.
    - ✓ Female GER continues to be more than male GER for the fifth consecutive year as per AISHE 2021-22.
      - GER is a key indicator of the **level of participation in higher education within a given population**. Higher GER values indicate greater enrolment in higher education among specified age groups.
  - For Regular Mode, **Pupil Teacher Ratio (PTR) in Universities and Colleges is 24**.
    - ✓ For both Regular and Distance learning modes together, PTR is 28.
  - Gender Parity Index (**GPI**) at **All India level is 1.01** and for SC and ST categories, GPI is 1.01 and 0.98 respectively.
    - ✓ GPI is the **ratio of GER female to GER male**.
    - ✓ GPI of **1 indicates parity between both male and female**; a GPI that varies **between 0 and 1** typically means a **disparity in favour of males**; whereas a GPI **greater than 1 indicates a disparity in favour of females**.

**National Achievement Survey (NAS)**

- It is a **national level large-scale assessment** conducted to obtain information about **learning achievement of students of Classes 3, 5, 8 and 10** studying in **State Govt. schools, Govt. Aided schools, Private Unaided and Central Govt. schools**.
  - It **does not provide scores for individual student/school**. It provides a **system level reflection on effectiveness of school education**
  - It is led by NAS Cell, NCERT and CBSE, under aegis of **Department of School Education and Literacy, Ministry of Education**.

**5.7. HOLISTIC PROGRESS CARD (HPC)****Why in the News?**

**PARAKH (Performance Assessment, Review and Analysis of Knowledge for Holistic Development)** a standard-setting body under **NCERT**, has devised the HPC for the **foundational stage (Classes 1 and 2), preparatory stage (Classes 3 to 5) and middle stage (Classes 6 to 8)**.

**About HPC**

- **HPC is a 360-degree, multidimensional report of progress**, detailing the uniqueness of each learner in the **cognitive, affective, socio-emotional, and psychomotor domains**.
  - It is in line with the recommendations of the **National Education Policy (NEP) 2020**.

**About PARAKH**

- **PARAKH is the National Assessment Centre**.
- It was set up in **NCERT** as an **independent constituent unit in 2023**.
- **Objective:** Setting norms, standards, guidelines and implementing activities related to **student assessment** along with other tasks as mandated by **NEP, 2020**.

- **Based on three Developmental Goals:** Health and Wellbeing, Effective Communicators, and Involved Learners.

### Objective of HPC

- It helps to **map the status of each child's learning for foundation literacy and numeracy skills.**
- It focuses on the **uniqueness of each learner.**
- To document a **child's own expression of self as well as the teacher's assessment** of the child based on the competencies.
- It will form an **important link between home and school** and **make parents an integral part** of a child's learning process.

### Features of HPC

- **Asses through project-based and inquiry-based learning**, quizzes, role plays, group work, portfolios, etc
- It includes **self-assessment, peer assessment and parent's feedback.**
- Builds on self-awareness and self-esteem by **communicating the strengths and areas of improvement.**

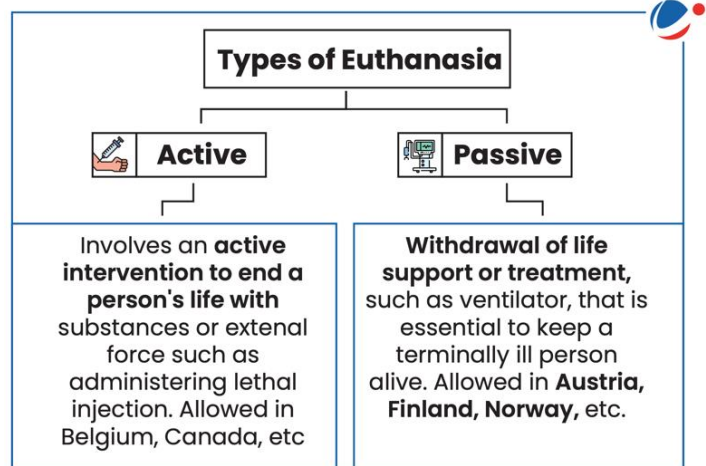
## 5.8. EUTHANASIA

### Why in the News?

Recently, French President has announced new legislation to **legalize "aid in dying"** that will allow adults facing end-of-life illness to take lethal medication.

### About Euthanasia

- **Euthanasia**, also called mercy killing, is the **practice of ending the life of a patient to limit their suffering.** Instead of condemning someone to a slow, painful, or undignified death, it allows one to **'die with dignity'**.
  - The term was derived from the **Greek words 'eu'** and **'thanatos'** which means **'good or easy death'**.



### Euthanasia in India

- **Active euthanasia is an offence under Section 302** (punishment for murder) and **Section 304** (punishment for culpable homicide not amounting to murder) under Indian Penal Code 1860.
- **Important Judicial pronouncements**
  - **Aruna Ramachandra Shanbaug vs Union of India (2011): SC allowed passive euthanasia** under exceptional circumstances.
  - **Common Cause vs Union of India (2018): SC held that a person in a persistent vegetative state can opt for passive euthanasia** and also held that **the Right to Die with dignity is a fundamental right under Article 21.**
    - ✓ A person can **execute a living will to refuse medical treatment** in case of a terminal illness.
    - ✓ A **living will** is a written document by way of which a patient can give his/her explicit instructions in advance about medical treatment to be administered when he/she is terminally ill or no longer able to express informed consent.

## 5.9. MITAKSHARA LAW

### Why in the News?

Supreme Court ruled that **children born from void or voidable marriages** are **legitimate for property inheritance** under the **Hindu Succession Act (HSA), 1956** which recognizes **Mitakshara Law.**

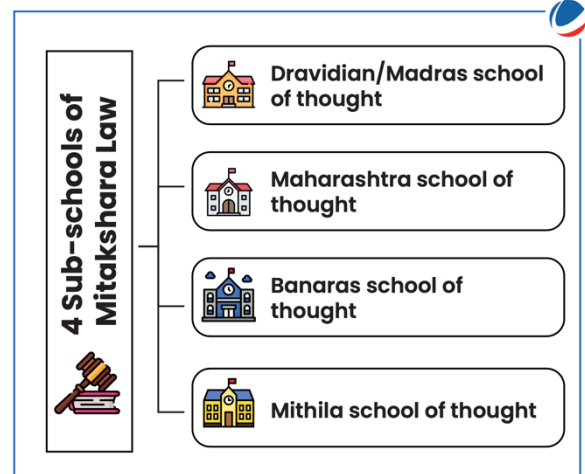


### More on the News

- The court held that such children shall be **treated as an extended family of a common ancestor** to decide a valid share in the property of the common ancestor.

### Mitakshara Law

- It is **one of the two major Hindu law schools** (other being Dayabhaga) that **governs succession of property in Hindu families**.
- It is based on the commentary on **Yajnavalkya Smriti**, written by **Vijnaneswara in 12th century**.
- It recognizes the concept of **coparcenary**, which means that **ancestral property is jointly held by all male members of the family**, and they have equal rights in the property.
- Coparcener has **no absolute right to transfer his share** because his **share is not definite or ascertainable** as their shares fluctuate with the births and deaths of the coparceners.
- According to this school, a **woman could never become a coparcener**.
  - However, **Hindu Succession (Amendment) Act, of 2005 empowered women to become a coparcener** like males in ancestral property.
- It is **prevalent throughout India, except in some eastern parts** where Dayabhaga School is followed.



### Dayabhaga School of Thought

- It is based mainly on Yagnavalkya Smriti commented by **Jimutuvahana**.
- Inheritance is based on principle of spiritual benefit**. It arises by **pinda offering**, i.e., rice ball offering to deceased ancestors.
- Followed in **Bengal and some parts of Assam** only.
- It has **no sub-school**.

### Mitakshara vs. Dayabhaga schools in coparcenary rights

Mitakshara Schools	Dayabhaga School
<b>Orthodox School</b>	<b>Reformist School</b>
Right of a son by birth in ancestral property equals to interest of his father.	<b>Son is entitled to his ancestral property only on death</b> of his father.
Son becomes coparcener right after his birth.	Son becomes coparcener by death of his father.
<b>Coparcenary right is applicable to property</b> of grandfather and great-grandfather.	Father is the absolute owner of his property in his lifetime.
<b>One cannot transfer his share to the third party</b> as their share is not definite or ascertainable.	<b>One can transfer his share</b> as they are defined.

## 5.10. SAPINDA MARRIAGES

### Why in the news?

Delhi High Court upheld constitutional validity of prohibition of marriage between ‘Sapindas’ under Hindu Marriage Act (HMA), 1955.

### More about News

- Court also said that **if the choice of a partner in a marriage is left unregulated**, an **incestuous relationship may gain legitimacy**.
- Section 5(v) of HMA, 1955 prohibits marriages between Sapindas**, unless custom or usage governing each of them permits a marriage between the two.

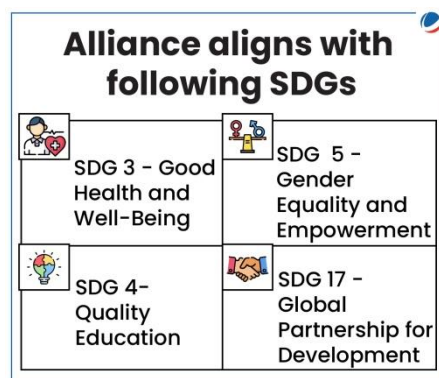
### About Sapindas

- Under HMA, 1955, Sapinda relationship with any person extends as far as
  - 3<sup>rd</sup> generation (inclusive) in the line of ascent through mother,
  - 5<sup>th</sup> generation (inclusive) in the line of ascent through father, and
  - The line is traced upwards in each case from the person concerned, who is to be counted as first generation.
- Two persons are said to be sapindas of each other if –
  - one is a lineal ascendant of the other within the limits of the sapinda relationship, or
  - they have a common lineal ascendant who is within the limits of the sapinda relationship with reference to each of them.

## 5.11. ALLIANCE FOR GLOBAL GOOD- GENDER EQUITY AND EQUALITY

### Why in the news?

Recently, India announced an ‘Alliance for Global Good- Gender Equity, and Equality’ at the World Economic Forum (WEF) Annual Meeting in Davos, Switzerland.



### About the Alliance

- It is a collective of Governments, Industry and Development organisations.
- The idea of this alliance emerged from **G20 Leaders’ Declaration** and India’s abiding commitment to the cause of women-led development.
- **Objective:** To bring together global best practices, knowledge sharing and investments in identified areas of women’s health, education, and enterprise.
- **Key partners of Alliance**
  - **Network Partner:** World Economic Forum
  - **Institutional Partner:** Invest India
  - **Supported by:** Bill & Melinda Gates Foundation
  - **Anchored by:** Confederation of Indian Industry (CII) Centre for Women Leadership
    - ✓ CII Centre for Women Leadership was launched by **Government of India in 2023** at CII National Council Meeting in **New Delhi**. It was created in partnership with **Bill and Melinda Gates Foundation**.
- The alliance will follow up on the activities of **Engagement Group and initiatives under G20 framework-**
  - **Business 20 (B20):** Official G20 dialogue forum with global business community, established in 2010. 2023 B20 Summit was hosted by India.
  - **Women 20:** Official G20 engagement group focused on gender equity.
  - **G20 Alliance for the Empowerment and Progression of Women’s Economic Representation (G20 EMPOWER):** An alliance of G20 business leaders and governments, launched in **2019**, that aims to accelerate women’s leadership and empowerment in private sector.

### Related News

#### SWATI Portal

- Principal Scientific Advisor to the Government of India launched “**Science for Women-A Technology & Innovation (SWATI)**” Portal.
  - It aims to create a **single online portal representing Indian Women and Girls in STEMM** (Science, Technology, Engineering, Mathematics, and Medicine).
  - **Objectives:** Scale up efforts to exponentially include every Indian woman in science and enable reliable long-term research on equality, diversity, and inclusivity.
  - Developed, hosted and maintained by **National Institute of Plant Genome Research (NIPGR), New Delhi**.

### UN System-Wide Gender Equality Acceleration Plan (UN-SWAP)

- On International Women's Day (IWD), UN Secretary-General launched new UN System-Wide Gender Equality Acceleration Plan **to boost empowerment of women and girls**.
  - **UN-SWAP 2.0 (released in 2018)** raised the bar for accountability by strengthening existing indicators and anchoring the framework **within 2030 Agenda for Sustainable Development**.
- UN chief also highlighted that targeted programmes and quotas are required to tackle “baked-in bias”, and dismantle obstacles to equality.
  - **Baked-in Bias** implies that bias against a particular gender, caste, or community is continuing and is deep-rooted, and embedded in society.

## 5.11.1. GENDER INEQUALITY INDEX (GII) 2022

### Why in the news?

Gender Inequality Index (GII) 2022 is released by UNDP in their report **Human Development Report 2023-2024; Breaking the gridlock Reimagining cooperation in a polarized world**.

### About Gender Inequality Index (GII)

- **GII** is a composite measure, reflecting inequality in achievements between women and men in **three dimensions**:
  - **Reproductive Health**: Use indicators namely **maternal mortality ratio** and **adolescent fertility rate** and **Female reproductive health Index**.
  - **Empowerment**: Measured by share of **parliamentary seats held** and at least **secondary attainment level** by both gender. Also uses Female and male empowerment Index.
  - **Labour market**: Measured by **labour force participation rates** by both gender. Also uses Female and male labour market Index.
- **GII score** varies between **0** (when women and men fare equally) and **1** (when men or women fare poorly compared to the other in all dimensions).
- **Key Highlights of GII 2022**
  - Topped by **Denmark**, followed by **Norway** and **Switzerland**.
  - India has been ranked at **108 out of 193** countries with a score of 0.437.
    - ✓ In 2021 India stood at rank 122 out of 191 countries.
  - India's neighbouring nations like Bhutan (80); Sri Lanka (90); and Maldives (76) have performed better.

## 5.12. SWACHH SURVEKSHAN AWARDS 2023

### Why in the news?

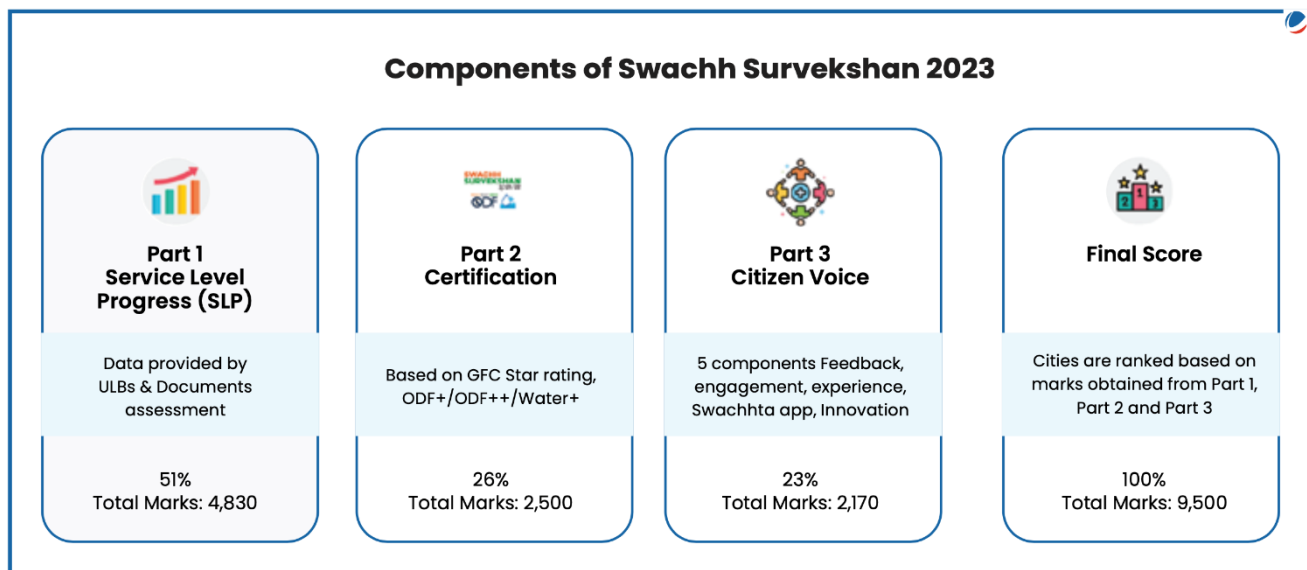
Recently, the President of India conferred the Swachh Survekshan Awards for 2023.

### More about the News

- The **Swachh Survekshan 2023 dashboard** was also launched at the event.
- **Theme for the year** i.e., “Waste to Wealth”.

### About Swachh Survekshan Awards

- Survey of **cleanliness, hygiene and sanitation** in cities and towns across India.
- **Launch**: In 2016 under the ambit of the **Swachh Bharat Mission (Urban)**.
- Conducted annually by the **Ministry of Housing and Urban Affairs**.
- **Objective**: To encourage large-scale **citizen participation and create awareness** about the importance of making towns and cities a better place to live.
- **2023 assessment** conducted in 4 phases for the first time.



### Key Highlights of the 2023 Awards

- **Cleanest cities: Indore (Madhya Pradesh) and Surat (Gujarat)** (Rank 1) followed by **Navi Mumbai (Maharashtra)** (Rank 3).
  - **Indore** declared as the cleanest city for the **7<sup>th</sup> consecutive time**.
- Cities with **less than 1 Lakh population: Sasvad (Maharashtra)** followed by **Patan (Gujarat)** and **Lonavala (Maharashtra)**.
- **Cleanest state: Maharashtra** followed by Madhya Pradesh and Chhattisgarh.
- **Cleanest cantonment: Mhow (Madhya Pradesh)** followed by **Deolali (Maharashtra)** and **Ahmedabad (Gujarat)**.
- **Cleanest ganga town: Varanasi (Uttar Pradesh)** followed by **Prayagraj (Uttar Pradesh)**.
- **Chandigarh** was declared as the **Best Safaimitra Surakshit Sheher**.

### 5.13. OTHER IMPORTANT NEWS

<b>Menstrual Leave policy in India</b>	<ul style="list-style-type: none"> <li>• There have been several discussions regarding providing a Paid Menstrual Leave policy in India.</li> <li>• <b>Status of menstrual leave policy in India</b> <ul style="list-style-type: none"> <li>○ There is <b>no law</b> governing menstrual leave in India and <b>also there is no centralised direction for 'paid menstruation leave' in India.</b></li> <li>○ <b>Draft Menstrual Hygiene Policy 2023</b> recognises need to create an enabling work environment which supports leaves and work-from-home options.</li> <li>○ At state level, <b>Bihar and Kerala government in 1992 and 2023 respectively</b> introduced a policy that granted menstrual leave.</li> <li>○ <b>Private firms</b> like <b>Zomato, Swiggy, Byju's</b> have provided paid menstruation leave, thus setting the standard for industry practices.</li> </ul> </li> </ul>
<b>Live in Relationship in India</b>	<ul style="list-style-type: none"> <li>• Recently introduced <b>Uttarakhand Uniform Civil Code Bill</b> mandates <b>compulsory registration for all live-in relationships in state</b>, irrespective of residency with registrar.</li> <li>• In India, <b>live-in relationships are not explicitly governed by law or custom.</b></li> <li>• <b>Supreme Court Judgements related to Live-In Relationships:</b></li> </ul>



	<ul style="list-style-type: none"> <li>○ <b>Lalita Toppo vs The State of Jharkhand (2018):</b> SC ruled under provisions of Domestic Violence Act, 2005 (PWDVA 2005) the live-in-partner would be entitled to more relief than what is contemplated under Code of Criminal Procedure, 1973.</li> <li>○ <b>Indra Sarma v. VKV Sarma (2013):</b> Court affirmed that entering into a <b>mutual live-in relationship is not illegal if both partners are unmarried</b>, and it does not constitute an offense.</li> </ul>
<b>GHAR (GO Home and Re-Unite) Portal</b>	<ul style="list-style-type: none"> <li>● <b>GHAR Portal</b> was launched by <b>National Commission for Protection of Child Rights (NCPCR)</b>.           <ul style="list-style-type: none"> <li>○ Portal <b>digitally monitors and track restoration and repatriation of children</b> as per the protocols under Juvenile Justice (Care and Protection of Children) Act, 2015.</li> </ul> </li> <li>● <b>About NCPCR</b> <ul style="list-style-type: none"> <li>○ It is a <b>statutory body</b> established by Government of India to <b>protect the rights of children from 0-18 years</b>.</li> <li>○ Constituted under <b>Commission for Protection of Child Rights (CPCR) Act, 2005</b>.</li> <li>○ Consists of <b>1 chairperson and 6 members</b>.</li> <li>○ Present reports to <b>central government annually</b>.</li> <li>○ NCPCR has responsibilities under <b>POCSO Act (2012), RTE Act (2009)</b> as well.</li> </ul> </li> </ul>
<b>Bharatiya Adim Janjati Seva Sanghathan (BAJSS)</b>	<ul style="list-style-type: none"> <li>● Minister for Tribal Affairs inaugurated the renovated <b>National Unique Tribal Museum and e-Library</b> at BAJSS, New Delhi.</li> <li>● BAJSS was established in <b>1948</b> by Shri <b>Amritlal Vithaldas Thakkar (Thakkar Bapa)</b>, for <b>upliftment of tribal community</b>.</li> </ul>
<b>PRERANA Program</b>	<ul style="list-style-type: none"> <li>● <b>Ministry of Education</b> launched the “<b>Prerana: An Experiential Learning program</b>” to empower participants with leadership qualities.</li> <li>● <b>About PRERANA Program</b> <ul style="list-style-type: none"> <li>○ A <b>week-long residential program</b> for selected students of class 9<sup>th</sup> to 12<sup>th</sup>.               <ul style="list-style-type: none"> <li>✓ <b>20 Students are selected</b> for each batch (10 boys and 10 girls) to attend the program, every week from various parts of country.</li> </ul> </li> <li>○ <b>Run from a Vernacular School</b>, established in 1888, in <b>Vadnagar (Gujarat)</b>.</li> <li>○ <b>Curriculum was prepared by IIT Gandhi Nagar</b> based on <b>nine value-based themes</b>.</li> <li>○ Aims to embody the <b>spirit of "Vasudhaiva Kutumbakam"</b> and <b>foster unity in diversity</b>.</li> </ul> </li> </ul>
<b>Ministry of Education (MoE) - AICTE Investor Network</b>	<ul style="list-style-type: none"> <li>● MoE-AICTE Investor Network jointly <b>established by All India Council for Technical Education (AICTE) and MoE's Innovation Cell</b>.           <ul style="list-style-type: none"> <li>○ It aims to <b>bring students, faculty, investors and market on one platform</b> to <b>strengthen culture of innovation</b> and address issue of <b>start-up funding</b>.</li> <li>○ It will provide <b>crucial financial support, mentoring, and strategic guidance</b> to early-stage student or faculty-led startups.</li> </ul> </li> </ul>
<b>Support to Students for Participating in Competitions Abroad (SSPCA)</b>	<ul style="list-style-type: none"> <li>● AICTE launched SSPCA to <b>bolster global competitiveness of Indian students in technical education</b>.</li> <li>● <b>Objective:</b> Provide travel <b>assistance to a student or a team of 2 to 6 students</b> for attending competition at international level.</li> <li>● <b>Eligibility:</b> <ul style="list-style-type: none"> <li>○ Students must be <b>enrolled and undergoing a technical course from an AICTE approved institution</b>.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ <b>Students of AICTE approved Diploma, B.Tech., Integrated M.Tech., M.Tech., MBA, MCA and Hotel Management</b> are eligible for participating in completion abroad.</li> <li>● <b>Grant:</b> Provide assistance <b>up to Rs 2 Lakh per student</b>, including all related expenses, to eligible students.</li> </ul>
<b>SWAYAM Plus platform</b>	<ul style="list-style-type: none"> <li>● <b>Ministry of Education (MoE)</b> launched SWAYAM Plus Platform.</li> <li>● SWAYAM is a <b>Massive Open Online Courses platform</b> providing educational opportunities for learners.</li> <li>● <b>About SWAYAM Plus platform</b> <ul style="list-style-type: none"> <li>○ In <b>alignment with NEP 2020</b>, its vision is to <b>ensure access and equitable opportunities for all learners to enhance their employability</b> and professional development.</li> <li>○ It focus on <b>access to Indian Knowledge Systems</b> for learners across globe, High-quality learning and certification programs etc.</li> <li>○ It will <b>offer courses across diverse sectors</b> like Engineering or technology Manufacturing, Energy, Banking, <b>Healthcare, Logistics</b> etc.</li> <li>○ It <b>enables credit recognition of courses</b> that learners are taking both from industry as well as academic institutions.</li> <li>○ <b>IIT Madras has been appointed as nodal agency</b> for implementing it.</li> <li>○ <b>Funded by Department of Higher Education, MoE.</b></li> </ul> </li> <li>● <b>SWAYAM Plus</b> will adopt an <b>ecosystem approach</b> by working with various <b>strategic partners i.e., academic institutions, industry, edtech platforms and individual contributors</b>, while <b>SWAYAM</b> currently focuses on <b>partnerships with academic institution.</b></li> </ul>
<b>World Poverty Clock (WPC)</b>	<ul style="list-style-type: none"> <li>● Latest data on <b>World Poverty Clock</b> showed that India has managed to bring down <b>'extreme poverty' below 3% of its population.</b></li> <li>● <b>About WPC</b> <ul style="list-style-type: none"> <li>○ Developed by <b>World Data Lab</b>, a global data enterprise.</li> <li>○ Provides <b>real-time estimates until 2030</b> for almost every country in the world.</li> <li>○ Monitors <b>global progress against Ending Extreme Poverty.</b></li> <li>○ Funded by <b>International Fund for Agricultural Development</b> and <b>Federal Ministry for Economic Cooperation and Development</b> of Germany.</li> </ul> </li> </ul>
<b>Swachhata Green Leaf Rating (SGLR) Initiative</b>	<ul style="list-style-type: none"> <li>● <b>Department of Drinking Water and Sanitation (Ministry of Jal Shakti)</b> in collaboration with <b>Ministry of Tourism</b> launched <b>SGLR for the tourism industry.</b></li> <li>● <b>Bison Resorts, Madhya Pradesh</b> obtained the first Five Swachhata Green Leaf Rating Certificate of Recognition.</li> <li>● <b>About SGLR</b> <ul style="list-style-type: none"> <li>○ It is a <b>type of rating system, which evaluates various tourist facilities</b> based on their adherence to specific hygiene and sanitation standards.</li> <li>○ <b>Aim:</b> Revolutionize <b>sanitation practices</b> within the country's flourishing <b>tourism industry.</b></li> <li>○ It aligns with the <b>Travel for LiFE program under Mission LiFE.</b></li> </ul> </li> </ul>
<b>World Happiness Report (WHR) 2024</b>	<ul style="list-style-type: none"> <li>● WHR 2024 released by UN Sustainable Development Solutions Network (UNSDSN).</li> <li>● <b>About WHR</b> <ul style="list-style-type: none"> <li>○ Evaluates levels of happiness by <b>6 key variables: Healthy life expectancy, GDP per capita, Social support, Low corruption, Generosity, and Freedom.</b></li> <li>○ Scores are <b>based on individuals' own assessments</b> of their lives.</li> <li>○ <b>Key highlights of WHR 2024</b> <ul style="list-style-type: none"> <li>▪ India has been <b>ranked 126</b> out of 143 countries.</li> </ul> </li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>▪ Top 3 countries are <b>Finland, Denmark, and Iceland</b>, respectively.</li> <li>▪ <b>Large gap</b> of 6 points (on a scale of 10) <b>between top (Finland) and bottom (Afghanistan) countries.</b></li> <li>• <b>About UNSDSN</b> <ul style="list-style-type: none"> <li>○ <b>Established in 2012</b> by former UN Secretary-General, Ban Ki-Moon.</li> <li>○ It <b>promotes integrated approaches to implement SDGs</b> and <b>Paris Agreement</b> on Climate Change through education, research, policy analysis, and global cooperation.</li> <li>○ <b>Secretariat</b> of SDSN is located in <b>Paris, France; Kuala Lumpur, Malaysia; and New York, USA.</b></li> </ul> </li> </ul>
<b>Digital Detox</b>	<ul style="list-style-type: none"> <li>• Karnataka Government announced Digital Detox Initiative in collaboration with <b>All India Game Developers Forum (AIGDF) and NIMHANS.</b></li> <li>• <b>Digital Detox</b> is a period of time during which one intentionally reduces amount of time spent online on electronic devices, like mobiles, laptops, etc.             <ul style="list-style-type: none"> <li>○ It seeks to ensure <b>responsible gaming</b>, through <b>Awareness, Digital Detox centres</b> for personalized guidance, <b>Community connection</b> through workshops, etc.</li> </ul> </li> <li>• <b>Need of Digital Detox:</b> Mental health challenges, decreasing attention spans and strained real-world connections due to overdependence on technology, etc.</li> </ul>

# ESSAY

## ENRICHMENT PROGRAMME 2024

### ADMISSION OPEN

- ▶ Introducing different stages from developing an idea into completing an essay
- ▶ Practical and efficient approach to learn different parts of essay
- ▶ Regular practice and brainstorming sessions
- ▶ Inter disciplinary approaches
- ▶ **LIVE / ONLINE** Classes Available





# 6. SCIENCE & TECHNOLOGY

## 6.1. BIOTECHNOLOGY

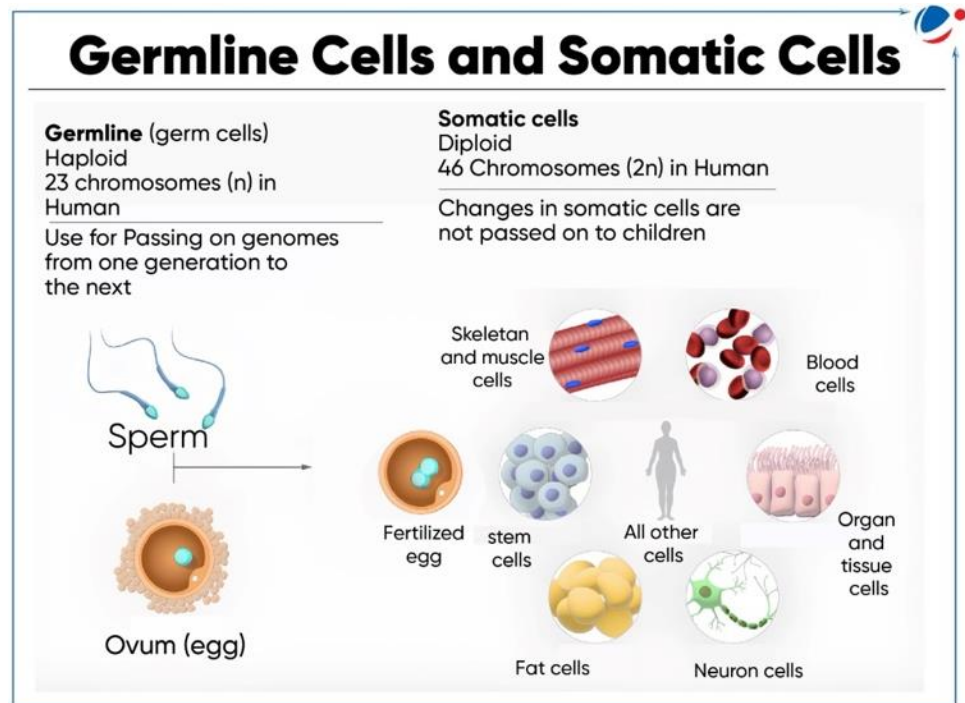
### 6.1.1. GENE THERAPY

#### Why in the news?

India has conducted the first human clinical trial of gene therapy for **Haemophilia A (FVIII deficiency)** at Christian Medical College (CMC) Vellore (Tamil Nadu).

#### More about News

- Trial involved deploying a novel technology of using a **lentiviral vector** to express a **FVIII transgene** in the **patient's Hematopoietic stem cell (HSC)**.
  - **HSCs** have the capacity to **self-renew** and the potential to differentiate into **all of the mature blood cell types**.
  - Vector refers to the **carrier used for delivering the therapeutic gene** to the patient's target cells.
  - **Lentiviruses** are especially popular due to:
    - Their **ability to infect both dividing and slow or non-dividing cells** (e.g., stem cells, neurons, muscle cells).
    - Their **capacity to permanently integrate transgenes** into the host cell genome, **allowing for long-term stable gene expression**, and their low-immunogenic characteristics.

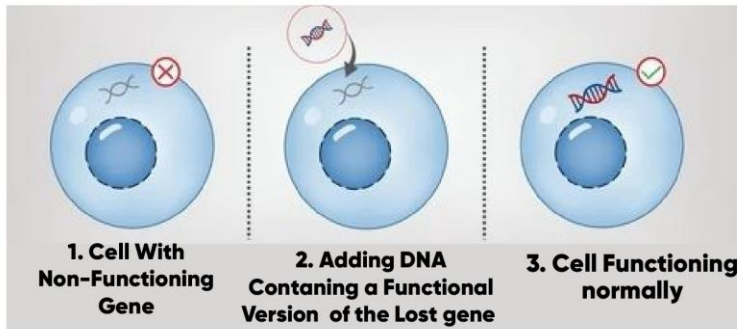


#### About Gene Therapy

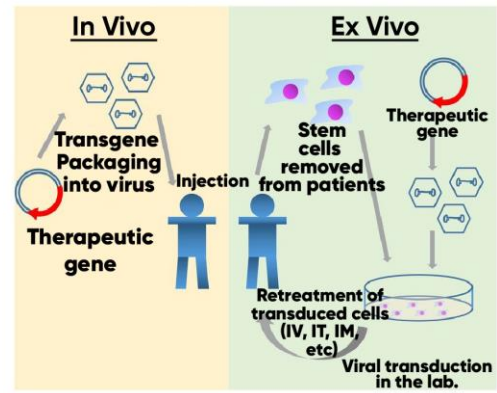
- **Definition:** A technique that **uses a gene(s) to treat, prevent or cure a disease** or medical disorder.
  - In most gene therapy, a **normal gene is inserted into the genome** to supplement an abnormal disease-causing gene and **restore the target cell to a normal state**.
- **Applications:** Both **inherited genetic diseases** (e.g., haemophilia and sickle cell disease) and **acquired disorders** (e.g., leukaemia) could be **treated** with gene therapy.
- **Types of Gene Therapy**
  - **Germline gene therapy:** **Germline Cell** (egg or sperm) are **modified** by the introduction of **functional genes**, which are **integrated into the genome**. It is **illegal in India**.
  - **Somatic cell gene therapy:** Therapeutic genes are **transferred to a patient's somatic cells** (cells other than germline cells). Any modification and any effects are **restricted only to that patient** and are **not inherited** by future generation.

- **National Guidelines for GTP Development and Clinical Trials (2019)** issued by Department of Biotechnology (DBT) and ICMR broadly **specifies the ethical, scientific, regulatory procedures** for conducting clinical trial on gene therapy products (GTP) in India.

## Gene Therapy



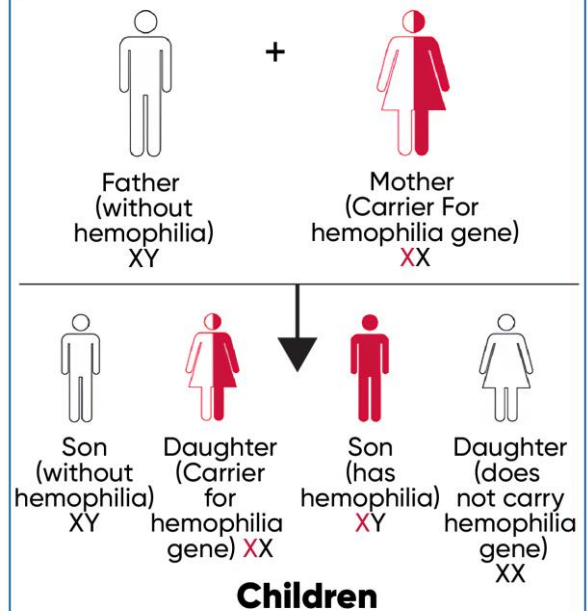
## Methods of Gene therapy



### About Haemophilia

- **Inherited, life-long, sex-linked bleeding disorders** occurring **predominantly in males**.
- **Causes:** By a **mutation in one of the genes**, that provides instructions for making the **clotting factor proteins** needed to form a blood clot.
  - Blood contains proteins **factor VIII (8) or factor IX (9)** which is necessary for **clotting that facilitates help to stop bleeding**.
- **Most common Type:**
  - **Haemophilia A (Classic Haemophilia):** Due to a lack or decrease of clotting factor VIII.
  - **Haemophilia B (Christmas disease):** Due to a lack or decrease of clotting factor IX.
- **Inheritance:**
  - **Inherited through an X chromosome.**
  - **Male are more vulnerable** to haemophilia, since males have **only one copy of X chromosome (XY)**.
  - Females are **haemophilic in rare cases** only when they have **both the copies of affected X chromosome (XX)**.

### Inheritance of Hemophilia from Carrier Mother



## 6.1.2. GENOME INDIA PROJECT

### Why in the news?

Department of Biotechnology (DBT) announced the completion of GenomeINDIA project.

### About GenomeIndia Project

- **Launched by:** DBT under **Ministry of Science and Technology** in 2020.
  - India had announced its **first complete human genome in 2009**.
- **Aim:** To collect **10,000 genetic samples** from citizens across India and create a **Reference Genome** for Indian Population.
  - **Human genome reference sequence** is an accepted representation of the human genome sequence, made up of a combination of several people's DNA.
- **About the mission:**
  - Comprises researchers from 20 national institutes led by **Centre for Brain Research Bengaluru**.
  - Datasets generated to be stored at **Indian Biological Data Centre in Faridabad**.
  - Inspired by the **Human Genome Project (HGP)**, the First international research effort to determine entire human genome DNA sequence.
    - ✓ HGP launched in **1990, completed in 2003** and covered **~92% of total human genome sequence**.
    - ✓ HGP was led by the 'International Human Genome Sequencing Consortium' which involved scientists from 20 institutions in six countries: **France, Germany, Japan, China, the UK and the US**.

### Other Initiatives for Genome sequencing

- **IndiGen programme:** Whole genome sequencing of thousands of individuals representing diverse ethnic groups from India.
  - Funded by the **Council for Scientific and Industrial Research (CSIR)**.
- **Global Alliance for Genomics and Health (GA4GH):** Formed in **2013**, is a **not-for-profit alliance** that sets standards to expand genomic data use within a human rights framework.

To know more about the **Genome Sequencing**, kindly refer to **Article 1.1.2 Genome Sequencing**, in the PT 365 Science and Technology 2024.

## 6.2. IT AND COMPUTER

### 6.2.1. INDIA AI MISSION

#### Why in the news?

The Union cabinet has approved over Rs 10,300 crore for **IndiaAI Mission** to strengthen Artificial Intelligence (AI) Innovation Ecosystem.

#### About IndiaAI Mission

- **Aim:**
  - Establish an ecosystem for AI innovation through **public-private partnerships**.
  - Deploying over **10,000 Graphics processing units (GPUs)** for advanced AI computing infrastructure.
  - Driving **responsible, inclusive growth of India's AI ecosystem** through democratization, data quality improvement, and indigenous AI capabilities development.
- **Ministry:** Ministry of Electronics and Information Technology (MeitY).
- **Funding:** Over **5 years** through a public-private partnership model.
- **Implementing agency:** 'IndiaAI' Independent Business Division under **Digital India Corporation**.
- **New Bodies:** IndiaAI Innovation Centre (IAIC) and IndiaAI Datasets Platform.
- **Key Components:**
  - **Compute Capacity:** One-stop solution for resources critical for AI innovation.
  - **Innovation Centre:** To undertake the development and deployment of indigenous Large Multimodal Models (LMMs).
    - ✓ LMM is an advanced type of AI model that can process and understand multiple types of data modalities like text, images, audio, video, etc.
    - ✓ LMMs are **more advanced versions of large language models (LLMs)**. LLM can work not only on text.

- **Datasets Platform:** Will provide a one-stop solution for seamless access to non-personal datasets for Indian startups and researchers.
- **Application Development Initiative:** Will focus on the adoption of impactful AI solutions for catalyzing large-scale socio-economic transformation.
- **FutureSkills:** Conceptualized to mitigate barriers to entry into AI programs.
- **Startup Financing:** To support and accelerate deep-tech AI startups and provide them streamlined access to funding to enable futuristic AI Projects.
- **Safe & Trusted AI:** Recognizing the need for adequate guardrails to advance the responsible development, deployment, and adoption of responsible AI.

Pillars of IndiaAI and Related Schemes		
AI in Governance	AI Compute & Systems	Data for AI
<ul style="list-style-type: none"> <li>• <b>BHASHINI-[BHASHa INterface for India]</b> an AI-based language translation tool for Indian languages.</li> <li>• <b>Digital India</b></li> <li>• <b>India Stack and AI</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>AIRAWAT:</b> India's AI supercomputer installed at C-DAC, Pune.</li> <li>• <b>National Supercomputing Mission</b></li> <li>• <b>MeitY Quantum Computing Applications Lab</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Data Management Office:</b> Helps in standardisation of data management.</li> <li>• <b>India Datasets Program and India Data Platform:</b> Provides access to non-personal datasets for startups and researchers.</li> </ul>
AI, intellectual property (IP) & Innovation	Skilling in AI	AI Ethics & Governance
<ul style="list-style-type: none"> <li>• <b>Centre of Excellence for Artificial Intelligence</b></li> <li>• <b>MeitY Start-up Hub</b></li> <li>• Proposed <b>National Centre on AI (NCAI)</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Future Skills Prime:</b> Joint initiative by Nasscom &amp; MeitY for AI certification programs.</li> <li>• <b>Responsible AI for Youth:</b> Program for government making school students AI ready.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>RAISE:</b> Responsible AI for Social Empowerment</li> </ul>

### Related Developments

#### Hanooman

- **BharatGPT group led by IIT Bombay** to launch 'Hanooman' a ChatGPT-like service.
- Hanooman is a series of **Large Language Models (LLMs)** that can respond in **various Indian languages like Hindi, Tamil, and Marathi.**

#### Devin: Artificial Intelligence (AI) software engineer

- US-based applied AI lab has introduced the **world's first autonomous AI software engineer.**
- Devin can **build and deploy apps end-to-end** and can also **train and fine-tune its own AI models.**

#### European Union's Artificial Intelligence Act

- **European Union's has recently enacted Artificial Intelligence Act.**
- It defines **4 levels of risk** for AI systems- Unacceptable risk, High-risk, Specific Transparency risk and Minimal risk.
- Aims to ensure that rights, rule of law and environment are protected from high risk AI.

#### AI Governance Alliance (AIGA)

- **World Economic Forum's AIGA** Calls for Global Efforts for Inclusive Access to Advanced Artificial Intelligence (AI)
- **AIGA (launched in 2023)** aims to accelerate the development of **ethical guidelines** and **governance frameworks for Generative AI.**

#### International Regulatory Frameworks for AI

- The **UN General Assembly (UNGA)** adopted a **landmark resolution on the promotion of "safe, secure and trustworthy"** artificial intelligence (AI) systems.
- It calls for **same rights at offline and online** and **"to govern technology rather than let it govern us".**



- It resolves to **bridge the artificial intelligence and other digital divides** between and within countries.
- It **supports regulatory and governance approaches** by encouraging Member States and stakeholders from all regions to develop safe, secure and trustworthy artificial intelligence.

To know more about the **Artificial Intelligence (AI)**, kindly refer to **Article 2.2 Artificial Intelligence (AI)**, in the PT 365 Science and Technology 2024.

### 6.2.2. FOURTH INDUSTRIAL REVOLUTION

#### Why in the news?

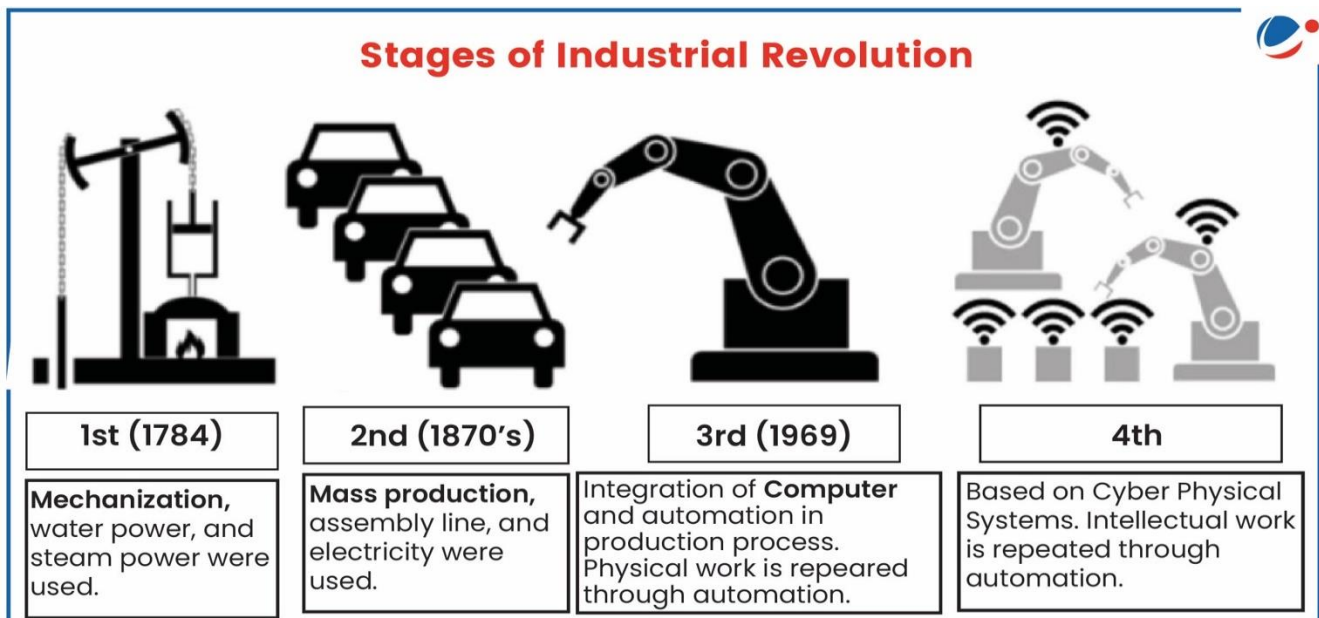
Telangana signed agreement with World Economic Forum for setting up Centre for Fourth Industrial Revolution (C4IR) in Hyderabad.

#### More about News

- WEF’s C4IR initiative is aimed at **harnessing potential of technological progress for equitable and human-centred transformation of industries, economies and societies.**
- It will be launched in **Bio Asia-2025.**

#### Fourth Industrial revolution (4IR)

- Refers to **digital transformation** in manufacturing through AI, additive manufacturing, etc.
- Also used to refer to the concept of "**smart factories**" - connected **cyber-physical systems** merging **physical and digital aspects.**
- Term was coined by **Klaus Schwab, founder of WEF.**



#### Benefits of 4IR for India

- Improves **digital infrastructure** and **productivity** through digital communication, energy, and health (remotely enabling connected health care from anywhere).
- Potential for India to become a **global manufacturing hub.**
- Creation of a **skilled workforce** through advanced technologies and processes.
- **Spill-over effects** across all economic sectors.

#### Key Initiatives for 4IR in India

- **Centre for the Fourth Industrial Revolution (India):** Collaboration between WEF and Maharashtra, coordinated by the NITI Aayog.

- **Education 4.0:** Launched with UNICEF.
- **FIRST Cancer Care in Meghalaya:** Developed on the lines of FIRST Healthcare (Fourth Industrial Revolution for Sustainable Transformation of Healthcare).
- **Smart Advanced Manufacturing and Rapid Transformation Hub (SAMARTH) - Udyog Bharat 4.0:** By Ministry of Heavy Industry.

### 6.2.3. END-TO-END QUANTUM COMMUNICATION LINK

#### Why in the News?

In a first for India, **Centre for Development of Telematics (C-DOT)** and **Physical Research Laboratory (PRL)** demonstrated **integration of C-DOT's indigenous Fibre-based Quantum Key Distribution (QKD) system with PRL's Free Space QKD.**

#### About Quantum Key Distribution (QKD)

- A **technique of quantum communications** which enables future-proof **security of communication networks** using a **cryptographic protocol** involving components of quantum mechanics.
- Enables two parties to produce a **shared random secret key** known only to them, which can be used to **encrypt and decrypt messages.**
- Any **intervention or tampering** in quantum channel **gets detected** and key distribution can be aborted.
- Can be deployed through **different mediums viz. optical fibre, free space** as well as **satellite** to establish secure communication network.

#### Initiative taken for quantum technology in India



To know more about Quantum Technology, refer to PT 365 2024 Science & Technology

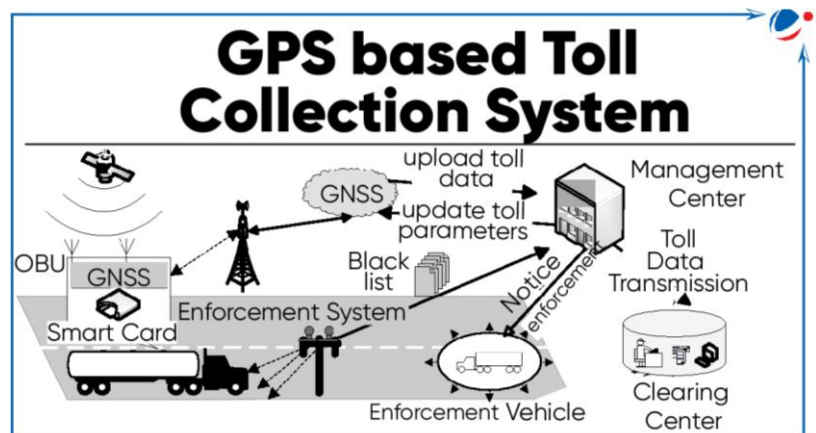
### 6.2.4. SATELLITE-BASED TOLL COLLECTION SYSTEM

#### Why in the news?

Government of India is planning to pilot-test a **Global Navigation Satellite System (GNSS)-based Electronic Toll Collection (ETC) system** on national highways.

#### More about news

- It will be implemented as an added facility along with the **FASTag**, which was made **mandatory in January 2021.**



#### About GNSS-based toll collection

- **Working:** Uses satellite-based imaging to track the position of the vehicle and collect tolls based on the distance travelled.
- **Main components:**
  - **Online board Unit (OBU):** GNSS-enabled device installed in a vehicle to determine vehicle route and calculate toll.
  - **Automatic number plate reader (ANPR) cameras:** Installed on the highways to recognize vehicle's number plate and deduct toll money.

✓ ANPR uses **optical character recognition on images** to read vehicle registration plates to create vehicle location data.

- **Benefits:** Decrease the need for roadside tolling infrastructure; reduce congestion; enhance toll collection effectiveness, etc.
- **Challenges:** Signal interference or inaccurate readings; Privacy Concerns; need to equip older vehicles with GNSS technology etc.
- GNSS-based toll systems have already been implemented in countries like **Germany and Singapore**.
- India has its own **satellite navigation systems**, namely **GAGAN** (GPS-Aided GEO Augmented Navigation) and **NavIC** (Navigation with Indian Constellation).

Difference between FASTags & Satellite-based toll collection		
Parameters	FASTags	GNSS-based Toll collection
<b>Technology</b>	'Radio Frequency Identification' (RFID)	Satellite-based imaging and <b>Automatic number plate reader (ANPR) cameras</b>
<b>Equipment needed to be installed in Vehicles</b>	FASTag (RFID Tag) affixed on the windscreen	OBU with GNSS connectivity
<b>Calculation of Toll tax</b>	Fixed rates	Based on real-time vehicle movement data
<b>Requirement of Toll Plazas</b>	Physical toll booths required for scanning <b>FASTag</b>	Not required

### 6.2.5. NEAR-FIELD COMMUNICATION (NFC) TECHNOLOGY


#### Why in the News?

NPCI's **UPI Tap and Pay facility** utilises **Near-field Communication (NFC) Technology** to capture details about a payee's UPI ID without the need for a quick response (QR) code.


#### About NFC

- **NFC** uses **electromagnetic radio fields** to allow two compatible devices to share information **within a short range** (4-5 centimetres).
  - **RFID and Bluetooth** also use radiofrequency but their reach is much higher.
  - The range of **RFID communication** is 100 metres or more and **Bluetooth** is **10-100 meters**.
- **Working process:**
  - An NFC-compatible device **emits radio frequency signals** that interact with an NFC tag, **creating a current facilitating communication** between the two.
  - The **tag is passive** (can only send information), while the **other device** like a smartphone is **active** (capable of both sending and receiving information).


### Benefits of NFC




**Enables contactless payment.**



**Uses encryption to guarantee the security and privacy of transactions.**



**Faster information sharing** with NFC-device enabled with peer-to-peer sharing.



Can help hospitals to **track patient information.**

### 6.2.6. SUBMARINE CABLE SYSTEM (SMC)

#### Why in the news?

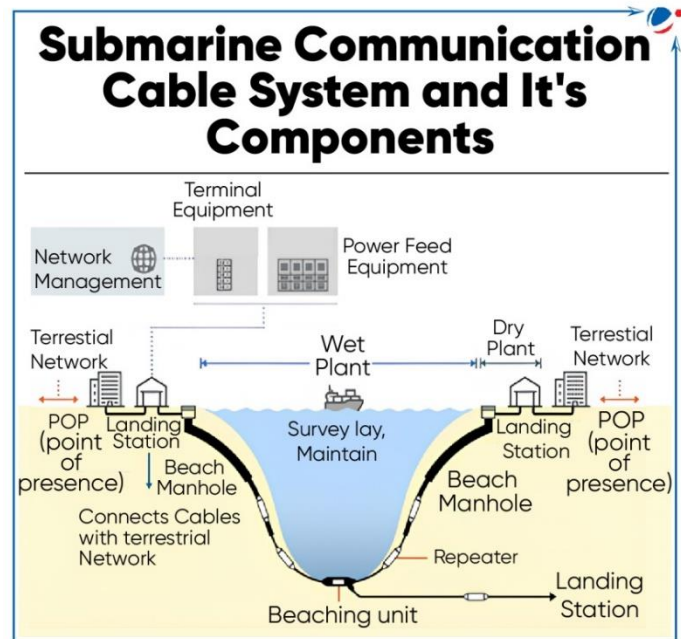
An incident in the Red Sea has resulted in damage to **three submarine cables-Asia-Africa-Europe-1, Europe India Gateway, and Tata Global Network.**

#### About SMCs

- SMCs are **fibre optic cables** laid on the ocean floor that connect countries across the world to provide internet and telecommunications.
- **Significance:**
  - International cables carry around **99% of the world’s international Internet traffic.**
  - United Nations General Assembly (UNGA) declared SMCs as a **“critical communication infrastructure”.**
- **Other threats to SMCs:** Fishing and anchoring; Environmental factors like earthquakes, etc.

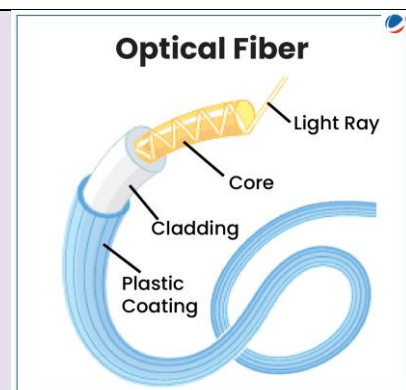
#### SMC connectivity in India

- India has **17 International SMCs, landing at 14 Cable Landing Stations (CLS)** in 5 cities near the coast.
- **Mumbai and Chennai** have the **maximum concentration of SMCs.**
- **India also has domestic submarine cables such as:**
  - **Chennai-Andaman and Nicobar Island Cable (CANI)** connecting Port Blair along with seven other Islands of Andaman & Nicobar
  - **The Kochi-Lakshadweep Island (KLI) cable system** for a direct communication link between Kochi and 11 Islands of Lakshadweep.
- **Regulation:** Department of Telecommunications (DoT) issues **International Long-Distance (ILD) licenses.**
  - **ILD licensees, with prior approval of DoT,** are authorized to set up their CLS and to lay submarine cables in India.
  - **Internet Service Licensees under Unified license** is also allowed to install operate and commission International Internet Gateway using submarine cable as medium.



#### About Optical Fibre

- Made of glass or plastic that are used to transmit **information as light pulses.**
- Works based on a principle called **‘total internal reflection’**-where the light in a fibre-optic cable travels through the core (hallway) by constantly bouncing from the cladding (mirror-lined walls).
  - **Total internal reflection** is complete reflection of a ray of light within a medium such as water or glass from the surrounding surfaces back into the medium.
- Enable the **transmission of huge amounts of data rapidly from one point to another** without a significant loss of optical power.
- **Dr. Narinder Singh Kapany, a U.K. based scientist** (born in India) is known as the father of Fibre Optics.



### 6.2.7. ELECTRONIC INK (E-INK)

#### Why in the News?

A new crowdfunded phone called the **Minimal Phone** by the Minimal Company featured power-friendly monochrome E-Ink display.



### About E-Ink display (also known as electrophoretic)

- A type of E Paper display that mimics the **appearance of real paper** using the same ink used in the printing industry.
- Originally available in monochrome, color E-Ink was introduced in 2010.
- Uses **microcapsules** filled with positively and negatively charged white and black particles.
- **Positive or negative electrical charges create text and images** on the display.
- Developed at MIT in the 1990s and now owned by E Ink Corporation.
- **Applications:** In cell phones, digital signs, and e-readers like the **Amazon Kindle**.
- **Advantages of E-Ink display**
  - **Eye comfort:** Unlike LCD and LED displays that use a backlight, E-Ink displays reflect light – just like paper. This makes them **easier on the eyes for long reading** sessions.
  - **Outdoor visibility:** The lack of backlighting also means that they are **easier to read under brighter lighting conditions**.
  - **Long battery life:** They require very little power since they don't need a backlight and **only use energy when the image changes**.
- **Limitations of E-ink display** include low refresh rate, expensive, niche-specific, color limitation etc.

## 6.2.8. SANGAM: DIGITAL TWIN' INITIATIVE

### Why in the News?

Department of Telecommunications (DoT) has unveiled the '**Sangam: digital twin**' initiative.

### About Sangam: digital twin initiative

- A **Proof of Concept** focused on revolutionizing the **planning & design of infrastructure**.
- Aims at **combining the prowess of Digital Twin and Artificial Intelligence, Internet of Things, 5G, 6G,** and next-gen computational technologies.
- **Brings all stakeholders on one platform** to demonstrate practical implementation of innovative infrastructure planning solutions.

### About Digital Twin

- A digital twin is a **digital representation of a physical object, person, or process, contextualized** in a digital version of its environment.
- It can **help an organization simulate real situations and their outcomes**, ultimately allowing it to make better decisions.
- It **uses real-time data from sensors** for behavior simulation and operation monitoring.
- It is **distinct from simulations** due to large scale and two-way information flow.
- **Google map** is a digital twin of transportation systems.

## Significance of Digital twins



**Remote monitoring**  
makes it viable for  
usage in hazardous  
operations



**Better predictions**  
helping in policy  
decisions



**Improvement in  
operational  
efficiency** thereby  
maintaining the  
output quality



**Aid in Urban  
planning** by creating  
different simulations  
and forecasting

# Smart and Efficient Revision for Success in UPSC Prelims



To know more and explore the VisionIAS Quick Revision Material

## Why Revision is Essential Before Prelims Examination?

Revision is crucial in the preparation for the UPSC Prelims due to the vast syllabus and the highly competitive nature of the examination. Effective revision consolidates knowledge, aids in long-term retention, and boosts confidence, allowing aspirants to access information quickly and accurately during the exam.

## Advantages of Smart Revision Before the Prelims Exam



Efficiency in Syllabus Coverage



Enhanced Retention and Recall



Identification of Weak Areas



Integration of Current Affairs



Effective Time Management



Building Confidence and Reducing Anxiety

## Smart Revision Techniques

**1. Active Recall:** Practice retrieving information from memory to enhance retention.

**2. Spaced Repetition:** Revisit topics at regular intervals, to solidify memory.

**3. Mock Tests:** Regularly simulate exam conditions to identify focus areas and current status.

**4. Focused Revision:** Prioritize high-yield topics and current affairs.

**5. Mind Maps:** Use visual aids such as infographics, mind maps, etc. to organize and connect concepts.

**6. Interleaved Practice:** Mix different subjects to improve problem-solving skills and higher retention over time.

**7. Peer Discussions:** Engage with peers to discuss and quiz each other on key topics.

## VisionIAS Quick Revision Classes



**Thematic Coverage of GS Prelims Syllabus:** Covers essential subjects such as History, Polity, Economy, Environment, Geography, etc.



**Quick Revision Classes:** 32 focused classes for comprehensive topic review.



**Smart Content from QRM:** Efficient, comprehensive revision using our Quick Revision Module.



**One-to-One Mentorship:** Personalized guidance from experienced UPSC trainers and toppers.



**Student Portal Access:** Live and recorded sessions available through an exclusive portal.



**Online Sectional Mini Tests:** Regular assessments with detailed feedback for strategy refinement.



To know more and explore the VisionIAS Quick Revision Classes

Smart revision is key to mastering the UPSC Prelims. By adopting strategic revision techniques and leveraging VisionIAS Quick Revision Classes, aspirants can enhance their preparation and boost their exam confidence.

## 6.3. SPACE TECHNOLOGY

### 6.3.1. X-RAY POLARIMETER SATELLITE (XPOSAT)

#### Why in news?

ISRO successfully launched the **X-ray Polarimeter Satellite (XPoSSat)** by Polar Satellite Launch Vehicle (PSLV) -C58.

#### More on News

- PSLV-C58 was the **60th flight of ISRO's Polar Satellite launch Vehicle.**
  - PSLV is a 4-stage launch vehicle propelled by Solid fuel at first and third stages and Liquid fuel at second and fourth stages.
  - PSLV has a multiple satellite launch capability and multiple orbit capability.
- After Placing XPoSSat at orbit of 650 km altitude, **Fourth stage of PSLV** was brought to a **lower altitude** (about 350 km) to conduct the **PSLV Orbital Experimental Module-3 (POEM-3) experiment.**
  - POEM-3 experiment was executed to meet the objective of 10 identified payloads, supplied by ISRO and IN-SPACe.
  - Payloads included **RUDRA, ARKA-200, Green Impulse TrAnsmmitter (GITA), Dust Experiment (DEX),** etc.

#### About PSLV Orbital Experimental Module (POEM)

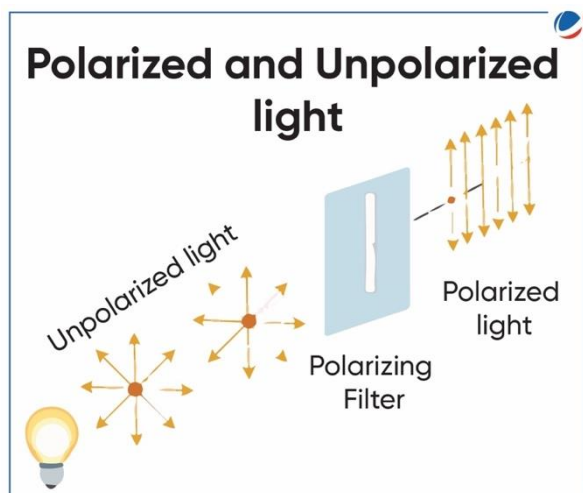
- Orbital Platform Experiments in PSLV (PS4-OP) is a novel idea, which **uses the spent PS4 stage (fourth stage of PSLV)** as a 3-axis stabilized microgravity environment for short duration scientific experiments.
- **Carries out in-orbit scientific experiments** for an extended duration of 4-6 months **for small scientific payloads.**
- The advantage of the platform is that the stage has standard interfaces & packages **for power generation, telemetry, tele-command, stabilization, orbit keeping & orbit manoeuvring.**
- **Earlier POEM experiments:** POEM 1 and POEM 2 were launched in June 2022 and April 2023 respectively.

#### What is Polarization and X-ray polarimetry?

- Normal light (**unpolarized light**) consists of electric field and magnetic field vectors which **vibrate (randomly) perpendicularly to each other.** (refer to figure)
- Light waves that travel **in a single plane** are known as **polarized light waves.**
- The process of transforming unpolarized light into polarized light is known as **polarization** and can be achieved through **Scattering (light rays deviate from their original path upon striking an obstacle), reflection, refraction or use of Polaroid/ polarizing filter.**
- Studying/measuring the **polarization of X-rays** is **X-Ray polarimetry.**
  - X-rays are high-energy electromagnetic waves.
- **Involves studying:**
  - **Angle of the polarization** i.e the direction of electric field vector with respect to a reference direction.
  - **Degree of polarization** i.e Portion of an electromagnetic wave from a light source, which is polarized.

#### About XPoSAt (X-ray Polarimeter Satellite)

- **First dedicated satellite from ISRO** to carry out research and **measure X-ray emission** from celestial sources like black holes and neutron stars.



- **Second satellite** in the world to **study X-ray polarization**, first being NASA's **Imaging X-ray Polarimetry Explorer (IXPE)**.
- **XPoSat payloads:**
  - **POLIX (Polarimeter Instrument in X-rays):** To **measure polarization of X-rays** in the energy band 8-30keV.
  - **XSPECT (X-ray Spectroscopy and Timing):** To provide fast timing and good spectroscopic resolution in soft X-rays.
    - ✓ Will carry out **long-term spectral and temporal studies of cosmic X-ray sources**, e.g. pulsars, black hole binaries, magnetars, etc.
    - ✓ **Spectroscopy** is the study of the **interaction between the electromagnetic radiation and matter**.

### Significance of the Mission

- **Understanding the nature of radiations:** Polarization measurements lead to better understanding of the emission processes from astronomical sources.
- **Advanced data collection:** Polarization study of celestial sources was done either in the optical or radio bands before. X-ray polarimetry in medium energy band is being done for the first time.
- **Other:** Chemical Composition of celestial bodies like Pulsars, Magnetars etc., **Better understanding of Universe** etc.

## 6.3.2. INTERNATIONAL SPACE STATIONS

### Why in the news?

Russia has extended its cross-flight programme with NASA transporting astronauts to the International Space Station (ISS) until 2025.

### More on News

- Cross-flights have been extended **to maintain the reliability of the ISS operation** and will be carried out on Russian and U.S. spacecraft.
  - Cross-flights involve sending **one Russian cosmonaut as part of an American crew to the space station**, and vice versa- one American astronaut to the ISS as part of the crew of a Russian spacecraft.

### About the International Space Station (ISS)

- A **habitable artificial satellite**, in low Earth orbit (at an altitude of between 370–460 km (thermosphere)).
- **Key partners for ISS:**
  - European countries (**represented by European Space Agency**)
  - United States (**National Aeronautics and Space Administration**)
  - Japan (**Japan Aerospace Exploration Agency**)
  - Canada (**Canadian Space Agency**) and
  - Russia (**Roscosmos**)
- **First component was launched into orbit in 1998** and new modules were added as recently as 2021.
  - Will continue to be a working laboratory and outpost in orbit **until at least 2030**.
- **Was taken into space piece-by-piece** and gradually built in orbit, with its **assembly requiring more than 40 missions**.
- **Significance of ISS**
  - Provides opportunities to **conduct meaningful studies** on topics such as DNA sequencing, robotics, and satellites in **microgravity environment** which is not possible on Earth.
  - Serves as a testing ground to study how to keep astronauts safe and healthy on long-duration missions.

### Key Facts about ISS

- > Travels at a speed of **5 miles/second**, orbiting Earth about **every 90 minutes**.
- > **Weighs almost 400 tonnes**.
- > **Covers an area as big as a football pitch**.
- > **Largest artificial body in orbit**.
- > **Has been continuously inhabited for more than 20 years** beginning with Expedition 1 in 2000.
- > **Orbital inclination** is 51.6°, permitting it to fly over 90% of inhabited Earth.







- **Other:** Promoting International Cooperation, Conducting research related with human health, boosting low Earth Orbit economy etc.

#### Other Space stations

- **Russia: Salyut 1** was world's first space station launched by the Soviet Union in 1971. Then Russia launched various space stations from **Salyut 2 to Salyut 7, and Mir.**
- **China: Tiangong 1** launched in 2011, **Tiangong -2** launched in 2016 were test space labs and **Tiangong space station was launched in 2021** (fully operational since late 2022).
- **USA: Skylab:** USA's first space station, launched by NASA in 1973.
- **Future missions:**
  - **NASA's** Artemis Base Camp on the moon's surface and the Gateway in lunar orbit.
  - **India's Bharatiya Antariksha Station.**

### 6.3.3. SQUARE KILOMETRE ARRAY OBSERVATORY (SKAO) PROJECT

#### Why in the News?

Union Cabinet approves Rs 1,250 cr for India's participation in Square Kilometre Array Observatory (SKAO) Project.

#### About SKAO

- An **intergovernmental organisation** dedicated to **radio astronomy, headquartered in United Kingdom.**
  - Will consist of one global observatory, operating two telescopes, across three sites.
    - ✓ Two SKA telescopes will be at radio-quiet sites in South Africa and Australia.
      - **Radio quiet zones** are regions, usually located in remote areas, where ground-based radio transmissions are limited or prohibited — have protected radio astronomy in the past.
    - ✓ They will operate as one large unit.
  - Expected to be **operational by 2029.**
- **Objectives of SKAO:**
  - Understand about the **birth of Universe.**
  - Detect **Gravitational Waves.**
    - ✓ A gravitational wave is an invisible ripple in space.
  - Understand the evolution of **Galaxies, Dark matter and Cosmic Magnetism.**
- India **joined SKAO in 2012 as an Associate Member** and has actively participated in the pre-construction phase of the SKA telescopes.
  - In 2022, the **National Centre for Radio Astronomy, Pune** and **SKAO** signed cooperation agreement.
  - **Giant Metre wave Radio Telescope (GMRT)** is **playing** role in **SKAO.**
- **Significance for India:** Will allow Indian astronomers direct access to the best radio astronomy facility in the world in the future.
  - Also, it will drive growth of technologies several key areas, ranging from antennas and electronics to data and software, including areas like **artificial intelligence.**

### 6.3.4. PUSHPAK REUSABLE LANDING VEHICLE (RLV) LEX 02

#### Why in the News?

ISRO successfully conducted the Pushpak Reusable Landing Vehicle (RLV) LEX 02 Landing Experiment.

#### About RLV LEX 02

- **RLV LEX 02** is the **second of the series of experiments** conducted by the ISRO under the **Reusable Launch Vehicle Technology Demonstration (RLV-TD) Programme.**
  - RLV LEX 02 re-validated the **indigenously developed technologies** for performing high speed autonomous landing of a space returning vehicle.
  - Winged body and all flight systems used in RLV-LEX-01 were reused.
    - ✓ In 2023, RLV-LEX-01 mission was successfully conducted.

- **RLV-TD Programme** aims at **developing essential technologies** for a **fully RLV** to enable low-cost access to space
  - **RLV** is essentially a space plane which can travel to low earth orbits to deliver payloads and return to earth for use again.
  - This vehicle will be scaled up to become the **first stage of India's reusable two-stage orbital (TSTO) launch vehicle.**
  - **NASA is using RLV for long time** and private space agencies such as Space X demonstrating partially reusable launch systems.
- **Advantages:** Considered a low-cost, reliable, and on-demand mode of accessing space.
- **Challenges:** Selection of materials like special alloys, composites, and insulation materials and the crafting of its parts is very complex and demands highly skilled manpower.

### 6.3.5. GSAT-20

#### Why in the News?

India will use SpaceX Falcon-9 Rocket to Launch Communications Satellite GSAT-20 in 2024. For the first time, **NewSpace India Limited (NSIL)** will launch a communication satellite on a SpaceX rocket.

#### About GSAT -20 (Renamed as GSAT-N2)

- A high- throughput **Ka-band Satellite** which will be fully **owned, operated and funded by NSIL.**
- **Weighing 4700 kg.**
- Designed to meet the **demanding service needs of remote and unconnected regions.**
  - **Heavier** than launch capacity of ISRO's most powerful rocket; **LVM-3** (which can launch spacecraft weighing **up to 4000 kg** into Geosynchronous Transfer Orbit).
- **Second "demand driven" satellite launch** enabled by NSIL.
  - Previously, NSIL successfully undertook its **1st Demand-driven satellite mission, GSAT-24,** with **TataPlay purchasing** its capacity for Direct-To-Home broadcasting.

#### About NewSpace India Limited (NSIL)

- **Incorporated in 2019** as a **Central Public Sector Enterprise** under the **Department of Space.**
- **Commercial arm of ISRO.**
- **Mandate of NSIL includes:**
  - Owning satellites for Earth Observation and Communication applications
  - Providing Launch Services for Satellite.
  - Satellite building through Indian Industry.
  - Technology Transfer to Indian Industry.

### 6.3.6. INSAT-3DS WEATHER FORECASTING SATELLITE

#### Why in the News?

ISRO successfully launched the Ministry of Earth Sciences (MoES) funded INSAT-3DS weather forecasting satellite.

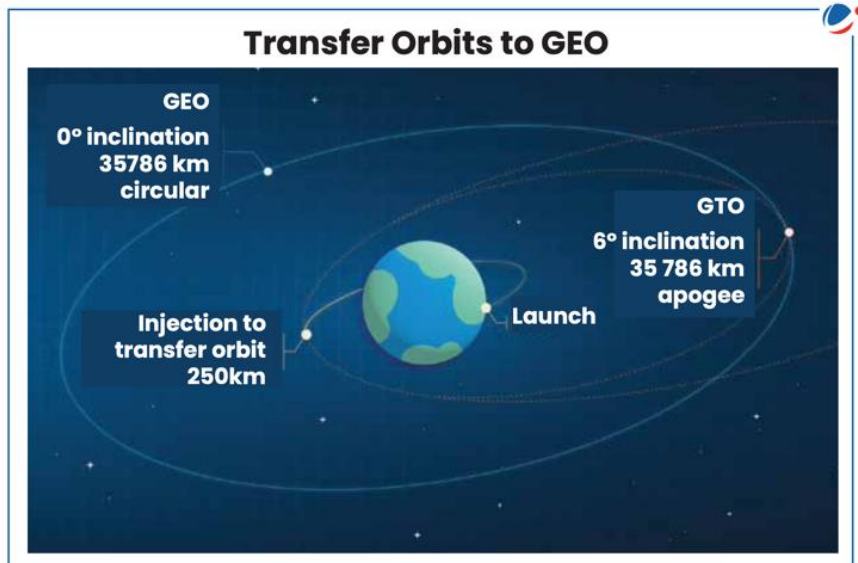
#### More about News

- GSLV-F14 placed INSAT-3DS into the intended **geosynchronous transfer orbit (GTO)** and then to **Geostationary orbit (GEO).**
  - Launched from **Satish Dhawan Space Centre** in **Sriharikota** (Andhra Pradesh).

#### About INSAT-3DS Satellite

- A follow-on mission of **Third Generation Meteorological Satellite.**
- Aid presently operational **INSAT-3D and INSAT-3DR** which are dedicated **meteorological geostationary satellites.**
- **Onboard payloads:** Imager Payload, Sounder Payload, Data Relay Transponder, and SA&SR transponder.

- **Objective of INSAT-3ds Satellite:**
  - Monitor Earth's surface, carry out Oceanic Observations etc.
  - Provide Vertical Profile of Various Meteorological parameters of Atmosphere.
  - Provide Data Collection and data dissemination capabilities.
  - Provide Satellite Aided Search and Rescue Services.



#### About GSLV-F14

- **16th flight of India's Geosynchronous Satellite Launch Vehicle (GSLV) and 10th flight with Indigenous Cryogenic stage.**
  - **GSLV is a three-stage launch vehicle having a liftoff mass of 420 tonnes.**
    - ✓ **First stage** comprises a **solid propellant motor**.
    - ✓ **Second stage** comprises **earth-storable liquid propellants**.
    - ✓ **Third stage** is a **cryogenic stage**.
  - GSLV can launch spacecraft capable of performing **communications, navigation, earth resource surveys**, and any other proprietary mission.

#### About Geosynchronous Transfer Orbit (GTO) and Geostationary orbit (GEO)

- **Geosynchronous Transfer Orbit (GTO):** To attain geosynchronous (and also geostationary) Earth orbits, a spacecraft is launched into an **elliptical orbit with an apoapsis altitude of around 37,000 km**. This is called a GTO.
- **Geostationary orbit (GEO):** Satellites in **GEO** circle Earth **above the equator from west to east** by travelling at the **same rate as Earth**.
  - This makes **satellites in GEO** appear to be **'stationary'** over a fixed position.

### 6.3.7. SPACE MISSIONS IN NEWS

#### 6.3.7.1. CARTOSAT-2

- **ISRO** confirmed successful de-orbiting and atmospheric re-entry of Cartosat-2 at its end-of-life.
- **About Cartosat-2**
  - Launched in **2007**.
  - Placed in **Sun-synchronous orbit**.
    - Sun-synchronous orbit (SSO) is a **particular kind of polar orbit**. Satellites in SSO, travelling over the polar regions, are synchronous with the Sun.
    - This means they are synchronised to always be in the **same 'fixed' position relative to the Sun**.
  - **Advanced remote sensing satellite** capable of providing scene-specific spot imagery.
- **De-orbiting of Cartosat-2:** ISRO lowered its perigee (point in the orbit of a satellite at which it is nearest to the earth) using leftover fuel to comply with international guidelines on space debris mitigation.
  - De-orbiting of Cartosat-2 represents a significant step for ISRO in ensuring **long-term sustainability of outer space activities**.

### 6.3.7.2. PROBA-3 MISSION

- **ISRO will launch the European Space Agency's (ESA) pioneering Proba-3 mission in 2024.**
- **About Proba-3 mission:**
  - It is world's first **precision formation** flying mission.
  - Two satellites will fly together in a fixed configuration to **prove formation flying technologies and rendezvous experiments.**
  - It will form a **144-m long solar coronagraph** to study the Sun's faint corona closer to the solar rim.
  - It will **mimic an artificial eclipse in space**, providing a continuous view of the corona.



### 6.3.7.3. INGENUITY (MARS HELICOPTER)

- **NASA's Ingenuity Mars Helicopter** has beamed back its final signal to Earth from Mars.
- **About Ingenuity**
  - **First aircraft** to make a **powered, controlled flight on another planet (Mars).**
  - **Solar-powered**, able to charge on its own.
  - Carried along with **Perseverance rover** that was launched **under Mars 2020 mission.**
  - **Flight environment:** Thin atmosphere, **less than 1% as dense as Earth's.**

### 6.3.7.4. VOYAGER 1

- **NASA** found clue while solving Voyager 1's communication breakdown case, which was sending back incoherent data.
- **About Voyager 1**
  - Launched in **1977** to **flyby Jupiter and Saturn**, it **crossed into interstellar space in 2012.**
  - Was the **first spacecraft to cross heliosphere**, the boundary where the influences outside our solar system are stronger than those from our Sun.
  - **Discovered a thin ring around Jupiter** and two **new Jovian moons:** Thebe and Metis.

### 6.3.7.5. INTUITIVE MACHINES (IM) MISSION

- **SpaceX** launched this **Private U.S. moon mission**, 52 years after the last Apollo lunar mission.
- The IM-1 flight is carrying **lander Nova-C (Odysseus)** and **six NASA payloads** of instruments designed to gather data about the lunar environment.
- Attempts to soft land near **Moon's south pole at Malapert A crater.**
- **Previous unsuccessful private attempts:**
  - In 2019, **Beresheet (Israel)**
  - In 2023, **Hakuto-R mission (Japan)**
  - In 2024, **The Peregrine lander, Mission is part of Nasa's Commercial Lunar Payload Services initiative**, which partners with commercial entities to deliver payloads to Moon.
    - ✓ Aimed to explore **the Bay of Stickiness (also known as Sinus Viscositatis region)**, an area on moon, lies adjacent to Gruithuisen Domes near Oceanus Procellarum, or Ocean of Storms.
- **The US, the former Soviet Union, China, India and Japan** are the only countries that have carried out successful soft lunar touchdowns.

### 6.3.7.6. UNCOVER PROGRAM

- Researchers, as part of the **James Web Space Telescope (JWST) UNCOVER program**, found a clue about the end of **'dark ages'** in early universe.
  - Dark ages refer to a period when **sources of light were cloaked in a dense fog of neutral hydrogen gas.**
  - It was followed by **'epoch of reionization'** that arose because of arrival of first stars and galaxies.





- **UNCOVER (Ultra-deep NIRCam and NIRSpec Observations Before the Epoch of Reionization)** aims at addressing two core JWST science goals:
  - Identifying **first-light galaxies** during the Dark Ages.
  - Studying the **ultra-low luminosity galaxies** that were responsible for reionization.

### 6.3.8. OTHER IMPORTANT NEWS

#### 6.3.8.1. HIGH ALTITUDE PSEUDO SATELLITES (HAPS)

- National Aerospace Laboratories in Bengaluru successfully completed first test of a solar-powered “pseudo satellite”.
- **Pseudo satellites or HAPS are unmanned air vehicles** that can fly at **altitudes of 18-20 km** from the ground and can hold fixed positions.
  - These could be **airplanes, airships, balloons**, etc.
- **Two types of HAPS**
  - **Lighter-than-air (LTA) HAPS** that rely on buoyancy to lift off and stay afloat.
  - **Heavier than air (HTA) HAPS** with a more conventional take-off method
- **Applications:** Search and rescue missions, disaster relief, surveillance of border areas, etc.

#### 6.3.8.2. DISTRESS ALERT TRANSMITTER (DAT)

- **ISRO has developed a Second Generation DAT (DAT-SG)**, incorporating advanced satellite communication and navigation capabilities.
- DAT is an **indigenous technological solution (DAT)** for the **fishermen at sea to send emergency messages** from fishing boats.
  - Messages are sent through a communication satellite and received at **INMCC (Indian Mission Control Centre)**.
  - INMCC has a web based network management system called **“SAGARMITRA”** which maintain a database of registered DAT-SGs.

#### 6.3.8.3. KULASEKARAPATTINAM SPACEPORT (KS)

- Recently, the foundation stone of **Kulasekarapattinam spaceport** in Thoothukudi district of Tamil Nadu was laid.
- **About Kulasekarapattinam spaceport**
  - To **be used to launch SSLVs**, (Small Satellite Launch Vehicles).
  - Several advantages in comparison to Sriharikota facility in Andhra Pradesh, such as
    - ✓ Located more close to the equator and will save fuel
    - ✓ Rockets can now head straight in the southern direction.
      - From Sriharikota facility, the rocket first heads east, and then turns south to avoid the airspace of Sri Lanka.
    - ✓ Nearby to **ISRO’s Propulsion Research Complex** location makes it easier to transport the rocket components safely, and in a shorter period.

#### 6.3.8.4. STATIO SHIV SHAKTI

- **International Astronomical Union (IAU)** has approved the name '**Statio Shiv Shakti**' for the landing site of **Chandrayaan-3's Vikram lander**.
- **Name was included in Gazetteer of Planetary Nomenclature**, which documents planetary names approved by IAU.
  - Planetary nomenclature **uniquely identifies a feature on surface of a planet or satellite**.
- **IAU** was founded in **1919** with its **Secretariat in Paris**, France.
  - Promotes and safeguard the science of astronomy in all its aspects.
  - Serves as **international authority for assigning designations to celestial bodies and surface features** on them.
  - **Members: 92** countries including **India**.

### 6.3.8.5. SHIVA AND SHAKTI: BUILDING BLOCKS OF MILKY WAY

- European Space Agency's astrometry satellite Gaia have discovered the earliest building blocks of Milky Way, named them Shiva and Shakti.
- Shiva and Shakti appear to be the **remnants of two galaxies that merged between 12 and 13 billion years ago to form Milky way.**
  - **Shakti stars orbit a little further from Milky Way's centre** and in more circular orbits than Shiva stars.

## 6.4. HEALTH

### 6.4.1. STREAMLINING FOOD REGULATIONS IN INDIA

#### Why in the News?

The Food Safety and Standards Authority of India (FSSAI) endorsed **multiple amendments** geared towards **simplifying food safety regulations.**

#### Amendments approved by FSSAI

- **Elimination of multiple certifications:** Food businesses would not have to go to different authorities for mandatory certification.
  - **Only FSSAI certification** will be mandatorily required for food products.
  - **Bureau of Indian Standards (BIS) or AGMARK certification will not be required** for food products.
    - ✓ **Presently, Food Safety and Standards (Prohibition and Restriction on Sale) Regulations 2011** have prescribed mandatory certification under BIS Act and AGMARK Scheme.
    - ✓ **BIS certification is mandatory for some food products** e.g infant formula, packaged drinking water, milk powder etc.
    - ✓ **AGMARK is mandatory for blended edible vegetable oils** and fat spreads.
- **First comprehensive manual of methods of analysis** for ensuring regulatory compliance of food products.
- **Expansion of Standards:** Like **standards of Mead (Honey wine)** and **Alcoholic Ready-to-drink (RTD) beverages**, revision of standards of milk fat products, standards for **Haleem** etc.

#### About AGMARK

- AGMARK is a **certification mark for agricultural produce**, assuring that they conform to a grade standard notified by **Directorate of Marketing & Inspection (DMI)** under **Agricultural Produce (Grading Marking) Act, 1937.**
- **Nature:** Agmark certification scheme is **essentially voluntary**, except few items mandated by FSSAI.
- **Ministry:** Ministry of Agriculture and Farmers' welfare

#### About Food safety regulations in India

- **Food Safety and Standards Act, 2006:** Overarching regulation on food safety establishing FSSAI as the primary food safety authority.
- **Food Safety and Standards Regulations, 2011:** Contains labelling requirements and standards for packaged food, permitted food additives, microbiological requirements etc.
- **Various FSSAI Food Safety Standards:** Developed by Scientific Committee and Scientific Panels, the principal arms of FSSAI in standard development process.

#### About Food Safety and Standards Authority of India (FSSAI)

- **About:** Autonomous **Statutory body**, established as per the **Food Safety and Standards Act, 2006.**
- **Objective:** Establishes science-based food standards for articles of food and to regulate their manufacture, storage, distribution, sale and import.
- **Ministry:** **Ministry of Health and Family Welfare.**
- **Members:** Consists of a Chairperson and twenty-two members out of which one-third shall be women.
- **Key Initiatives:**
  - **State Food Safety Index** to measure the performance of states on five significant parameters of Food Safety.
  - **Eat Right India Movement** to ensure safe, healthy and sustainable food for all.



- **Heart Attack rewind** to achieve elimination of trans fat.
- **RUCO** (Repurpose Used Cooking Oil)
- **HQ:** New Delhi

### 6.4.2. HAVISURE

#### Why in the News?

Havisure-India's first indigenously developed Hepatitis A vaccine has been launched.

#### About Havisure

- **Developed by Indian Immunologicals Ltd (IIL)**, a wholly-owned subsidiary of National Dairy Development Board (NDDB).
- A **two-dose vaccine** wherein **first dose is administered at above 12 months of age** and **second dose is given at least after 6 months of the first dose.**
  - Also recommended for individuals who are at risk of exposure or travel to the regions with high hepatitis A prevalence.

#### About Hepatitis

- An **inflammation of liver** that is **caused by a variety of infectious viruses** and **non-infectious agents.**
  - **5 main strains of hepatitis virus** i.e. **A, B, C, D** and **E.**

Hepatitis	How it spreads?	Treatment
<b>A</b>	● <b>Ingestion of contaminated food or water.</b>	Vaccine
<b>B</b>	● <b>Contact with infected body fluids</b> like blood, saliva, semen etc. ● <b>Mother to child</b> during birth and delivery. ● <b>Unsafe injections</b> or exposures to sharp instruments.	Vaccine
<b>C</b>	● <b>Contact with infected blood</b> through <b>sharing needles</b> or syringes, or from unsafe medical procedures like <b>blood transfusions with unscreened blood products.</b>	<b>No Vaccine available.</b> Current treatment is <b>only through antiviral medicines</b>
<b>D</b>	● People <b>already infected with hepatitis B (HBV).</b>	Vaccine
<b>E</b>	● Fecal-oral route, principally via <b>contaminated water.</b>	Vaccine

- **Initiatives taken to prevent Hepatitis**
  - **National Viral Hepatitis Control Program 2019** to eliminate **Hepatitis C in India by 2030.**
  - **Mission Indradhanush 2014** provides **vaccination against Hepatitis B** along with 7 other infections.
  - **World Hepatitis Day** (28 July every year).

### 6.4.3. CERVICAL CANCER

#### Why in the news?

First ever **Global Cervical Cancer Elimination Forum** took place in Colombia, recently.

#### More about News

- It was **organised by WHO, World Bank, UNICEF, Bill & Melinda Gates Foundation** and others.
- It aims to **catalyse** governments, donors, civil society, and various stakeholders to commit to cervical cancer elimination and galvanize global community.

#### About Cervical Cancer

- When cancer starts in the **cervix**, it is called cervical cancer.
  - The cervix **connects the vagina (birth canal) to the upper part of the uterus** (or womb where a baby grows during pregnancy).
- Occurs **most often in women over age 30** and is the **fourth most common cancer** in women globally.
  - It is the **second most common cancer among females in India.**



- Main cause of cervical cancer is the **persistent infection with the human papillomavirus (HPV)**.

#### About HPV

- A **common sexually transmitted infection** which can affect the skin, genital area and throat.
- In **most cases** the immune system clears HPV from the body.
- **Persistent infection with high-risk HPV** can cause abnormal cells to develop, which go on to become cancer.
  - There is currently **no treatment for HPV infection**.
- **Types:**
  - **12 high-risk HPV types**.
  - Two of these, **HPV 16 and HPV 18**, are responsible for most HPV-related cancers.
- **HPV vaccination and other prevention steps**
  - **6 HPV vaccines available globally**. All protect against the high-risk HPV 16 and 18, which cause most cervical cancers.
  - **HPV vaccines** (1 or 2 doses) should be **given to all girls aged 9–14 years**.
  - Also, **Cervavac** (first indigenous vaccine against cervical cancer) has been developed by Serum Institute.

#### Initiatives for prevention

- **Cervical Cancer Elimination Initiative (by World Health Organization): WHO has outlined the ‘90-70-90’ targets for each country by 2030-**
  - **Vaccination:** 90% of girls fully vaccinated with the HPV vaccine by the age of 15;
  - **Screening:** 70% of women screened by the age of 35, and again by the age of 45;
  - **Treatment:** 90% of women with pre-cancer treated and 90% of women with invasive cancer managed.
- **Vaccination to prevent Cervical Cancer:** Union Government in India proposed it in Interim Budget 2024-25 which will be for girls in the age group of 9 to 14 years for prevention of cervical cancer.

### 6.4.4. LEPROSY

#### Why in the News?

Ministry of Health and Family Welfare announced new treatment regimen for Leprosy.

#### About Leprosy (Hansen’s disease)

- A chronic infectious disease which is caused by a type of **bacteria** called **Mycobacterium leprae**.
- **Affects:** Skin, peripheral nerves, mucosa of upper respiratory tract, and eyes.
- **Transmission mode:** Droplets, from the nose and mouth, due to close contact with untreated cases.
- **Treatment: Curable with multidrug therapy.**
- **Two types for treatment purposes**
  - **Pauci-Bacillary (PB) cases** have fewer bacteria visible and show no signs of advanced disease in biopsies.
  - **Multibacillary (MB) patients** have visible bacteria and may show signs of more advanced disease in biopsies
- **About new treatment regimen announced**
  - Ministry has decided to introduce a **three-drug regimen for Pauci-Bacillary (PB) cases of leprosy** in place of a two-drug regimen for six months.
  - **Multi-drug therapy (MDT)**, as recommended by WHO, consists of three drugs - **dapsone, rifampicin and clofazimine**.
- **Recent Steps Taken**
  - **National Strategic Plan (NSP) & Roadmap for Leprosy (2023-27)** to achieve zero transmission of leprosy by 2027.
  - **National Leprosy Eradication Programme** a centrally sponsored scheme under **National Health Mission**.
    - ✓ **Nikusth 2.0 Portal**, an integrated portal for leprosy case management.





## 6.4.5. OTHER IMPORTANT NEWS

### 6.4.5.1. PENICILLIN G

- **Union Minister for Chemicals & Fertilizers** stated that India will restart Penicillin G manufacturing after a gap of 30 years.
- Penicillin G is an **Active Pharmaceutical Ingredient (API)** used in manufacturing antibacterial drugs to treat **pneumonia, meningitis, gonorrhoea, syphilis**.
  - Also known as **benzylpenicillin, or benzylpenicillanic acid**.
  - IN 1928, SCOTTISH BIOLOGIST ALEXANDER FLEMING isolated the **first specific form of penicillin** from **Penicillium fungi**.
    - ✓ For this he shared **Nobel Prize in Physiology/Medicine for the discovery in 1945**.
  - Administered intravenously or intramuscularly due to **poor oral absorption**.
  - Like many other APIs, **manufacturing of Penicillin G** was phased out from India due to **cheaper imports from China** after globalization.

### 6.4.5.2. RHODAMINE-B

- Sale of cotton candy has been banned in Tamil Nadu after samples reveal **use of toxic industrial dye (Rhodamine-B)** as artificial colouring agent.
  - It is **prohibited in the food industry** by Food Safety and Standards Authority of India (FSSAI).
- **Rhodamine-B:**
  - An organic chloride salt **used as a colouring agent for dyeing in textile, paper, leather, and paint industry**.
  - **Impact on human health:**
    - ✓ **Immediate effect:** Stomach fullness, itching, and breathing problems.
    - ✓ **Potential Chronic Health Effects:** Liver dysfunction, Intestine cancers, neurotoxicity, and Kidney failure.
- **Other colour chemicals**
  - **Tartrazine and Sunset Yellow** can cause allergic or pseudo-allergic reaction.
  - **Carmoisine** can cause **skin rashes and respiratory allergies**.

### 6.4.5.3. MOSQUIRIX

- Cameroon becomes the first country to routinely administer **Mosquirix, the world's first malaria vaccine program** for children.
- **About Mosquirix**
  - Also known as RTS,S/AS01.
  - A vaccine that is given to **children from 5 months of age**.
  - **Recombinant protein-based malaria vaccine**.
  - **World Health Organization (WHO) approved vaccine**.
  - Made up of proteins of the **Plasmodium falciparum parasites** and the **hepatitis B virus**.
    - ✓ **Plasmodium falciparum** is the parasite which is responsible for causing malaria.
    - ✓ **India has the highest estimated burden of Plasmodium vivax (P. vivax) malaria** in the world.

### 6.4.5.4. COALITION FOR EPIDEMIC PREPAREDNESS INNOVATIONS (CEPI)

- **Serum Institute of India joins CEPI global network** to boost production of vaccines.
- **About CEPI** (HQ: Oslo, Norway)
  - An **innovative global partnership** between public, private, philanthropic, and civil society organisations.
  - **Founded in Davos, Switzerland** in 2017 by **Governments of Norway and India**, Bill & Melinda Gates Foundation, Wellcome Trust, and World Economic Forum.
  - Provide funds to **accelerate development of vaccines and other biologic countermeasures against epidemic and pandemic threats** so they can be accessible to all people in need.
  - **Examples of CEPI-funded vaccines:** Nipah Virus, Lassa fever Vaccine etc.

### 6.4.5.5. VACCINE SAFETY NET (VSN)

- The Healthy Indian Project (THIP) has joined the WHO-led project **VSN**.
  - THIP (a private company) is a **dedicated health information and fact-checking platform** with a particular focus on verified **vaccine safety information**.
- VSN aims to help **internet users find reliable information on vaccine safety**.
- Global Advisory Committee on Vaccine Safety (GACVS), **established in 1999**, supports the **VSN** by providing **advice and criteria for website quality and content**.

### 6.4.5.6. PROJECT ANAGRANINF

- Technology Development Board grants funds for Project **ANAGRANINF - Development of a Novel Class of Antibiotics Against Gram-Negative Bacterial-Infections**.
- **About Project:**
  - Collaborative initiative between **Indian and Spanish** companies.
  - **Objective:** Develop a novel lead compound (particularly an antibiotic) and combatting critical **gram-negative pathogens**.
    - ✓ Will **produce compounds** which are aligned with the criteria laid out by the **World Health Organization (WHO)** for tackling **Antimicrobial Resistance (AMR) infections**.
- **Gram-negative bacteria** are resistant to multiple drugs and are increasingly resistant to most available antibiotics.

## 6.6. DEFENCE

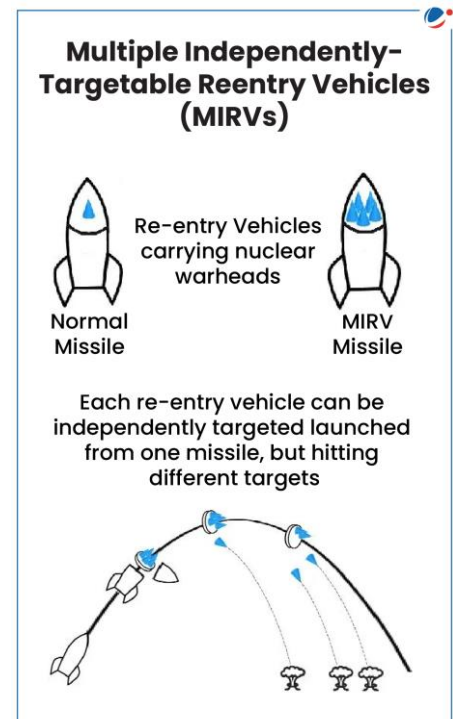
### 6.6.1. MULTIPLE INDEPENDENTLY TARGETABLE RE-ENTRY VEHICLE (MIRV) TECHNOLOGY

#### Why in the News?

DRDO has conducted first successful flight test (named **Mission Divyastra**) of indigenously developed Agni-5 missile with **Multiple Independently Targetable Re-Entry Vehicle (MIRV) technology**.

#### About MIRV technology

- **Genesis:** Originally developed to allow a single missile to **carry multiple nuclear warheads**, each capable of striking different targets independently.
  - Warheads can be released from the **missile** at different speeds and in different directions.
- **First country:** The **US** was the first country to develop MIRV technology.
  - Russia, United Kingdom, France, and China also have MIRV Technology.
  - In 2017, Pakistan reportedly tested a MIRVed missile, the Ababeel.
- **Advantages:**
  - **Designed for exoatmospheric deployment**, housing multiple warheads, each capable of targeting distinct objectives.
  - Can be **launched from land or sea platforms (with submarine)**.
  - Difficult to defend against than traditional missiles and are considered **effective Ballistic Missile Defence (BMD) countermeasures**.
- **Challenges in MIRV technology**
  - **Vulnerable:** Land-based MIRVs are particularly **destabilizing** because many warheads on fewer missiles are vulnerable to attack, incentivizing an adversary to strike first in a time of crisis.



- **Other Challenges:** Miniaturisation of warheads, development of advanced guidance systems, requirement of additional fissile material like plutonium etc.

**Agni-5 Missile**

- **Surface to Surface** Ballistic Missile indigenously developed by DRDO.
  - A ballistic missile is a type of missile that uses projectile motion to deliver warheads on a target.
- **Range:** Greater than 5,000 km with a very high degree of accuracy.
- **Fuel:** Uses **three-stage** solid fuelled engine.
- **Developed** under **Integrated Guided Missile Development Programme (IGMDP)**
- **IGMDP** was launched in **1983** headed by Dr. APJ Abdul Kalam to enable India attain self-sufficiency in the field of missile technology. It has been completed.
  - **The missiles developed under the programme:**
    - ✓ **Prithvi:** Short-range **surface-to-surface** ballistic missile.
    - ✓ **Agni:** Intermediate-range **surface-to-surface** ballistic missile.
    - ✓ **Trishul:** Short-range low-level **surface-to-air** missile.
    - ✓ **Akash:** Medium-range **surface-to-air** missile.
    - ✓ **Nag:** Third generation **anti-tank** missile.

**6.6.2. SOLID-FUEL TECHNOLOGY**

**Why in the News?**

North Korea tested solid-fuel intercontinental ballistic missile.

**More about News**

- The missile is capable of launching Hypersonic Weapon.
  - A **hypersonic missile** travels at speeds that exceed five times the speed of sound typically exceeding Mach 5.
- Missile systems are generally based on **Solid Fuel technology along with liquid and cryogenic fuel system.**

**Comparison of Solid fuel and liquid fuel system**

Domain	Solid fuel technology	Liquid fuel technology
<b>Fuel and Oxidiser</b>	<ul style="list-style-type: none"> <li>● Solid propellants are a mixture of <b>fuel</b> and <b>oxidiser</b>.</li> <li>● <b>Fuel-</b> Metallic powders(aluminium)</li> <li>● <b>Oxidiser:</b> Ammonium nitrate, Potassium chlorate.</li> </ul>	<ul style="list-style-type: none"> <li>● Liquid-fuel rockets consist of a fuel and oxygen (or other oxidizer) in <b>liquid state</b>.</li> <li>● <b>Fuel:</b> kerosene, alcohol, hydrazine and its derivatives, and liquid hydrogen</li> <li>● <b>Oxidiser:</b> Nitric acid, nitrogen tetroxide, liquid oxygen, and liquid fluorine</li> </ul>
<b>Mechanism</b>	<ul style="list-style-type: none"> <li>● The fuel and oxidiser are bound together by a <b>hard rubbery material</b> and packed into a metal casing.</li> </ul>	<ul style="list-style-type: none"> <li>● They are <b>combined</b> in a <b>combustion chamber</b> and <b>ignited</b>.</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>● <b>Minimum maintenance and instant readiness, fuel</b> can be stored for longer time.</li> </ul>	<ul style="list-style-type: none"> <li>● Fuel flow can be regulated and the engine can be turned off, provides greater thrust and power.</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>● Resulting thrust cannot be regulated or turned off.</li> </ul>	<ul style="list-style-type: none"> <li>● Separate storage for fuel and oxidant, complex technology, increased weigh etc.</li> </ul>

**About Cryogenic fuel Technology:**

- **Cryogenic fuels** which are basically **liquified gases at very low temperature** are considered more efficient.
  - Gaseous propellants have to be compressed to very high pressures or cooled to very low temperatures in **order to achieve a high density**.
- Uses **Liquid Oxygen (LOX)** and **Liquid Hydrogen (LH2)** as propellants.
- **Provides more thrust (push) for every kilogram of propellant** it burns as compared to solid and liquid.

### 6.6.3. GEOSPATIAL INTELLIGENCE

#### Why in the news?

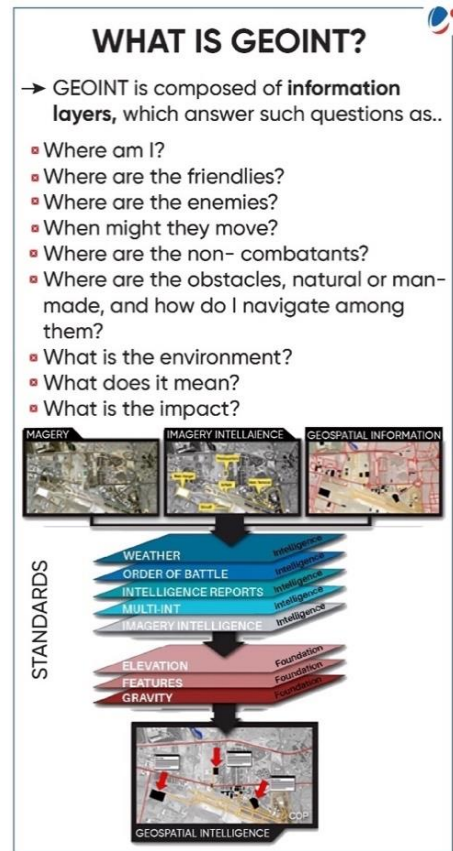
ISRO is planning to launch 50 satellites for intelligence gathering in the next 5 years.

#### More on news

- It will involve **creating a layer of satellites in different orbits** with a capacity to track the movement of troops and image thousands of kilometres of area.
- It will **improve the ability of satellites to detect changes, and will bring in more of AI-related and data-driven approach** to analyze geospatial data.

#### Geospatial intelligence

- An **intelligence discipline that analyzes geospatial data** to better understand and visually depict human activity at specific geographic location.
- Uses imagery to **survey and assess human activity and physical geography anywhere on Earth.**
- Usually **collects and integrate data** from a network of technologies, including **satellites, mobile sensors, ground-control stations and aerial images**
- Helps in obtaining the last equipment activity situation, and finally helping in maintaining decision superiority.
- **Maritime Domain Awareness (MDA):** Expanding regional coverage of geospatial intelligence to monitor the maritime domain more comprehensively leads to securing the Indian Ocean region.



#### India's steps towards strengthening Geospatial Intelligence

- **Earth Observation Satellites:** India has one of the largest constellations of remote sensing satellites in operation e.g. EOS-07 launched in February 2023.
- **NavIC (Navigation with Indian Constellation):** India's indigenous navigation system to provide accurate position information service.
- **Bhuvan portal:** National Geo-portal developed and hosted by ISRO for providing visualization of Satellite Imagery and Maps.

### 6.6.4. DRONES AND SECURITY

#### Why in the news?

Indian Navy unveiled India's first indigenously manufactured Unmanned Aerial Vehicle (UAV) called Drishti 10 Starliner.

#### About Drishti 10 Starliner

- It is Indian **Navy's first indigenously manufactured UAV**, with over **60% indigenous content.**
  - Promotes the navy's **Maritime Domain Awareness (MDA)** and augment their anti-piracy and seaborne missions.

#### Drone regulations in India

- **Drone (Amendment) Rules, 2023** provide an alternative arrangement in case of non-availability of Indian Passport with the applicant, for issuance of Remote Pilot Certificate (RPC).
- **National Counter Rogue Drone Guidelines:** In 2019, Ministry of Civil Aviation released the document to lay out guidelines assessing drone threat.
- **Drone Rules 2021:** It divides the Indian airspace into three zones Green, Yellow and Red based on acceptability of flying drones.
  - **Red zones are no go zones** where no drones can be operated except for a permission given by Central Government.





- **Key features:**
  - Advanced **intelligence, surveillance, and reconnaissance (ISR) Platform**
  - **Medium Altitude Long Endurance (MALE) UAV**
  - **450 kg payload capacity**
  - Received STANAG 4671 certification (NATO standardization agreement).

**India’s Initiatives for use of Drone Technology in defense sector**

- **Acquisition of foreign drones:** India has imported drone technology from various countries like the US and Israel.
  - **Heron Mark-II drones: A Medium Altitude Long Endurance (MALE) UAV**, inducted by Indian Air Force to carry out surveillance along Northern borders with Pakistan and China.
  - **Searcher Mk II drones:** Developed by Israel Aerospace Industries, it is a reconnaissance (study of a place or area for military reasons) drone used by Indian army and navy.
  - **MQ-9B SkyGuardian drones:** India is acquiring them from the US.
- **Drone, Detect, Deter and Destroy (D4 System):** DRDO developed indigenous anti-drone system, inducted into the Indian Armed Forces.
  - Can detect, track and identify rouge **drones within 4 km range**.
  - Uses **Global Navigation Satellite System (GNSS)** to detect the frequency which is being used by the controller and the signals are then jammed.

Indigenous drones of DRDO	
<b>DRDO Lakshya</b>	<ul style="list-style-type: none"> <li>• Target drone used for <b>discreet aerial reconnaissance and target acquisition</b>.</li> <li>• Launched by a solid <b>propellant rocket motor</b> and sustained by a turbojet engine in flight.</li> </ul>
<b>DRDO Nishant</b>	<ul style="list-style-type: none"> <li>• Multi-mission UAV launched using a <b>Mobile Hydro pneumatic Launcher with Day/Night capability</b>.</li> </ul>
<b>RUSTOM-1</b>	<ul style="list-style-type: none"> <li>• An all composite, 800 kg class <b>Short Range Remotely Piloted Aircraft System (SR-RPAS)</b>.</li> </ul>
<b>TAPAS/Rustom-2</b>	<ul style="list-style-type: none"> <li>• Medium Altitude Long Endurance (MALE) unmanned aerial vehicle.</li> <li>• Developed for Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) application, is in advance stage of developmental trials.</li> </ul>
<b>Archer</b>	<ul style="list-style-type: none"> <li>• <b>Short Range-Unmanned Aerial Vehicle-Weaponised (SR-UAV-W)</b>.</li> </ul>
<b>DRDO NETRA</b>	<ul style="list-style-type: none"> <li>• Light-weight, autonomous UAV for surveillance and reconnaissance operations.</li> </ul>
<b>ABHYAS-High-speed Expendable Aerial Target (HEAT)</b>	<ul style="list-style-type: none"> <li>• It is designed for autonomous flying with the help of an auto-pilot.</li> <li>• It has Radar Cross Section, Visual and Infrared augmentation system required for weapon practice.</li> <li>• It also has a laptop-based Ground Control System.</li> <li>• ABHYAS requires minimum logistics and is cost-effective compared to imported equivalents.</li> </ul>
<b>Vajra sentinel system</b>	<ul style="list-style-type: none"> <li>• An anti-drone (Vajra sentinel system) manufactured under Indian Defence Exhibition (iDEX) initiative.</li> </ul>

**6.6.5. OTHER IMPORTANT NEWS**

**6.6.5.1. INDIA’S FIFTH-GENERATION ADVANCED MEDIUM COMBAT AIRCRAFT (AMCA)**

- Recently, the Cabinet Committee on Security (CCS) has approved the project for the design and development of **India’s fifth-generation multirole fighter jet, Advanced Medium Combat Aircraft (AMCA)**.
- **Globally there are four fifth-generation aircraft** – F-22 Raptor and F-35A Lightning-II from the USA; J-20 of China and Su-57 from Russia.
- **About AMCA**
  - A medium weight, multi role, twin engine fighter aircraft.

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- **Nodal agency for executing the programme and designing:** Aeronautical Development Agency (ADA) under the Defence Research and Development Organisation (DRDO)
  - ✓ ADA is under the Department of Defence Research and Development, Ministry of Defence.
- **Manufacturing agency:** Hindustan Aeronautics Limited (HAL)
- **Key features:**
  - ✓ **Advanced stealth features** such as radar absorbing material to avoid detection by enemy radar.
    - **Stealth mission enables Suppression of Enemy Air Defense (SEAD), Destruction of enemy air defence (DEAD) and precision strike.**
  - ✓ **Internal weapons bay:** For carrying up to four long-range air-to-air missiles and multiple precision-guided munitions with a payload of 1,500 kg.
  - ✓ **Capability to swing roles:** From an air-to-air role to air-to-ground.



#### 6.6.5.2. BRAHMOS MISSILES

- Cabinet Committee on Security has cleared the acquisition of over 200 BrahMos extended-range supersonic cruise missiles for navy.
- **About BrahMos missiles**
  - Developed under the joint venture agreement between **India and Russia**.
  - A **Supersonic Cruise Missile** i.e travels at a speed of around 2-3 Mach.
  - **Cruise Missile** is propelled by jet engines.
  - **Key Features:**
    - ✓ **Fire and Forget** principle of operation.
    - ✓ **Long flight range (290km)** with varieties of flight trajectories.
    - ✓ **Low radar** signature.
    - ✓ **Pin point accuracy** with high lethal power aided by large kinetic energy on impact.

#### 6.6.5.3. HIGH POWERED MICROWAVE (HPM) WEAPONS

- Chinese scientists unveiled a novel **HPM weapon, powered by Stirling engines**.
  - Stirling engine is an **external combustion engine** working on the principle of compression and expansion to **convert thermal energy into mechanical energy**.
- HPM weapons are a type of **Directed Energy Weapon (DEW) system**.
  - DEWs are **electromagnetic systems** capable of **converting chemical or electrical energy to radiated energy** and focusing it on a target, resulting in **physical damage**.
- HPM weapons generate **beams of electromagnetic energy** over a broad spectrum of radio and microwave frequencies.
  - These **beams interact** with and potentially **damage or disrupt electronics in targeted systems**.

#### 6.6.5.4. AKASH-NG (NEW GENERATION) MISSILE

- Defence Research and Development Organisation conducted successful flight-test of Akash NG missile.
- Akash-NG is a Surface to Air Missile **capable of intercepting high-speed, agile aerial threats**.



- Its **active electronically scanned array (AESA)** multi-function radar features all three functions - **search, track and fire control** in one platform.
- Akash Weapon System is **Short Range Surface to Air Missile (SRSAM) Air Defence System**, indigenously designed and developed by DRDO.

## 6.7. MISCELLANEOUS

### 6.7.1. FAST BREEDER REACTOR

#### Why in the news?

Recently, core-loading process in the **indigenous Prototype Fast Breeder Reactor (PFBR)** was initiated at Madras Atomic Power Station in Kalpakkam, Tamil Nadu.

#### More about News

- PFBR has been **designed and constructed indigenously by Bharatiya Nabhikiya Vidyut Nigam Ltd or BHAVINI** with significant contribution from more than 200 Indian industries.
- **Core loading** is the process of **placing nuclear fuel assemblies inside the core** of a nuclear reactor.
- The completion of core loading will effectively mark the **first approach to 'criticality'**.

#### What is Fast Breeder Reactor (FBR)?

- A nuclear reactor that uses fast neutron to **generate more nuclear fuel than they consume** while generating power.
- Uses **Uranium-Plutonium Mixed Oxide (MOX)** fuel.
- The **Uranium-238 "blanket"** surrounding the fuel core undergoes nuclear transmutation to **produce more fuel**, which is why they are termed "**breeders**."

#### Bharatiya Nabhikiya Vidyut Nigam Ltd or BHAVINI

- Incorporated in 2003 as Public Limited Company under Companies Act, 1956.
- Works under the **Department of Atomic Energy (DAE)**.
- **Objectives:**
  - Constructing and commissioning the first 500 MWe Fast Breeder Reactor (FBR) at Kalpakkam in Tamil Nadu.
  - To pursue construction, commissioning, operation and maintenance of subsequent FBRs for generation of electricity under the provisions of **Atomic Energy Act, 1962**.

#### Significance of FBR

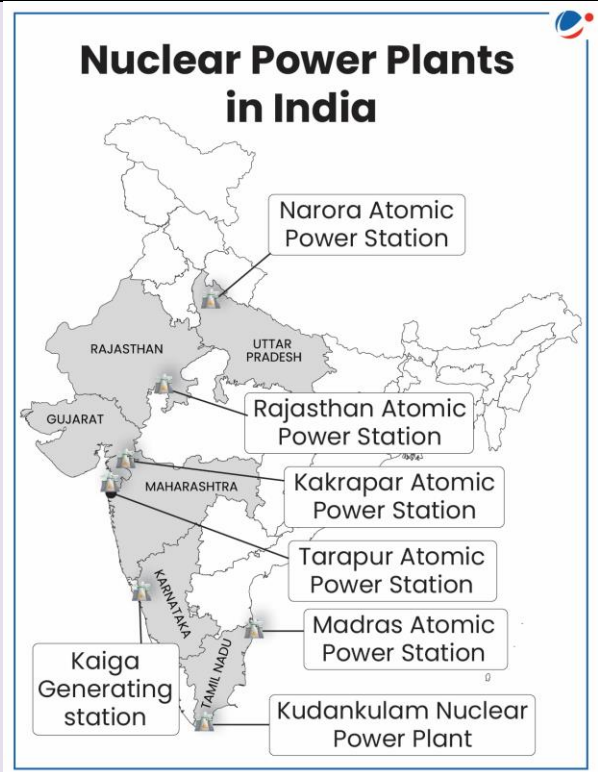
- Marks the **start of stage II of India's three-stage nuclear power programme**.
- **Paves way for third stage:** In FBR, Thorium-232 (Th-232) will also be used as blanket.
  - By **transmutation** (conversion of one element to another), Thorium will create fissile U-233 which will be used as fuel in the third stage.
  - FBR is thus a steppingstone for third stage of nuclear power program.
- **Technological advancement:** Once commissioned, India will be **second country after Russia** to have a commercial operating FBR.
  - China has a small programme on fast breeders; programmes in countries such as Japan, France, and the United States were **shut down** amid safety concerns.
- **Reduced waste:** As FBR uses the **spent fuel from the first stage**, it will also lead to significant reduction in nuclear waste.

#### Thorium reserves in India

- Department of Atomic Energy (DAE) has so far established more than **11 million tonnes of in situ resources Monazite** (Thorium bearing mineral).
- Thorium is **important for third stage of India's nuclear programme**.
- Nearly **25% of world's thorium reserves** is available in India.
- Found in beach and river sands in **Kerala, Tamil Nadu, Odisha, Andhra Pradesh, West Bengal, Jharkhand** etc.

### Nuclear Power generation in India

- Presently, installed nuclear power capacity in the country is **7.5 GW comprising of 23 nuclear power reactors.**
  - **Two indigenously designed 700 MW PHWR have been recently added** at the Kakrapar Atomic Power Plant.
- **Share of nuclear power** in the total electricity generation in the country was about **2.8% in 2022-23.**
- **Target:** India aims to achieve **tripling nuclear power generation capacity** by 2030.
- **Other Key developments:**
  - **India is taking steps for development of Small Modular Reactors (SMR)**
  - **India has adopted closed fuel cycle** which aims at **reprocessing of spent fuel for recovery of Uranium and Plutonium** and recycling them back to reactor as fuel, thereby reducing **Nuclear Wastes.**



### Related News and Concepts

#### Nuclear Energy Summit

- **First ever Nuclear Energy Summit** was held at Brussels (Belgium).
- **Hosted by:** International Atomic Energy Agency (IAEA) and the Belgian government.
- **Genesis:** Organised in the wake of historic **inclusion of nuclear energy in the Global Stocktake** agreed at UN Climate Change Conference (COP28) in Dubai in 2023.
- **Objective:** Highlighted **role of nuclear energy in addressing the global challenges** to reduce use of fossil fuels, enhance energy security and boost economic development.
- **Participants:** Leaders and **Representatives from 32 countries** (including India).

#### Fissile and Fertile materials

- **Fissile materials** are materials that can undergo the **fission reaction**. On the other hand, **Fertile material** is a material, which is not itself fissile, but can be converted into a fissile material by irradiation in a reactor.
  - For example, U238 and Th-232 are fertile materials that have to be converted into fissile Pu-239 and U233, respectively.
- The three-stage nuclear power programme involve the conversion of fertile material into fissile material.

### 6.7.2. LITHIUM

#### Why in the News?

Recently, India and Argentina signed agreement for Lithium **exploration & mining Project** in Argentina.

#### More about News

- The agreement was signed between **Khanij Bidesh India Ltd (KABIL)** and **CAMYEN**, a state-owned mining and energy company in the **Argentina.**

#### Other Important initiatives for supply of Lithium in India

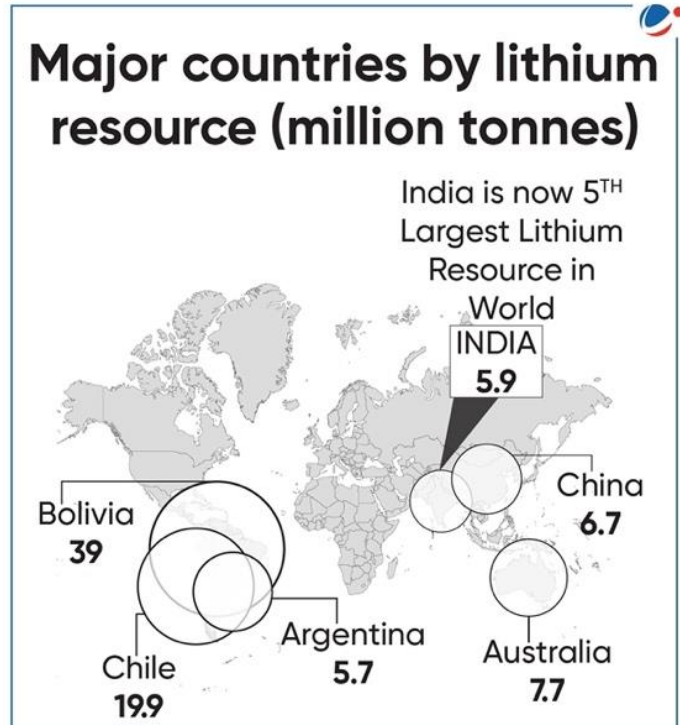
- **KABIL**, established in 2019, is **Joint Venture Company** of the National Aluminium Company Ltd. (NALCO), Hindustan Copper Ltd. (HCL) and Mineral Exploration and Consultancy Ltd.
  - Identifies, acquire, develop, process and make commercial use of **strategic minerals including Lithium in overseas locations for supply in India.**
- **Australia - India Critical Minerals Investment Partnership** identified **five target** projects (two lithium and three cobalt) to further explore in Australia.
- **Geological Survey of India (GSI)** is exploring Lithium reserves in various parts of the country.



- The deal will be bringing in **technical and operational experience** for **brine** (or concentrated solution of saltwater) type lithium exploration for India.

### About Lithium

- Properties:**
  - Soft, silvery-white alkali metal with lowest density of all metals.
  - Vigorously reacts with water.
  - Improves strength and lightness in alloys with aluminium and magnesium.
- Distribution:**
  - Major reserves are in **Chile, Bolivia, Argentina (Lithium Triangle), Australia and the China.**
  - In India**
    - Identified as **critical and strategic minerals** under **Mines and Mineral (Development and Regulation) (Amendment) Act 2023.**
      - Critical Minerals** are elements that are **building blocks of essential modern-day technologies**, and are at **risk of supply chain disruptions.**
    - Currently, India meets the lithium demand through **100% import mostly from (China and Hong Kong).**
- Harnessing Lithium**
  - Does not occur as the free metal in nature, found in small amounts in igneous rocks and mineral spring waters.
    - Important minerals contains lithium includes podumene, petalite, lepidolite, and amblygonite.
  - Produced via electrolysis of molten lithium and potassium chloride.



## Applications of Lithium



**Rechargeable batteries** for mobile phones, laptops, digital cameras and electric vehicles



**Non-rechargeable batteries** for things like heart pacemakers, toys and clocks



**Magnesium-lithium alloy** is used for armour plating



**Aluminium-lithium alloys** are used in aircraft, bicycle frames and high-speed trains



**Lithium oxide** is used in special glasses and glass ceramics



**Lithium chloride** is one of the most hygroscopic materials known, and is used in air conditioning and industrial drying system



**Lithium stearate** is used as an all-purpose and high-temperature lubricant.

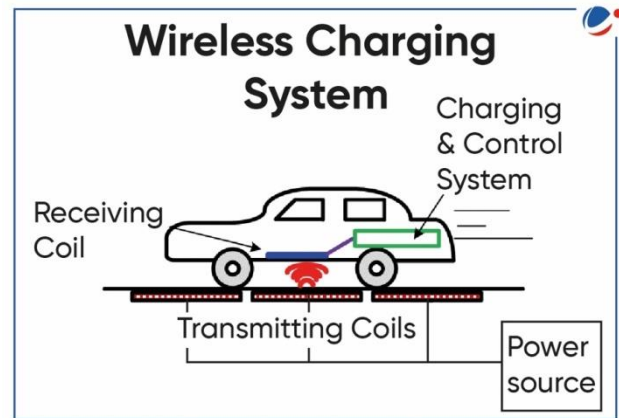
### 6.7.3. INDUCTION CHARGING

#### Why in the news?

In a bid to boost e-mobility, India plans to transform the Golden Quadrilateral into a network of electric vehicles (EV) ready highways using **induction charging** technology.

#### What is Induction/Wireless charging?

- **A method of charging in which electromagnetic fields** are used to transfer energy between two coils without the need of a physical connection.
- **Processes Involved/Working**
  - The transmission of electricity generally takes place by either of the two methods:
    - ✓ **By electric fields** using capacitive coupling between metal electrodes (capacitive charging) or
    - ✓ **By magnetic fields** using inductive coupling between coils of wire (inductive charging).
  - The operating principle is similar to that of a transformer and is **based on the laws of magnetic induction**.
  - One coil is in the charging station and the other is in in the EV and the energy is transferred from transmitting coils to the receiving coils.
  - **A primary circuit**, called a transmitter, generates a time-varying magnetic field.
  - **A secondary circuit** receives this field, called the receiver, which is connected to the device to be powered.
  - To start charging, drivers only need to park their EV above the charging pad.



#### Types of Inductive charging

- **Static or stationary charging (used at homes, office):** EVs don't move during charging.
- **Quasi-dynamic or opportunistic charging (used at intersections, traffic signals, etc.):** EVs can charge at low speeds and during momentary pauses.
- **Dynamic EV Charging (Roads and Highways):** EVs can charge continuously on roads and highways, allowing long-distance driving without power interruption.

### Benefits of Induction charging



#### Reduces time and effort

Allows EV owners to charge vehicles by parking them over a charging pad.



#### Reduces maintenance

No physical connectors, reducing wear and tear on charging equipment.



#### All-Weather Charging

Suitable for all weather conditions.



#### Other

Environment Friendly (reduction in CO2 emission reduction), supports the development of autonomous driving technology etc.

### 6.7.4. ADVANCED DRIVER ASSISTANCE SYSTEMS

#### Why in news?

As per various reports there has been a surge in demand of Advanced Driver Assistance Systems (ADAS) from India and India is becoming a growing market for the same.

#### What is ADAS?

- **Electronic systems integrated** into vehicles for driver safety, performance improvement, and convenience.

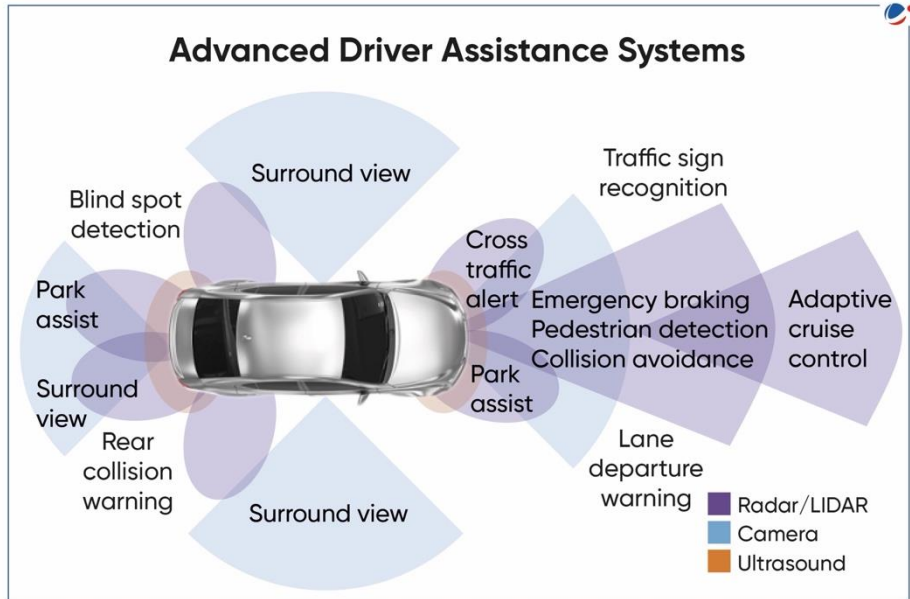
- **Utilizes** sensors, cameras, radar for etc. to monitor the vehicle's surroundings and detect potential hazards.
- Different levels of ADAS are available based on customer demand.

#### Types of ADAS

- **Active ADAS:** Involves active intervention and assistance in critical driving situations.
  - Can perform automatic corrective actions.
  - E.g. Collision Avoidance Systems, lane keep assist systems, and automatic emergency braking.
  - **Passive ADAS:** Provides information and alerts to the driver without direct intervention. E.g. blind spot monitoring systems, lane departure warning etc.

#### Equipment used in ADAS

- **Radar-** Uses radio waves to detect objects & measure their distance, speed, and direction.
- **Lidar-** Uses laser light to create a 3D map of the vehicle's surroundings
- **Camera -**Uses inbuilt optical sensors to capture images and provides information about lane markings, traffic signs
- **Ultrasonic-** Uses high-frequency sound waves to detect objects and measure their distance.
- **Infrared-** Uses heat-sensitive sensors to detect objects in low-light situations
- **GPS-** Determines location, speed and informs about traffic management.



#### Different levels of Autonomous Driving

- **Level 0 (No Automation)** The driver has full control of the driving tasks.
- **Level 1 (Driver Assistance)** The vehicle features a single automated system.
- **Level 2(Partial Automation)** The vehicle can perform steering and acceleration.
- **Level 3(Conditional Automation)** The vehicle can control most driving tasks.
- **Level 4 (High Automation)** The vehicle performs all driving tasks under certain conditions.
- **Level 5 (Full Automation)** The vehicle performs all driving tasks under all conditions.

### 6.7.5. CRITICAL TECH SECTORS

#### Why in the news?

The Ministry of Electronics and Information Technology (MeitY) recently unveiled **draft road maps for Critical Tech Sectors**.

### About Draft Road Maps for Critical Tech Sectors

- Draft Roadmaps were prepared by **Centre for Development of Advanced Computing (C-DAC)**, giving emphasis on **indigenisation of software and hardware in the critical sectors**.
  - C-DAC is a premier research and development organization under Ministry of Electronics and Information Technology (Meity).
- They aim to solve a **series of issues by different time spans between now and 2047**, with **specific domestic research goals** outlined.
- **Key Highlights of the Roadmaps**

Critical tech sector	Roadmaps
Quantum Technologies	Focus on developing superconducting materials
	Public key infrastructure
Cryptography	Create <b>centre of excellences for cryptography</b>
	Focus on <b>quantum-resistant cryptography, novel non-linearity schemes, etc.</b>
Mobile Security	Indigenous ecosystem for <b>Secure OS and Mobile hardware</b>
	Deploy "self-defending security" and "quantum-backed security" for mobile systems
Internet of Things (IoT) security	Develop an <b>IoT sandbox</b> , IoT network security orchestration, and automation
	Work on <b>Zero trust architecture, New chip design and standards.</b>
Cyber Forensics	Develop ' <b>Social Media Analytics</b> '
	Create ' <b>Dark Web Forensics</b> ' and <b>forensics tools for sectors like deepfakes, UPI apps, and tools for reconstructing events from CCTV footage.</b>

### What are Critical Technology Sectors?

- **Technologies identified by government as 'Critical'** for a nation's future economic growth, national security, and technological advancement.
- **Involves** cutting-edge research, innovation, and strategic importance.
- Typically **receive heightened oversight from the government and improving technology investment environment.**
- **Important for state's critical infrastructure.** As they offer **safe, cost-effective and reliable service** and can act as a **predictive tool** for forecasting potential failures.
- **Examples of Critical Technology Sectors** include Artificial Intelligence (AI), Quantum computing, etc.

#### Critical technology collaborations with other countries:

- **U.S.-India initiative on Critical and Emerging Technology (iCET)**
- **India and Australia** signed the **Framework Arrangement on Cyber and Cyber – Enabled Critical Technology Cooperation** in June 2020.
- **India and EU** have also signed an intent of cooperation in the area of **High-Performance Computing** in 2022.
- In 2023, **India and Japan** have also entered into a **Memorandum of Cooperation (MoC)** on **semiconductor supply chain** partnership.

#### India's Initiative

- INDIAai-National AI Portal of India
- National Quantum Mission
- Digital India FutureLABS

### 6.7.6. SATYENDRA NATH BOSE

#### Why in the News?

The eminent physicist **S.N. Bose** was remembered on his **50<sup>th</sup> death anniversary**.



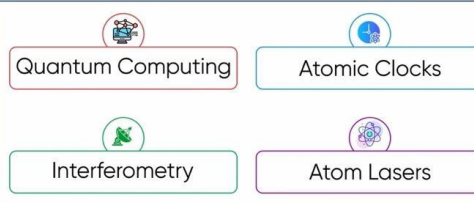
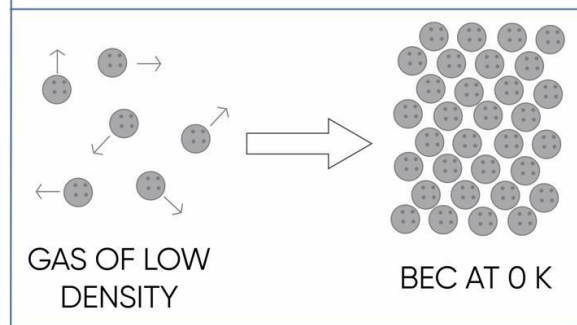
**About S.N. Bose (1894-1974)**

- Hailed from **Nadia district of West Bengal**.
- Joined the **Presidency college of Kolkata**
  - His teachers included **Prafulla Chandra Ray** and **Jagadish Chandra Bose**.
- Referred as "**Father of the God Particle**"
  - The **fundamental particle 'Bosons'** were named after him.
- **Rabindranath Tagore** dedicated his only book on science – '**Vishwa Parichay**' to SN Bose.
- **S. N. Bose National Centre for Basic Sciences (Kolkata)** was established in 1986 in his remembrance.

**Satyendra Nath Bose (S.N. Bose)**

**Scientific Contributions of S.N Bose**

- He along with **Meghnad Saha**, established **modern theoretical physics** in India. Bose's work titled "**Planck's Law and Light Quantum Hypothesis**" was translated into German by **Einstein** and published in Zeitschrift für Physik.
  - This publication led to emergence of **Quantum statistics**.
- **Bose-Einstein Condensates (BEC)**: It is a quantum phenomenon predicted by Bose and Einstein (1925). It is a **state of matter created when particles are cooled to near absolute zero** (-273.15 degrees Celsius/0 Kelvin).
  - **All the atoms become a single entity** at this point, and possess quantum properties, wherein each particle together functions as a wave of matter.
  - Referred to as the '**fifth state of matter**', it was proved experimentally by Weimann, Cornell and Ketterle for which they received Nobel prize in 2001.
  - **Properties of BEC include:**
    - ✓ **Super fluidity:** BEC has zero viscosity and can flow without resistance.
    - ✓ **Super conductivity:** The zero resistance leads to optimal conductivity.
    - ✓ **Coherence:** All particles in the BEC are in the same quantum state behaving as a single entity.
    - ✓ **Macroscopic Occupation:** In a BEC, a number of particles occupy a same quantum state, leading to a macroscopic wave function.
- **Bose-Einstein Statistics:** Earlier proposed as a **statistical procedure for counting possible states of a quantum system** composed of identical particles with integer spin for light quanta in 1924 by Bose.
  - The statistics **was extended to gas molecules by Einstein**.
  - Particles which obey Bose-Einstein Statistics principle are referred as "**Bosons**".
    - ✓ Bosons are **particles with integer spin** and include **photons** (light), **gluons** (particles that act as force carriers in the nucleus), the **Higgs boson**, and the **W and Z bosons**.
- **X-ray diffraction cameras:** Designed and constructed by him for rotation and powder photography.

**Applications of BEC**

**Atoms acting as Single Unit at 0 K**

**6.7.7. PROTON IMPROVEMENT PLAN (PIP-II) PROJECT**
**Why in the News?**

India's Department of Atomic Energy (DAE) began construction phase for contributions to Proton Improvement Plan (PIP-II) project.

### About Proton Improvement Plan (PIP-II) project

- PIP-II is the **first particle accelerator on U.S. soil (at Fermilab)** to be built with significant **contributions from international partners**.
- Institutions from **India, France, Italy, Poland and UK** are part of collaboration. India will contribute **\$140 million worth components**.
- It will power the **world's most high-energy neutrino beam** to the under construction Deep Underground Neutrino Experiment (DUNE) at Long-Baseline Neutrino Facility (LBNF).

### About Particle Accelerators

- Propel charged particles** (Protons, Atomic Nuclei, Electrons etc.) at high speeds, close to light's speed.
  - Principle Components:** Source for particles, Composite device to speed them up, Metallic tubes in vacuum to allow free movement and Electromagnets for beam particle steering.
- Some Large Particle Accelerators:**
  - Large Hadron Collider (LHC):** Most powerful accelerator, located at CERN in Geneva. Significant achievements - discovery of **Higgs Boson, previously unknown hadrons** etc.
  - Stanford Linear Accelerator Centre (SLAC), USA:** Longest linear particle accelerator in the world. Significant achievements - discovery of **quark and tau leptons**.
  - European Synchrotron Radiation Facility (ESRF):** Located in Grenoble, France, and is home to most intense hard x-ray source in the world.

### Significance of Particle Accelerators

- Fundamental research:** Colliding sub-nuclear particles near speed of light, allowing **search for new particles and forces and understanding origins of universe**.
- Health:** **Sterilizing** medical equipment and synthesizing radiopharmaceuticals for **cancer diagnosis and therapy**.
- Environment:** Detect trace chemical elements in air, water or soil.
- Industry:** Improving durability of materials.

## 6.7.8. POSITRONIUM

### Why in the News?

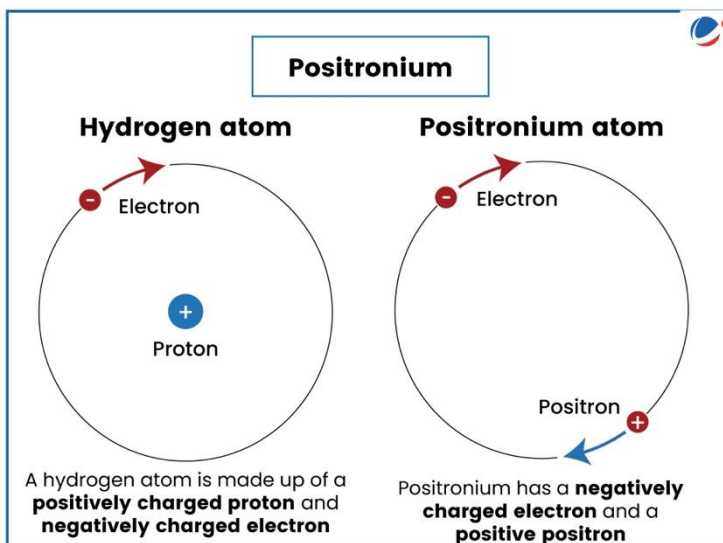
In a first, CERN Scientists carried out LASER cooling of Positronium.

### More about News

- An international team of physicists from **Anti-hydrogen Experiment: Gravity, Interferometry, Spectroscopy (AEGIS)** collaboration has achieved this breakthrough.
  - AEGIS** is one of several **experiments at CERN's Antimatter Factory** with goal of **direct measurement of Earth's gravitational acceleration (g) on antihydrogen**.
  - AEGIS is a **collaboration of physicists** from a number of countries in **Europe and from India**.

### About Positronium

- Positronium (Ps)**, discovered in 1951, consists only of an **electron (e<sup>-</sup>)** and a **positron (e<sup>+</sup>)**.
  - Ps has a **very short lifetime**, annihilating into gamma rays in **142 billionths of a second**.
  - Because it comprises **just two point-like particles**, the electron and its antimatter, it's a **perfect system for experiments under AEGIS**, provided it can be **cooled enough to measure it with high precision**.



### About Matter – Antimatter

- Matter comes in many forms—**solids, liquids, gases, and plasmas** - consisting of **subatomic particles** that give them mass and volume.
  - **Sub-atomic particles** include **protons and neutrons** (also known as **baryons**), **electrons and neutrinos** (also known as **leptons**), and other particles.
- **All subatomic particles either have their own anti-twins** (antiquarks, antiprotons, antineutrons, and antileptons such as antielectrons) or straddle between matter and antimatter.
  - **Anti-particles** can combine to form **anti-atoms** and, in principle, could even form **anti-matter region**.

### 6.7.9. STEEL SLAG ROAD TECHNOLOGY (SSRT)

#### Why in the News?

JSW Steel has constructed 1 km long four lane steel slag road section on NH-66 (Mumbai-Goa).

#### More about News

- This project falls under the initiative of the **Waste to Wealth and Clean India Campaign**.

#### About Steel Slag Road Technology

- Steel slag, a non-metallic, glassy material, is generated from a **steel furnace burning** in the form of molten flux material as an impurity.
- Consists of calcium, magnesium, manganese, and aluminium silicates and oxides.
- **Processed during road construction** to remove impurities and metal content.
- Processed **steel slag aggregates** have **superior mechanical** properties.
- Roads include bituminous and cement concrete steel slag sections on both the right-hand and left-hand carriageways.



#### Key Benefits

- **Cost Efficiency:** Offers 30% cost savings compared to traditional road construction.
- **Durability:** Ensures roads built with it surpass the lifespan of conventional roads.
- **Abundant Availability:** India's abundant steel production (second-largest steel producer) facilitates widespread use in infrastructure projects.
- **Environmental Friendly:** Innovative process reduces greenhouse gas emissions, promoting greener road construction.
- **Temperature Resilience:** Steel slag is suitable for diverse climates.

### 6.7.10. OTHER IMPORTANT NEWS

#### 6.7.10.1. C-BOT

- Goa-based **National Institute of Oceanography** has launched an **autonomous underwater vehicle called C-bot**.
- C- bot is a **robot** with advanced features for **increased surveillance over coral reefs**.
  - Can travel to a **depth of 200 metres underwater**.
  - Will **help Indian Navy perform bathymetry studies** (mapping of sea floor) to help plot navigation channels.
  - Will help in **finding the active hydrothermal vents** where geothermally heated water seeps up from deep below the ocean floor.

### 6.7.10.2. CARBON NANOTUBES (CNTS)

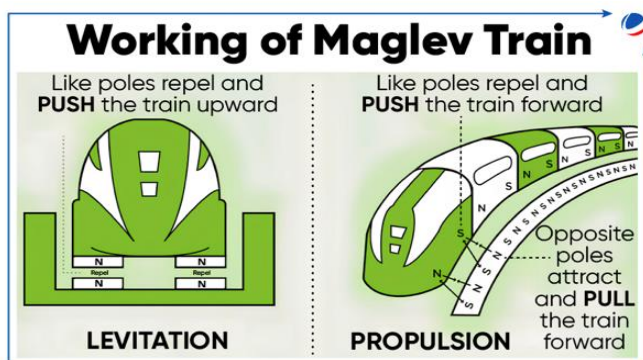
- A novel method for directly synthesising Carbon nanotubes (CNTs) on glass substrates at a temperature of 750 °C.
  - It used **Plasma Enhanced Chemical Vapour Deposition (PECVD)** Technique.
- **About Carbon nanotubes (CNTs)**
  - A nanocarbon materials with **tubular structures** composed of rolled-up **graphene** sheets.
  - Can be single-walled (SWCNT) or multi-walled (MWCNT).
  - **Properties:** High surface to volume ratios, enhanced conductivity and strength, biocompatibility, etc.
  - **Applications:** Rechargeable batteries, flexible electronics, aerospace, transparent electrodes, touch screens, supercapacitors, and medicine.

### 6.7.10.3. NEAR INFRARED LIGHT

- Researchers have found that **Near-infrared light ruptures cancerous cells** with high effectiveness.
  - **Near-infrared** has shown high effectiveness than **visible rays** because of its higher penetrative power.
  - However, researcher raised concern that its high penetrative power may cause damage to vital tissues.
- **About Near Infrared Rays:**
  - A portion of radiation that is just beyond the **visible Electromagnetic (EM) Spectrum** is referred to as **near-infrared**.
    - ✓ It is part of the **Infrared Light (IR)**.
  - **Other Applications:** Used in by satellites to observe vegetation and soil composition.
- EM spectrum also consists of **Radio waves, Microwaves, Visible, Ultraviolet light, X-rays** and **gamma-rays** (arranged in low to high energy or frequency).

### 6.7.10.4. MAGLEV (MAGNETIC LEVITATION)

- In a significant breakthrough, China's maglev train **surpassed its previous record of 623 km/h**.
- Maglev is a system in which the **vehicle runs levitated from the guideway** (corresponding to the rail tracks of conventional railways).
  - In Maglev, **superconducting magnets suspend the train** above a U-shaped concrete guideway.
  - Like ordinary magnets, these **magnets repel one another** when matching poles face each other.
- **Advantages**
  - Produce **no emissions** as they lack engine.
  - **No friction** between wheels and rail enables **higher speeds**
  - Any **two trains travelling the same route cannot catch up and crash** into one another.



### 6.7.10.5. DRY ICE

- Recently, diners at Gurgaon eatery were hospitalised after mistakenly being served dry ice.
- **About Dry Ice**
  - Common name for **solid carbon dioxide (CO<sub>2</sub>)**.
  - Gets this name because it does **not melt into a liquid when heated**; instead, it changes **directly into a gas** (a process known as sublimation).
  - Manufactured by **compressing** and cooling gaseous CO<sub>2</sub>.
  - Considered lethal for human health.
  - **Applications:** Hospitals & Clinics, Food Processing & Distribution, Industrial Cleaning and Technical Processes and Theatrical and Special Effects.








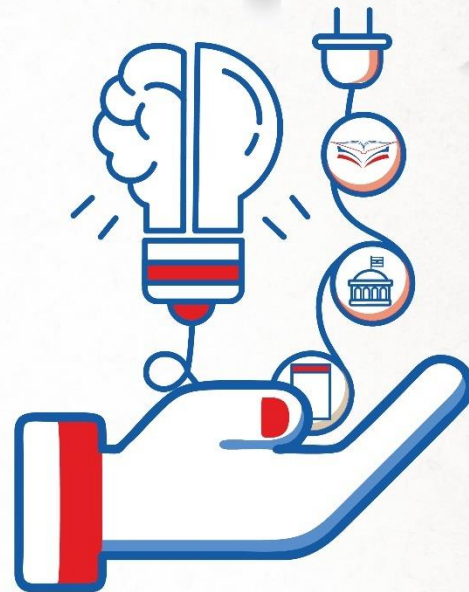
### 6.7.10.6. PARTHENOGENESIS

- Scientists have genetically modified a fruit fly to reproduce asexually through Parthenogenesis.
- **Parthenogenesis (PG)**
  - An **asexual reproduction** in which a **female can produce an embryo without fertilizing an egg with sperm.**
  - **Two forms of Natural PG**
    - ✓ **Automixis:** Observed mostly in sharks, slightly shuffles mother's DNA to produce children who are close to but not identical clones of mother.
    - ✓ **Apomixis:** A type of **genetic copy-and-paste** where offspring generated are genetically identical clones of their parents. **Plants are more prone to this type of parthenogenesis.**

## OPTIONAL SUBJECT CLASSES

Starts : **2 JULY, 5 PM**

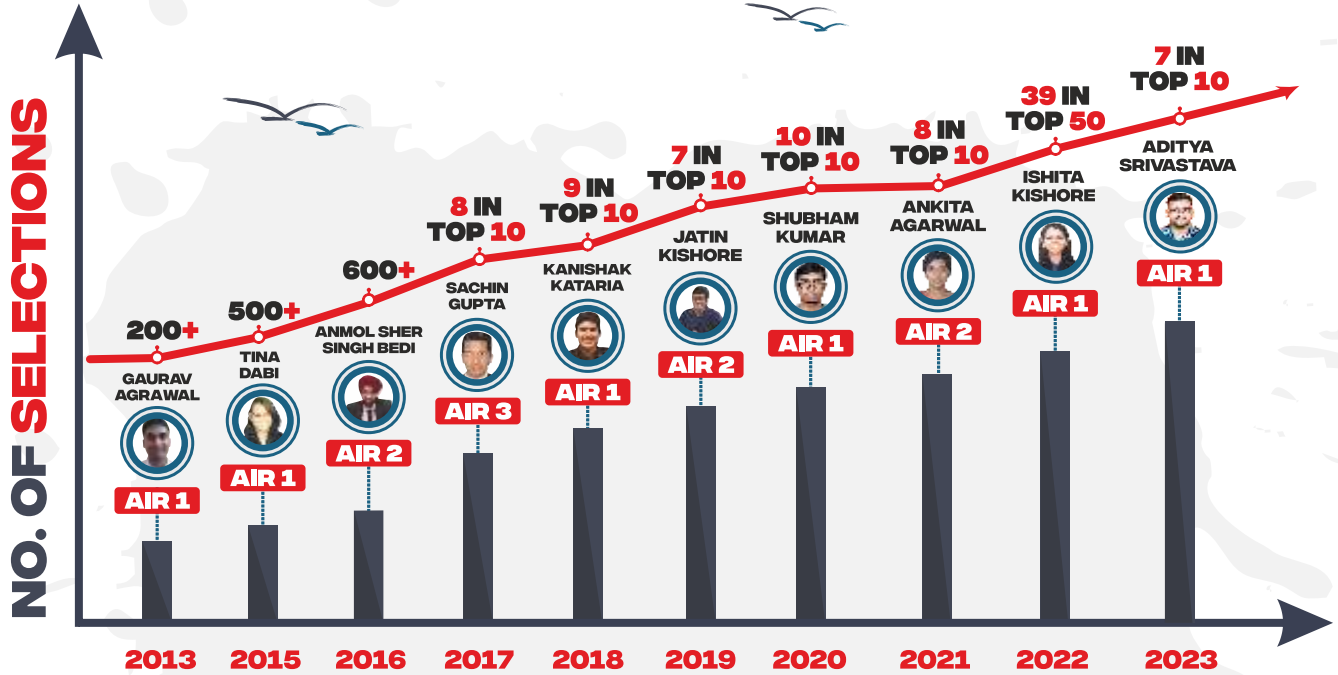
-  Anthropology
-  Geography
-  Philosophy
-  Political Science & International Relations
-  Sociology



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**DELHI: 9 MAY, 9 AM | 17 MAY, 1 PM**

**GTB Nagar Metro (Mukherjee Nagar): 21 MAY, 5:30 PM**

**AHMEDABAD: 20 JUNE**

**BENGALURU: 15 MAY**

**BHOPAL: 21 MAY**

**CHANDIGARH: 5 APR**

**HYDERABAD: 10 MAY**

**JAIPUR: 23 APR**

**JODHPUR: 22 APR**

**LUCKNOW: 17 MAY**

**PUNE: 5 MAY**

**फाउंडेशन कोर्स सामान्य अध्ययन 2025**

► प्रारंभिक, मुख्य परीक्षा और निबंध के लिए महत्वपूर्ण सभी टॉपिक का विस्तृत कवरेज

**DELHI: 14 मई, 9 AM | 10 अप्रैल, 9 AM**

**BHOPAL: 11 जून**

**LUCKNOW: 5 जून**

**JAIPUR: 23 अप्रैल**

**JODHPUR: 22 अप्रैल**



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# 7. CULTURE

## 7.1. SCULPTURE AND ARCHITECTURE

### 7.1.1. MARATHA MILITARY LANDSCAPES

#### Why in the News?

Maratha Military Landscapes will be India’s nomination for recognition as UNESCO World Heritage List for the year 2024-25.

#### About Maratha Military Landscapes

- It was **included in Tentative List of World Heritage sites in 2021**.
- Represent an extraordinary fortification and military system envisioned by the Maratha rulers.
- Nominated in the category of **cultural criteria**. (Other criteria for selection is natural)
- The inception of the Maratha Military ideology dates back to 17<sup>th</sup> Century during the reign of the **Maratha King Chhatrapati Shivaji Maharaj**.
  - It continued through subsequent rules until Peshwa rule till 1818 CE.
- Covers forts from **Maharashtra** and **Tamil Nadu**.
- It is a result of **integrating** the landscape, terrain and physiographic characteristics distinctive to the: **Sahyadri** mountain ranges, the **Konkan Coast**, **Deccan Plateau** and the **Eastern Ghats** in the Indian Peninsula.



Key Features of Forts in Maratha Military Landscapes	
<b>Hill forts</b>	
<b>Salher</b>	• Witnessed an <b>important battle in 1672 fought</b> between the Marathas and the Mughals.
<b>Shivneri fort</b>	• Birth place of <b>Chhatrapati Shivaji</b> .
<b>Lohgad</b>	• Located near the <b>Buddhist caves at Bhaje</b> .
<b>Raigad</b>	• Selected by <b>Chhatrapati Shivaji for his permanent capital</b> .
<b>Rajgad</b>	<ul style="list-style-type: none"> <li>• Recognized as the <b>first political base of 'Hindavi Swarajya'</b>; Rajgad, formerly known as Murumdev (name based on the mountain Murumbadev, on which it was built).</li> <li>• Capital of the Maratha Empire.</li> <li>• One of the 17 forts that Chhatrapati Shivaji Maharaj kept when he signed the <b>Treaty of Purandar in 1665</b>.</li> </ul>
<b>Gingee Fort (Tamil Nadu)</b>	• It has three distinct hilltop citadels and a massive boundary of thick walls and cliffs
<b>Island forts</b>	
<b>Sindhudurg</b>	• Occupies an <b>islet in the Arabian Sea</b> .
<b>Suvarnadurg</b>	• Presumably built by the <b>rulers of Bijapur</b> in the 16th century A. D.
<b>Khanderi fort</b>	• Built during the reign of the Maratha king Shivaji in 1679 CE to keep a check on the Siddhis at Murud-Janjira fort.
<b>Hill-forest fort</b>	
<b>Pratapgad</b>	• Major fight with <b>Afzal Khan took place near this fort</b> .
<b>Hill-plateau fort</b>	
<b>Panhala Fort</b>	• Became <b>Maratha state capital under Tarabai</b> .
<b>Coastal fort</b>	
<b>Vijay durg</b>	<ul style="list-style-type: none"> <li>• Shivaji captured this fort from Adil Shah of Bijapur and renamed it as <b>"Vijay Durg"</b>.</li> <li>• It was called the <b>"Eastern Gibraltar"</b>.</li> </ul>

**7.1.1.1. SIX HERITAGE SITES OF MADHYA PRADESH INCLUDED IN UNESCO'S TENTATIVE LIST**

Sites on UNESCO's Tentative List	Description
<b>Gwalior Fort</b>	<ul style="list-style-type: none"> <li>Initiated by Raja Sourya Sena who finished the fortification system.</li> <li>It consisting of Man Mandir Palace, Gujari Mahal, Sas Bahu temples etc.</li> </ul>
<b>Khooni Bhandara, Burhanpur</b>	<ul style="list-style-type: none"> <li><b>Underground water management system, built by Abdur Rahim Khan-i-Khanan</b> during Jahangir's reign.</li> <li>Based on <b>Persian qanat approach</b> (collecting water from an underground water source).</li> </ul>
<b>Rock Art Sites of Chambal Valley</b>	<ul style="list-style-type: none"> <li>Rock art in hilly areas of <b>Vindhyan, Satpura, and Kaimur ranges.</b></li> </ul>
<b>Bhojeshwar Mahadev Temple, Bhojpur</b>	<ul style="list-style-type: none"> <li><b>Lord Shiva temple</b>, built during <b>11<sup>th</sup> century</b> under <b>Raja Bhoj.</b></li> <li>Built in <b>Bhumija style</b> (evolved form of Nagara style during Paramara period).</li> </ul>
<b>Gond Monuments of Ramnagar, Mandla</b>	<ul style="list-style-type: none"> <li>Architectural complexes built by <b>Gond rulers</b> consisting of <b>Moti Mahal, Raibhagat ki Kothi, Begum Mahal</b> etc.</li> <li>The influence of Mughal and Rajput is evident.</li> </ul>
<b>The Historical Ensemble of Dhamnar</b>	Rock cut site consisting of <b>51 monolithic Buddhist caves (5<sup>th</sup>-7<sup>th</sup> century CE)</b> and <b>hindu temple complex (Dharmarajeshwara temple).</b>

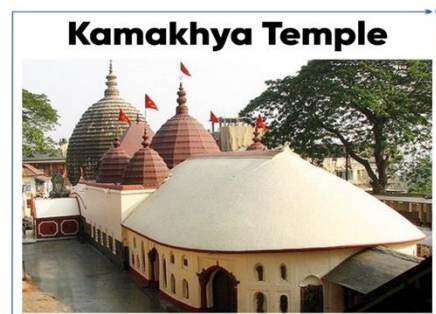
**7.1.2. MAA KAMAKHYA ACCESS CORRIDOR**

**Why in the News?**

Recently, Prime Minister laid the foundation stone for the **Maa Kamakhya Access Corridor in Assam.**

**About Maa Kamakhya Access Corridor**

- Aims to boost the tourism in the region** by improving the **ease of access and comfort for the devotees.**
- Designed on **similar lines of Kashi (U.P) and Mahakal (M.P) corridors.**
- Sanctioned under the **Prime Minister's Development Initiative for North Eastern Region (PM-DevINE) scheme.**
  - PM-DevINE** is a **Central Sector Scheme**, launched during Union Budget 2022-23.
  - Objectives:**
    - ✓ Fund infrastructure projects.
    - ✓ **Social development in North East Region.**
    - ✓ **Livelihood activities for youth and women;** and
    - ✓ **Fill the development gaps.**
  - Ministry:** Ministry of Development of North East Region.



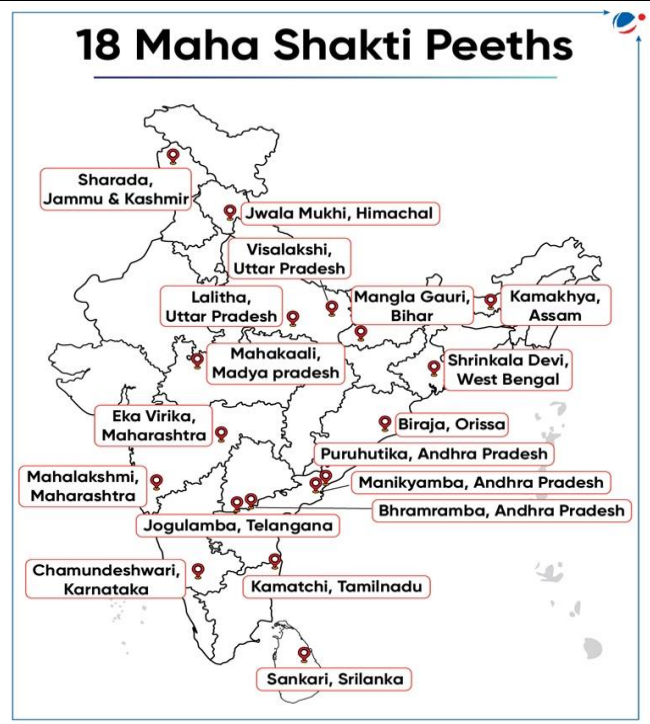
**About Maa Kamakhya Temple**

- One of the Maha Shakti Peeths in India.**
- Dedicated to **Maa Kamakhya /Kameswari** (referred as Goddess of desire).
- Geographical location:** Located on the **Nilachal Hills** overlooking **river Brahmaputra** on the outskirts of Guwahati (Assam).
- History**
  - Reconstructed in 1562 at the behest of Naranarayan** (King of Koch dynasty) as the former temple was **destroyed by Kala Pahar.**
  - Finds mention in the inscription of the **Allahabad pillar of Samudragupta.**
  - Dedicated to different forms of Mother Shakti**, namely **Sundari, Tripura, Tara, Bhuvaneshvari, etc.**



### Shakti Peeths

- **Shakti Peeths** are places of worship dedicated to **Sati or Shakti**.
- There are total of **51 Shakti Peeths** including India, Nepal, Bangladesh, Pakistan, China and Sri Lanka of which **18** are referred as **Maha Shakti Peeths**
- **Some other Shakti peeths outside India** are
  - **Guhyeshwari Shakti Peeth (Nepal)**
  - **Kottari Devi Shakti Peeth (Pakistan)**
  - **Indrakshi Shakti Peeth (Sri Lanka)**
  - **Dakshayani Devi Shakti Peeth (Tibet, China)**
  - **Maa Bhabani Shakti Peeth (Bangladesh)**



- **Architecture**
  - **Nilachal Style of architecture** is used in the reconstruction.
    - ✓ **Combination of two different styles:** the **nagara style** (North Indian) and **Saracenic style** (Mughal).
  - The dome made of bricks is a **sixteen-sided polygon decorated with horizontal bands**.
  - The walls are embellished with **numerous relief sculptures**.
  - The temple complex **consists of three major chambers**.
- **Festivals:** **fertility festival** called **Ambubachi Mela** is held every June.
- **Centre of Tantrism:** It is referred as a prime centre for **tantric Shaktism** in the country.
  - Tantrism, however, is **divided into three major streams**.
    - ✓ **Agama:** The one that comes directly from the lips of Lord Shiva.
    - ✓ **Nigama:** the one that comes from Shakti
    - ✓ **Yamala:** one that comes neither from Lord Shiva nor Shakti

### About Tantrism

- Tantrism is the **umbrella term that refers to the search for spiritual power and enlightenment** by means of the **Mantras** (repetition of sacred syllables), **Mandals** (symbolic drawings), and **Looms** (secret rites elaborated in Tantra texts)
- The tantric lineages **exist in both Hinduism including (Shaivism, shaktism and Vaishnavism) and Buddhism**.
  - In Buddhism, **Vajrayana Buddhism** is known for its tantric tilt, in which **Tara, Mahakala, Yamantaka etc. are worshipped**.

### Other famous temples in Nilanchal hills

- **Surrounded by many other temples** like **Bhubaneswari, Kali, Tara, Chhinnamasta, Bagala, Bhairavi, Doomavati, Matangi and Kamala**
  - All these temples along with Kamakhya are **collectively known as the Dasa-mahavidya**. (10 Goddesses of tantrism).
- **Five temples of Lord Shiva** namely **Kameswara, Siddheswara, Amratokeswara, Aghora and Kautilinga** are present along the nilanchal hills.
  - All these temples together form the **Kamakhya temple complex**.

### 7.1.3. OTHER IMPORTANT NEWS

#### 7.1.3.1. SRI VEERABHADRA TEMPLE (OR LEPAKSHI TEMPLE)

- Located in **Anantapur district of Andhra Pradesh** and **built-in 16th century** during **Vijayanagar empire**.
- Built in **trikutastyle** with **three shrines** - Veerabhadra (Lord Shiva Presiding deity), Papanaseswara and Raghunatha (added later).
- Noted for **largest monolithic Nandi (bull) statue** and **Naga-siva-linga** with seven-hooded snake.
- **Fresco paintings** (painting in lime on plaster) on walls and ceilings of mandapas and pradakshinapada **depict illustrations from Ramayana and Mahabharata, gods and legendary stories like Parvathi's marriage, etc.**
- Placed in **UNESCO's tentative World Heritage Sites list**.

#### 7.1.3.2. GURUVAYUR TEMPLE

- Also known as the **Dwarka of the South**, and is dedicated to **Lord Vishnu**.
  - The presiding deity is depicted in a **standing posture with four hands** holding **Shankh, Sudarshana Chakra, Lotus and Mace**. It is carved out of stone named **Patala Anjana**.
  - **First rays of Sun descend directly at the feet of Vishnu**.
  - In **1931-32, Sathyagraha** was launched under **Kelappan (Kerala Gandhi)** to secure entry of untouchables.
    - ✓ It led to **Travancore Temple Entry proclamation in 1936**.
  - Also known for **Elephant festival**.

#### 7.1.3.3. SHREE KALARAM MANDIR

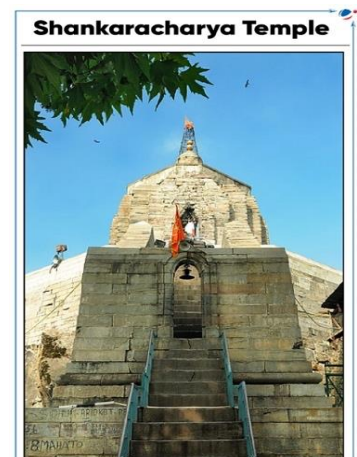
- Prime Minister **visited the Kalaram Mandir** on the banks of the **Godavari, Nashik (Maharashtra)**.
- **About the Temple:**
  - Built in **1782 by Sardar Rangrao Odhekar** on the site of an old wooden temple.
    - ✓ Supposed to stand on the spot where Lord Ram lived during his exile.
  - Derives its name from a **black statue of the Lord Ram**.
- **Site of a landmark agitation led by Babasaheb Ambedkar demanding temple entry rights for Dalits**.

#### 7.1.3.4. SRI RANGANATHASWAMY TEMPLE

- Also known as **Thiruvaranga Tirupati**, is dedicated to **Ranganatha (reclining form of Lord Vishnu)**.
- Constructed in **Dravidian style** and has **21 sculpted Gopurams, 50 sub-shrines, and 9 sacred pools (tanks)**.
- It is not just a temple but a temple-town, unique in its **Sapta-Prakaram formation** and **one of 108 Divya Desams** dedicated to Lord Vishnu.
- Situated on **island of Srirangam** bounded by **Cauvery and Kollidam (tributary of Cauvery) Rivers**.

#### 7.1.3.5. SHANKARACHARYA TEMPLE

- PM has offered his reverence to the **Shankaracharya Hill** and the temple atop it.
  - The hill located in the **Zabarwan Range**, houses the **Shankaracharya Temple**.
- **About the Temple**
  - **Dedicated to Lord Shiva** and is located at a height of 1100 feet.
  - Considered as the **oldest shrine for worship in Kashmir valley**.
  - Name from the visit of the philosopher and saint **Adi Shankaracharya**.
    - ✓ He propounded the **Doctrine of Advaita** and
    - ✓ **He established the four maths** namely Dwarka, Joshimath, Puri, and Sringeri.



### 7.1.3.6. STATUE OF SOCIAL JUSTICE

- **Statue of Social justice** was unveiled in **Vijayawada**, Andhra Pradesh.
  - It is a **206-foot Bronze Statue** of **Dr. B.R. Ambedkar** and is currently **the world's tallest Ambedkar statue**.

## 7.2. ART FORMS IN NEWS

### 7.2.1. GRANTHAM INSCRIPTIONS

#### Why in the news?

Two stone inscription bearing **11th century Grantham inscription** and 16<sup>th</sup> century Tamil inscription were discovered near Kangayam in Tamil Nadu.

#### About Grantha Scripts

- Script used in Tamil Nadu for **writing Sanskrit language**.
- Traces its roots to **Pallava period** with **Mahendravarman's Tiruchirappalli rock cut cave**.
- **Malayalam script in Kerala** is also evolved from it.
- **Other Grantha inscriptions** include Narsimhan's Mamallapuram, Kanchi Kailasnatha temple inscriptions, Pandyan Nedunjadaiyan's Anaimalai inscription and inscriptions of Cholas of Thanjavur.

### 7.2.2. DHOKRA SHILPKALA

#### Why in the news?

Chhattisgarh's Ocher Studio is helping in preservation of Dhokra Shilpkala.

- **About Dhokra Shilpkala**
  - **4000 years old intricate process of metal casting, using lost-wax technique** also known as cire perdue.
  - Origins can be traced to tribal communities residing in regions of **Chhattisgarh, Jharkhand, West Bengal, and Odisha**.
  - Word "Dhokra" is believed to be derived from **Dhokra Damar tribes (traditional metal smiths of Central India)**
  - Art is inspired from nature, mythology, and everyday life.
  - **Threat:** Rapid urbanization, diminishing number of skilled artisans and rise of modern materials and technologies.

## 7.3. IMPORTANT SITES IN NEWS

### 7.3.1. GEO-HERITAGE SITES

#### Why in the News?

**Pandavula Gutta** and **Ramgarh Crater** were recognised as Geo-Heritage Sites

#### About Geo-Heritage Sites

- **Sites of rare and unique geological, geomorphological, paleontological, and stratigraphic significance.**
  - These includes caves, natural rock-sculptures, sediments, rocks, minerals, meteorites or fossils
- **Geological Survey of India (GSI)** recognizes, declares and maintains the Geo-heritage sites in India (refer map)

#### About Pandavula Gutta

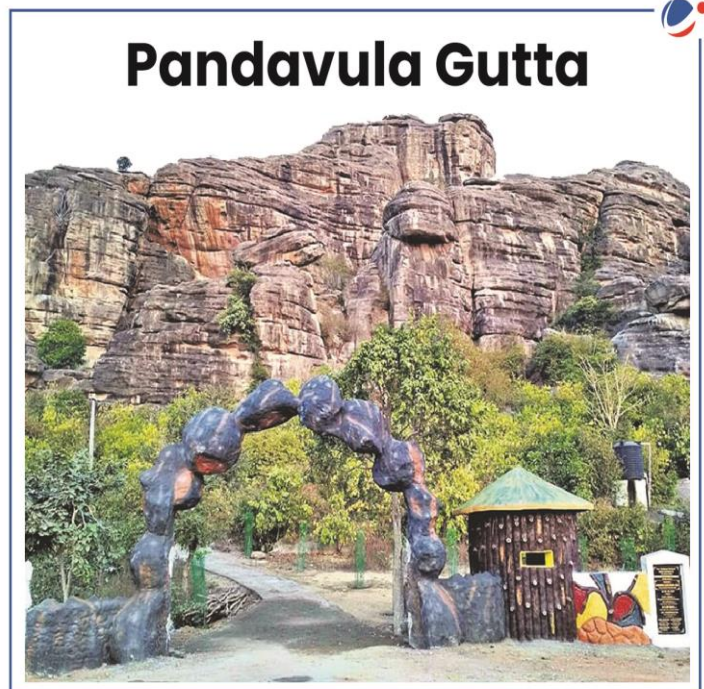
- **Location: Telangana (Jayashankar Bhupalpally district).**
  - Considered to be **older than Himalayas**.



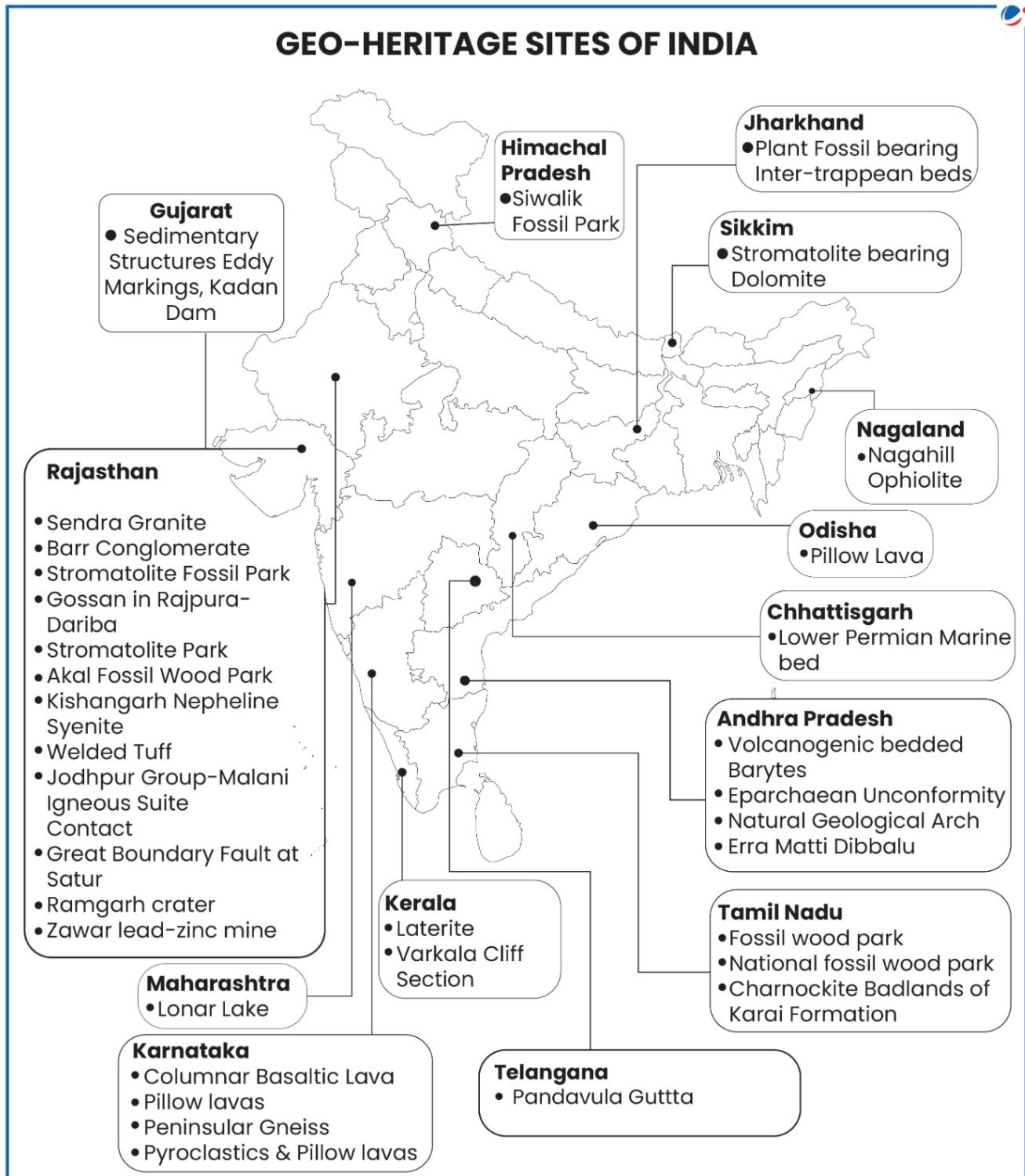
- **Discovery:** 1990.
- **Key features:** It houses **Palaeolithic Paintings** which depict:
  - **Wild life** (Bison, Antelope, Tiger, and Leopard etc.),
  - **Geometric shapes** (swastika symbol, circles and squares) and
  - **Weapons** (bows, arrows, sword and lancer etc.)
  - Offer glimpse into **the prehistoric man's rock art identified on walls and ceilings of caves, rock shelters and isolated boulders.**

#### About Ramgarh Crater (Ramgarh Astrobleme)

- **Meaning:** “Astrobleme” is used to describe a **geological feature formed by the impact of a meteorite.**
- **Location:** **Rajasthan** (Baran district), on the **old course of river Parbati.**
- **Discovery:** **by the GSI in 1869** and was recognised as a 'Crater' by the **Geological Society of London.**
  - The now eroded crater in the Vindhyan Supergroup of sedimentary rocks **dates back to the Mesoproterozoic age** (roughly 1600 to 1000 million years ago)
- **Key Features:**
  - **One of the three Meteorite Impact Craters of India**
    - ✓ The other two being **Lonar in Maharashtra and Dhala in Madhya Pradesh.**
    - ✓ The **presence of coesite**, a high-pressure polymorph of Silicon dioxide (SiO<sub>2</sub>) **indicates that the site has an impact origin and confirms the meteorite strike.**
  - **Diameter of around 3.2 kilometres** and has an **elevation of more than 200 metre.**
  - Consists of a **10<sup>th</sup> Century temple** dedicated to lord Shiva **‘Bhand Devara Temple’** (built in style of Khajuraho).
  - Crater hill also comprises of **cave temples dedicated to a local goddess Kisnai and Annapurna.**
- **Recognition:** Currently protected under **the Wildlife (Protection) Act, 1972** and its **Crater Lake (Pushkar Talab)** is notified under "wetland" under **Wetland (Conservation & Management) rules, 2017.**
  - The Crater was **recognised** and added to the **“Earth Impact Database”** by the **Planetary and Space Science Centre (PASSC)** in Canada.
    - ✓ **The PASSC was established in Canada (2001)** and the **“Earth Impact Database”** provides information about confirmed meteoroid impact structures in the world.







## 7.3.2. OTHER IMPORTANT SITES IN NEWS

### 7.3.2.1. VADNAGAR

- A joint study by **Indian Institute of Technology** (Kharagpur) discovered **evidence of human settlement** in Vadnagar (**Gujarat**) dating back to **800 BCE**.
  - This aligns with **late-Vedic/pre-Buddhist Mahajanapadas** or **oligarchic republics era**, shedding light on the town's ancient origins.

- **About Vadnagar**
  - Included in the **tentative list of UNCESO World Heritage Sites**.
  - It was a **multicultural** (Unbroken sequence of seven successive cultures commencing from the pre-rampart period to the present) **and multi-religious** (Buddhist, Hindu, Jain and Islamic) settlement.
  - Proximity to **Modhera, which is famous for Sun Temple**.
  - **Historical sites:** Hatkeshwar Temple, Sharmishtha Lake

### 7.3.2.2. KOCHRAB ASHRAM

- Prime Minister visited **Sabarmati Ashram** and inaugurated redeveloped **Kochrab Ashram**.
  - On 12<sup>th</sup> March 1930, Gandhiji started **Salt Satyagraha March or Dandi March** from Sabarmati Ashram.
  - At Dandi, Gandhiji broke the British government’s salt law by gathering natural salt on the sea shore.
- **Kochrab Ashram in Ahmedabad** was the first Ashram established by **Mahatma Gandhi after coming to India from South Africa in 1915**.
  - **Jivanlal Desai**, a fellow lawyer, helped Gandhiji setup the Ashram.

## 7.4. PERSONALITIES

### 7.4.1. LACHIT BARPHUKAN

#### Why in the news?

Prime Minister recently unveiled the "**Statue of Valour**", a 125-foot bronze statue of Ahom general **Lachit Barphukan in Jorhat, Assam**.



#### About Lachit Barphukan (1622 - 1672)

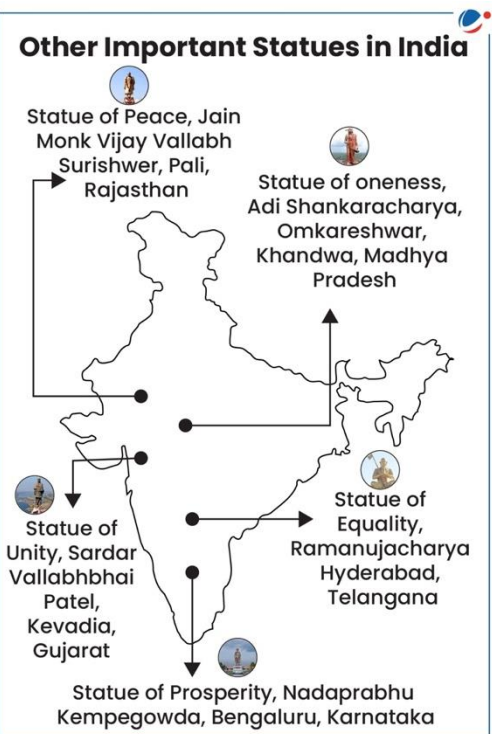
- **Place of Birth:** Charaideo district of Assam.
  - **First Barbarua** (military and judicial head) in the Ahom Kingdom.
  - As a **Barphukan** (commander-in-chief) of the Ahom army, led successful **campaigns against the Mughals** during the reigns of Emperor **Jahangir and Shahjahan**.
  - **Founder of the Paik practices** (a system of forced labour).
- **Clan:** Lukhurakhun clan (Ahom kingdom had many clans).
- **Role as Military Chief:** King Swargadeo Chakradhwaj Singh appointed Lachit **Barphukan**.
- Since 1999 in the National Defence Academy, **Lachit Barphukan Gold medal is given to best cadet**.

#### Battle of Saraighat (1671)

- **Outcome:** The **Ahom forces** under **Lachit Barphukan** **defeated the larger Mughal army**.
- **Location:** on the **Brahmaputra River** at Saraighat.
- **Combatant:** The battle was **largely a naval war**.
- **Significance:** The battle **stopped the Mughal advance to Assam**, and the **rest of today’s Northeast India**.

#### About Ahom Kingdom (1228 to 1826)

Kingdom	<ul style="list-style-type: none"> <li>• <b>Founder:</b> Sukaphaa, a Shan prince of Mong Mao.</li> <li>• <b>Establishment:</b> Ahoms migrated to the Brahmaputra valley <b>from Myanmar in the 13<sup>th</sup> century</b>.</li> </ul>
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	<ul style="list-style-type: none"> <li>• <b>Expansion of territory:</b> In the <b>16th century</b>, under the rule of <b>Suhungmung</b>, Ahom captured territories of the <b>Chutiya</b> and <b>Koch-hajo</b> kingdoms.</li> <li>• <b>Capital: Charaideo</b> (east of Guwahati) was the first capital.</li> </ul>	<p><b>Ahom Kingdom in Final Years</b></p>
<p><b>Society</b></p>	<ul style="list-style-type: none"> <li>• <b>Clan:</b> Ahom society was divided into <b>clans or khels</b>. A <b>khel</b> often <b>controlled several villages</b>. <ul style="list-style-type: none"> <li>○ The <b>peasant was given land by his village community</b>. Even the king could not take it away without the community's consent.</li> </ul> </li> </ul>	
<p><b>Political Features</b></p>	<ul style="list-style-type: none"> <li>• Ahom created a new state by suppressing the <b>older political system of the bhuiyans</b> (landlords).</li> </ul>	
<p><b>Administration</b></p>	<ul style="list-style-type: none"> <li>• <b>Centralized Administration</b></li> <li>• <b>Council of Ministers</b> <ul style="list-style-type: none"> <li>○ The <b>king</b> was assisted by a council of ministers referred to as <b>Patra Mantris</b>.</li> <li>○ The <b>foremost Patra Mantris</b> were the <b>Great Gohains</b> (the Buragohain, Borgohain and Barpatragohain).</li> </ul> </li> <li>• <b>Important officers:</b> Barbarua (military and judicial head) and Barphukan (military and civil head) <ul style="list-style-type: none"> <li>○ The <b>position of Barphukan</b> was similar to that of a <b>Viceroy</b>.</li> </ul> </li> </ul>	
<p><b>Economy</b></p>	<ul style="list-style-type: none"> <li>• There were very <b>few castes of artisans</b>.</li> <li>• The Ahoms also introduced <b>new methods of rice cultivation</b>.</li> </ul>	
<p><b>Military Strategy</b></p>	<ul style="list-style-type: none"> <li>• <b>Mandatory military services:</b> Almost <b>all adult males served in the army during war</b>.</li> <li>• <b>Military Tactics</b> <ul style="list-style-type: none"> <li>○ <b>Deployment of spies</b> and utilization of guerrilla warfare tactics.</li> <li>○ A class of officials known as <b>Kataki acted as messengers</b> in the enemy camp.</li> </ul> </li> <li>• The Navy constituted the <b>most important and powerful force</b>.</li> <li>• <b>Military Divisions</b> included an <b>elephant cavalry</b>, commanded by an officer named <b>Hatibaruah</b>.</li> </ul>	
<p><b>Religion</b></p>	<ul style="list-style-type: none"> <li>• Originally, Ahoms worshipped their <b>tribal gods</b>. But, in the <b>reign of Sib Singh (1714-1744)</b>, <b>Hinduism</b> became the <b>predominant religion</b>.</li> </ul>	
<p><b>Burial System (Charaideo Maidams)</b></p>	<ul style="list-style-type: none"> <li>• <b>About:</b> Charaideo Maidams are <b>mounds containing remains of royalty of the Ahom dynasty</b>. Mounds are located along the <b>foothills of the Patkai range</b>.</li> <li>• <b>Lachit Maidam:</b> It has remains of <b>Lachit Barphukan</b>. It was built in 1772 by <b>Swargadeo Udayaditya Singha</b> at Hoolungapara near Jorhat.</li> <li>• <b>World recognition</b> <ul style="list-style-type: none"> <li>○ Charaideo Maidams are commonly known as the <b>Pyramids of Assam</b>.</li> <li>○ They are included in the <b>tentative list of UNESCO's World Heritage</b>.</li> </ul> </li> </ul>	
<p><b>Art and Culture</b></p>	<ul style="list-style-type: none"> <li>• <b>Artists: Poets and scholars</b> were given <b>land grants</b>.</li> <li>• <b>Buranjis:</b> The buranjis are a <b>genre of historical chronicles</b> of Ahom dynasty. <ul style="list-style-type: none"> <li>○ These were <b>initially written in Tai-Ahom language</b> but later were mostly produced in <b>Assamese language</b>.</li> </ul> </li> </ul>	

<b>End of rule</b>	<ul style="list-style-type: none"> <li>With the <b>Burmese invasion of Assam</b> and the subsequent <b>annexation by the British East India Company</b> following the <b>Treaty of Yandaboo in 1826</b>.</li> </ul>
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## 7.4.2. RANI CHENNAMMA

### Why in the News?

Recently, 200<sup>th</sup> anniversary of the **Kittur or Kitturu Revolt**, led by Rani Chennamma, was commemorated.

### About Rani Chennamma

- Born in 1778 at Kakati village in present day Karnataka.
- Married **Raja Mallasarja** of Kittur.
- After Mallasarja's death in 1816, his eldest son, Shivalingarudra Sarja, ascended the throne, but he died soon.
- After this, she **adopted a child**, Shivalingappa, and made him heir to the throne.
- Gave refuge to **Rajaram, the 2<sup>nd</sup> son of the great Shivaji**, when he was on the run from Mughal forces,



### Clash with the British East India Company (EIC)

- British EIC did not accept her adopted son as legal heir as per the **Doctrine of Lapse**.
  - First instance of imposition **Doctrine of Lapse** in 1824, even before officially articulated by **Lord Dalhousie**.
- She then defied EIC's order to **exile adopted child** and sent letter against the order to Lord **Elphinstone**, the then Lieutenant-Governor of Bombay, but her request was turned down.
- This led to the **Kittur Revolt**.

### Doctrine of Lapse

- It was **one of the major annexation policies** of EIC.
  - Others are **Ring Fence Policy** and **Subsidiary Alliance**.
- Under this, **any princely state or territory under the paramountcy of British EIC** would **automatically be annexed** if the ruler was either "**manifestly incompetent or died without a male heir**".
- This Doctrine rejected the **long-established right** of an **Indian ruler** without an heir to choose a successor.
- Province of Satara (1848), Jaipur (1849), Sambhalpur (1849), Bahat (1850), Udaipur (1852), Jhansi (1853), and Nagpur (1854) were annexed under it.
- The doctrine was revoked after the revolt of the 1857.

### About Kittur Revolt (1824)

- Regarded as the **first Indian armed rebellion** against British EIC. Also, one of the earliest **woman-led anti-colonial** struggles.
- In the first battle, in October 1824, British forces lost heavily.
  - Also, British officers were taken as hostages by her.
  - She released them after a promise from the British that the war would end.
  - But the British cheated her and re-started the war.
- The British army attacked the Kittur Fort and captured it. She and her family were imprisoned and jailed at the fort in **Bailhongal**, where she died in 1829.
- Her lieutenant, **Sangolli Rayanna** played key role.



### 7.4.3. NANA JAGANNATH SHANKARSETH

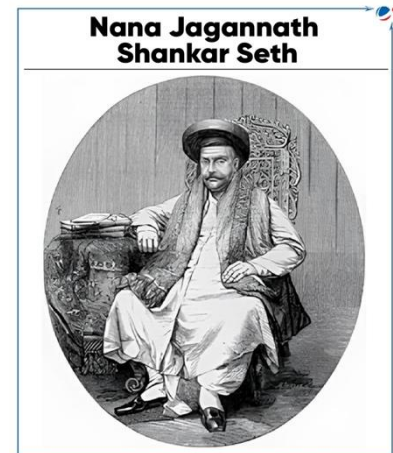
#### Why in the News?

Maharashtra cabinet has recently decided to ask the Ministry of Railways to rename Mumbai Central station after Nana Jagannath Shankarseth.

#### About Nana Jagannath Shankarseth(1803- 1865)

##### • Key Contributions

- **Architect of Mumbai:** He led major projects to plan buildings, streets, and avenues in Bombay. This earned him the title "architect" of Mumbai.
  - **Education Patronage:** He **donated family-owned land** for the establishment of schools, particularly emphasizing education for girls.
    - ✓ He founded the **Native School of Bombay**, which later evolved into the prestigious **Elphinstone College in 1856**.
  - **Railway Project:** He was member of the committee that gave impetus to the project for the **first train** in India that ran **between Boribunder and Thane on April 16, 1853**.
  - **Political Contributions:** He was the first"
    - ✓ **Indian nominated to the Legislative Council of Bombay.**
    - ✓ **President of the Bombay Association.**
    - ✓ **Indian Member of Asiatic Society of Mumbai.**
- ##### • Legacy and influence
- **Described as 'Architect of Modern India' by the** renowned scholar of economics, **Gangadhar Gadgil**.
  - **Influenced** freedom fighters like **Dadabhai Naoroji and Justice Ranade**, who adopted his vision of economic nationalism in their pursuit of India's independence.



### 7.4.4. AYYA VAIKUNDA SWAMIKAL

#### Why in the news?

The Prime Minister, Shri Narendra Modi has paid tributes to Sri Ayya Vaikunda Swamikal on his birth anniversary.

##### • Key Contributions

- **Among the Pioneer of Indian Renaissance:** His famous slogan was **"One Caste, One Religion, One Clan, One World, One God"** which makes all caste people to feel equality.
- **Founded Ayyavajhi Sect:** Taught the virtue of non-violence, charity, tolerance and love among the people.
- **Temple Reformation**
  - ✓ **Created new temples (Pathis and Nizhal Thankals)** for those who were denied permission to enter the temple.
  - ✓ **Introduced Thottu Namam**, encouraging priests to apply sacred paste on devotees' foreheads, regardless of caste.
- **Social Initiatives**
  - ✓ Initiated the **Thuvayal Panthy program** to promote vegetarianism
  - ✓ **Organized Samapanthi-bhojana** (community eateries)
  - ✓ Undertook the digging of common wells, known as **Muthirikinarus**, to provide water access to lower castes who were barred from using upper caste wells.
- **Authored books:** Akila thiruttu; Arulnool; Ammamai

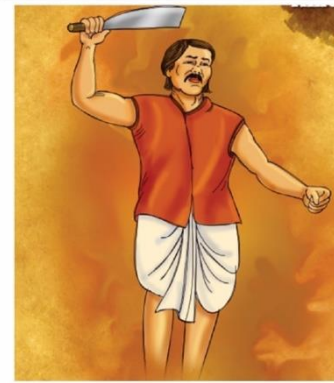


## 7.4.5. OTHER PERSONALITIES IN NEWS

### 7.4.5.1. SAMBHUDHAN PHONGLO

- Government paid **tribute to the Janjatiya Nayak Sambhudhan Phonglo.**
- **About Sambhudhan Phonglo**
  - He was an **Indian freedom fighter from Longkhor in North Cachar Hills** of Assam's present-day Dima Hasao District.
- **Contribution**
  - His concern over British annexation of **Cachar in 1832, led him to revolt against the regime.**
  - He **understood the Britisher's 'divide and rule' policy** and organized the Damasi youth to deal with it.
  - He organized his army and attacked the British army led by Major Boyad and killed him.

### Sambhudhan Phonglo



## 7.5. AWARDS IN NEWS

### 7.5.1. BHARAT RATNA

#### Why in the news?

P. V. Narasimha Rao, Chaudhary Charan Singh, MS Swaminathan, and others received India's highest civilian award Bharat Ratna.

#### About Bharat Ratna

- **Granted by President** to individuals for outstanding service across any field.
- **Recommendations:** Made by **the Prime Minister of India to the President** (No formal recommendations for this are necessary)
- **Recognition:** Recipients receive a Sanad (certificate) signed by the President along with a medallion.
  - **Notably, the award does not come with any monetary grant.**
- **Establishment:** by former President **Dr. Rajendra Prasad on January 2, 1954.**
- **Regulations:** **Article 18(1)** of the Indian Constitution **prohibits** awardees from using '**Bharat Ratna**' as a **title, prefix or suffix to their name.**
  - However, they **are allowed to include 'Awarded Bharat Ratna by the President'** or '**Recipient of Bharat Ratna Award**' in their **biodata, visiting cards, letterheads, etc.**
- **Initial Awardees:** **Dr. Sarvapalli Radhakrishnan, Dr. CV Raman, and Chakravarti Rajagopalachari were the first recipients of the Bharat Ratna in 1964.**
  - Notably, the award is also **open to non-Indians**, as demonstrated by the likes of **Mother Teresa, Khan Abdul Ghaffar Khan, and Nelson Mandela.**
- **Additional Information:**
  - **Initially, the award was not conferred posthumously, but this changed in 1966.**
  - **The youngest recipient and first sportsperson** to be honored with the award was **Sachin Tendulkar** in 2014.
  - **A maximum of three awards** can be given each year, with an exception occurring this **year 2024 and in 1999 when five and four individuals received the honor respectively.**

#### Design of Bharat Ratna Medal

- **Shape and Inscriptions:** It designed in the shape of a peepal leaf, with '**Bharat Ratna**' inscribed in Devanagari script beneath a sunburst figure.
- **Reverse Side:** It features the phrase '**Satyameva Jayate**' written in Devanagari script, placed under an inscription of the state emblem.

- **Materials:** The emblem, sun, and rim of the award are made of platinum, while the inscriptions are crafted in burnished bronze.
- **Production:** manufactured at **Kolkata's Alipore Mint**.



### About PV Narasimha Rao

- **Reforms Taken Up by Him:**
  - **Economic Reforms:** He spearheaded economic liberalization in India.
  - **Constitutional Reforms:** Major reforms include the 73rd and 74th Constitutional Amendments Act, related to local bodies.
  - **Diplomatic Initiatives:** Hosted the **Seventh Summit of the Non-Aligned Movement in 1983** and leading a **Special Non-Aligned Mission to West Asia** to resolve the Palestinian Liberation Organization issue. He also established **diplomatic ties with Israel** and initiated the **Look East Policy**.

### About Chaudhary Charan Singh

- **Reforms taken up by him:**
  - Introduced the Debt Redemption Bill (1939).
  - Drafted the Land Utilization Bill (April 1939).
  - Role in Eradication of the Zamindari System in Uttar Pradesh.
  - Uttar Pradesh Consolidation of Holding Act, 1953.
  - Uttar Pradesh Soil Conservation Act, 1954.
  - Land Holding Act 1960.

#### Books and Literary Work of Chaudhary Charan Singh

- Abolition of Zamindari: Two Alternatives** (1947)
- Agrarian Revolution in Uttar Pradesh** (1957)
- Joint Farming X-Rayed: The Problem and Its Solution** (1959)
- India's Poverty and Its Solution** (1964)
- India's Economic Policy: The Gandhian Blueprint** (1978)
- Economic Nightmare of India: Its Cause and Cure** (1981)

### About Dr. M S Swaminathan (1925 - 2023)

- **Key contributions**
  - Architect of **India's Green Revolution** during 1960s.
  - Along with Norman Borlaug, developed **high-yielding varieties of wheat**.
  - Promoted knowledge, skill, and technological **empowerment of women in agriculture**.
  - As head of **National Commission on Farmers (2004-06)**, recommended **Minimum Support Price for farmers based on Comprehensive cost of Production**.
- **Rewards and recognitions:** First World Food Prize Laureate (1987), S.S. Bhatnagar Award (1961), etc.

## 7.5.2. PADMA AWARDS

### Why in the news?

President approved conferment of **132 Padma awards** for 2024.

### About Padma Awards

- **Padma Awards, which were instituted in the year 1954**, is announced **annually** on the occasion of Republic Day **except for brief interruption(s) during the years 1978 and 1979 and 1993 to 1997**.



- **Three categories:**
  - **Padma Vibhushan** for **exceptional and distinguished service**
  - **Padma Bhushan** for **distinguished service of a high order**
  - **Padma Shri** for **distinguished service**
- **Aim:** Seeks to recognize works of distinction and is given for distinguished and exceptional achievements/service in all fields of activities/disciplines.
- **The awards are given on recommendation of The Padma Award Committee:**
  - It is **headed by the Cabinet Secretary** and includes **Home Secretary, Secretary to the President and four to six eminent persons** as members
  - **Recommendations** are then submitted to the **Prime Minister and the President of India** for approval.
- **Other Key Features**
  - **All persons without distinction** of race, occupation, position or sex are eligible for these awards.
  - However, **Government servants including those working with PSUs, except doctors and scientists, are not eligible for these Awards.**
    - ✓ **A higher category Padma award** can be granted **only after a five-year gap** from the previous award, **but exceptions can be made by the Awards Committee** for deserving cases.
    - ✓ The President presents the award comprising a **Sanad (certificate) and a medallion.**
    - ✓ The total number of awards in a year (excluding posthumous and to non-residents) is capped at 120.
    - ✓ It is **not a title under Article 18.**

### 7.5.3. OTHER IMPORTANT AWARDS

#### 7.5.3.1. KUDAVOLAI SYSTEM

- Tamil Nadu (Kudavolai System in ancient Tamil Nadu – Mother of Democracy) **bagged third best tableau awards for Republic Day Parade 2024.**
- **About Kudavolai System:**
  - Emerged during 10th century Chola era **and is documented in Utharamerur inscriptions.**
  - It was used to elect representatives to run the village administration.
    - ✓ Villages were divided into wards with the residents of each ward electing their representatives through Kudavolai system.
    - ✓ Contestants' names were written on palm leaf tickets (volai), which were put into a pot (kuda), and a small boy would pick tickets to declare elected leaders.

#### 7.5.3.2. PRADHAN MANTRI RASHTRIYA BAL PURASKAR (PMRBP)

- The President **conferred PMRBP to 19 children.**
- The PMRBP **awarded annually** by the **Ministry of Women and Child Development.**
  - It honors **children aged 5–18** for excellence in **Bravery, Art & Culture, Environment, Innovation, Science & Technology, Social Service, and Sports** that deserve national recognition.
  - Awards include a **medal, certificate, and citation booklet**, presented the week before Republic Day.
  - Awardees **must receive the accolades personally**, with **posthumous exceptions for bravery** in Bal Shakti Puraskar.
  - **Eligibility:** Limited to Indian citizens residing in India

#### 7.5.3.3. JNANPITH AWARD

- The 58th Jnanpith Award for the year 2023 has been awarded to **Jagadguru Swami Rambhadracharya ji** for **Sanskrit** and **Shri Gulzar for Urdu.**
- **Jnanpith Award**
  - Instituted in 1961, the Award has been given by **Bharatiya Jnanpith** annually **since 1965** for outstanding contributions to **Indian literature.**
    - ✓ **Bharatiya Jnanpith**, formally established in 1944, is one of the **premier literary organizations and publication houses** in India.
  - Recognized as the **highest literary award.**





- Conferred for **literature in Indian languages (8<sup>th</sup> schedule) and English.**
- It is given **only to Indian citizens.**

#### 7.5.3.4. SANGEET NATAK ACADEMY (SNA) AWARDS

- **President of India** conferred SNA Fellowships and Awards for the years 2022 and 2023.
- **About SNA Awards**
  - Akademi awards are being **conferred since 1952.**
  - Symbolizes highest achievement in music, dance and drama.
  - **Awards in Hindustani and Carnatic music** were instituted in **1951**, even before SNA was set up and these were known as **Presidential Awards.**
  - Honour of **Akademi Fellow** carries purse money of **₹3 Lakh** while **Akademi Award** carries purse money of **₹1 lakh**, besides a **Tamrapatra and Angavastram.**
  - **SNA, setup in 1953**, is the apex body in the field of performing arts for the preservation and promotion India's intangible cultural heritage.

#### 7.5.3.5. NATIONAL SPORTS AWARDS (NSA) 2023

- President of India conferred NSA 2023.
- Administered by: **Ministry of Youth Affairs & Sports.**
- **It includes following six core awards:**
  - Major **Dhyan Chand Khel Ratna** (Highest sporting honour).
  - **Arjuna Award** (For consistent performance over 4 years).
  - **Dronacharya Award** (Highest sports honour for coaches).
  - Major **Dhyan Chand Award** (For lifetime achievement).
  - **Maulana Abul Kalam Azad Trophy** (Top performance in inter-university tournaments).
  - **Rashtriya Khel Protsahan Puruskar** (sports promotion by organisations or corporates).

## 7.6. MISCELLANEOUS

### 7.6.1. TRIBES IN NEWS

#### 7.6.1.1. WARLI TRIBE

- Warli Tribe has set up an example of peaceful coexistence with leopards near **Sanjay Gandhi National Park in Maharashtra.**
  - They worship the **leopard (or Waghoba)** as a **deity.**
- **About Warli Tribes**
  - Among the **largest tribes of Maharashtra region.**
    - ✓ They live on the outskirts of Mumbai, in the North Sahyadri region.
  - They are renowned for **Warli wall paintings.**
    - ✓ This art form can be traced back to **10th century AD.**
    - ✓ Generally takes inspiration from **normal life routine and surroundings.**
    - ✓ **Natural materials and colors** are used in paintings with bamboo brushes



#### 7.6.1.2. BRU TRIBE

- **Last batch of Mizoram Bru refugees permanently settled in Tripura** as per an agreement signed between Ministry of Home Affairs, Tripura, and Mizoram in 2020.
- **About Bru Tribe (also known as Reang)**
  - Indigenous to Northeast India, living mostly in **Tripura (recognized as Particularly Vulnerable Tribal Group), Mizoram, and Assam.**
  - Belongs to **Tibeto-Burman family** and speak **Kaubru language.**
  - Practice **Jhum cultivation** and engage in food-gathering activities.
  - Perform **Hozagiri dance.**

### 7.6.1.3. MADHIKA LANGUAGE

- Currently, it has only 2 speakers and is on the brink of extinction.
- **About Madhika**
  - Spoken by **Chakaliya Community** and has no script.
  - It is **largely influenced by Havyaka Kannada** (old form of Kannada).
  - It is a **blend of Telugu, Tulu, Kannada, and Malayalam**.

### Initiatives to Protect Endangered Languages

-  Scheme for Protection and Preservation of Endangered Languages (SPPEL).
-  Establishment of Centres for Endangered Languages in Central Universities.

### 7.6.1.4. KUTIA KONDH TRIBE

- Two persons from **Kutia Kondh Tribe** attended **Republic Day parade** as special guests.
- **About Kutia Kondh (Kutia Kandha)**
  - **They are Particularly Vulnerable Tribal Groups (PVTGs)** from **Odisha**.
    - ✓ Currently, **75 tribes are given status of PVTGs in India**, of which Odisha houses the most number of them (13).
  - **Society and culture:**
    - ✓ Families are mostly **nuclear** and **patriarchal in character**.
    - ✓ **Kondhs worship nature**.
    - ✓ Known for their buffalo sacrifice ritual, called "**Kedu**" to worship their "**Earth Goddess**".
  - **Agriculture:**
    - ✓ **Shifting cultivation**, or slash-and-burn agriculture.
    - ✓ Kondhs call it **dongar chaas** or **podu chaas**.

### 7.6.1.5. PARUVETA UTSAVAM

- Efforts are being made to get UNESCO to declare '**Paruveta utsavam**' (**mock hunting festival**), as an 'intangible cultural heritage'.
- Festival starts **annually** on Makarasankranti at **Sri Narasimha Swamy temple, Ahobilam in Andhra Pradesh** and lasts for about **40 to 45 days**.
- During the festival, the deity from the temple's inner sanctum **is taken to the chenchu tribal villages**.
- Ahobilam is situated amidst **Nallamala Forest in Eastern Ghats**, and is the **centre of worship of Narasimha**, the lion-headed avatar of **Lord Vishnu**.
- It is one of **108 Divya Desams** (Temples of Shri Vishnu).

### 7.6.1.6. PAKKE PAGA HORNBILL FESTIVAL (PPHF)

- A three-day conservation festival PPHF **began in Arunachal Pradesh**.
- The festival focuses on **wildlife conservation, with special emphasis on hornbills**.
  - This festival was first held in 2015 to recognise the role of Nyishi tribe (the largest tribes of Arunachal Pradesh) in conserving hornbills in Pakke Tiger Reserve (PTR).
    - ✓ PTR harbours four species of the hornbill-Wreathed, Great Indian, Oriental Pied and the endangered Rufous-necked.
    - ✓ The Nyishi had formerly hunted hornbills and later turned conservationists.

### 7.6.1.7. CHANDUBI FESTIVAL

- Chandubi festival commenced on the **banks of Chandubi Beel (Lake) in Kamrup district of Assam**.
  - Mainly celebrated by **Rabha and Hajong communities** from **Rabha Hasong Autonomous Council (RHAC)**.
  - **Annual festival that displays Assamese culture and traditions** featuring diverse activities, including folk music performances, traditional dance shows, local handicraft exhibitions etc.
  - Reportedly, **Chandubi Lake came into being in 1897** as a result of a **devastating quake**.

## 7.6.2. GI TAGS FOR NEW PRODUCTS

### Why in the news?

Recently, Geographical Indication (GI) tags were accorded.

State	Product and Description
Odisha	<ul style="list-style-type: none"> <li>• <b>Cuttack Rupa Tarakasi (Silver Filigree)</b> <ul style="list-style-type: none"> <li>○ It was incorporated into <b>jewellery around 3500 BCE</b> in Mesopotamia where it is practiced even today as <b>Telkari work</b>.</li> <li>○ It reached Cuttack from <b>Persia through Indonesia</b>.</li> </ul> </li> <li>• Lanjia Saura paintings, Dongaria Kondh shawl, Khajuri Guda, Dhenkanal Magji, Similipal Kai Chutney, Nayagarh Kanteimundi Brinjal, Koraput Kalajeera Rice</li> </ul>
Bengal	<ul style="list-style-type: none"> <li>• <b>Banglar muslin</b> which is a traditional handloom craft made of cotton.</li> </ul>
Andhra Pradesh	<ul style="list-style-type: none"> <li>• <b>Narasapur crochet lace products</b> were brought by missionaries to Narsapur.</li> </ul>
Madhya Pradesh	<ul style="list-style-type: none"> <li>• <b>Ratlam Riyawan Lahsun (Garlic)</b></li> </ul>
Assam	<ul style="list-style-type: none"> <li>• <b>Majuli Mask and Majuli Manuscript Painting</b>.</li> </ul>
Tripura	<ul style="list-style-type: none"> <li>• <b>Risa Textile</b>.</li> </ul>
Telangana	<ul style="list-style-type: none"> <li>• <b>Hyderabad Lac Bangles</b>.</li> </ul>
Gujarat	<ul style="list-style-type: none"> <li>• <b>Kutch rogan craft</b> a.k.a. Nirona</li> <li>• <b>Ambaji White Marble</b> <ul style="list-style-type: none"> <li>○ formed when <b>limestone is re-crystallised under the earth's crust</b>.</li> </ul> </li> <li>• Kachchhi Kharek</li> </ul>
Arunachal Pradesh	Handmade Carpets, Wancho Wooden Craft, Adi Kekir (Ginger)
West Bengal	Tangail Saree, Garad Saree, Korial Saree, Kalonunia Rice, Sundarban Honey
Jammu and Kashmir	Ramban Anardana

## 7.6.3. OTHER IMPORTANT NEWS

### 7.6.3.1. KADAMBA DYNASTY

- An inscription of **Kadamba period** has been discovered in **Goa**.
  - It is a bilingual inscription written in **Kannada and Sanskrit**.
- **About Kadamba Dynasty:**
  - Founded by **Mayurasharma in 345 CE**.
    - ✓ Later Kadambas ruled as feudatories of other empires (Chalukya and Rashtrakuta empires) from different places.
  - **Region:** Present day Karnataka and Konkan.
  - **Capital:** Banavasi
  - **Administration** - Divided into smaller units such as Visaya, Rastra and Nadu.
  - **Architecture:** Kadamba Shikhara (part of temple) is most prominent feature.
    - It is a **pyramidal-shaped tower that rises in steps** without any decoration and has a pinnacle (Stupika or Kalasha) on top.

### 7.6.3.2. WEST BENGAL NOTIFIED STATE DAY & STATE SONG

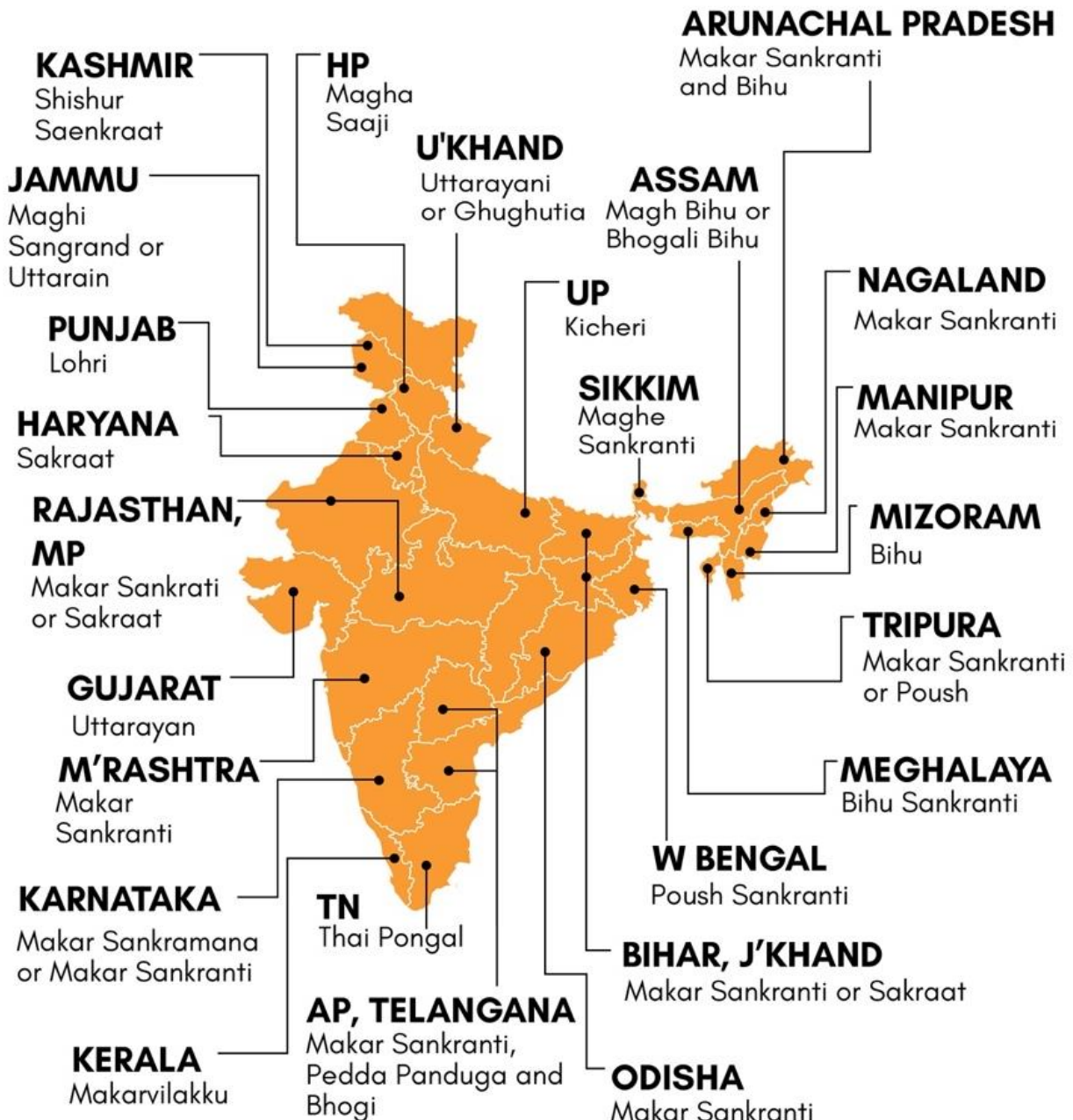
- West Bengal government notified **Poila Boisakh** as State Day and **Banglar Mati Banglar Jal** as State Song.
- **Poila Boisakh** is the **first day of the month of Boisakh of the Bengali calendar year** and is named as **Bangala Divas**.
  - **Poila Boisakh** is an important festival celebrated by **Bengali communities** across **West Bengal, Tripura, Jharkhand, and Assam**.
  - **In 2023 it was celebrated on April 15th**.
- **Banglar Mati Banglar Jal** song is written by **Rabindranath Tagore**.

### 7.6.3.3. NATION CELEBRATES VARIOUS HARVEST FESTIVALS

- **Makar Sankranti** is a major harvest festival celebrated across India and different states celebrate festivals under different names, traditions and festivities.
  - Festival is **dedicated to Sun God**, Lord Surya and marks the sun's transit into Makara (Capricorn).
  - **Makar Sankranti heralds end of winter season** and start of longer days as sun move northwards.
  - **Astronomically, a change in seasons** is caused by the **tilt of the earth** and the **earth's movement around the sun**.

## Makar Sankranti: Many names

Different names of winter harvest festival across India





#### 7.6.3.4. HORI HABBA

- Casualties reported during Hori Habba raise concerns about animal and human safety.
- **Hori Habba** also known as Hatti Habba, is a **bull-taming rural sport** held in **Karnataka**.
- **Other Animal Sports in India**
  - **Jallikattu**: Bull-taming sport held during Pongal in Tamilnadu.
  - **Kambala**: A traditional buffalo race from coastal Karnataka.
  - **Rooster fight (Cockfight)**: It is associated with gambling in many states including Andhra Pradesh.
  - **Bulbul fights**: Held in Assam during Magh Bihu.
  - **Bullock Cart Race**: Maharashtra, Karnataka, Tamil Nadu etc.

#### 7.6.3.5. VIKRAMADITYA VEDIC CLOCK

- World's first vedic clock, 'Vikramaditya Vedic Clock' which is based on Indian '**panchang**' calculations was **inaugurated**.
- Clock is located within **Jantar Mantar in Ujjain** (Madhya Pradesh) which is an **observatory** built by **Sawai Jai Singh II of Jaipur** in **early 18th century**.
  - Jantar Mantar was built in **5 cities** which also includes Delhi, Mathura, Varanasi and Jaipur (it is a **UNESCO world Heritage site**).
- Ujjain is located at the **precise point of interaction** with **zero meridian and Tropic of Cancer**.
- According to Hindu astronomical belief, **Ujjain was once** considered **India's central meridian**, and the city determined country's time zones and time difference.

### 7.7. ERRATA

- In PT 365 Culture, 2024, in the **Article 2.4 NEW PARLIAMENT HOUSE's related news**, it was mentioned that "It was built around 1323 by King Devapala of the Kachchhapaghata dynasty." This line was mistakenly given incompletely.
  - The complete line is "**According to an inscription dated to 1323 CE (Vikram Samvat 1383), the temple was built by the Kachchhapaghata King Devapala.**"

**HEARTIEST**  
*Congratulations*  
TO ALL THE SELECTED CANDIDATES

**7 IN TOP 10**  
**79 IN TOP 100**  
Selections in **CSE 2023**  
from various programs of  
**VisionIAS**

AIR	Candidate Name
1	ADITYA SRIVASTAVA
2	ANIMESH PRADHAN
5	RUHANI
6	SRISHTI DABAS
53	मोहन लाल
7	ANMOL RATHORE
9	NAUSHEEN
10	AISHWARYAM PRAJAPATI

# UPSC TOPPERS PREPARATION APPROACH & STRATEGIES

*Insights from Toppers' Talk and Answer Scripts*



**Ishita Kishore**  
**Rank 1, 2022**

Ishita Kishore, the UPSC topper of 2022, serves as a remarkable inspiration for her unwavering determination and relentless efforts making her as a beacon of motivation for aspiring candidates. Through her methodical preparation approach, she emerged triumphant in the esteemed Civil Services Examination securing top rank. Ishita extensively relied on VisionIAS Mains test series to refine her answer writing abilities. To gain further insights into Ishita's answer writing approaches, kindly scan the QR code provided.

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# UPSC CSE TOPPERS 2022



**Waseem  
Ahmad Bhat**



Waseem Ahmad Bhat, an exceptional achiever who secured an All India Rank 7 in his third attempt in the UPSC Civil Services Examination 2022. He also achieved All India Rank 225 in his first attempt in 2020 and currently, he is training as an Assistant Commissioner Income Tax.

Waseem was a student of the **VisionIAS Foundation Course**, Batch in 2019.

Hailing from Doru Shahabad, Anantnag, Jammu & Kashmir, he completed his schooling in Anantnag and holds a degree in Civil Engineering from NIT Srinagar.

Waseem opted for **Anthropology** as his optional subject. His topper's talk covers vital topics such as preparing for the **changing pattern of Prelims**, essay writing and strategy, writing **quote-based essays**, utilizing topper's answer scripts for preparation, and **effective revision strategies**.

TOPPERS' TALK



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**Aniruddh  
Yadav**



Aniruddh Yadav, a remarkable achiever who secured an All India Rank 8 in his fourth attempt in the UPSC Civil Services Examination of 2022.

Aniruddh opted for **Anthropology** as his optional subject. He completed his dual degree course in Biochemical Engineering & Biotechnology from IIT Delhi.

His topper's talk covers crucial aspects such as **creating a schedule** and **subject-wise timetable**, honing answer writing skills through topic-based **practice**, **mastering the structure** and format of answers (Introduction, Body, Conclusion), **managing time effectively** during answer writing practice, and preparing **topic-wise notes** with the help of syllabus analysis and previous year questions.

TOPPERS' TALK



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**Siddharth  
Shukla**



Siddharth Shukla, belongs to Uttar Pradesh. He completed his BA in History (H) from Delhi University, which was also his optional subject.

He displayed exemplary resilience by appearing in the exam for the fourth attempt and secured AIR 18 in 2022.

The preparation strategy reflected in his talk and answer scripts include the strategy for Essay, **efficient use of PYQs**, **notes making**, among others.

Additionally, he has also focused upon **non-academic aspects** such as **stress management**, **habit formation**, and **role of meditation** which are critical for this examination.

TOPPERS' TALK



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**Anoushka  
Sharma**



Anoushka Sharma hailing from Madhya Pradesh completed her graduation from City University, New York with a bachelor's degree in Economics. She gained job experience through a three-month internship with the United Nations prior to taking the civil service examination.

She passed her CSE with AIR 20 in 2022 on her third attempt. **Economics** is her optional subject.

She has a very good command over ethics paper and she has shared her **insights on time management and strategy for attempting questions** in CSE Mains.

TOPPERS' TALK



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# UPSC CSE TOPPERS 2021



**Gamini Singla**



Gamini Singla, hailing from Punjab, completed her graduation in Computer Science Engineering from Punjab Engineering College Chandigarh. Thereafter, she honed her skills through a five-month internship as a finance analyst at JP Morgan.

She secured a remarkable All India Rank of 3 in the UPSC CSE 2021 in her second attempt with **Sociology** as her optional subject.

With her strategic **approach to GS Paper IV (Ethics) and Essay**, Gamini demonstrated her ability to **critically analyze ethical issues** and effectively express her thoughts in a coherent manner.

Her expertise in answer writing provided her with a competitive edge, allowing her to convey her knowledge and insights concisely.

TOPPERS' TALK



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**Aishwarya Verma**



Aishwarya Verma hails from Madhya Pradesh. After graduating in Electrical Engineering, he opted for Civil Services as a career of choice.

He chose **Geography** as his optional subject and achieved an All-India Rank 4 in UPSC CSE 2021 in his fourth attempt.

Apart from the hard work, determination and resilience shown by Aishwarya, his success can also be attributed to his **short and enriched self-made notes, advanced answer writing skills**, and smart preparation strategy, including S&T.

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**Utkarsh Dwivedi**



Utkarsh Dwivedi, hailing from historic town of Ayodhya, Uttar Pradesh, a graduate in Mechanical Engineering from VIT Vellore, displayed resilience by attempting the exam for the third time and succeeding with remarkable achievement with the optional subject, **Political Science and International Relations**.

He displayed **exemplary command over Ethics Paper**, specially Case Studies and **quotation-based questions**. With his deep understanding of the demand of the UPSC Examination and excellent time management skills, he not only optimized his efforts, but also maximized his performance at all stages of the UPSC CSE.

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**Yaksh Chaudhary**



Yaksh Chaudhary, a resident of Amroha, Uttar Pradesh, through unwavering determination secured an All India Rank 6 in the prestigious exam on his third attempt in 2021.

With his passion for Sociology, Yaksh opted for it as his optional subject and devised a winning strategy for his preparation.

Yaksh's **exceptional expertise in answer writing** and adeptness in attempting question papers during the mains exam provided him an edge. Moreover, his skill in crafting **well-structured diagrams** for General Studies, Ethics, and Sociology further enriched the quality and visual appeal of his responses. Yaksh's achievements serve as an inspiration to aspiring candidates nationwide, exemplifying the significance of perseverance, dedication, and strategic planning.

TOPPERS' TALK



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# UPSC CSE TOPPERS 2020



**Shubham  
Kumar**

**1**  
RANK  
2020

Shubham Kumar, hailing from Katihar District in Bihar, completed his graduation in Civil Engineering from IIT Bombay. He achieved the remarkable feat of securing All India Rank 1 in the UPSC examination of 2020 in his third attempt.

His success can be attributed to his **unique approach and meticulous preparation**. Shubham emphasized the importance of **regular mock tests** for prelims and carefully analyzing previous years' UPSC prelims questions.

Shubham was a student of the **VisionIAS Foundation Course**.

He also **utilized topper's copies to enhance his skills in ethics answer writing** and emphasized the **use of diagrams and graphs** in GS papers.

TOPPERS' TALK



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**Praveen  
Kumar**

**7**  
RANK  
2020

Praveen Kumar, achieved an impressive All India Rank 07 in the UPSC Civil Services Examination 2020. Hailing from Jammui, Bihar, Praveen holds a degree in Civil Engineering from IIT Kanpur.

His remarkable journey includes clearing the GATE examination with an AIR 5 and securing AIR 3 in the Indian Engineering Services (IES) exam, all while working for the Indian Railway Service.

Praveen's toppers talk provides invaluable insights, covering motivations for pursuing the IAS, **effective booklists and sources for exam preparation, strategies for newspaper reading and content extraction, note-making techniques** for mains, and **utilizing flow charts and diagrams** in answers.

TOPPERS' TALK



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**Jagrati  
Awasthi**

**2**  
RANK  
2020

Jagrati Awasthi, from Bhopal, Madhya Pradesh, completed her graduation in Electrical Engineering from NIT Bhopal. She gained two years of valuable work experience at BHEL.

With **Sociology** as her optional subject, she achieved an outstanding All India Rank of 2 in the UPSC examination of 2020.

She has emphasized the **importance of a well-structured daily routine** and shared a **detailed booklist** and recommended sources. Jagrati stressed the significance of thorough reading and utilizing previous years' questions to grasp the exam's demands.

Along with refined **note-making techniques**, she has provided insights on determining the optimal number of questions to attempt in the prelims and leveraging previous year's question papers for **Ethics case studies'** preparation.

TOPPERS' TALK



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**Satyam  
Gandhi**

**10**  
RANK  
2020

Satyam Gandhi, an exceptional achiever, secured an All India Rank 10 in the UPSC Civil Services Examination 2020. Hailing from Bihar, Satyam graduated in Political Sciences (H) from Dayal Singh College, University of Delhi.

With **Political Science and International Relations** as his optional subject, he cleared the exam on his first attempt, displaying remarkable determination.

In addition, Satyam achieved an impressive AIR 242 in the NDA Exam. His toppers talk offers invaluable insights into **time management strategies** for a first attempt success, the **significance of flowcharts and diagrams** in mains answers, **effective essay structuring**, and his experience in obtaining a remarkable 201 marks in the interview.

TOPPERS' TALK



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# Heartiest Congratulations

to all Successful Candidates



1  
AIR

**Aditya Srivastava**

**79**

in **TOP 100** Selections in **CSE 2023**

from various programs of **Vision IAS**



2  
AIR

**Animesh  
Pradhan**



5  
AIR

**Ruhani**



6  
AIR

**Srishti  
Dabas**



7  
AIR

**Anmol  
Rathore**



9  
AIR

**Nausheen**



10  
AIR

**Aishwaryam  
Prajapati**

**39**  
Selections

in **TOP 50**

in **CSE 2022**



1  
AIR

**Ishita  
Kishore**



2  
AIR

**Garima  
Lohia**



3  
AIR

**Uma  
Harathi N**

**1**  
AIR



**SHUBHAM KUMAR**  
**CIVIL SERVICES**  
**EXAMINATION 2020**



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BENGALURU



BHOPAL



CHANDIGARH



DELHI



GUWAHATI



HYDERABAD



JAIPUR



JODHPUR



LUCKNOW



PRAYAGRAJ



PUNE



RANCHI